



SAN DIEGO ZOO GLOBAL

August 21, 2020

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U.S. Fish and Wildlife Service
Division of Management Authority (DMA)
Branch of Permits, MS: IA
5275 Leesburg Pike
Falls Church, VA 22041-3803

RCVD SEP 10 2020

Attention: Michael Moore, Senior Policy Specialist
RE: USFWS CITES Import Permit #20US70167B/9

Dear Mr. Moore:

Enclosed please find San Diego Zoo Global's application to renew its permit to import biological samples derived from all CITES and/or ESA listed species, either wild-caught or captive-born, for the purposes of scientific research in the field of endangered species conservation.

We have not had any activity under our permit so far this year. Though we had tentative plans to use the permit for a couple of imports, due to personnel changes and the COVID-19 pandemic, we were unable to complete them.

The following items are included in this packet:

- Completed application, USFWS Form 3-200-52.
- SDZG's original, current USFWS import permit.
- A check in the amount of \$100 for the USFWS application processing fee.
- A pre-paid FedEx air bill and envelope for mailing the renewed permit to the SDZG.

If additional information or documents are required, please contact Christina Reif at (760) 796-5681 or creif@sandiegozoo.org.

Sincerely,

Shawn Dixon
Chief Operating Officer

ZOOLOGICAL SOCIETY OF SAN DIEGO
Post Office Box 120551, San Diego, CA 92112-0551 USA Telephone (619) 231-1515



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San Diego Zoo is a registered trademark of the Zoological Society of San Diego
Printed on Recycled Paper



RCVD SEP 10 2020

**Department of Interior
U.S. Fish and Wildlife Service
Federal Fish and Wildlife Permit Application Form**

U.S. Fish and Wildlife Service
Division of Management Authority
Branch of Permits, MS: IA
5275 Leesburg Pike
Falls Church, VA 22041-3803
1-800-358-2104 or 703-358-2104

Type of Activity

REISSUANCE, RENEWAL, OR AMENDMENT OF A PERMIT
(For this application, all permits, registrations, and certificates are referred to as a permit.)

Complete Sections A or B, and C, D, and E of this application. U.S. address may be required in Section C, see instructions for details. Instructions on how to make your application complete and help avoid unnecessary delays are attached.

Section A: Complete if applying as an individual

1.a. Last Name		1.b. First Name		1.c. Middle Name/Initial		1.d. Suffix	
2. Date of Birth (mm/dd/yyyy)		3. Telephone Number		3.a. Alternate Telephone Number		4. E-mail address	

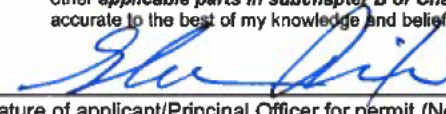
Section B: Complete if applying on behalf of a business, corporation, public agency, Tribe, or institution

1.a. Name of business, agency, Tribe, or institution San Diego Zoo Global		1.b. Doing business as (DBA)	
2. Tax identification no. 95-1648219		3. Description of business, agency, Tribe, or institution Zoo, botanical gardens, wild animal park, museum	
4.a. Principal officer Last name Dixon	4.b. Principal officer First Name Shawn	4.c. Principal officer Middle name/initial	4.d. Suffix Mr.
5. Principal officer title Chief Operating Officer		6. Primary contact name Christina Reif (see box 7b & 7d)	
7.a. Business telephone number (619) 231-1515	7.b. Alternate telephone number (760) 796-5681	7.c. Business fax number	7.d. Business e-mail address CReif@sandiegozoo.org

Section C: All applicants complete address information

1.a. Physical address (Street address; Apartment #, Suite #, or Room #; no P.O. Boxes) 2920 Zoo Drive				
1.b. City San Diego	1.c. State CA	1.d. Zip code/Postal code 92101	1.e. County/Province San Diego	1.f. Country USA
2.a. Mailing address (include if different than physical address; include name of contact person if applicable) PO Box 120551 Attn: Christina Reif				
2.b. City San Diego	2.c. State CA	2.d. Zip code/Postal code 92112	2.e. County/Province San Diego	2.f. Country USA

Section D: All applicants MUST complete

1. Attach the nonrefundable application processing fee in the form of a check or money order payable to the U.S. FISH AND WILDLIFE SERVICE in the amount identified on page 6 and 7. Federal, Tribal, State, and local government agencies, and those acting on behalf of such agencies, are exempt from the processing fee – attach documentation of fee exempt status as outlined in instructions [50 CFR 13.11(d)].	
2. Certification: I hereby certify that I have read and am familiar with the regulations contained in <i>Title 50 Part 13 of the Code of Federal Regulations</i> and the other applicable parts in subchapter B of Chapter I of Title 50, and I certify that the information submitted in this application for a permit is complete and accurate to the best of my knowledge and belief. I understand that any false statement herein may subject me to the criminal penalties of 18 U.S.C. 1001.	
 Signature of applicant/Principal Officer for permit (No photocopied or stamped signatures) Date of signature (mm/dd/yyyy) 09/01/2020	
Please continue to next page	

E. REISSUANCE, RENEWAL, OR AMENDMENT OF A PERMIT (For this application, all permits, registrations, and certificates are referred to as a permit.)

NOTE 1: If you are renewing your Designated Port Exemption permit, use [form 3-200-2](#) and submit to appropriate Office of Law Enforcement address. If you are renewing your Import/Export license (required for commercial activities), use [form 3-200-3](#) and submit to appropriate Office of Law Enforcement address.

NOTE 2: This form **cannot** be used for a lost or damaged permit. If you need to replace a lost or damaged permit, please use [form 3-200-66](#). The application **must** be submitted to the office that issued the initial permit. Lost or damaged permit

NOTE 3: Some activities, such as all master files for multiple shipments, Certificate of Scientific Exchange (COSE), circus/traveling exhibits, and artificially propagated plants, can only be re-issued, renewed, or amended by submitting a new application for permits for those activities. Please refer to [these application types](#) to determine if another application form would be more appropriate or contact the Division of Management Authority for more information.

1. Name and address where you wish the permit to be mailed, if **different from page 1**. If you would like expedited shipping, please enclose a self-addressed, pre-paid, computer-generated, courier service airway bill. If unspecified, all documents will be mailed via regular mail through the U.S. Postal Service.

San Diego Zoo Institute for Conservation Research Attn: Christina Reif
15600 San Pasqual Valley Road
Escondido, CA 92027

2. Who should we contact if we have questions about the application (name, phone number, and e-mail)?

Christina Reif - (760) 796-5681 CReif@sandiegozoo.org

3. Disqualification factor. A conviction, or entry of a plea of guilty or nolo contendere, for a felony violation of the Lacey Act, the Migratory Bird Treaty Act, or the Bald and Golden Eagle Protection Act disqualifies any such person from receiving or exercising the privileges of a permit, unless such disqualification has been expressly waived by the Service Director in response to a written petition. (50 CFR 13.21(c)) Have you or any of the owners of the business, if applying as a business, been convicted, or entered a plea of guilty or nolo contendere, forfeited collateral, or are currently under charges for any violations of the laws mentioned above?

☒ No ☐ Yes

If you answered "Yes" to Question 3, provide: a) the individual's name; b) date of charge; c) charge(s); d) location of incident; e) court; and f) action taken for each violation. Please be aware that a "Yes" response does not automatically disqualify you from getting a permit.

4. **Permit number.** Enter the permit number to be reissued/renewed/amended.

Prt#: 20US70167B/9

5. Submit the original permit with this application.

6. Past activities.

- a. Provide copies of all cleared documents and form 3-177 (FWS declaration of wildlife) associated with this permit.
- b. Provide a summary detailing activities conducted under this permit, as well as a brief statement of why you are seeking reissuance/renewal.

7. **Annual Report.** If required by your permit, provide an annual report as conditioned (Please disregard if you have already submitted your annual report.)

8. **Sport-hunted trophies:** If you did not hunt during the hunting season stated in your original application, you are not eligible for a renewal. Please submit a new application form.

9. **Certification** - Complete one of the statements below and supply any additional documentation requested: (original signature is required)

- a. For **NO CHANGES** to original application:

I certify that the information submitted in support of my original application for the permit indicated above has not changed and is still currently correct. I hereby request reissuance or renewal of this permit.

Permittee's signature:  Date: 2/1/20

- b. For **CHANGES** to original application:

On an attached page(s), provide a complete description of any changes (e.g., change in principal officer, personnel, address, location of activities, types of activities). Please sign each attached page. Also note that we may need to request additional information regarding the changes after reviewing your initial request.

I certify that the information submitted in support of my original application for the permit indicated above is still currently correct EXCEPT for the changes noted on the attached, signed page(s). I hereby request re-issuance or renewal of this permit with the indicated changes.

Permittee's signature: _____ Date: _____

All international shipment(s) must be through a designated port, unless otherwise authorized. [A list of designated ports](#) (where an inspector is posted) is available. If you wish to use a port not listed, please contact either the Office of Law Enforcement for a Designated Port Exemption Permit (form 3-200-2) or the Division of Management Authority.

Zoological Society of San DiegoZoological Society of San Diego
PO Box 120551 San Diego CA 92112Check Date: 8/26/2020
Check Number: 822734To: US FISH AND WILDLIFE SERVICES
Branch of Permits MS: IA
5275 Leesburg Pike

Vendor ID: 937656

Invoice Number	Date	Description	Amount	Discount	Net Amount
304501	8/21/2020		\$100.00	\$0.00	\$100.00
		Totals:	\$100.00	\$0.00	\$100.00

THIS CHECK IS VOID WITHOUT A WATERMARK - HOLD TO LIGHT TO VIEW

Zoological Society of San DiegoBank of America
450 B Street
San Diego CA 92101

121000358

PO Box 120551 San Diego CA 92112-0551

CHECK DATE	CHECK NO.
8/26/2020	822734
CHECK AMOUNT	

PAY **One hundred and 00/100 Dollars**

\$** 100.00

TO
THE
ORDER
OFUS FISH AND WILDLIFE SERVICES
Branch of Permits MS: IA
5275 Leesburg Pike
Falls Church, VA 22041-3803
United States

AUTHORIZED SIGNATURE

SIGNATURE HAS A COLORED BACKGROUND - BORDER CONTAINS MICROPRINTS

ESA Import Master File Renewal Application #70167B

Harcum, Heather L <heather_harcum@fws.gov>

Tue 9/15/2020 9:33 AM

To: creif@sandiegozoo.org <creif@sandiegozoo.org>

Good morning Christina,

Our office received your request to renew your Master File for the import of biological samples derived from all ESA/CITES listed species. Your original request, received in 2015, has a 5-year expiration in the Federal Register. After the expiration of the term published in the Federal Register, we are required to publish with a new request. In order to do this, you must submit a new, complete application for us to review the proposed activity. Please submit [form 3-200-37](#) to our office, with the rest of the processing fee (an additional \$100), so that we may continue reviewing the request to renew this your Master File.

In accordance with 50 CFR 13.11(e), if the requested information is not received by this office within 45 days from the date of this message, your incomplete application will be abandoned and administratively closed. Once a file is closed, you will need to submit a new application and all required fees for the Service to consider your proposed activity. Please let us know if you have any questions or concerns regarding this request

Very respectfully,

Heather Harcum | Permits Biologist[USFWS](#) | [International Affairs](#)

5275 Leesburg Pike, MS: IA

Falls Church, Virginia, 22041-3803, USA

Phone 703-358-2350 | Fax 703-358-2115

www.CITES.org

RE: [EXTERNAL] RE: ESA Import Master File Renewal Application #70167B

Christina Reif <CReif@sandiegozoo.org>

Tue 10/13/2020 6:36 PM

To: Harcum, Heather L <heather_harcum@fws.gov>

 2 attachments (2 MB)

3-200-37 signed for USFWS.pdf; CVs.pdf;

Dear Heather,

I apologize for the delay! The 3-200-37 application and a file of CVs are attached.

I also discovered that I failed to send in the original permit that I was trying to renew. Is it ok for me to address it directly to you?

Please let me know what other information I can provide! I appreciate your help!
Christina

Christina Reif

Frozen Zoo® Registrar, Biodiversity Banking

Institute for Conservation Research, San Diego Zoo Global

15600 San Pasqual Valley Road

Escondido CA 92027-7000 USA

Tel: 760-796-5681

institute.sandiegozoo.org

Saving plants and animals worldwide

From: Christina Reif

Sent: Wednesday, September 23, 2020 10:06 AM

To: Harcum, Heather L <heather_harcum@fws.gov>

Subject: RE: [EXTERNAL] RE: ESA Import Master File Renewal Application #70167B

Thanks so much! I really appreciate your help! I will get all of the documentation to you as soon as possible.

Have a great day!

Christina

From: Harcum, Heather L <heather_harcum@fws.gov>

Sent: Wednesday, September 23, 2020 10:01 AM

To: Christina Reif <CReif@sandiegozoo.org>

Subject: Re: [EXTERNAL] RE: ESA Import Master File Renewal Application #70167B

Hi Christina,

Given this is an addition to your original submission, that will suffice.

Thank you!
Heather Harcum

From: Christina Reif <CReif@sandiegozoo.org>
Sent: Wednesday, September 23, 2020 11:28 AM
To: Harcum, Heather L <heather_harcum@fws.gov>
Subject: RE: [EXTERNAL] RE: ESA Import Master File Renewal Application #70167B

Thank you Heather!

Our Legal Department uses DocuSign for electronic signatures. Will this suffice for the 3-200-37?

Have a great day!
Christina

From: Harcum, Heather L <heather_harcum@fws.gov>
Sent: Wednesday, September 23, 2020 4:53 AM
To: Christina Reif <CReif@sandiegozoo.org>
Subject: Re: [EXTERNAL] RE: ESA Import Master File Renewal Application #70167B

Good morning Christina,

Thank you for the follow up. I apologize for the confusion! You would not need to submit an additional \$100 since your file has already been established. You may submit Form 3-200-37 directly to me via e-mail instead of submitting the application online since we have already received the initial request.

Best regards,
Heather Harcum

From: Christina Reif <CReif@sandiegozoo.org>
Sent: Monday, September 21, 2020 12:51 PM
To: Harcum, Heather L <heather_harcum@fws.gov>
Subject: RE: [EXTERNAL] RE: ESA Import Master File Renewal Application #70167B

Hi Heather,
Just wanted to let you know I received this blank automatic reply.
Have a good day!

Christina

From: Harcum, Heather L <heather_harcum@fws.gov>
Sent: Monday, September 21, 2020 9:38 AM
To: Christina Reif <CReif@sandiegozoo.org>
Subject: Automatic reply: [EXTERNAL] RE: ESA Import Master File Renewal Application #70167B



Department of Interior
U.S. Fish and Wildlife Service
Federal Fish and Wildlife Permit Application Form

Type of Activity

U.S. Fish and Wildlife Service
Division of Management Authority
Branch of Permits, MS: IA
5275 Leesburg Pike
Falls Church, VA 22041-3803
1-800-358-2104 or 703-358-2104

**EXPORT/RE-EXPORT/IMPORT/INTERSTATE AND FOREIGN
COMMERCE/TAKE OF ANIMALS (LIVE/ SAMPLES/PARTS/PRODUCTS)
under the Convention on International Trade in Endangered Species
(CITES) and/or the U.S. Endangered Species Act (ESA)**

Complete Sections A or B, and C, D, and E of this application. U.S. address may be required in Section C, see instructions for details. **Instructions on how to make your application complete and help avoid unnecessary delays are attached.**

Section A: Complete if applying as an individual

1.a. Last Name		1.b. First Name	1.c. Middle Name/Initial	1.d. Suffix
2. Date of Birth (mm/dd/yyyy)	3. Telephone Number	3.a. Alternate Telephone Number	4. E-mail address	

Section B: Complete if applying on behalf of a business, corporation, public agency, Tribe, or institution

1.a. Name of business, agency, Tribe, or institution San Diego Zoo Global		1.b. Doing business as (DBA)		
2. Tax identification no. 95-1648219		3. Description of business, agency, Tribe, or institution Conservation research, zoo, botanical garden, museum		
4.a. Principal officer Last name Dixon	4.b. Principal officer First Name Shawn	4.c. Principal officer Middle name/initial	4.d. Suffix Mr.	
5. Principal officer title Chief Operating Officer		6. Primary contact name Christina Reif (see box 7b & 7d)		
7.a. Business telephone number (619) 231-1515	7.b. Alternate telephone number (760) 796-5681	7.c. Business fax number	7.d. Business e-mail address CReif@sandiegozoo.org	

Section C: All applicants complete address information

1.a. Physical address (Street address; Apartment #, Suite #, or Room #; no P.O. Boxes) 2920 Zoo Drive				
1.b. City San Diego	1.c. State CA	1.d. Zip code/Postal code 92101	1.e. County/Province San Diego	1.f. Country USA
2.a. Mailing address (include if different than physical address; include name of contact person if applicable) PO Box 120551 Attn: Christina Reif				
2.b. City San Diego	2.c. State CA	2.d. Zip code/Postal code 92112	2.e. County/Province San Diego	2.f. Country USA

Section D: All applicants MUST complete

1. Attach the nonrefundable application processing fee in the form of a check or money order payable to the U.S. FISH AND WILDLIFE SERVICE in the amount of \$100 . Federal, Tribal, State, and local government agencies, and those acting on behalf of such agencies, are exempt from the processing fee – attach documentation of fee exempt status as outlined in instructions [50 CFR 13.11(d)].	
2. Certification: I hereby certify that I have read and am familiar with the regulations contained in Title 50 Part 13 of the Code of Federal Regulations and the other applicable parts in subchapter B of Chapter I of Title 50 , and I certify that the information submitted in this application for a permit is complete and accurate to the best of my knowledge and belief. I understand that any false statement herein may subject me to the criminal penalties of 18 U.S.C. 1001.	
DocuSigned by: Shawn Dixon	10/13/2020
Signature of principal Officer for permit (No photocopied or stamped signatures) Date of signature (mm/dd/yyyy)	
Please continue to next page	

E. EXPORT/RE-EXPORT/IMPORT/INTERSTATE AND FOREIGN COMMERCE/TAKE OF ANIMALS (Live/samples/parts/products) (CITES and/or ESA)

Allow at least 90 days for the application to be processed. Applications for endangered species permits must be published in the Federal Register for a 30-day public comment period.

Complete all questions on the application. Mark questions that are not applicable with "N/A". If needed, use separate sheets of paper. On all attachments or separate sheets you submit, indicate the application question number you are addressing. If you are applying for multiple specimens, be sure to indicate which specimen you are addressing in each response.

NOTE: The import of live southern white rhinoceros from South Africa and Swaziland must meet specific CITES criteria for an import permit to be issued. If you are requesting authorization for the import of these species, please ensure that you respond to question 14 below.

Electronic submission of inventories, photographs, and receipts: Some applications contain extensive inventories and/or a large number of photographs or receipts. You may provide electronic versions of the documents. Such a submission will assist the processing of your application since it may reduce data entry by the U.S. Fish and Wildlife Service. If you wish to provide information electronically, once you have received an application number via the e-mailed acknowledgment letter, e-mail your information to Permits@fws.gov. Be sure to include the application number provided in the acknowledgment e-mail that will be sent to you when we receive your application.



I will be submitting documents electronically.

1. Name and address where you wish the permit to be mailed, **if different from page 1**. If you would like expedited shipping, please enclose a self-addressed, pre-paid, computer-generated, courier service airway bill. If unspecified, all documents will be mailed via regular mail through the U.S. Postal Service.

Please use FedEx label provided to send to - Institute for Conservation Research Attn: Christina Reif
15600 San Pasqual Valley Rd.
Escondido, CA 92027

2. Who should we contact if we have questions about the application (name, phone number, and e-mail)?

Christina Reif - (760) 796-5681 CReif@sandiegozoo.org

3. Have you or any of the owners of the business (if applying as a business, corporation, or institution), been assessed a civil penalty or convicted of any criminal provision of any statute or regulation relating to the activity for which the application is filed; been convicted, or entered a plea of guilty or nolo contendere, for a felony violation of the Lacey Act, the Migratory Bird Treaty Act, or the Bald and Golden Eagle Protection Act; forfeited collateral; OR are currently under charges for any violation of the laws mentioned above?



No



Yes

If you answered "Yes" to Question 3, provide: a) the individual's name; b) date of charge; c) charge(s); d) location of incident; e) court, and f) action taken for each violation. Please be aware that a "Yes" response does not automatically disqualify you from getting a permit.

NA

4. What activity are you requesting authorization to carry out (Indicate appropriate activities):

☐ EXPORT ☐ RE-EXPORT ☒ IMPORT ☐ TAKE (e.g., cull, lethal harvest)
☐ INTERSTATE COMMERCE ☐ FOREIGN COMMERCE

Note: Interstate Commerce permits authorize the sale of endangered and threatened species across State lines, but only for activities that will contribute to enhancing the propagation or survival of that species. Interstate commerce activities with wildlife require the buyer to obtain a permit prior to the sale or offer for sale.

5. For **EACH** animal/specimen involved in the proposed activity provide:

a. Scientific name (genus, species, and, if applicable, subspecies)	b. Common name	c. Birth/ Hatch Date (mm/dd/yyyy) (approximate of actual unknown)	d. Wild or captive-born	e. Quantity	f. Gender (male or female, if known), if	g. Permanent markings, if alive (e.g., tattoo, ID #, microchip #, scars)	h. Type of sample or product (e.g., blood, tissue, DNA)
EXAMPLE: <i>Pan troglodytes</i>	Chimpanzee						
Any	Any	Any	Both	Any	Both	NA	All sample types

6. The current location of the specimen(s) (address and country):

Name: All required information will be submitted with declaration and annual report.
 Address:
 City:
 State/Province:
 County, Postal Code:

7. Recipient/Sender:

- If **export**, provide name and address of the recipient in the foreign country.
- If **re-export**, provide the name and address of the recipient in the foreign country.
- If **import**, provide name and address of the exporter in the foreign country.
- If **interstate or foreign commerce**, provide name and address of the proposed seller/supplier.

Name: All required information will be submitted with declaration and annual report.
 Address:
 City:
 State/Province:
 County, Postal Code:

Please see additional document for answers to all remaining questions

Form 3-200-37

OMB Control No. 1018-0093
Expires 08/31/2020**SOURCE OF SPECIMEN** (answer question 8 or 9 for **EACH** animal/specimen involved, as appropriate).

8. For captive-bred animals or animal(s) from which the specimen(s) are/were obtained, provide a signed and dated statement from the breeder that includes the following:
 - a. Scientific name (genus, species, and, if applicable, subspecies) and common name;
 - b. Name and address of the facility where the animal was bred and born;
 - c. Birth/hatch date (mm/dd/yyyy), and, if applicable, identification information;
 - d. Location (name of facility, address, city, State, postal code) of parental stock;
 - e. A statement that the animal was bred at the above facility;
 - f. Documentation demonstrating the history of transactions (e.g., chain of custody or ownership of the animal).
9. For **EACH** animal/specimen **taken from the wild**, provide the following:
 - a. Scientific name (genus, species, and, if applicable, subspecies) and common name;
 - b. Specific location of where, when, and by whom (name and address) the specimen was removed from the wild;
 - c. Purpose of removal and length or approximate length of time held in captivity. Discuss issues such as the method of collection, was the collection done as part of a larger study, were animals returned to the wild after sampling, and did any mortalities or injuries occur due to collection or holding;
 - d. If and how any remuneration, either financial or in-kind, was provided for taking or capturing animals or for the collection of samples.
 - e. Your efforts to use captive specimens (e.g., captive-born, captive-held), or parts thereof, in lieu of taking animals from the wild.
 - f. Copies of your foreign or domestic collecting permit, license, contract or agreement;
 - g. Documentation showing that the specimen(s) was/were legally obtained by the applicant; and
 - h. Copies of any applicable State, Tribal, Federal, or Foreign government permits or licenses that authorized the removal of this animal from the wild.

JUSTIFICATION FOR REQUESTED ACTIVITY.

10. Provide a detailed statement justifying the proposed activity, particularly the following:

- a. Describe the purpose of your proposed activity. For example, if the purpose is scientific research, attach a copy of your research proposal outlining the purpose, objectives, methods (e.g., specific information on survey/collection methods, sampling regime, equipment to be used), and whether similar work has already been done or is currently being done. If the purpose includes conservation education, provide copies of educational materials (e.g., handouts, text of signage or public presentations), and include the purpose and objectives of the proposed activity. If the purpose is for propagation for conservation purposes (including culling as part of herd management), provide a description of how the species will be propagated and the disposition of progeny, as well as long-term goals of the breeding program, how the breeding program is managed to maintain genetic vitality, and information on any cooperative breeding programs or agreements that are/will be established, including any future plans for re-introduction.
- b. Description of the technical expertise of each person (please also include CV or resume), as it relates to the proposed activities. If the proposed activity involves live animals, include the experience of each animal caretaker working with the species.
- c. Copies of contracts, agreements or other documents that identify persons involved and dates of activities for which authorization is being requested.

11. A statement on how the activities will **enhance or benefit the wild population** (e.g., in-situ and ex-situ projects).

12. If live specimens are to be held in captivity as part of the proposed activity:

- a. Provide a detailed description (e.g., size, construction materials, protection from the elements) and photographs or diagrams (no blueprints, please) clearly depicting the existing facilities **where the wildlife will be maintained**. If the specimens will be housed at multiple facilities, either immediately or within the next year, provide a full description of each facility. If you are unsure of which facilities may be receiving specimens (e.g., final decisions on placement have not been made), please indicate likely candidates and the mechanism that will be used to determine recipient facilities;
- b. A statement of the specific technical experience of CV or resume available to the recipient(s) for maintaining and propagating live specimens of the same or similar species;
- c. The number of years each species has been maintained at the facility;
- d. The number of births by year for each species for the last 5 years; and
- e. Mortalities at the facility with these or similar species in the last 5 years, causes of such mortalities, and steps taken to avoid or decrease such mortalities.

IMPORTS, EXPORTS, OR RE-EXPORTS.

13. For shipment of LIVE specimens, the transport conditions for animals must comply with the CITES Guidelines for Transport of Live Animals or, in the case of air transport, with the International Air Transport Association (IATA) live animal regulations (contact airline for information). As such, describe:
 - a. The type, size, and construction of any shipping container; and
 - b. The arrangements for watering or otherwise caring for the wildlife during transport.

14. For import of live southern white rhinoceroses from South Africa and Swaziland, a determination that the importing facility meets the CITES "appropriate and acceptable destination" annotation must be made. Therefore, provide written documentation demonstrating that the proposed activity would promote *in situ* conservation of the species. **Note: *For any permit authorizing trade of live rhinoceroses under an "appropriate and acceptable destination" annotation, the rhinoceros horn from these animals may not enter commercial trade and the animal may not be sport hunted.***
15. **For import of LIVE CITES Appendix-I listed marine mammal species**, provide a copy of your FWS or NOAA Fisheries permit or authorization.
16. For import of CITES **Appendix-I listed species**, provide information to show the import is not for primarily commercial purposes as outlined in [Resolution Conf. 5.10](#) .
17. For export of CITES **Appendix-I listed species**, provide a copy of the CITES import permit, or evidence one will be issued by the Management Authority of the country to which you plan to export the specimen(s). In accordance with Article III of the CITES treaty, it is required that import permits are issued before the corresponding export permit.
18. If the specimen is being **re-exported** (e.g., exporting a specimen that was previously imported into the United States), provide:
- A copy of the canceled CITES export or re-export document issued by the appropriate CITES office in the country from which the wildlife was imported (if applicable); and
 - A cleared copy of Form 3-177, wildlife Declaration for Import (hard copy or electronic release); **OR**
 - If you did not make the original import, provide a copy of the importer's documents outlined above and the invoice or other documentation that shows you acquired the wildlife from the original importer or history of transactions which demonstrate chain of ownership.

All international shipment(s) must be through a designated port. A [list of designated ports](#) (where an inspector is posted) is available. If you wish to use a port not listed, please contact the Office of Law Enforcement for a Designated Port Exemption Permit (form 3-200-2).

SOURCE OF SPECIMEN

8. The specimens to be collected and imported under this permit are biological samples, including, but not necessarily limited to skin biopsies, blood, hair and tissue. Specimens obtained under this permit would be from live or dead captive-born animals. The information requested in sections a. through f. is unknown at this time and will remain so until the imports are scheduled. Once all of the information is known, it will be recorded and made available as necessary.
9. In addition to specimens from captive-born animals, the other source of specimens under this permit might be wild animals and could include, as well, salvaged dead animals or seized or confiscated wildlife obtained from FWS Law Enforcement personnel. The information requested in sections a. through h. is unknown at this time and will remain so until the imports are scheduled. Once all of the information is known, it will be recorded and made available as necessary.

Any and all samples will be taken in compliance with all pertinent foreign and domestic laws. Utmost care will be exercised when handling live animals and taking samples in order to minimize any possible injury or discomfort to those animals. All invasively collected samples will be collected only by San Diego Zoo Global (SDZG) veterinarians, field biologists, and technicians who have extensive training in such techniques or other qualified and pre-approved technicians or veterinarians who also have similarly extensive training in such techniques. The collection of specimens in foreign countries for import under this permit will be done with the full cooperation and collaboration of host-country biologists and government. No samples will be taken under this permit in any manner that is detrimental to the survival of species in the wild.

With respect to all samples taken under this permit, the following information will be recorded and available as necessary:

- a) Species
- b) Types of specimens (i.e., blood, hair, tissue, etc.)
- c) Size of specimens
- d) Quantity of specimens
- e) Date samples were collected
- f) Date sample(s) were shipped
- g) Location(s) of collection
- h) Person(s) who collected the sample
- i) Relationship of the collector to SDZG
- j) Conditions under which samples were collected (i.e., salvaged, captive-held, or wild-caught)
- k) Summary of any mortalities or debilitating injuries that may have occurred as a result of the collection activities
- l) Description of the research for which the samples were imported.
- m) Authorizing government agency (for samples from wild caught animals only).
- n) Copies of any scientific publications that resulted from research conducted with samples imported under this permit.

With respect to samples taken under this permit that are intended to lead to production of viable offspring associated with genetic rescue, additional information, as follows, will be recorded and available as necessary:

- a) Cooperative agreements that allow the sharing between partners of specimens associated with genetic rescue and imported under this permit.
- b) Reports regarding the progress and status of SDZG activities associated with genetic rescue including the names of partners involved.

JUSTIFICATION FOR REQUESTED ACTIVITY

10.

- a. Purpose of proposed activity: Scientific research in areas such as species level identity, population identity, phylogenetics, phylogeography, systematics, genome sequencing, reproductive physiology, behavior, ecology, disease transmission, forensic investigations, all in support of the conservation, survival and recovery of endangered species. Samples will also be banked and distributed to outside investigators for approved conservation projects. The permit supports the work of all of the groups of the Institute for Conservation Research (ICR), as further described below.

Consistent with the basic purpose of this permit, the applicant specifically requests that the Service allow samples imported under this permit to be used for the possible production of viable offspring, but only if the production of such offspring is explicitly associated with the genetic rescue and possible recovery of a species that is functionally extinct or on the verge of being so. As with the other purposes of this permit, any use of imported specimens for genetic rescue would be wholly noncommercial in nature, and would only be associated with the survival and recovery of the species in question.

Research to be pursued under this permit primarily involves the various groups of the ICR, as described in the enhancement section, below. But it also sometimes involves SDZG curators, veterinarians, and colleagues outside of the SDZG whose work is similarly dedicated to the conservation, survival and recovery of endangered species. Therefore the work supported by this permit is inherently collaborative in nature. Collaboration is likely to be particularly important in the future, given the dire circumstances associated with the decline of many species and the simultaneous advent of emerging technologies in reproductive and genetic science that may lead to the possibility of genetic rescue and recovery of certain species. Work involving collaborators outside the SDZG is always governed by the same restrictions that apply within SDZG and those restrictions are rigorously enforced in writing. Therefore, SDZG is requesting that the scope of this permit allow research involving genetic rescue that might lead to the recovery of endangered species, but only when such efforts are explicitly associated with the survival and recovery of severely endangered species that are functionally extinct or on the verge of being functionally extinct.

- b. Technical expertise: The expertise of the various groups within ICR is described in the enhancement section below. In addition to those descriptions, CVs of personnel within SDZG that may be involved on the use of this permit are contained in Appendix 1.
- c. Any of the information requested will be collected when import is scheduled.

11. Enhancement: The approach of SDZG to enhancement is interdisciplinary and basic to its mission of preventing extinction and promoting recovery of endangered species. Not only do the groups within ICR cooperate with each other to achieve enhancement, but ICR works cooperatively with SDZG curators and many other colleagues outside of SDZG to bring their science to the table to assist with both in situ and ex situ efforts to prevent extinction and aid recovery of endangered species. The blanket import permit is a critical tool in this interdisciplinary approach to enhancement both within SDZG and elsewhere.

Projects that involve collaboration between groups at ICR and interdisciplinary studies within and outside SDZG incorporate samples that would be covered by the blanket permit as well as samples for

which the use of the blanket permit is not required. As stated above, work involving collaborators outside the SDZG is always governed by the same restrictions that apply within SDZG and those restrictions are rigorously enforced in writing.

ICR groups and their enhancement expertise:

Biodiversity Banking

We curate and manage diverse biomaterials collections as a global tool for preventing plant and animal extinction. In our work, we seek to maximize genetic diversity and collection integrity of our Frozen Zoo® and other biomaterials collections. We train and advise colleagues in the establishment and expansion of biobanks, and provide biomaterials to scientific collaborators worldwide. Our key areas of expertise include: Tissue culture; Cryopreservation; Karyotyping and chromosomal analyses; Inventory management; Quality control; Remote systems monitoring; Zoological Information Management Software (ZIMS); Permit oversight.

Community Engagement

We foster ecological literacy and stewardship by building capacity within communities to support species conservation and coexistence between humans and nature. We implement and build capacity for locally-managed, sustainable conservation programs using diverse, collaborative approaches. Our in-house team connects students, teachers, and community members with the science of saving species in order to foster a conservation literate and active public. Our key areas of expertise include: Socio-ecological research methods; Community-based participatory conservation; Adaptive conservation planning; Evaluation frameworks; Capacity building for sustainability; Curriculum design and implementation; Inquiry-based, standards-aligned teacher training programs; Informal science education; Graduate level course design and instruction; Community outreach.

Conservation Genetics

We use innovative genetic and cellular approaches to assess, monitor, and manage endangered species in zoos and in the wild, contribute to their sustainability, and prevent species extinction via genetic rescue. We conduct genome-wide sequencing studies and collaborate with efforts to develop genomic tools for species of conservation concern. We propagate and reprogram tissue culture cells to produce induced pluripotent stem cells and direct their development for genetic rescue efforts for critically endangered species. Our key areas of expertise include: Whole genome and reduce representation sequencing analyses; Gene expression analyses and genome annotation; Cellular reprogramming; Directed development of iPSC; Studies of genome-wide variation; Population genetics and management utilizing next generation sequencing technologies; Evaluation of demographic history and extinction risk of small populations; Molecular basis of heritable diseases in endangered species; Metabarcoding for food web ecological studies; iPSC differentiation into primordial germ cells.

Disease Investigations

We are committed to removing disease as a roadblock to wildlife conservation. We achieve this through comprehensive disease surveillance programs, disease outbreak investigations, and targeted disease research for all of the animals in our care, including the San Diego Zoo and Safari Park collections and our field conservation programs. Our key areas of expertise include: Wildlife pathology and outbreak investigations; Molecular diagnostics and test development; Field investigations via mobile labs; DNA sequence analysis and pathogen characterization; Epidemiology study design and statistical modeling; Amphibian disease investigation and diagnostics; Spatial and molecular epidemiology; Histology and immunohistochemistry; Social network analysis; Disease risk analysis.

Plant Conservation

We research the restoration and management of plant populations and communities. In addition to focusing on threatened and endangered species, we concentrate on keystone species, interactions, and processes that benefit not only plants, but also the animals and people that depend on them. Our key areas of expertise include: Native plant propagation; Vegetation surveys; Plant population enhancement; Habitat restoration; Seed conservation at the Native Plant Seed Bank; Germination and dormancy research; Sustainable resource use; Species distribution and population modeling; Multivariate analysis; Ex situ plant propagation.

Population Sustainability

We develop solutions to species conservation and management challenges through the application of ecological tools, innovative technologies, and strategic collaborations. Our key areas of expertise include: Population monitoring, estimation and modeling; Reintroduction and rewilding; Human-wildlife coexistence; Conservation technologies; Camera trapping and bioacoustic monitoring; Behavioral and sensory ecology; Artificial intelligence and machine learning; Landscape ecology; GPS tracking and movement ecology; Community-based conservation.

Recovery Ecology

We use ecological research to address pressing species conservation problems. Our conservation toolbox includes developing and testing conservation breeding techniques, reintroduction and translocation strategies, and monitoring and management in species recovery programs. We use approaches that integrate behavioral ecology, population ecology, and spatial ecology with other disciplines. Our key areas of expertise include: Population estimation and modeling; Adaptive species management; Translocation and reintroduction; Ecological risk assessment; Conservation planning; Geospatial landscape analysis, including 3D imaging; Camera trapping; Behavioral observation; Conservation breeding; Aviculture.

Reproductive Sciences

We innovate and apply science and technology to solving reproductive challenges. Utilizing molecular, basic, and applied techniques, we preserve and utilize germplasm and stem cells, devise methods to evaluate and modulate gonadal function, develop assisted reproductive technologies, and explore the reproductive consequences of environmental endocrine disruptors. Our key areas of expertise include: Assisted reproductive technologies; In vitro oocyte and embryo technology; Gamete cryopreservation in the Frozen Zoo®; Germline stem cell technology; In ovo sexing; Egg membrane sperm detection; Hormone immunoassays and HPLC; Hormone receptor binding and activation assays; Flow cytometry, PCR, gene expression, and cloning; Histology and cytology.

Questions 12-15 are not applicable to this permit.

16. Samples collected and imported will only be for noncommercial purposes. The purpose of import will be recorded on each annual report.

Questions 17 and 18 are not applicable to this permit.

Nadine Lamberski, DVM, Dipl. ACZM, Dipl. ECZM (ZHM)

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Escondido, CA 92027-7017

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760/ 522-3066 mobile

nlamberski@sandiegozoo.org

PROFESSIONAL EXPERIENCE

Chief Conservation and Wildlife Health Officer

San Diego Zoo Wildlife Alliance
San Diego, CA

September 2020 – present

Chief Animal Health Officer

San Diego Zoo Global
San Diego, CA

June 2018 – August 2020

Corporate Director of Animal Health

San Diego Zoo Global
San Diego, CA

May 2016 – May 2018

Director Veterinary Services

San Diego Zoo Safari Park
Escondido, California

January 2016 – April 2016

Associate Director Veterinary Services

San Diego Zoo Safari Park
Escondido, California

January 2011-December 2015

Project Veterinarian

San Diego Zoo Institute for Conservation Research
Desert Tortoise Conservation Center
Las Vegas, Nevada

March 2009-December 2014

Veterinary Clinical Operations Manager

San Diego Zoo Safari Park
Escondido, California

December 2006- December 2010

Senior Veterinarian and Head of Clinics

San Diego Wild Animal Park
Escondido, California

February 2005 – November 2006

Senior Veterinarian

San Diego Wild Animal Park
Escondido, California

November 2001 – January 2005

Senior Veterinarian

Riverbanks Zoological Park and Botanical Garden
Columbia, South Carolina

January 2000 - October 2001

Staff Veterinarian **July 1994 - December 1999**
 Riverbanks Zoological Park and Botanical Garden
 Columbia, South Carolina

Relief Veterinarian **February - April 1999; February - March 2000**
 San Diego Zoo
 San Diego, California

Clinical Instructor, Zoological Medicine **July 1993 - July 1994**
 Department of Medicine & Epidemiology
 School of Veterinary Medicine
 University of California, Davis, California
*Providing veterinary services for the Sacramento Zoo,
 Micke Grove Zoo, Folsom Zoo, and the UC Davis Raptor Center.*

Consulting Veterinarian **April - June 1994**
 Los Angeles Zoo
 Los Angeles, California

EDUCATION

Doctor of Veterinary Medicine **August 1986 - May 1990**
 College of Veterinary Medicine
 University of Georgia, Athens, Georgia

Bachelor of Science, Zoology **August 1982 - December 1985**
 College of Arts and Sciences
 University of Georgia, Athens, Georgia

POSTGRADUATE TRAINING

Residency in Zoological Medicine **July 1991 - June 1993**
 Veterinary Medical Teaching Hospital
 University of California, Davis, California
*Providing veterinary services for the Sacramento Zoo,
 Micke Grove Zoo, Folsom Zoo, and the UC Davis Raptor Center*

Internship in Exotic, Zoo, and Wild Animal Medicine **August 1990 - June 1991**
 College of Veterinary Medicine
 University of Tennessee, Knoxville, Tennessee
Providing veterinary services for the Knoxville Zoo and Protect America's Eagles

SPECIALTY CERTIFICATION

Diplomat in the American College of Zoological Medicine **September 2003**
Diplomat in the European College of Zoological (Zoo Health Management) **June 2017**

CURRENT APPOINTMENTS

Executive Sponsor, San Diego Zoo Global Animal Welfare Panel	May 2016-present
Co-Editor (with Drs. Eric Miller and Paul Calle) Zoo and Wild Animal Medicine (ZAWAM)	October 2015 - present
Veterinary Advisor and Disease Working Group Member Desert Tortoise Recovery Office, US Fish and Wildlife Service	March 2009-present
Adjunct Professor University of California-Davis, School of Veterinary Medicine and the Wildlife Health Center	November 2001-present

LEADERSHIP DEVELOPMENT

Executive Leadership Development Program San Diego Zoo Global	February 2016 – November 2016
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CURRENT LICENSURE

- California Veterinary Medical Board: VET 11537
- DEA – Controlled substances registration certificate: Schedules 2, 2N, 3, 3N, 4, 5
- USDA-APHIS National Veterinary Accreditation: 021922 (Category II)

SCIENTIFIC AND PROFESSIONAL ORGANIZATIONS

- American College of Zoological Medicine
- American Veterinary Medical Association
- American Association of Zoo Veterinarians
- American Association of Wildlife Veterinarians
- American Zoo and Aquarium Association
- Wildlife Disease Association
- International Union for the Conservation of Nature/Species Survival Commission/Wildlife Health Specialist Group
- European Association of Zoo and Wildlife Veterinarians

PROFESSIONAL ACTIVITIES**American Association of Zoo Veterinarians**

1991 - 1999	Infectious Disease Committee member
1993 - 1999	Education Committee member
1994 - 1996	Co-chair Education Committee
1995	Conference Session Chair
1996 - 1999	Chair Education Committee
1999 - 2000	Treasurer
2000	Conference Session Chair

2000 - 2001	Secretary
2000 - 2005	Strategic Planning Committee member
2000 - 2004	Executive Director Search Committee member
2001	Conference Session Chair
2001 - 2002	Vice President
2002	Wetlab Coordinator
2002	Conference Session Chair
2002 - 2003	President-elect
2003	Program Chair
2003-2004	President
2004-2005	Immediate Past-president
	Executive Director Search Committee Chair
	Nominating Committee Chair
	Ethics Committee Chair
	AAZV Research Task Force
2005 – 2012	Awards Committee member
2006-2008	Veterinary Standards Committee Co-chair
2010 – 2013	Scientific Program Committee Chair

American Association of Wildlife Veterinarians

2005-2007	Advisory Council Member
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Association of Zoos and Aquariums

1992 – present	Thick-billed Parrot SSP Veterinary Advisor
1996	Regional Conference Session Chair
1996-1997, 1999-2001	AZA Accreditation Visiting Team Member
1997 – 2001	Meso-American CAP Institutional Representative
1999 – present	Professional Fellow
1999 – 2004	Animal Health Committee Advisor
2000 – present	Black-footed Cat SSP Veterinary Advisor
2000 – 2004	Chair Veterinary Advisory Group
2004 - 2016	Contraception Advisory Group member
2004 – present	Andean Condor SSP Veterinary Advisor
2004 – 2006	Animal Data Information Systems Committee member
2006 – 2009	Animal Welfare Committee advisor

Wildlife Disease Association

2012 – 2014	Wildlife Veterinary Section - Treasurer
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Misc.

1995 – 2001	Clinical Research Assistant Professor, School of Medicine, University of South Carolina
1995 – 2001	Marine Mammal Stranding Network
1996 – 2001	Guest Lecturer, Exotic Animal Medicine, College of Veterinary Medicine, University of Georgia
1998 – 2001	Adjunct Professor, College of Veterinary Medicine, University of Georgia

HONORS/AWARDS

American Association of Zoo Veterinarians Presidential Service Award	October 2013
American Association of Zoo Veterinarians Presidential Service Award	October 2011
American Association of Zoo Veterinarians Presidential Service Award	October 2008
YWMC Tribute to Women in Industry (TWIN) Award	June 2008
American Association of Zoo Veterinarians Presidential Service Award	October 2005
American Association of Zoo Veterinarians Presidential Service Award	September 2000
American Association of Zoo Veterinarians Presidential Service Award	September 1996
Student Manuscript Award <i>Fluid Dynamics of Intraosseous Fluid Administration in Birds,</i> Presented by the American College of Zoological Medicine	November 1992
Award for General Excellence in Small Animal Medicine and Surgery College of Veterinary Medicine, University of Georgia, Athens, Georgia	May 1990

GRANTS

Sacramento Zoo Conservation Fund <i>Detection of avian bornavirus in captive thick-billed parrots (Rhynchopsitta pachyrhyncha)</i> by RT-PCR and ELISA Sacramento Zoo ([REDACTED])	February 2016
Sacramento Zoo Conservation Fund <i>Thick-billed Parrot Conservation</i> Sacramento Zoo ([REDACTED])	June 2015
Fresno Chaffee Zoo Wildlife Conservation Fund <i>Thick-billed Parrot Conservation</i> Fresno Chaffee Zoo ([REDACTED])	April 2015
Ocelot Grant <i>Capacity building in northern Mexico to support the conservation of thick-billed parrots.</i> San Diego Zoo Global (\$[REDACTED])	January 2014
Collection Health Research Initiation Fund <i>Population health and genetics of black-footed cats and infectious disease seroprevalence in sympatric carnivores in the Northern Cape Province</i>	September 2013

Zoological Society of San Diego ()

Collection Health Research Initiation Fund

September 2009

Population health and genetics of black-footed cats and infectious disease seroprevalence in sympatric carnivores in the Northern Cape Province

Zoological Society of San Diego ()

Riverbanks Conservation Support Fund

May 2009

Health Assessment and West Nile Prevalence in Free-living Thick-billed Parrots

Riverbanks Zoological Park and Botanical Garden ()

Panthera Small Cat Action Fund

March 2009

Population Health and Genetics in Black-footed cats (Felis nigripes) ()

Riverbanks Conservation Support Fund

February 2009

Population health and genetics of black-footed cats and infectious disease prevalence in sympatric carnivores

Riverbanks Zoological Park and Botanical Garden ()

Collection Health Research Initiation Fund

December 2008

Health assessment of free-ranging black-footed cats (Felis nigripes) and prevalence of selected infectious diseases in sympatric species,

Zoological Society of San Diego ()

Collection Health Research Initiation Fund

December 2008

Health Assessment and Disease Prevalence Studies In Thick-Billed Parrots In Northern Mexico

Zoological Society of San Diego ()

Collection Health Research Initiation Fund

September 2008

Health Assessment and Disease Prevalence Studies In Thick-Billed Parrots In Northern Mexico

Zoological Society of San Diego ()

Morris Animal Foundation Grant

July 2007

Epidemiology of Feline Herpesvirus (FHV) Infection in Captive Cheetahs (Acinonyx jubatus)

Morris Animal Foundation ()

Wildlife Conservation Grant

July 2007

Serologic prevalence of rabies virus in free-ranging black-footed cats (Felis nigripes) and small carnivores in the Northern Cape Province

John Ball Zoo ()

Ocelot Grant

June 2007

Health assessment and seroprevalence of West Nile Virus in thick-billed parrots from northern Mexico

Zoological Society of San Diego ()

Ocelot Grant

June 2006

Health assessment of free-ranging black-footed cats (Felis nigripes) and prevalence of selected infectious diseases in sympatric species,

Zoological Society of San Diego ()

Mazuri Grant

May 2003

Investigating amyloidosis in black-footed cats (Felis nigripes),
American Association of Zoo Veterinarians ()

Morris Animal Foundation Grant

September 2001

Prevention of uronemiasis in marine fish,
Morris Animal Foundation ()

Riverbanks Conservation Support Fund

May 1999

The Serologic Survey of Thick-billed Parrots
(*Rhychopsitta pachyrhyncha pachyrhyncha*) *for Herpesvirus and the Detection of Herpesvirus*
Using Cell Culture and DNA Probes as Part of a Conservation Strategy,
Riverbanks Zoological Park and Botanical Garden ()

AZA's Conservation Endowment Fund/ Walt Disney Company Foundation

November 1998

The Serologic Survey of Thick-billed Parrots (Rhychopsitta pachyrhyncha pachyrhyncha) for
Herpesvirus and the Detection of Herpesvirus Using Cell Culture and DNA Probes as Part of a
Conservation Strategy,
American Zoo and Aquarium Association ()

Research Grant

November 1997

Establishing Hematologic and Serum Chemistry Reference Values for the Crocodile Monitor
(*Varanus salvadorii*),
Association of Reptile and Amphibian Veterinarians ()

Resident Research Grant

November 1992

The Microbial Flora of Free-Living Cooper's and Red-Tailed Hawks,
Veterinary Medical Teaching Hospital, University of California, Davis, California ().

Resident Research Grant

November 1991

Detection of Hepatobiliary Disease in Raptors,
Veterinary Medical Teaching Hospital, University of California, Davis, California ()

PROFESSIONAL OFFICES HELD

American Association of Zoo Veterinarians

1999 - 2000	Treasurer
2000 - 2001	Secretary
2001- 2002	Vice President
2002 - 2003	President-elect
2003-2004	President
2004-2005	Immediate Past-president

CURRENT PROJECTS

- Executive sponsor, San Diego Zoo Global Kenya Conservation Initiative and veterinary consultant for the Reteti Elephant Sanctuary, Samburu County, Kenya
- Health evaluation and medical management of Mojave desert tortoises
- Desert tortoise health assessment training for biologists

- The ecology, reproductive biology, and health of the black-footed cat, *Felis nigripes*, in southern Africa
- Disease survey of small carnivores in the Northern Cape Province, South Africa
- Viral discovery in captive and wild thick-billed parrots, *Rynchopsitta pachyrhyncha pachyrhyncha*
- Health Assessment of thick-billed parrots in northern Mexico
- Investigating the significance of flavivirus in thick-billed parrots in northern Mexico
- Management of ectoparasites in free-living thick-billed parrots

PUBLICATIONS (REFEREED)

1. Sheppard, J. N. **Lamberski**. Predation of nesting thick-billed parrots by bobcats in northwestern Mexico. Bird Conservation International (submitted).
2. Berlin, E., M. I. Thurber, and **N. Lamberski**. Review of veterinary intervention in reproduction of captive western lowland gorillas (*Gorilla gorilla gorilla*) from 1996-2016. J Zoo Wildl Med (accepted April 2019).
3. Delk, K. W., K. R. Mama, S. Rao, R. W. Radcliffe, and **N. Lamberski**. Comparison of anesthesia of adult giraffe (*Giraffa camelopardalis*) using medetomidine-ketamine with and without a potent opioid. J Zoo Wildl Med 50(2):457-460. 2019.
4. Stuchin, M., K. R. Mama, J. R. Zuba, J. E. Oosterhuis, **N. Lamberski**, and F. Olea-Popelka. A comparison of opioid based protocols for immobilization of captive Grevy's zebra (*equus grevyi*). J Zoo Wildl Med 50(1):258-261. 2019.
5. Sliwa, A., Wilson, B., Lawrenz, A., **Lamberski, N.**, Herrick, J., and M. Kusters. Camera Trap Use in the Study of Black-footed Cats (*Felis nigripes*). Afr J Ecology 56(4):895-897. 2018.
6. Field, K., Johnson, J., and **N. Lamberski**. Nasal-oral water administration for rehydration of juvenile Mohave Desert Tortoises. J Fish Wildl Mngt 9(2):591-597. 2018.
7. Jeon, M., Olea-Popelka, F., Zuba, J., **Lamberski, N.**, Allen, J., Oosterhuis, J., Clancy, M., Delk, K., Kinney, M., Morris, P., and K. R. Mama. Evaluation of physiologic and behavioral parameters in anesthetized, intubated, and ventilated southern white rhinoceros (*Ceratotherium simum*) in a zoological park setting. J Zoo Wildl Med 48(4):1016-1025. 2017.
8. Witte, C.L., **N. Lamberski**, B.A. Rideout, F. Vaida, S. Citino, M. Barrie, H. Haefele, R. Junge, S. Murray, and L.L. Hungerford. Epidemiology of feline herpesvirus (FHV) in a large cohort of cheetahs (*Acinonyx jubatus*): Incidence, risk factors, and association between disease of dam and offspring. JAVMA 251(8):946-956. 2017.
9. Kinney, M. E., **Lamberski, N.**, Wack, R., Foster, R., Neely, M.D., Tell, L. A., and R. Gehring. Population pharmacokinetics of a single intramuscular administration of tulathromycin in adult desert tortoises (*Gopherus agassizii*). J Vet Pharm and Therapeutics 37(5):500-507. 2014.
10. Germano, J., Van Zerr V. E., Esque, T. C., Nussear, K. E., and **N. Lamberski**. Impacts of Upper Respiratory Tract Disease on Olfactory Behavior of the Mojave Desert Tortoise. J Wildl Dis 50(2):354-358. 2014.

11. Lyda, R. O., Frank, K. M., Wallace, R., **Lamberski, N.**, and J. Kirkpatrick. Immunocontraception of captive exotic species: V. Prolonged antibody titers in dall sheep (*Ovis dalli dalli*) and domestic goats (*Capra hircus*) immunized with porcine zona pellucida. *J Zoo Wildl Med* 44(4):21-25. 2013.
12. Witte, C. L., **Lamberski, N.**, Rideout, B. A., Fields, V., Teare, S., Barrie, M., Haefle, H., Junge, R., Murray, S., and L. L. Hungerford. Development of a case definition for clinical feline herpesvirus infection in cheetahs (*Acinonyx jubatus*) housed in zoos. *J Zoo Wildl Med* 44(3):634-644. 2013.
13. Thompson, K. A., **Lamberski, N.**, Kass, P. H., Coons, D., and M. Chigerwe. Evaluation of a commercial bovine replacer for achieving passive transfer of immunity in springbok calves (*Antidorcas marsupialis*). *J Zoo Wildl Med* 44(3):541-548. 2013.
14. Glavis, J., Larsen, R. S., **Lamberski, N.**, Gaffney, P., and I. Gardner. Evaluation of antibody response to vaccination against West Nile Virus in thick-billed parrots (*Rhynchopsitta pachyrhyncha*). *J Zoo Wildl Med* 42(3):495-498. 2011.
15. Matthee, S., Van Der Mescht, L., Wilson, B., and **N. Lamberski**. Flea diversity on small carnivores in the Northern Cape Province, South Africa. *African Zoology* 46(1):27-31. 2011.
16. Kilgallon, C. P., **Lamberski, N.**, and R. S. Larsen. Comparison of thiafentanil-xylazine and carfentanil-xylazine for immobilization of gemsbok (*Oryx gazella*). *J Zoo Wildl Med* 41(3):567-71. 2010.
17. Coons, D. M., Thompson, K. A., **Lamberski, N.**, and M. Chigerwe. Quantitative indirect ELISA-based method for the measurement of serum IgG in springbok calves. *International J of Applied Research in Vet Med* 10(2):142-146. 2010.
18. Brenner, D. J., Stokking, L., Donavan, T. A., and **N. Lamberski**. Pemphigus foliaceus in a Barbary sheep (*Ammotragus lervia*). *Vet Record* 165:509-511. 2009.
19. Kirkpatrick, J. F., Rowan, A., **Lamberski, N.**, Wallace, R., Frank, K. M., and R. O. Lyda. The practical side of immunocontraception: zona proteins and wildlife. *J Repro Immunology* 83(1):151-157. 2009.
20. Singleton, C. L., Oosterhuis, J. E., Seibold, K., and **N. Lamberski**. Successful treatment of a southern Pacific rattlesnake (*Crotalus viridis helleri*) bite in a caracal (*Caracal caracal*). *J Zoo Wildl Med* 40:378-381. 2009.
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PRESENTATIONS/ABSTRACTS/POSTERS

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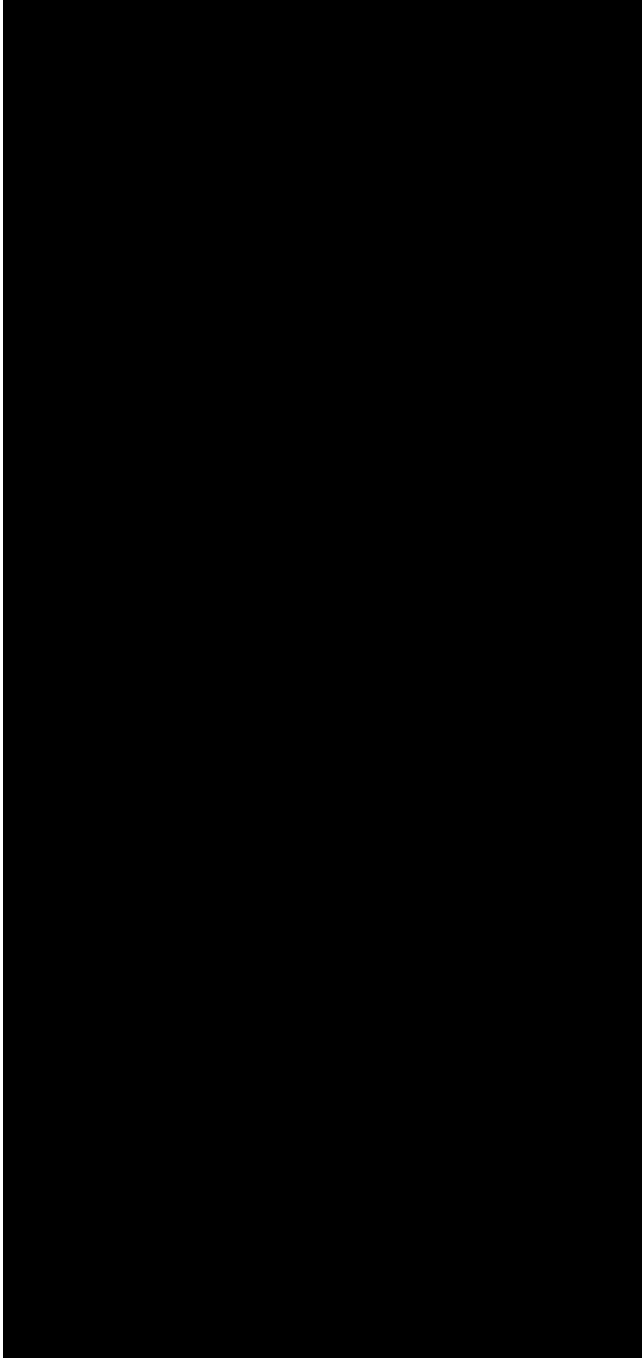
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73. **Lamberski, N.** Hypothyroidism in two white-faced saki monkeys. Proc The North Am Vet Conf, Orlando, Florida, January 1998.
74. Lamm, M., Foley, S., and **N. Lamberski**. Husbandry and mortality data on Malagasy leaf-tailed geckos (*Uroplatus* sp.). Proc Am Assoc Zoo Vet Annual Meeting, Houston, Texas, October 1997.
75. **Lamberski, N.** Veterinary aspects of the thick-billed parrot species survival plan (*Rhynchopsitta pachyrhyncha*). Proc Am Zoo and Aquarium Assoc Annual Meeting, Albuquerque, New Mexico, October 1997.
76. Long, J. A., **Lamberski, N.**, and A. H. Shoemaker. Ejaculate characteristics of the black-handed spider, southern black howler and Diana monkey. J Andrology, Suppl. 1, Abstr. 68:41, February 1997.
77. **Lamberski, N.** Preventive health care for nonhuman primates. Proc The North Am Vet Conf, Orlando, Florida, January 1997.
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79. **Lamberski, N.** The diagnosis of diabetes in a Hamadryas baboon. Proc The North Am Vet Conf, Orlando, Florida, January 1997.
80. **Lamberski, N.** The veterinary aspects of the Thick-billed Parrot SSP. Conservation Research Consortium, Columbia, South Carolina, June 1996.
81. Knightly, F. A., **Lamberski, N.**, Harmon, B. G., and K. S. Latimer. Squamous cell carcinoma of the perineal skin in two Hamadryas baboons (*Papio hamadryas*). Proc Am Assoc Zoo Vet Annual Meeting, Puerto Vallarta, Mexico, November 1996.
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83. Dumonceaux, G. A., Phillips, L. G., **Lamberski, N.**, Clutter, D., and S. M. Nagy, Jr. Treatment of bilateral nasal polyposis and chronic refractory inhalant allergic rhinitis in a chimpanzee (*Pan troglodytes*). Proc Am Assoc Zoo Vet Annual Meeting, East Lansing, Michigan, August 1995.

84. Weber, M., **Lamberski, N.**, and K. Heriot. An idiopathic disease of bone in two subspecies of ruffed lemur (*Varecia variegata variegata* and *Varecia variegata rubra*). Proc Am Assoc Zoo Vet Annual Meeting, East Lansing, Michigan, August 1995.
85. **Lamberski, N.** Normal choanal and cloacal microbial flora in free-living Cooper's and red-tailed hawks. Proc Avian/Exotic Symposium, Davis, California, January 1993.
86. Valverde C. R., Tarara, R., Roberts, J., and **N. Lamberski**. Somatic cestodiasis in a titi monkey (*Callicebus* sp.) Proc Joint Meeting AAZV/AAWZ, Oakland, California, November 1992.
87. Scott J. R., **Lamberski, N.**, Lowenstine, L., and B. Thompson. The use of serum bile acid levels in the detection of hepatobiliary disease in raptors. Proc Assoc Avian Vet Annual Meeting, New Orleans, Louisiana, September 1992.
88. **Lamberski, N.** and G. Daniel. The efficacy of intraosseous catheters in birds. Proc Assoc Avian Vet Annual Meeting, Chicago, Illinois, September 1991.

REFERENCES



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EDUCATION

University of California Los Angeles (EEB)	PhD 2014
City College of New York, Biology (EEB)	MA 1994
City College of New York, Biology (Biology)	BS 1992

RESEARCH POSITIONS

- **2020-present. Corporate Director, Wildlife Conservation Science**, San Diego Zoo Global
- **2017-2020. Director**, Population Sustainability, Institute for Conservation Research, San Diego Zoo Global
- **2013-2017. Associate Director**, Recovery Ecology, Institute for Conservation Research, San Diego Zoo Global
- **2011-2013. Conservation Program Manager**, Applied Animal Ecology, Institute for Conservation Research, San Diego Zoo Global
- **2007-2011. Conservation Program Specialist**, Applied Animal Ecology, Institute for Conservation Research (formerly CRES), San Diego Zoo Global
- **2005-2007. Research Coordinator**, Applied Animal Ecology, CRES, Zoological Society of San Diego.
- **2003-2005. Research Fellow**, Behavior, CRES, Zoological Society of San Diego
- **1997-2003. Research Technician**, Behavior, CRES, Zoological Society of San Diego
- **1995-1997. Biological Technician**, United States Geological Service / National Biological Service, Anchorage, AK
- **1992-1994. Graduate Research Fellow**, Hudson Bay Project, Churchill, Manitoba, Canada

APPOINTMENTS

- **2018-present. USFWS Polar Bear Recovery Implementation Team. Science and Monitoring Working Group**
- **2018-present. International Polar Bear Conservation Center. Advisory Board Member**
- **2017-present. AZA-SSP Polar Bear Research Council. Co-chair**
- **2016-present. AZA-Bear Taxon Advisory Group. Research Advisor**
- **2012-present. IUCN/SSC Bear Specialist Group. Captive Bear Expert Team**
- **2010-present. AZA-SSP. Advisor, Giant Panda SSP**
- **2009-2013. Polar Bear Sustainability Alliance. Research Advisor**
- **2008-2016. Polar Bears International. Senior Research Advisor**
- **2004-present. Papoose Wildlife Conservation. Board Member**

SCIENTIFIC PUBLICATIONS (*denotes equal contribution)

59. Pilfold NW, Richardson E, Ellis J, Jenkins E, Scandrett B, Hernandez A, Buhler K, McGeachy D, Al-Adhami B, Lobanov V, **Owen MA**, Rideout B, Lunn NJ. *In Preparation for submission: Global Change Biology*. Long-term increases in pathogen seroprevalence in polar bears (*Ursus maritimus*) influenced by climate change. *Global Change Biology*.
58. Ellis J, Gow S, Lunn NJ, Richardson ES, McGeachy D, Lacoste S, **Owen MA**, Rideout B, Pilfold NW. *In review: Canadian Veterinary Journal*. *Bordetella bronchiseptica*-reactive antibodies in Canadian polar bears. *Canadian Veterinary Journal*.
57. The beneficial role of plant secondary compounds in giant panda foraging ecology. *Submitted: Functional Ecology*. Yuan S, Swaisgood RR, Owen MA, Dai Y, Wang L, Tang J, Han H, Wei W, Hong M, Zhang Z, Wei F.
56. Egna N,.... **Owen MA**. *In Press: Ecology and Evolution*. Camera settings and biome influence the accuracy of image classification.
55. Palacios-Ramos S, Montenegro R, Appleton RD, Sanchez R I, Vallejos D J, Vallejos D, Owen MA, Van Horn RC. *In review: Caldasia*. Contribución a la fenología de *Colicodendron scabridum* "sapote" en un bosque seco del norte del Perú
54. Greggor A, Berger-Tal O, ...**Owen MA**...Blumstein DT. *Submitted: Animal Behaviour*. A framework for cultural change in conservation science.

53. Watsa M, ...**Owen MA**. 2020. Rigorous wildlife disease surveillance: A decentralized model could address global health risks associated with wildlife. *Science*.
52. Van Horn RC, Sheppard J, Swaisgood RR, Appleton R, Sanchez I, Vallejos DJ, Vallejos J, **Owen MA**. *In press: Ursus* Den and den site preferences of dry forest Andean bears.
51. **Owen MA**, Pagano A, Wisdom S, Kirschhoffer J, Bowles AE, O'Neill C. *In revision: Journal of Wildlife Management*. Estimating audibility of vehicular noise to denning polar bears.
50. Teng J*, Swaisgood RR*, **Owen MA***... Zhang Z. *In Press: Proc. Royal Academy Sci. B* . Climate change and land-use patterns influence recent past distribution of giant pandas.
49. Khadpekar Y, Whiteman JP, Durrant BS, **Owen MA**, Prakash S. *In press: Ursus*. Scent marking behavior by female
48. Martin-Wintle MM, **Owen MA**, Wintle NP, Zhang G, Zhang H, Swaisgood RR. *In press: Scientific Reports*. Stereotypic behaviors predict reproductive performance and litter sex ratio in giant pandas.
47. Charlton BD, **Owen MA**, Swaisgood RR. 2020. Scent anointing in giant pandas: medicinal, status signalling, or both? *Journal of Mammalogy* 10.1093/jmammal/gyaa014
46. Charlton BD, **Owen MA**, Swaisgood RR. 2019. Influence of season and social context on giant panda (*Ailuropoda melanoleuca*) vocal behaviour. *PLoS ONE* 14, e0225772
45. Wei W*, Swaisgood RR*, Pilfold NP*, **Owen MA***, ...Zhang Z. 2020. Is China's protected area system working? *Current Biology*
44. **Owen MA**, Pagano AM, Wisdom S, Bowles A., 2019. Estimating propagation and audibility of industrial noise in subnivean polar bear dens. *The Journal of the Acoustical Society of America*, 146:2823.
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7. Bowles AE, **Owen MA**, Denes SL, Graves SK, Keating JL. 2008. Preliminary results of a behavioral audiometric study of the polar bear. *Journal of the Acoustical Society of America* 123:3509.
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1. Robertson GJ, **Owen MA**, Rockwell RF. 1995. Responses of snow geese to artificially induced hatching asynchrony and increased clutch size. *Auk* 112:790-794.

BOOK CHAPTERS & TECHNICAL REPORTS

9. **Owen MA**. Neonatal behavior and social behavior in the polar bear. *In review: Ethology of Marine Mammals: Polar Bears. Springer.*
8. Swaisgood RR, McShea WM, Wildt D, Hull V, Zhang J, **Owen MA**, Zhang Z, Dvornicky-Raymond Z, Valitutto M, Wei F. (*In press*). Giant Panda (*Ailuropoda melanoleuca*). *In: Bears of the World.*
7. Martin-Wintle MS, Kersey DC, Wintle NJP, Aitken-Palmer C, **Owen MA**, Swaisgood RR. 2019. Comprehensive Breeding Techniques for the Giant Panda. *In: Reproductive sciences in animal conservation* (2nd ed.) Springer, New York, NY
6. **Owen MA** & Swaisgood RR. (*In press*). Guidelines for systematic behavioral observations for the giant panda. *In Lindburg, DG & Wong, S. Giant Panda Husbandry Manual.* Association of Zoos and Aquariums.
5. Swaisgood R, Zhang G, Wei R, **Owen MA** & Li D. (*In press*) Management for pregnancy and the peri-partum period. *In Lindburg, DG and Wong, S. Giant Panda Husbandry Manual.* Association of Zoos and Aquariums.
4. Hall SS, **Owen MA**, Swaisgood RR. 2015. Saving Pandas from Extinction: Why Captive Breeding Matters. *In: The Bear Book Volume II.* M. Reynolds-Hogland (Ed). Bear Trust International, Bozeman MT.
3. Van Horn RC, **Owen MA**. 2015. Could historically advantageous maternal investment by female bears create challenges for conservation breeding efforts? *International Bear News* 24(1):34.
2. O'Neill C, **Owen MA**, Wisdom S & Kirschoffer J. 2012. Received sounds in artificial polar bear dens. *Technical report for Polar Bears International by JASCO Applied Sciences.* 102pp.
1. Swaisgood RR, **Owen MA**, Czekala NM, Mauroo N, Hawk K & Tang J. 2006. Evaluating stress and well being in the giant panda: a system for monitoring. *In: Wildt DE, Zhang AJ, Zhang H, Janssen D, and S Ellis editors. Giant pandas in captivity: biology and medicine.* Cambridge University Press. pp.299-314.

GRANTS & FELLOWSHIPS

Gordon and Betty Moore Foundation. 2020. Genomics in the Jungle: Decentralized disease and biodiversity monitoring. [REDACTED]

Heller Foundation. 2019. Field-based molecular assessment of Sumatran tiger population connectivity [REDACTED]

Horne Foundation. 2019. Post-release monitoring of orphaned African elephants. [REDACTED]

Offield Foundation. 2019. Conservation ecology of polar bears: movement, foraging and maternal care. [REDACTED].

Anonymous donor. 2019. Post-release monitoring of translocated orphan African elephants. [REDACTED].

Pfleger Foundation. 2019. Elephant conservation ecology in East Africa. [REDACTED].

Horne Foundation. 2018. Conservation technology applications to African elephants in Kenya. [REDACTED].

Pfleger Family Foundation. 2018. Elephant conservation ecology in East Africa. [REDACTED].

International Bear Association. 2018. Community-based conservation of Andean bears in northeast Peru. [REDACTED].

Ocelot Foundation. 2018. Polar bear den monitoring [REDACTED].

Ocelot Foundation. 2017. Polar bear den monitoring [REDACTED].

MacBeth Foundation. 2016. Polar bear pathogen surveillance project. [REDACTED]

Ocelots Foundation. 2016. Bear research program support. [REDACTED].

Maryanne Pfister Group. 2013. Giant panda conservation research. [REDACTED]

Anonymous donor. 2012. Maternal denning in the polar bear. [REDACTED].

Polar Bears International. 2012. Seasonal dynamics of urinary cortisol metabolites in polar bears [REDACTED].

University of California, Los Angeles. 2011. Doctoral Fellowship.

Ocelots Foundation. 2011. Remote camera go-kits for pilot study of free-ranging denning bears. [REDACTED]

National Fish & Wildlife Foundation (NFWF)/ Polar Bears International. 2009. Reception of vehicular and natural noise in polar bear dens. [REDACTED]

Mara Strock. 2008. Hearing sensitivity of the giant panda. [REDACTED]
 Patricia Yuenling. 2008. Hearing sensitivity of the giant panda. [REDACTED]
 National Fish & Wildlife Foundation (NFWF)/ Polar Bears International. 2008. Polar bear den acoustics study: planning. [REDACTED]
 Polar Bears International. 2008. Olfactory communication in the polar bear. [REDACTED]
 Polar Bears International. 2007. Auditory sensitivity of the polar bear: a captive study with implications for management in the wild, II: [REDACTED]
 Polar Bears International. 2005. Auditory sensitivity of the polar bear: a captive study with implications for management in the wild, I: [REDACTED]
 Polar Bears International. 2003. Characterization of the estrous cycle in captive polar bears (*Ursus maritimus*): correlation of physiologic, behavioral and endocrine parameters: [REDACTED]
 Hong Kong Society for Giant Panda Conservation. 2002. Behavioral and hormonal assessment of stress and the effects of environmental enrichment in captive giant pandas (*Ailuropoda melanoleuca*) II: [REDACTED]
 Hong Kong Society for Giant Panda Conservation. 2001. Behavioral and hormonal assessment of stress and the effects of environmental enrichment in captive giant pandas (*Ailuropoda melanoleuca*) I [REDACTED]

CONFERENCE PRESENTATIONS/SPEAKING ENGAGEMENTS

Over 150 presentations to scientific and lay audiences focused on conservation science, conservation interventions, long-term ecological research and climate change. *Details available upon request.*

RECENT POPULAR PUBLICATIONS

Owen MA. 2020. Hope Prevails: Creating a Future for Orphaned Elephants in Northern Kenya. ZooNooz.
Owen MA & Pilfold N. 2019. Changing the Future for Polar Bears. Saving Species 3:5-7.
Owen MA. 2018. Some Bear: The Extraordinary Legacy of Gao Gao. ZooNooz.
Owen MA. 2012. Collaborations in panda research. ZooNooz.

WEB-BASED PUBLICATIONS

Over 80 blogs, primarily on bear research and SDZICR conservation programs. <http://blogs.sandiegozoo.org> & zoonooz.sandiegozoo.org. Recent articles include:

- <https://zoonooz.sandiegozoo.org/2017/02/14/a-birds-eye-view-of-sea-ice-and-polar-bears/>
- <https://zoonooz.sandiegozoo.org/2017/05/24/orcas-in-the-fjord-a-transformation-is-underway-in-the-arctic-sea-ice-ecosystem/>
- <https://zoonooz.sandiegozoo.org/zoonooz/hope-prevails/>

PROFESSIONAL SERVICE & MEMBERSHIP

Reviewer: Royal Society Open Science, Marine Mammal Science, Animal Behaviour, *Ursus*, Journal of Mammalogy, Journal of Animal Welfare Science, International Journal of Comparative Psychology, *Folia Zoologica*, Zoo Biology, Scientific Reports, Quarterly Review of Biology

Member: Acoustical Society of America, International Bear Association, American Zoo and Aquarium Association, The Wildlife Society.

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EDUCATIONAL BACKGROUND

1979-83 California State University, Fresno; B.A. in Biology

CERTIFICATION

1984-present Licensed as Cytogenetic Technologist CG(ASCP)^{CM} by American Society for Clinical Pathology [formerly called Clinical Lab Specialist CLSp(CG) by National Certification Agency for Medical Personnel]

PROFESSIONAL EXPERIENCE

2019-present **Curator of the Frozen Zoo[®]**, San Diego Zoo Global
San Diego Zoo Institute for Conservation Research

2013-2018 **Senior Researcher**, San Diego Zoo Global
San Diego Zoo Institute for Conservation Research

1999-2013 **Associate Researcher**, Zoological Society of San Diego
Conservation and Research for Endangered Species, San Diego, CA.
Oversee all aspects of the Cytogenetics Division including personnel management, budget management, liaison with outside investigators and collaborators, coordination of sample collection and clinical case reports. Curate the Frozen Zoo[®] cell repository and direct sample acquisition and distribution. Plan, design, organize and conduct independent research projects. Publish papers in peer-reviewed scientific journals and popular

literature and give presentations to professional groups and ZSSD staff.
Teach/train Cytogenetic staff, visiting scientists, students, and volunteers.

- 1994-1999 **Laboratory Supervisor**, Zoological Society of San Diego
Center for Reproduction of Endangered Species, San Diego, CA.
Oversee all technical aspects of the cytogenetics laboratory, including quality control, improving protocols, developing species-specific protocol techniques and training technical staff, students, volunteers and visiting scientists. Carry out independent research projects, analyze data and publish results. Maintain day-to-day operation of the Frozen Zoo[®] cell repository. In the absence of the Cytogenetics Specialist, oversee all aspects of the Cytogenetics Division including personnel management, budget management, liaison with outside investigators and collaborators, coordination of sample collection and clinical case reports.
- 1993-95 Adjunct Faculty, Prescott College, Prescott, AZ.
Courses taught: Biology of the Rhinoceros, Conservation Breeding
Genetics and Conservation, Endangered Species: a compendium
- 1987-93 **Senior Cytogenetic Technologist**, Zoological Society of San Diego
Center for Reproduction of Endangered Species, San Diego, CA.
Perform cytogenetic studies of various species of mammals in affiliation with Species Survival Plan (SSP) groups, with emphasis on chromosomal comparison of four species of rhinoceros ($2n=82-84$); initiate fibroblast cultures from skin biopsies of various species and maintain until successfully frozen and stored in the "Frozen Zoo"; manage lab during prolonged supervisor absences; train and supervise volunteer and visiting scientist. Analyses include tissue culture, photomicroscopy, light microscopy, darkroom techniques, karyotyping and the following banding techniques: GTG, CBG, QFQ, sequential G---C, and Q---C.
- 1985-87 **Senior Research Assistant 1**, Hybritech Inc., San Diego, CA.
Perform experimental fusions of human lymph node lymphocytes, splenocytes and PBL's to mouse myelomas to produce monoclonal antibodies (variations include: *in vitro* immunizations, EBV transformation and panning for specific cell populations); detect and work up promising hybridoma clones including karyotypic analysis when necessary ($2n=80-120$); perform immunofluorescent surface staining and live-cell assays; maintain cell lines used in various assays.
- 1983-85 **Cytogenetic Technologist**, Valley Children's Hospital, Fresno, CA.
Perform prenatal diagnosis and genetic testing with amniocentesis amniocytes and blood lymphocytes. Analyses include sterile tissue culture technique, photomicroscopy, darkroom techniques, karyotyping and visual karyotyping and the following banding techniques: GTG, CBG, RHA, and QFQ.

1982-83 **Microbiology Lab Assistant**, Valley Children's Hospital, Fresno, CA.
Primary set-up of patient specimens including aerobic and anaerobic cultures and organisms requiring special environmental conditions: onsite specimen collection of fastidious organisms; set-up of antimicrobial susceptibility tests from patient isolates; subculturing organisms of clinical and nosocomial importance; preparation and autoclaving of supplies, reagents and glassware for virology and microbiology; answering phones and giving reports to nurses and physicians.

PUBLICATIONS

Ryder O.A., Houck M.L., and Kumamoto A.T.: Rhinoceros genetics: State-of-the-art and application to conservation measures. Proc. Am. Assoc. Zool. Parks and Aquariums, pp. 710-714, 1987.

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- Houck M.L. Biobanking amphibian cells for research and conservation. Joint Meeting of Ichthyologists and Herpetologists. Minneapolis, MN, July 8, 2011.
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- Steiner C.C, Houck M.L. and Ryder O.A. In vitro models of endangered species: transcriptomic characterization of *Rana sevos* genes associated with chytrid fungus response. Evolution Meeting. Raleigh, NC, June 20-24, 2014.
- Houck M.L. Amphibian Cell Culture Repositories: conquering the challenge. International Society for Biological and Environmental Repositories.(poster) Phoenix, AZ, May 5-9, 2015.
- Houck M.L. The Frozen Zoo[®]; It began with a cell. The Global Genome Biodiversity Network. Berlin, Germany, June 21-24, 2016.

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POPULAR ARTICLES

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Houck, M.L.: New Computer Helps Solve Chromosome Puzzles. CRES Report, Summer 2001.

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Houck, M.L.: Frozen Zooniversity: Building a Global Biobank. Conservation Update, Spring 2014

GRANTS

Morris Animal Foundation, Molecular Cytogenetic Approaches to the Conservation of Endangered Rhinoceros Species. Co-investigator. November 2002-November 2004.

National Institutes of Health, National Institute of General Medical Sciences, Behavioral Genomics of the White-throated Sparrow. Co-PI. February 2010-July 2011.

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1964-68 University of California, Riverside: B.A. in Biology with High Honors

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1988-98 **Adjunct Associate Professor of Biology;** Department of Biology, University of California, San Diego; La Jolla, CA
1979-87 **Research Associate;** Department of Biology, University of California, San Diego; La Jolla, CA
1979-85 **Geneticist;** Research Department, Zoological Society of San Diego; San Diego, CA
1975-79 **Research Fellow;** Research Department, Zoological Society of San Diego; San Diego, CA
1977-79 **Postdoctoral Fellow;** Department of Pathology, University of California, San Diego; La Jolla, CA
1975-77 **Postdoctoral Fellow;** Department of Reproductive Medicine, University of California, San Diego; La Jolla, CA

HONORS

Wilhemina Key Presidential Lectureship, American Genetic Association, 2010
Fellow, American Association for the Advancement of Science, 2006
Duane E. Ulrey Achievement Award, for Exceptional Achievements in the Science of Wild Animal Health and Service to AAZV,
American Association of Zoo Veterinarians, 2005
Scientific Fellow, Wildlife Conservation Society, 1999-2004
Distinguished Alumnus Award, University of California, Riverside, 2003
Scientific Fellow, The New York Zoological Society, 1990, 1998
Fellow, San Diego Society of Natural History, 1994
Who's Who in the West, **Who's Who** in the U.S., **Who's Who** in the World, 1992, 1994
91 San Diegans to Watch in '91, San Diego Magazine, 1990
National Research Service Award, National Institutes of Health, 1976-78
Medical Research Fellowship, Bank of America/Giannini Foundation, 1975-76
Traineeship in Genetics, United States Public Health Service, 1968-75
Graduation with High Honors, University of California, Riverside, 1968

PROFESSIONAL SOCIETY MEMBERSHIPS

American Association of Zoological Parks and Aquariums
American Genetic Association
American Society of Human Genetics
American Society of Mammalogists
Society of Molecular Biology & Evolution

GRANTS AND AWARDS

- * Seaver Institute: Northern White Rhinos & Frozen Zoo, 2015-2016
- * American Genetic Association, Special Events Award: Frozen Zoo® Cell Culture Seminar: Training Scientist for Biobanking and Biodiversity Research; 2014
- * Gordon and Betty Moore Foundation (subaward, Pennsylvania State University): Bioinformatic Analysis of the California Condor Genome Sequence; 2012-2014
- * Institute of Museum and Library Sciences: Infectious Disease Control and Bioresource Banking for the Amphibian Extinction Crisis; 2008-present
- * NSF Research Grant (subaward, University of California, Riverside): Assembling the Tree of Life: Collaborative Research: Resolving Mammalian Phylogeny with Genomic and Morphological Approaches; 2006-present
- * James S. Copley Foundation Grant: Copley Fellow for Conservation Science in gorilla genetics; 2005-present
- * NIH Genetic Architecture, Biological Variation, and Complex Phenotypes; Comparative Grant (subaward, University of Southern California): Comparative Genomics of Peroxisomal Lipid Metabolism; 2005-present
- * Seaver Institute: Genome Studies for the Conservation of the California Condor; 2004-present
- * NSF Major Research Instrumentation Grant: Acquisition of Major Research Instrumentation for Expanding Genetic Databases in Comparative Primatology; 2005-2008
- * John and Beverly Stauffer Foundation: Genetic studies of wild mountain and lowland gorillas, Przewalski's horses and California condors; 2004-05
- * NSF Cross-Directorate Grant: Integrated Primate Biomaterials and Information Resource; 2001-05
- * Morris Animal Foundation: Molecular Cytogenetic Approaches to the Conservation of Endangered Rhinoceros Species; 2002-03
- * USFWS, Division of International Conservation, Great Ape Conservation Fund: Population Assessment and Monitoring — Incorporating Genetic Technologies to Support Viable Populations of Mountain Gorilla and Chimpanzee; 2001-02
- * Morris Animal Foundation: Class II MHC Genotyping of Mountain and Captive Western Lowland Gorillas; 2000-02
- * Alice C. Tyler Perpetual Trust: Arroyo Toad Conservation Program; 1999; renewed 2000
- * Zoological Society of San Diego: Conservation of Argali in Mongolia; 1999-2000
- * Zoological Society of San Diego: Paraguayan Biodiversity Conservation Program (Genetics); 1999-2000
- * Alice C. Tyler Perpetual Trust: Giant Panda Conservation Program; 1996; renewed 1997, 1998, 1999, 2000
- * John and Beverly Stauffer Foundation: Conservation Genetics of East African black rhinoceros; 1996, renewed 1997, 1998, 1999, 2000
- * Zoological Society of San Diego: Saiga Genetic Studies; 1998-99
- * Sloan Foundation/NSF: Y-chromosome variation in great apes; 1997-99
- * Zoological Society of San Diego: Reintroduction of Pronghorn Antelope into Southern California — Genetic Analysis of Pronghorn Populations for Selecting Stock; 1996-99
- * McCarthy Family Foundation: Development of Molecular Genetic Markers for Population Monitoring in the Endangered Arroyo Toad (*Bufo microscaphus californicus*); 1998
- * Plum Foundation: Conservation Genetics of East African Black Rhinoceros; 1998
- * J.C. Downing Foundation: Kenyan Technology Transfer; 1996; renewed 1997, 1998
- * John and Beverly Stauffer Foundation: Global Management of Przewalski's Horse — Conservation of the gene pool and reintroduction to species' historic range; 1992-95
- * Morris Animal Foundation: Non-Invasive Investigation of Genetic Variation in Mountain Gorillas; 1990-92
- * J.N. Pew, Jr. Memorial Trust: The Transfer of Technologies for Management of Genetic Resources for Conservation; 1989-92
- * John and Beverly Stauffer Trust: The Transfer of Technologies for Management of Genetic Resources for Conservation; 1989-92
- * Marine Mammal Commission: Mitochondrial DNA and DNA Fingerprinting Studies of Florida Manatees; 1988-89

- * California Department of Fish and Game: California Condor Parentage Inference Employing Hypervariable DNA Sequence Analysis; 1987-89
- * Institute of Museum Services, Conservation Project Grant: Conservation Genetics Training Program; 1987-88
- * NIH Research Grant: Comparative Molecular Cytogenetics; 1976-79; renewed 1979-82, 1982-85, 1985-88

CURRENT PROFESSIONAL SERVICE

Secretary, American Genetic Association, 2014 -
Co-Organizer, The Genome 10K Project, 2009 -
Chair, Amphibian Cryobanking Advisory Committee, a component of the Amphibian Ark, 2008-
Board of Directors, San Dieguito River Valley Conservancy, 2007-
Associate Editor, Zoological Research, 2006-
Board of Advisors, University of California, Riverside, College of Natural & Agricultural Sciences, 2006-
Research Sub-Committee, Association of Zoos and Aquariums Taxon Advisory Group, 2006-
Genetics Co-Advisor, Rhino Research Council, 2004-
Steering Committee, Center for Conservation Biology, 2004-
Advisor, Mountain Gorilla Conservation Fund, 2001-
Bonobo Species Survival Plan Group, American Zoo and Aquarium Association, 2000-
Board of Editors, Conservation Genetics, 1999-
Founding member, Land Conservation Citizen Group, Friends of Carmel Mountain Preserve, 1999-
Peninsular Bighorn Sheep Recovery Team, United States Fish & Wildlife Service, 1998-
Member, Center for Academic Research and Training in Anthropology, University of California, San Diego 1997-
Scientific Advisor, Jersey Wildlife Preservation Trust, 1996-
Member, Comité Internacional para La Recuperación de la Vaquita (International Committee for the Recovery of the Vaquita), 1995-
Systematics Advisory Group, American Zoo and Aquarium Association, 1994-
Small Population Management Advisory Group, American Zoo and Aquarium Association, 1990-
Equid Specialist Group, Species Survival Commission of International Union for the Conservation of Nature and Natural Resources, 1989-
Conservation Breeding Specialist Group, Species Survival Commission of International Union for the Conservation of Nature and Natural Resources, 1983-

PREVIOUS PROFESSIONAL SERVICE

External Advisory Committee, Duke University Primate Center, 2005-2008
Executive Vice President, American Genetic Association, 2004-2007; reappointed; 2008-2011
Board of Editors, Zoological Research, 2002-05
President, American Genetic Association, 2001
Re-introduction Specialist Group, Species Survival Commission of International Union for the Conservation of Nature and Natural Resources, 1989-2001
Tapir Specialist Group, Species Survival Commission, International Union for the Conservation of Nature and Natural Resources, 1983-2001
Wild Horse and Burro Management Program, Bureau of Land Management, 1999
Community Advisory Group, City of San Diego, California; Neighborhood 8A Precise Plan, 1997-99
Director's Search Committee, Center for Conservation Biology; University of California, Riverside, 1997-99
Steering Committee, Center for Conservation Biology; University of California, Riverside, 1997-99
Associate Editor, Journal of Heredity, 1990-2008
Council Member, American Genetics Association, 1990-93, 1997-99
Ad Hoc Review Committee, Gene Resources Conservation Program; University of California, Riverside, 1997-98
Board of Editors, Conservation Biology, 1993-98
Conservation of Terrestrial Mammals Committee, American Society of Mammalogists, 1982-95
Species Coordinator, Przewalski's Horse Species Survival Plan, 1979-94
Advisory Panel, National Academy of Sciences/WQED Pittsburgh, "Infinite Voyage" television series, 1990-91
Editorial Board, Genetica, 1980-90
Chair, K-12 Curriculum Committee, Society for Conservation Biology, 1988-90
Vice-Chair, Wildlife Conservation and Management Committee, American Association of Zoological Parks and Aquariums, 1983-89
International Studbook Keeper for the Malayan Tapir, *Tapirus indicus*, 1984-89
Species Survival Program Committee, American Association of Zoological Parks and Aquariums, 1981-89
Advisory Panel, United States Congress' Office of Technology Assessment, Report on Technologies to Maintain Biological Diversity, 1987

PROFESSIONAL CONSULTATIONS

County of Orange, California, USA; Office of the District Attorney
 County of San Diego, California, USA; Office of the District Attorney
 Kingdom of Saudi Arabia, National Commission for Wildlife and Conservation Development
 National Geographic Society
 San Diego Unified School District; San Diego, California, USA
 Sultanate of Oman, Office of the Advisor for Conservation of the Environment
 United Nations Food and Agriculture Organization
 United States Congress, Office of Technology Assessment
 Zoobooks, Inc.

PUBLICATIONS

- 355 Hendricks S, Navarro AY, Wang T, Wilder A, Ryder OA, Shier DM. Patterns of genetic partitioning and gene flow in the endangered San Bernardino kangaroo rat (*Dipodomys merriami parvus*) and implications for conservation management. *Conservation Genetics*. 2020 Oct;21(5):819–33. Research Article
- 354 Ryder OA, Friese C, Greely HT, Sandler R, Saragusty J, Durrant BS, Redford KH. Exploring the limits of saving a subspecies: The ethics and social dynamics of restoring northern white rhinos (*Ceratotherium simum cottoni*). *Conservation Science and Practice* [Internet]. 2020 Aug [cited 2020 Sep 28];2(8). Available from: <https://onlinelibrary.wiley.com/doi/abs/10.1111/csp2.241> Perspective
- 353 Damas J, Hughes GM, Keough KC, Painter CA, Persky NS, Corbo M, Hiller M, Koepfli K-P, Pfenning AR, Zhao H, Genereux DP, Swofford R, Pollard KS, Ryder OA, Nweeia MT, Lindblad-Toh K, Teeling EC, Karlsson EK, Lewin HA. Broad host range of SARS-CoV-2 predicted by comparative and structural analysis of ACE2 in vertebrates. *Proceedings of the National Academy of Sciences. USA*. 2020 Sep 8;117(36):22311–22. Research Article
- 352 Watsa M, Erkenwick G, Prost S, Davis EO, Moore C, Kubiski S, Witte C, Ogden R, Meredith A, Ryder OA, Steiner CC, Phillips JA, and Owen MA. Wildlife Disease Surveillance Focus Group. Rigorous wildlife disease surveillance. *Science*. 2020 Jul 10;369(6500):145–7. Research Article
- 351 Wilder AP, Navarro AY, King SND, Miller WB, Thomas SM, Steiner CC, Ryder OA, Shier DM. Fitness costs associated with ancestry to isolated populations of an endangered species. *Conservation Genetics*. 2020 Jun;21(3):589–601. Research Article
- 350 Putnam AS, Nguyen TN, Mott A, Korody ML, Ryder OA. Assessing possible hybridization among managed Nubian ibex in North America. *Zoo Biology*. 2020 Mar;39(2):121–8. Research Article
- 349 Lind AL, Lai YYY, Mostovoy Y, Holloway AK, Iannucci A, Mak ACY, Fondi M, Orlandini V, Eckalbar WL, Milan M, Rovatsos M, Kichigin IG, Makunin AI, Johnson Pokorná M, Altmanová M, Trifonov VA, Schijlen E, Kratochvíl L, Fani R, Velenský P, Rehák I, Patarnello T, Jessop TS, Hicks JW, Ryder OA, Mendelson JR, Ciofi C, Kwok P-Y, Pollard KS, Bruneau BG. Genome of the Komodo dragon reveals adaptations in the cardiovascular and chemosensory systems of monitor lizards. *Nat Ecol Evol*. 2019 Aug;3(8):1241–52. Research Article
- 348 Farré M, Li Q, Darolti I, Zhou Y, Damas J, Proskuryakova AA, Kulemzina AI, Chemnick LG, Kim J, Ryder OA, Ma J, Graphodatsky AS, Zhang G, Larkin DM, Lewin HA. An integrated chromosome-scale genome assembly of the Masai giraffe (*Giraffa camelopardalis tippelskirchi*). *Gigascience*. 2019 Aug 1;8(8). Research Article
- 347 Chen L, Qiu Q, Jiang Y, Wang K, Lin Z, Li Z, Bibi F, Yang Y, Wang J, Nie W, Su W, Liu G, Li Q, Fu W, Pan X, Liu C, Yang J, Zhang C, Yin Y, Wang Y, Zhao Y, Zhang C, Wang Z, Qin Y, Liu W, Wang B, Ren Y, Zhang R, Zeng Y, da Fonseca RR, Wei B, Li R, Wan W, Zhao R, Zhu W, Wang Y, Duan S, Gao Y, Zhang YE, Chen C, Hvilson C, Epps CW, Chemnick LG, Dong Y, Mirarab S, Siegmund HR, Ryder OA, Gilbert MTP, Lewin HA, Zhang G, Heller R, Wang W. Large-scale ruminant genome sequencing provides insights into their evolution and distinct traits. *Science*. 2019 Jun 21;364(6446):eaav6202. Research Article
- 346 Conde DA, Staerk J, Colchero F, da Silva R, Schöley J, Baden HM, Jouvet L, Fa JE, Syed H, Jongejans E, Meiri S, Gaillard J-M, Chamberlain S, Wilcken J, Jones OR, Dahlgren JP, Steiner UK, Bland LM, Gomez-Mestre I, Lebreton J-D, González Vargas J, Flesness N, Canudas-Romo V, Salguero-Gómez R, Byers O, Berg TB, Scheuerlein A, Devillard S, Schigel DS, Ryder OA, Possingham HP, Baudisch A, Vaupel JW. Data gaps and opportunities for comparative and conservation biology. *Proceedings of the National Academy of Sciences*. 2019 May 7;116(19):9658–64. Research Article
- 345 Farré M, Kim J, Proskuryakova AA, Zhang Y, Kulemzina AI, Li Q, Zhou Y, Xiong Y, Johnson JL, Perelman PL, Johnson WE, Warren WC, Kukekova AV, Zhang G, O'Brien SJ, Ryder OA, Graphodatsky AS, Ma J, Lewin HA, Larkin DM. Evolution of gene regulation in ruminants differs between evolutionary breakpoint regions and homologous synteny blocks. *Genome Research*. 2019 Apr;29(4):576–89. Research Article
- 344 Koepfli K-P, Tamazian G, Wildt D, Dobrynin P, Kim C, Frandsen PB, Godinho R, Yurchenko AA, Komissarov A, Krashennikova K, Kliver S, Kolchanova S, Gonçalves M, Carneiro M, Vaz Pinto P, Ferrand N, Maldonado JE, Ferrie GM, Chemnick L, Ryder OA, Johnson WE, Comizzoli P, O'Brien SJ, Pukazhenthi BS. Whole Genome Sequencing and Re-sequencing of the Sable Antelope (*Hippotragus niger*): A Resource for Monitoring Diversity in ex Situ and in Situ Populations. *Genes|Genomes|Genetics*. 2019 Apr 18;g3.400084.2019. Research Article

- 343 Ryder OA. Editorial: In Memory of Kurt Benirschke, MD: Pioneer in mammalian cytogenetics, founder of the Frozen Zoo®, and champion of comparative medicine. *Journal of Heredity*. 2019 Mar 5;110(2):257–9. Editorial
- 342 Farré M, Li Q, Zhou Y, Damas J, Chemnick LG, Kim J, Ryder OA, Ma J, Zhang G, Larkin DM, Lewin HA. A near-chromosome-scale genome assembly of the gemsbok (*Oryx gazella*): an iconic antelope of the Kalahari desert. *GigaScience* [Internet]. 2019 Feb 1 [cited 2019 Jun 3];8(2). Available from: <https://academic.oup.com/gigascience/article/doi/10.1093/gigascience/giy162/5289690> Research Article
- 341 Moodley Y, Russo I-RM, Robovský J, Dalton DL, Kotzé A, Smith S, Stejskal J, Ryder OA, Hermes R, Walzer C, Bruford MW. Contrasting evolutionary history, anthropogenic declines and genetic contact in the northern and southern white rhinoceros (*Ceratotherium simum*). *Proceedings of the Royal Society B: Biological Sciences*. 2018 Nov 7;285(1890):20181567. Research Article
- 340 Sutton JT, Helmkamp M, Steiner CC, Bellinger MR, Korlach J, Hall R, Baybayan P, Muehling J, Gu J, Kingan S, Masuda BM, Ryder OA. A High-Quality, Long-Read De Novo Genome Assembly to Aid Conservation of Hawaii's Last Remaining Crow Species. *Genes*. 2018 Aug 1;9(8):393. Research Article
- 339 Ryder O. Opportunities and Challenges for Conserving Small Populations: An Emerging Role for Zoos in Genetic Rescue. In: *The ark and beyond: the evolution of zoo and aquarium conservation*. 2018. p. 255–66. Book Chapter
- 338 Tunstall T, Kock R, Vahala J, Diekhans M, Fiddes I, Armstrong J, Paten B, Ryder OA, Steiner CC. Evaluating recovery potential of the northern white rhinoceros from cryopreserved somatic cells. *Genome Res*. 2018 Jun;28(6):780–8. Research Article
- 337 Proskuryakova AA, Kulemzina AI, Perelman PL, Serdukova NA, Ryder OA, Graphodatsky AS. The Case of X and Y Localization of Nucleolus Organizer Regions (NORs) in *Tragulus javanicus* (Cetartiodactyla, Mammalia). *Genes (Basel)*. 2018 Jun 20;9(6). Research Article
- 336 Brandt JR, Van Coeverden de Groot PJ, Witt KE, Engelbrektsson PK, Helgen KM, Malhi RS, Ryder OA, Roca AL. Genetic structure and diversity among historic and modern populations of the Sumatran rhinoceros (*Dicerorhinus sumatrensis*). *J Hered*. 2018 July;109(5):553-565. Research Article
- 334 Steiner CC, Houck ML, Ryder OA. Genetic variation of complete mitochondrial genome sequences of the Sumatran rhinoceros (*Dicerorhinus sumatrensis*). *Conservation Genetics*. 2018 Apr;19(2):397–408. Research Article
- 333 Palkopoulou E, Lipson M, Mallick S, Nielsen S, Rohland N, Baleka S, Karpinski E, Ivancevic AM, To T-H, Kortschak RD, Raison JM, Qu Z, Chin T-J, Alt KW, Claesson S, Dalén L, MacPhee RDE, Meller H, Roca AL, Ryder OA, Heiman D, Young S, Breen M, Williams C, Aken BL, Ruffier M, Karlsson E, Johnson J, Di Palma F, Alföldi J, Adelson DL, Mailund T, Munch K, Lindblad-Toh K, Hofreiter M, Poinar H, Reich D. A comprehensive genomic history of extinct and living elephants. *Proceedings of the National Academy of Sciences*. 2018 Mar 13;115(11):E2566–74. Research Article
- 332 Zepeda Mendoza ML, Xiong Z, Escalera-Zamudio M, Runge AK, Thézé J, Streicker D, Frank HK, Loza-Rubio E, Liu S, Ryder OA, Samaniego Castruita JA, Katzourakis A, Pacheco G, Taboada B, Löber U, Pybus OG, Li Y, Rojas-Anaya E, Bohmann K, Carmona Baez A, Arias CF, Liu S, Greenwood AD, Bertelsen MF, White NE, Bunce M, Zhang G, Sicheritz-Pontén T, Gilbert MPT. Hologenic adaptations underlying the evolution of sanguivory in the common vampire bat. *Nature Ecology & Evolution* [Internet]. 2018 Feb 19 [cited 2018 Mar 22]; Available from: <http://www.nature.com/articles/s41559-018-0476-8> Research Article
- 331 Ryder OA, Onuma M. Viable Cell Culture Banking for Biodiversity Characterization and Conservation. *Annual Review of Animal Biosciences*. 2018 Feb 15;6(1):83–98. Research Article
- 330 Zhang C, Chen L, Zhou Y, Wang K, Chemnick LG, Ryder OA, Wang W, Zhang G, Qiu Q. Draft genome of the milu (*Elaphurus davidianus*). *Gigascience*. 2018 Feb 1;7(2). Research Article
- 329 Proskuryakova AA, Kulemzina AI, Perelman PL, Makunin AI, Larkin DM, Farré M, Kukekova AV, Lynn Johnson J, Lemskaya NA, Beklemisheva VR, Roelke-Parker ME, Bellizzi J, Ryder OA, O'Brien SJ, Graphodatsky AS. X Chromosome Evolution in Cetartiodactyla. *Genes (Basel)*. 2017 Aug 31;8(9). Research Article
- 328 Li H, Xiang-Yu J, Dai G, Gu Z, Ming C, Yang Z, Ryder OA, Li W-H, Fu Y-X, Zhang Y-P. Large numbers of vertebrates began rapid population decline in the late 19th century. *Proceedings of the National Academy of Sciences*. 2016 Dec 6;113(49):14079–84. Research Article
- 327 Yu L, Wang G-D, Ruan J, Chen Y-B, Yang C-P, Cao X, Wu H, Liu Y-H, Du Z-L, Wang X-P, Yang J, Cheng S-C, Zhong L, Wang L, Wang X, Hu J-Y, Fang L, Bai B, Wang K-L, Yuan N, Wu S-F, Li B-G, Zhang J-G, Yang Y-Q, Zhang C-L, Long Y-C, Li H-S, Yang J-Y, Irwin DM, Ryder OA, Li Y, Wu C-I, Zhang Y-P. Genomic analysis of snub-nosed monkeys (*Rhinopithecus*) identifies genes and processes related to high-altitude adaptation. *Nature Genetics*. 2016 Jul 11;48(8):947–52. Research Article
- 326 Ivy JA, Putnam AS, Navarro AY, Gurr J, Ryder OA. Applying SNP-Derived Molecular Coancestry Estimates to Captive Breeding Programs. *Journal of Heredity* 2016 Sep;107(5):403–12. Research Article

- 325 Saragusty J, Diecke S, Drukker M, Durrant B, Friedrich Ben-Nun I, Galli C, Göritz F, Hayashi K, Hermes R, Holtze S, Johnson S, Lazzari G, Loi P, Loring JF, Okita K, Renfree MB, Seet S, Voracek T, Stejskal J, Ryder OA, Hildebrandt TB. Rewinding the process of mammalian extinction. *Zoo Biology* 2016 May 3. doi:10.1002/zoo.21284. Research Article
- 324 Stevison LS, Woerner AE, Kidd JM, Kelley JL, Veeramah KR, McManus KF, Great Ape Genome Project, Bustamante CD, Hammer MF, Wall JD. The Time Scale of Recombination Rate Evolution in Great Apes. *Molecular Biology and Evolution*. 2016 Apr;33(4):928–45. Research Article
- 323 Tomaszewicz M, Rangavittal S, Cechova M, Sanchez RC, Fescemyer HW, Harris R, Ye D, O'Brien PCM, Chikhi R, Ryder OA, Ferguson-Smith MA, Medvedev P, Makova KD. A time- and cost-effective strategy to sequence mammalian Y Chromosomes: an application to the de novo assembly of gorilla Y. *Genome Research*. 2016 Apr;26(4):530–40. Research Article
- 322 Nuijten RJM, Bosse M, Crooijmans RPMA, Madsen O, Schaftenaar W, Ryder OA, Groenen MAM, Megens H-J. The Use of Genomics in Conservation Management of the Endangered Visayan Warty Pig (*Sus cebifrons*). *International Journal of Genomics*. 2016;2016:5613862. Research Article
- 321 Der Sarkissian C, Ermini L, Schubert M, Yang MA, Librado P, Fumagalli M, Jónsson H, Bar-Gal GK, Albrechtsen A, Vieira FG, Petersen B, Ginolhac A, Seguin-Orlando A, Magnussen K, Fages A, Gamba C, Lorente-Galdos B, Polani S, Steiner C, Neuditschko M, Jagannathan V, Feh C, Greenblatt CL, Ludwig A, Abramson NI, Zimmermann W, Schafberg R, Tikhonov A, Scharitz-Ponten T, Willerslev E, Marques-Bonet T, Ryder OA, McCue M, Rieder S, Leeb T, Slatkin M, Orlando L. Evolutionary Genomics and Conservation of the Endangered Przewalski's Horse. *Current Biology*. 2015 Oct;25(19):2577–83. Research Article
- 320 Ramaswamy K, Yik WY, Wang X-M, Oliphant EN, Lu W, Shibata D, Ryder OA, Hacia JG. Derivation of induced pluripotent stem cells from orangutan skin fibroblasts. *BMC Res Notes*. 2015;8:577. Research Article
- 319 Wisely, SM, Ryder OA, Santymire RM, Engelhardt JF, and Novak BJ. A Road Map for 21st Century Genetic Restoration: Gene Pool Enrichment of the Black-Footed Ferret. *Journal of Heredity*. 2015 Aug;106: 581–592. Research Article
- 318 Fisch KM, Kozfkay CC, Ivy JA, Ryder OA, Waples RS. Fish Hatchery Genetic Management Techniques: Integrating Theory with Implementation. *North American Journal of Aquaculture*. 2015 Jul 3;77(3):343–57. Research Article
- 317 Bosse M, Megens H-J, Madsen O, Crooijmans RPMA, Ryder OA, Austerlitz F, Groenen MAM, de Cara MAR. Using genome-wide measures of coancestry to maintain diversity and fitness in endangered and domestic pig populations. *Genome Research*. 2015 Jul; 25(7): 970-81. Research Article
- 316 Steiner CC, Charter SJ, Goddard N, Davis H, Brandt M, Houck ML, Ryder OA. Chromosomal variation and perinatal mortality in San Diego zoo Soemmerring's gazelles. *Zoo Biology*. 2015 Jul;34(4):374-84. Research Article
- 315 Nam K, Munch K, Hobolth A, Dutheil JY, Veeramah KR, Woerner AE, Hammer MF, Great Ape Genome Diversity Project (Prado-Martinez J, Sudmant PH, Kidd JM, Li H, Kelley JL, Lorente-Galdos B, Veeramah KR, Woerner AE, O'Connor TD, Santpere G, Cagan A, Theunert C, Casals F, Laayouni H, Munch K, Hobolth A, Halager AE, Malig M, Hernandez-Rodriguez J, Hernando-Herraez I, Prüfer K, Pybus M, Johnstone L, Lachmann M, Alkan C, Twigg D, Petit N, Baker C, Hormozdiari F, Fernandez-Callejo M, Dabad M, Wilson ML, Stevison L, Camprubí C, Carvalho T, Ruiz-Herrera A, Vives L, Mele M, Abello T, Kondova I, Bontrop RE, Pusey A, Lankester F, Kiyang JA, Bergl RA, Lonsdorf E, Myers S, Ventura M, Gagneux P, Comas D, Siegmund H, Blanc J, Agueda-Calpena L, Gut M, Fulton L, Tishkoff SA, Mullikin JC, Wilson RK, Gut IG, Gonder MK, Ryder OA, Hahn BH, Navarro A, Akey JM, Bertranpetit J, Reich D, Mailund T, Schierup MH, Hvilsom C, Andrés AM, Wall JD, Bustamante CD, Hammer MF, Eichler EE, Marques-Bonet T.), Mailund T, Schierup MH. Extreme selective sweeps independently targeted the X chromosomes of the great apes. *Proceedings of the National Academy of Sciences*. 2015 May 19;112(20):6413–18. Research Article
- 314 Buchalski MR, Navarro AY, Boyce WM, Winston Vickers T, Tobler MW, Nordstrom LA, García JA, Gille DA, Penedo MCT, Ryder OA, Ernest HB. Genetic population structure of Peninsular bighorn sheep (*Ovis canadensis nelsoni*) indicates substantial gene flow across US–Mexico border. *Biological Conservation*. 2015 Apr;184:218–28. Research Article
- 313 McManus KF, Kelley JL, Song S, Veeramah KR, Woerner AE, Stevison LS, Ryder OA, Great Ape Genome Project, Kidd JM, Wall JD, Bustamante CD, Hammer MF. Inference of Gorilla Demographic and Selective History from Whole-Genome Sequence Data. *Molecular Biology and Evolution*. 2015 Mar 1;32(3):600–12. Research Article

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CURRICULUM VITAE

CYNTHIA C. STEINER

I SERVE SAN DIEGO ZOO GLOBAL AS ASSOCIATE DIRECTOR IN CONSERVATION GENETICS. IN THIS ROLE, I COORDINATE WORK RELATED TO DEVELOPING GENETIC/GENOMIC TOOLS FOR STUDYING AND MONITORING SPECIES OF CONSERVATION CONCERN UNDER HUMAN CARE AND IN THE WILD. MY RESEARCH INTERESTS INCLUDE THE STUDY OF MAMMALIAN TAXONOMY, PHYLOGENETICS, CHROMOSOME EVOLUTION, GENETIC BASIS OF ADAPTIVE TRAITS, THE DEVELOPMENT OF GENETIC TOOLS FOR SPECIES IDENTIFICATION AND SEXING, AND THE APPLICATION OF GENOMIC TECHNOLOGIES TO ASSIST WITH MANAGEMENT OF WILD POPULATIONS.

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2003: **Graduate Research Assistant.** Genome-Populations-Interactions Laboratory (CNRS). University of Montpellier II, France.

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PUBLICATIONS:

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- Steiner C.C.**, Charter S.J., Houck M.L., and Ryder O.A. (2014). Molecular phylogeny and chromosomal evolution of Alcelaphini (Antilopinae). *Journal of Heredity* 105(3): 324-33. doi: 10.1093/jhered/esu004.

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Marisa L. Korody Ph.D.

Scientist
Conservation Genetics
San Diego Zoo Institute for Conservation Research
Escondido, California 92027

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Education

Indiana State University, PhD., Biology, Ecology focus, May 2013

Advisor: Dr. Elaina M. Tuttle

Dissertation: Levels of selection in a polymorphic species.

Indiana State University, M.S., Life Sciences, December 2006

Advisor: Dr. Elaina M. Tuttle

Thesis: Factors influencing sex ratio variation within the polymorphic white-throated sparrow.

California State University Northridge, B.S., Major: Environmental Biology, May 2002

Research Interests

Conservation, Cell Culture and Cytogenetics, Stem cells, Genetic Rescue, Gene Expression and Modifications, Molecular Ecology and Evolution, Comparative Genomics, Gene Mapping, Behavioral Ecology

Publications

- Korody, M.L.**, Ford, S.M, Nguyen, T, Pivaroff, C, Iñigo Valiente-Alandi, Peterson, S., Ryder, O., and Loring, J.F. (*In Review*) Rewinding extinction in the northern white rhinoceros: Genetically diverse induced pluripotent cell bank for genetic rescue. *Communications Biology*.
- Putnam, A.S., Nguyen, T.N., Mott, A. **Korody, M.L.**, and Ryder, O.A. (2020) Assessing possible hybridization among managed Nubian ibex in North America. *Zoo Biology*: 39: 121–128
- Grunst, A.S., Grunst, M.L., **Korody, M.L.**, Forrette, L.M., Gonser, R.A. and Tuttle, E.M. (2019). Extrapair mating and the strength of sexual selection: insights from a polymorphic species. *Behavioral Ecology*: 30(2): 278-290.
- Grunst, M.L., Grunst, M.L., Formica, V.A., **Korody, M.L.**, Betual, A.M., Barcelo-Serra, M, Gonser, R.A. and Tuttle, E.M. (2018). Actuarial senescence in a dimorphic bird: different rates of aging in morphs with discrete reproductive strategies. *The Royal Society, Proceedings B*: 285(1892)
- Grunst, A.S., Grunst, M.L., Formica, V.A., **Korody, M.L.**, Betual, A.M., Barcelo-Serra, M., Ford, S., Gonser, R.A. and Tuttle, E.M. (2018). Morph-specific patterns of reproductive senescence: connections to discrete reproductive strategies. *The American Naturalist*: 191(6): 744-755
- Tuttle, E.M., Grunst, A.S., Grunst, M.L., **Korody, M.L.**, Betuel, A.M., Barcelo-Serra, M., Bierly, G., and R.A. Gonser (2017) Climatically driven changes in population composition and offspring sex-morph ratio in a polymorphic species. *Ecosphere*:8(4) e01762.
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- Tuttle E.M., Bergland A.O., **Korody M.L.**, Brewer M.S., Newhouse D.J., Minx P., Stager M., Betuel A., Cheviron Z.A., Warren W.C., Gonser R.A. and Balakrishnan C.N. (2016) Divergence and degradation of a balanced supergene. *Current Biology* 26: 1-7
- Staes N, Stevens JMG, Helsen P, Hillyer M, **Korody M**, *et al.* (2014) Oxytocin and Vasopressin

- Receptor Gene Variation as a Proximate Base for Inter- and Intraspecific Behavioral Differences in Bonobos and Chimpanzees. PLoS ONE 9(11): e113364. doi:10.1371/journal.pone.0113364
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- Korody, M.L.**, Gonser, R.A., Romanov, M.N., Houck, M., Tuttle, E.M., and Lear, T.L. *In Prep.* Candidate gene mapping of the white-throated sparrow (*Zonotrichia albicollis*). (Presented as a poster at the ISU Research Symposium 2011)
- Korody, M.L.**, Tuttle, E.M., Formica, V.A., Kozelichki, Z., Aldrich, S., Jensen, R., and Gonser, R.A. *In Prep.* Patterns of parental investment in sex ratio: A birds-eye view using geographic information systems. *Global Ecology and Biogeography*. (Presented as a poster at the 43rd annual Animal Behavior meeting August 2006)

Presentations

- “Stem cells to the rescue: Saving the northern white rhino from extinction” Invited Presentation Southern California Stem Cell Seminar Series, UC San Diego, October 10, 2019
- “Stem cells in the northern white rhino: developing a toolbox for saving species” Plant and Animal Genome Conference, San Diego California, January 16, 2019
- “Skin cells to gametes: Saving the northern white rhino with science” Invited Presentation Institute for Conservation Seminar Series, Escondido California July 18, 2018
- “The Frozen Zoo®: A tool to rewind extinction” Invited Earth Day Presentation, Darwin Keynote Speaker Series at Indiana State University, Terre Haute Indiana April 18, 2017

Research Experience

December 2017 – Present

Scientist - Conservation Genetics San Diego Zoo Institute for Conservation Research, Escondido CA 92027 and Professional Scientific Collaborator with The Scripps Research Institute, La Jolla CA 92037

- Stem cell culture and reprogramming of fibroblasts into induced pluripotent stem cells from northern white rhinos for research in assisted reproduction technologies
- Directed differentiation of iPSCs
- Gene expression analysis
- Whole genome sequencing and analysis

May 2016 – December 2017

Post Doctoral Associate – Conservation Genetics San Diego Zoo Institute for Conservation Research, Escondido CA 92027 and Professional Scientific Collaborator with The Scripps Research Institute, La Jolla CA 92037

- Stem cell culture and reprogramming of fibroblasts into induced pluripotent stem cells from northern white rhinos for research in assisted reproduction technologies

May 2012 – April 2016

Research Associate/Senior Research Associate - Genetics Division, San Diego Zoo Institute for Conservation Research, Escondido CA 92027

- Cell culture and banking of cell lines from mammals, birds, reptiles and amphibians in the Frozen Zoo®
- Instructor for the Frozen Zoo® Cell Culture Seminar 2013 and 2014
- Microsatellite parentage analysis of California Condors
- Molecular sex determination of California Condors, San Clemente Loggerhead Shrikes, and Hawaiian birds
- Primate paternity analysis

August 2004 – April 2012:

Research Assistant to E.M. Tuttle, Molecular Ecology Lab, Indiana State University, Terre Haute IN

Planned for, coordinated, and conducted field collection of samples in a remote field setting;
overseeing a crew of 6
Performed mist netting, morphological measurements, and banding of adults and nestlings
Microsatellite parentage analysis of white-throated sparrows (WTSP) including DNA extraction,
PCR, and operation and maintenance of ABI 310® automated sequencer
Molecular morph and sex determination of WTSP nestlings
Molecular identification of blood parasite infections in WTSP
Maintain lab equipment and order supplies
Maintain captive white-throated (*Zonotrichia albicollis*), white-crowned (*Zonotrichia leucophrys*) and rufous collared (*Zonotrichia capensis*) sparrows

Summer 2003 and 2004:

Field Assistant to E.M. Tuttle, Cranberry Lake Biological Station, Cranberry Lake NY

Performed behavioral observations of white-throated sparrows
Spatially located observational data using a resource grade GPS unit
Responsible for processing of blood, plasma and fecal samples collected

February 2002 – April 2003:

Research Assistant to D.A. Gray, Molecular Ecology Lab, California State University Northridge

Reared crickets; Orthoptera, Gryllidae and parasitic fly; Diptera, *Ormia ochracea* in controlled environment

Performed DNA extraction, PCR and gel electrophoresis. Analyzed courtship songs of *Gryllus rubens* and *Gryllus texensis* using Cool Edit® software

Professional Development

Fall 2010 and Spring 2011 – 7 weeks spent at the University of Kentucky, Maxwell H. Gluck Equine Research Center under the supervision of Dr. Teri Lear. Trained in fluorescent *in situ* hybridization (FISH) including:

Culture, glycerol stock preparation, and extraction of BACs
Nick translation labeling
Competitor DNA preparation
Hybridization to prepared karyotypes

Grants Received

Spring 2011 – School of Graduate and Professional Development, Indiana State University. Awarded [REDACTED] for professional development “Candidate gene mapping in the white-throated sparrow”

Spring 2010 – School of Graduate and Professional Development, Indiana State University. Awarded [REDACTED] for professional development “Candidate gene mapping in the white-throated sparrow”

Spring 2009 – Indiana Academy of Science. Awarded [REDACTED] for research

Spring 2009 – School of Graduate and Professional Development, Indiana State University. Awarded [REDACTED] for research

Spring 2008 – School of Graduate Studies, Indiana State University. Awarded [REDACTED] for presentation of research at the 12th International Behavioral Ecology Congress, August 2008.

Spring 2006 – School of Graduate Studies, Indiana State University. Awarded [REDACTED] for presentation of research at the Annual Animal Behavior Meeting, August 2006.

Spring 2006 – School of Graduate Studies, Indiana State University. Awarded [REDACTED] for research.

Spring 2006 – Indiana Academy of Science. Awarded [REDACTED] for research

Fall 2005 – Sigma Xi, Grants in Aid of Research. Awarded [REDACTED] for research

Awards and Honors

February 2015 – Zooper Star Employee, San Diego Zoo Global

Spring 2010 – Awarded Outstanding Graduate Assistant, Presented by the School of Graduate and Professional Development, Indiana State University

Fall 2007 – Awarded Lilly Endowment Graduate Fellowship “Fulfilling the Promise: Pathways to Pre-eminence” for the 2007 – 2008 academic year
Spring 2007 – Awarded Education Excellence Award; Presented by the College of Arts and Sciences for exceptional instruction both inside and outside the classroom.
Spring 2006 – Nominated for the Education Excellence Award; Presented by the College of Arts and Sciences for exceptional instruction both inside and outside the classroom.

Teaching / Education Experience

Guest Lecturer: CMM 250 - Core Course in Stem Cell Biology, UC San Diego Stem Cell Program, January 2020 “Stem cells to the rescue: Saving the northern white rhino from extinction”

Instructor; *CIRM Bridges to Stem Cells* training course at the Scripps Research Institute August 2016 and August 2017

Instructor; *International Frozen Zoo® Cell Culture Seminar* October 2013 and 2014.

Teaching Assistant; *Principles of Biology Laboratory I & II for majors.* Department of Biology, Indiana State University, Terre Haute IN 47809
Fall and Spring Semesters 2004-2005

Teaching Assistant; *Exploration of Biological Phenomena, Introductory Biology for non-majors.* Department of Biology, Indiana State University, Terre Haute IN 47809
Fall 2005

Fall and Spring Semesters 2008-2009

Fall and Spring Semesters 2009-2010 (online lecture and lab)

Fall and Spring Semesters 2011-2012

Teaching Assistant and Lab Coordinator; *Principles of Biology Laboratory II for majors.* Department of Biology, Indiana State University, Terre Haute IN 47809
Spring Semester 2007

Workshop Leader

Spring 2005 – *Indiana Junior Science and Humanities Symposium*; Led workshops on molecular ecology and evolution and ancient DNA analysis techniques

Spring 2010 – “A bird in the hand” presentation at Dobbs Park Nature Center, Terre Haute IN

Service

Member Caleb Mills Teaching Awards Committee 2009

Indiana Junior Science and Humanities Symposium Poster Judge, 2006-2008, 2010

Undergraduate Student Mentoring:

Matthew Diaz (Junior, Harvard University) San Diego Zoo Institute for Conservation Research Summer Fellow “Using stem cells to save endangered species”

Tram Nguyen (Senior, Biology UC Berkeley) San Diego Zoo Institute for Conservation Research Summer Fellow “Improving genetic management of Nubian ibex using microsatellites to identify potential domestic goat hybridization events” (Co-mentored with Andrea Putnam)

Brittany Hrgich (Senior, Biology ISU) Fall and Spring semesters, 2009-2010. A molecular analysis of genetic variation in white-tailed deer (*Odocoileus virginianus*) from southern Maryland (Capstone Project with Dr. R. Gonser).

Felisha Dugan (Freshman, Biology ISU) Fall and Spring semester, 2008 – 2009. Molecular Techniques

Holly Hughes (Senior, Biology ISU) Spring semester 2009. Molecular techniques

Mariam Alowaki (Junior, Biology ISU) Spring semester 2009. Molecular techniques

Josh Downey (Freshman, Biology ISU) Spring and Fall semesters 2011. Field and molecular techniques

Ruth Awino (Senior, Biology ISU) Fall and Spring semesters, 2010-2011. Molecular techniques

High School Student Mentoring:

Nichole Byrer – Molecular identification of blood parasites in the white-throated sparrow

Ethan Sperry – Population genetics of the white-tailed deer

Emma Sperry – Serotonin receptor 1e sequencing in the white-throated sparrow

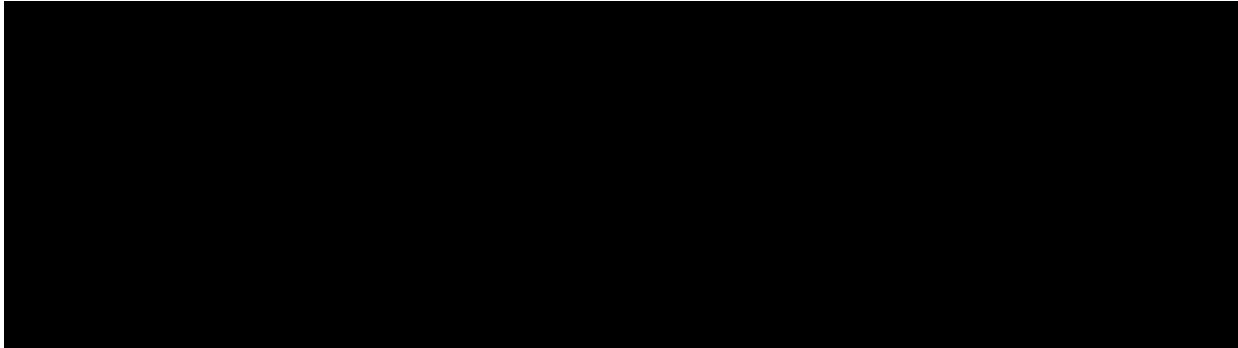
Tiffany Ko – Sex ratio variation within the white-throated sparrow

Marlin Hill – Molecular techniques

Professional Memberships

ISSCR

References



BARBARA S. DURRANT, Ph.D.

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San Diego Zoo Global
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email: bdurrant@sandiegozoo.org

EDUCATIONAL BACKGROUND

1972 North Carolina State University, Raleigh; B.S., Animal Science
1975 North Carolina State University, Raleigh; M.S., Physiology and Genetics
1979 North Carolina State University, Raleigh; Ph.D., Reproductive Physiology

RESEARCH/PROFESSIONAL EXPERIENCE

1972-75/77-79 Research and Teaching Assistant, N.C.S.U.
1975-76 Research and Teaching Assistant, University of Georgia
1979-80 Postdoctoral Fellow, Zoological Society of San Diego
1980- Head, Reproductive Sciences Division, Zoological Society of San Diego
1987- Adjunct Professor, Biology Department, San Diego State University
1993-2000 Adjunct Assistant Member, Department of Cell Biology, The Scripps Research Institute
2007 - Adjunct Professor, Biology Department, Palomar College
2007- 2009 Associate Director of CRES, Henshaw Chair of Reproductive Physiology
2009 - Henshaw Endowed Director of Reproductive Sciences, San Diego Zoo's Institute for Conservation Research

HONORS

Wildlife Heritage Fellowship, J. M. McDonald Foundation	1979-81
Outstanding Young Women of America	1981
Who's Who in California	1984/1989
American Men and Women of Science	1982/1985
Who's Who in the West	1987
YWCA Tribute to Women and Industry Award	1988

RESEARCH INTERESTS

Semen, ova and embryo collection, evaluation and cryopreservation. *In vitro* oocyte growth, maturation and fertilization. Hormonal estrus/ovulation induction. Contraception. Artificial insemination and embryo transfer. Stem cells. Species: cheetah, clouded leopard, lion, tiger, rhinoceros, Przewalski's horse, koala, pheasant, kiwi, 'Alala, rattlesnake, lizard, turtles and tortoises, oryx, drill, deer, giant pandas, black bears, sloth bears, sun bears.

PROFESSIONAL ORGANIZATION MEMBERSHIP

International Embryo Technology Society	American Society of Andrology
American Zoo and Aquarium Association	Society for the Study of Reproduction
Society for Theriogenology	American Association of University Women
Society for Experimental Biology & Medicine	

COMMITTEE MEMBERSHIPS AND POSITIONS

American Zoo and Aquarium Association
Genome Banking Advisory Group, Member
Reproductive Sciences Advisory Group, Member
Species Survival Plan Subcommittee, Reproductive Advisor
Cheetah Research Council, Reproductive Advisor
Scimitar-horned oryx SSP, Reproductive Advisor

Society for the Study of Reproduction

Animal Care and Experimentation Committee, Chairperson and Member

Minority Affairs Committee, Member

Clinical Outreach Committee, Member

Trainee-Mentor Committee, Member

SSR Representative: Federation of American Societies for Experimental Biology (FASEB)

Excellence in Science Committee (2010 - 2014)

International Embryo Technology Society

Board of Governors, governor 2015 -2018

Foundation Board of Trustees, trustee 2005-present, vice president 2011, president 2012-2013

Treasurer 2015 – 2018

Affiliate Society Committee, member 2005 -present, vice chair 2009-2012, chair 2012-2013

CANDES (Companion Animals, Non-Domestic and Endangered Species) committee member

Annual meeting Local Organizing Committee Chair 2009

Zoological Society of San Diego

Institutional Animal Care & Use Committee, Chairperson 1985-1992; Member 1993-2014

Zoological Society Strategic Planning

Pathology Strategic Planning

Cheetah Propagation Group

Reproductive Strategy Team

Quality Circle Advisory Team

Volunteer Task Force

Voice Steering Committee

IACUC Training Committee

Conservation and Research Review Panel

Conservation Strategic Planning Team

Conservation Lynx Team

Giant Panda Management Team

Frozen Zoo Strategic Planning Team

Bioethics Strategic Planning Team

Keeper Training Program

CRES Strategic Planning

Animal Conditions Task Force

Bird Department Quality Circle

Health Services Quality Circle

Continuing Education Task Force

Benefits Task Force

New Hire Video Task Force

Journey into 2002 CP1B3 Task Force

Supporting Processes Team

Stewardship Lynx Team

White Rhino Project Steering Committee

Culture Team

MANAGEMENT TRAINING-CERTIFICATED COURSES

Managing confrontation, conflict and criticism

Quality Circle Advisory Training

Animal Care Committee Leadership

Performance Evaluation, Discipline and Termination

Affirmative Action and Diversity Awareness

CA. Worker's Compensation Workshop

Sexual Harassment Training

Threat Training

Advanced Leadership Training

High Impact Teaming

Creative Problem Solving

Institutional Animal Care Training

Supervisor Training

Employment Law

Workshop for Supervisors

Media Training

Leadership Training

Conflict Resolution

COMMUNITY SERVICE

Institutional Animal Care & Use Committee, Salk Inst. Biotech. Ind. Assoc. 1989-1994

Judge, Greater San Diego Science and Engineering Fair, 1984-2012

Team Leader, Greater San Diego Science and Engineering Fair, 1995-2000

Sweepstakes Judge, Greater San Diego Science and Engineering Fair, 2001- 2012

Lectures to high school students in the Work Experience Education Program of the San Diego City Schools, 1980- 2000

Lecturing consultant, San Diego's High School Gifted and Talented Program, 1980-86

Lectures to Hoover High School Advanced Biology Seminar, 1987-1992

Lectures to UCSD Comparative Physiology Class, 1987-1998

Lectures and field trip, Reproductive Physiology, Cal Poly, San Luis Obispo, 1980-2009

American Association of Zoo Keepers, Ethics Workshop speaker and panelist, 1992

Lecturer, Mesa College Animal Health Technician Program, 1985- present
 Member, Preprofessional Health Student Evaluation Committee, SDSU, 1993- present
 Guest Curator, Cats!Wild to Mild exhibit, San Diego Natural History Museum, 1997
 Interviewee, "These Days with Tom Fudge" KPBS-FM radio, 2000

MENTORING ACTIVITIES

Clerkship supervisor for students from all U.S. schools of veterinary medicine, 1983-2009
 Supervisor, Institute for Conservation Research Summer Fellowship Program 1981-present
 Keynote speaker and panelist, Expanding Your Horizons, Walla Walla, WA, 1992
 Keynote speaker, Washington Science Teachers Association, Richland, WA, 1992
 Panelist, Expanding Your Horizons, San Diego Area, 1983-86
 Panelist, Career Education/Work Experience Day, Torrey Pines High School, 1986
 Panelist, Career Exploration Conference, AAUW, 1987
 Undergraduate training of biology majors; on-site laboratory experience, 1983- present
 Post-doctoral training; on-site laboratory experience, 1989- present
 High Tech High School on-site laboratory mentor, 2005-present
 Workshop Presenter, Sonia Kovalevsky Mathematics Day, National University, 1998, 1999
 Mentor, San Diego Zoo InternQuest program, 2000 - present
 BeWise (Better Education for Women in Science and Engineering) on site-laboratory experiences 2005-present
 Lecture series and graduate student advising:
 University of Georgia Kansas State University
 North Carolina State University University of Missouri

TEACHING EXPERIENCE

Instructor of Record

Zoology 120, Palomar College, "Animal Behavior" two semesters each year 2008-2014

Other

Comparative Physiology, UCSD, 1987-1998
 Advanced Inquiry Program, M.S. students, University of Miami, 2014 – present
 Comparative Reproduction, CSU, 2013-2020

GRANT REVIEWER

American Zoo & Aquarium Association-Conservation Endowment grants
 Institute of Museum Services-Conservation Project field reviewer and panelist
 National Science Foundation
 Nixon-Griffis Fund for Zoological Research
 Smithsonian Institution

EDITORIAL ACTIVITIES

Coeditor: *Conservation of Endangered Species in Captivity: An Interdisciplinary Approach*. Edited by E.F. Gibbons, B.S. Durrant and J. Demarest, SUNY Press. 1995
 Editorial Board, Zoo Biology 1999-present
 Editorial Board, Biology of Reproduction 2002-2004

Journal Reviewer:

American Journal of Primatology	Journal of Thermal Biology
Animal Biology	Journal of Zoo and Aquarium Research
Animal Reproduction Science	Journal of Zoo and Wildlife Medicine
Biology of Reproduction	Latin American Journal of Aquatic Mammals
Journal of Andrology	Reproduction, Fertility and Development
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- Jensen, T., Mace, M., **Durrant**, B. Sexing of mid-incubation avian embryos as a management tool for zoological breeding programs. *Zoo Biology* 30:1-11, 2011.
- Jensen, T., Charter, S., **Durrant**, B. Characterization, culture and xenotransfer of adult *Coturnix japonica* testicular germ stem cells to host chicken embryos (*Gallus gallus*). Presented at the International Symposium on Propagation of Endangered Avian Species, Abu Dhabi, 2011.
- Jensen, T., **Durrant**, B. Avian conservation projects in the Reproductive Physiology Division of San Diego Zoo Institute for Conservation Research. Presented at the International Symposium on Propagation of Endangered Avian Species, Abu Dhabi, 2011.
- Durrant**, B., Rimlinger, D., Mace, M. Propagation and recovery of endangered birds at the San Diego Zoo and Safari Park. Presented at the International Symposium on Propagation of Endangered Avian Species, Abu Dhabi, 2011.
- Roe M, S Charter, N McDonald, B **Durrant**, T Jensen. 2012. Xenotransfer of Adult Germ Stem Cells for Avian Conservation. SSR annual meeting, Pennsylvania State University.
- Croyle K, B **Durrant**, T Jensen. 2012. Degradation of Vitelline Membrane-bound Avian Sperm: Applications for Captive Breeding Management. SSR annual meeting, Pennsylvania State University.

- Hatashita K, Charter, S., Roe, M., **Durrant**, B., Jensen, T. 2012. Avian karyoplasts in inactivated chicken germ stem cells (GSCs): Avian somatic nuclear transfer facilitated by a novel antibody alignment method. SSR annual meeting, Pennsylvania State University.
- McDonald, N., Charter, S., Roe, M., **Durrant**, B., Jensen, T. 2012. Detection of embryonic gonadal stem cells following short-term culture using flow cytometry and cell-transfer. SSR annual meeting, Pennsylvania State University.
- Roe, M., Charter, S., McDonald, N., **Durrant**, B., Jensen, T. 2013. Xenogeneic transfer of Adult Quail (*Coturnix coturnix*) spermatogonial Stem Cells to Embryonic Chicken (*Gallus gallus*) hosts: a Model for Avian Conservation. *Biology of Reproduction* 88(5):129. DOI:10.1095/biolreprod.112.105189
- Kelleher, A., Willis, E., Tubbs, C., Huang, Y., Kouba, A., **Durrant**, B. 2013. Early pregnancy detection in the giant panda. International Bear Association meeting, Provo, Utah.
- Young, C., M. Curtis, N. Ravid, F. Mazotti, **B. Durrant**. Development of a sperm cryopreservation protocol for the Argentine black and white tegu (*Tupinambis merianae*). *Reprod Fert Dev* 26(1):168-169, 2013
- Imus, N., M. Roe, S. Charter, **B. Durrant**, T. Jensen. Transfer and detection of freshly isolated or cultured chickent (*Gallus gallus*) and exotic species' embryonic gonadal germ stem cells in host embryos. *Zoological Science* 31(6):360-368, 2014.
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- Croyle K, **B Durrant**, T Jensen. Detection of oocyte membrane-bound sperm: a tool for avian collection management. *Conservation Physiology* 3(1): cour060 doi:10.1093/conphys/cou/060 published online January 2015.
- Jamieson S, I Castro, T Jensen, K Morrison, **B Durrant**. Roosting preferences of North Island brown kiwi" The Wilson Journal of Ornithology (in press).
- Felton RG, Steiner CC, Durrant BS, Keisler DH, Milnes MR, Tubbs CW. Identification of California condor estrogen receptors 1 and 2 and their activation by endocrine disrupting chemicals. *Endocrinology*. Doi: 10.1210/en.2015-1448, 2015.
- Whiteman J, Owen M, **Durrant B**, Khadpekar Y, Selvaraj I, Sha A, Raj B, Dahe H, Satyanarayan K, Seshamani G, Hunt M, Crudge B, Officer K, Broadis N, Kart Gür M, Cihan H, Cornelissen G. 2016. Talk: Studying biological rhythms in captive bears. *International Conference on Bear Research and Management, Annual Meeting (Anchorage, Alaska)*.
- Young, C., M. Curtis, N. Ravid, F. Mazotti, **B. Durrant**. Development of a sperm cryopreservation protocol for the Argentine black and white tegu (*Tupinambis merianae*). *Theriogenology*. 2016 Aug 18.
- Tubbs C, Moley L, Ivy J, Metrione L, LaClaire S, Felton R, **Durrant B**, Milnes M. Estrogenicity of captive southern white rhinoceros diets and their association with fertility. *Gen Comp Endocrinol* 238:32-38, 2016.
- Saragusty J, Diecke S, Drukker M, **Durrant B**, et al. Rewinding the process of mammalian extinction. *Zoo Biol* 35(4):280-292, 2016.
- Preece, D., K Chow, V. Gomez-Godinez, K. Gustafson, S. Esener, N. Ravid, **B. Durrant**, M. Berns. Red light improves spermatozoa motility and does not induce oxidative DNA damage. *Scientific Reports*, Apr 20, 2017. DOI: 10.1038/srep46480.
- Calatayud NE, Stoops M, **Durrant B**. Ovarian control and monitoring in amphibians. <https://doi.org/10.1016/j.theriogenology.2017.12.005> 2017.
- Ververs C, Langhout M, Hostens M, Otto M, Govaere J, **Durrant B**, Van Soom A. Reproductive performance parameters in a large population of game-ranched white rhinoceroses (*Ceratotherium simum simum*). 2017. *PLoS One* 12(12):e0187751. DOI 10.1371/journal.pone.0187751.
- Tubbs CW, **BS Durrant**, MR Milnes. Reconsidering the use of soy and alfalfa in southern white rhinoceros diets. *Pachyderm* 06/2017; 2017(58):135-139.
- Khadpekar Y, JP Whiteman, **BS Durrant**, MA Owen, S Prakash. 2018. Approaches to studying behavior in captive sloth bears through animal keeper feedback. *Zoo Biology* 37:408–415.
- Roberts B, J Brown, D Kersey, **B Durrant**, R Snyder, A Kouba. Use of urinary 13,14, dihydro-15-keto-prostaglandin F2a (PGFM) concentrations to diagnose pregnancy and predict parturition in the giant panda (*Ailuropoda melanoleuca*). *PLoS One* 2018. <https://doi.org/10.1371/journal.pone.0195599>.

- Pennington P, **B Durrant**. Assisted reproductive technologies in captive rhinoceros. *Mammal Review*.
 Doi: 10.1111/mam.12138. 2018
- Khadpekar Y, Whiteman J, Owen M, **Durrant B**, Satyanarayan K, Seshamani G, 2018. Non-invasive monitoring of reproductive hormone in captive female sloth bears. Presented to 25th annual conference on Bear Research *Management, Annual Meeting (Anchorage, Alaska)*.
- Williams, CL, AR Ybarra, AN Meredith, **BS Durrant**, CW Tubbs. 2019. Gut Microbiota and Phytoestrogen-Associated Infertility in Southern White Rhinoceros. *mBio* 10(2) e00311-19.
- Gomez M, A Alrashed, C-Y Su, **B Durrant**. 2019. Cryopreservation of horse testicular tissue as a model for rhinoceros. *Reprod Fert Dev* 31:13.
- Pennington P, J Capiro, K Marshall, R Felton, **B Durrant**. 2019. Ovulation induction in anovulatory southern white rhinoceros (*Ceratotherium simum simum*). *Reprod Fert Dev* 31:49.
- Young C, N Ravida, P Pennington, **B Durrant**, 2019. Efficacy of commercial equine semen freezing extenders for cryopreservation of southern white rhinoceros (*Ceratotherium simum simum*) semen. *Reprod Fert Dev* 31:50.
- Catatyud N, M Curtis, **B Durrant**. 2019. Hormonal stimulation and post-breeding sperm induction in the mountain yellow-legged frog, *Rana mucosa*. *Reprod Fert Dev* 31:53.
- Su C-Y, T Jensen, **B Durrant**, M Gomez. Isolation and purification of rhinoceros and horse spermatogonial stem cells. *Reprod Fert Dev* 31:94, 2019.
- Kinney ME, Hendrickson D, Pennington P, Zuba JR, Clancy MM, Howard LL, Papendick R, **Durrant B**. Vaginoscopic identification of a vertical vaginal septum in one primiparous and three nulliparous southern white rhinoceros (*Ceratotherium simum*). *J Zoo Wildl Med* 50(1):274-277, 2019.
- Jensen T, S Jamieson, I Castro, B Gartrell, J Cockrem, **B Durrant**. Serum prolactin and testosterone levels in captive and wild brown kiwi (*Apteryx mantelli*) during the prebreeding, breeding and incubation periods. *Zoo Biology* 38(3):316-320. 2019.
- Pennington P, K Marshall, J Capiro, R Felton, **B. Durrant**. 2019, Ovulation induction in anovulatory southern white rhinoceros (*Ceratotherium simum simum*) using an individualized treatment protocol without altrenogest, *Conservation Physiol.* 7(1), 2020. <https://doi.org/10.1093/conphys/coz033>.
- Pennington P, K Marshall, J Capiro, L Howard, **B Durrant**. 2019. Pregnancies following prolonged luteal phases in southern white rhinoceros (*Ceratotherium simum simum*). *Zoo Biol* 39(2):141-144, 2020.
- Ryder OA, C Friese, HT Greely, R Sandler, J Saragusty, **BS Durrant**, KH Redford. Exploring the limits of saving a subspecies: The ethics and social dynamics of restoring northern white rhinos (*Ceratotherium simum cottoni*). *Conserv Sci & Practice*. 2020;2:e241. <https://doi.org/10.1111/csp2.241>.

Christopher W. Tubbs, Ph.D.

San Diego Zoo Global, Institute for Conservation Research, 15600 San Pasqual Valley Road, Escondido, CA 92027, Phone: 760.291.5422, ctubbs@sandiegozoo.org

Adjunct Assistant Professor of Animal Sciences, Department of Animal Sciences, The University of Missouri, Columbia MO

EDUCATION

2007 The University of Texas at Austin, Ph.D., Marine Science
-Emphasis in comparative fish reproductive physiology and
characterization of novel mechanisms of steroid hormone action

2001 University of Florida, B.S., Zoology

RESEARCH

San Diego Zoo Institute for Conservation Research

Associate Director, Reproductive Sciences

2007-present

PI of the Endocrinology Laboratory of the Reproductive Sciences Team. Research focuses on the effects of environmental chemicals on the reproductive physiology of endangered species. Promoted to Scientist from the position of Postdoctoral Associate in August 2011, to Senior Scientist in January 2017 and to Associate Director in September 2019.

The University of Texas at Austin Marine Science Institute

Graduate Research Assistant

May 2003-Aug 2007

Conducted doctoral research characterizing signaling mechanisms of a novel, membrane-bound steroid hormone receptor and its role in the regulation sperm motility of two estuarine fishes.

Marine Biological Laboratory, Woods Hole, MA

May 2006

Attended Frontiers in Reproduction: Molecular and Cellular Concepts and Applications; summer course for young scientists that develops the knowledge and experimental skills needed to pursue a career in the reproductive sciences.

Florida Fish and Wildlife Conservation Commission

Jun 2000-Aug 2002

Field Biologist

Field biologist with Alligator Management Section. Assisted in the collection and incubation of alligator eggs and evaluated hatching success of egg clutches from different lakes in Florida. Assisted in the capture of juvenile and adult alligator for research purposes.

University of Florida

Undergraduate Researcher

Aug 1999-May 2001

Undergraduate researcher in laboratory examining the effects of endocrine disrupting contaminants of reproduction of fish and alligators. Designed and conducted senior research project on the effects of pesticides on reproductive development of male mosquitofish.

TEACHING

Palomar College, San Marcos, CA
Adjunct Professor of Biology

Aug 2009-Dec 2014

General Biology Laboratory BIO101L

Introductory, non-majors laboratory exercises in cell structure and function, energy transfer, reproduction, genetics, and ecology (Fall 2013, 2014; Spring 2013, 2014).

Molecules and Cells BIO102

An introductory course designed for pre-nursing students consisting of lecture and laboratory components. Explores the basic principles of life including biochemistry, cellular structure and function, energy transfer, cellular division, inheritance and molecular genetics. Was responsible for development of lecture and laboratory curriculum (Spring 2011; Fall 2011).

Animal Behavior Z00120

Lead instructor for this introductory, non-majors course that explores the physiological and evolutionary basis of animal behavior. Developed and implement active-learning curriculum that engages students in the process of guided scientific inquiry. Mentor co-instructors in the development of active-learning curriculum (Fall 2009, 2010, 2011, 2012, 2014; Spring 2010, 2011, 2012, 2013, 2014).

National Academies Summer Institutes on Undergraduate Biology Education
Education Mentor in the Life Sciences

2011-2013

Mentor research university faculty who attended the Pacific Northwest Regional Summer Institute to learn how to incorporate active-learning techniques, learning outcome assessment and appreciation for student diversity in their classrooms.

Faculty Institutes for Reforming Science Teaching (FIRST IV)
Regional Team Leader

Jun 2011-May 2013

One of five postdocs selected to help train and mentor second cohort of one hundred FIRST IV Postdoctoral Teaching Fellows. Responsible for yearlong mentorship of two teams of postdocs and providing assistance in developing two one semester courses (Introduction to Marine Biology and Science and Society) using backwards design and active-learning techniques.

Faculty Institutes for Reforming Science Teaching (FIRST IV)
Postdoctoral Teaching Fellow

Jun 2009-Jun 2010

One of one hundred applicants selected to participate in NSF-funded program aimed at reforming science education by training future educators to 1) develop and implement innovative active-learning, inquiry-based curricula and 2) use scientific approaches to measure student learning outcomes (SLO's) and assess the effectiveness of pedagogical methods. Co-developed a one semester introductory Cell Biology active-learning course as part of this fellowship.

The University of Texas Marine Science Institute, Port Aransas, TX

Teaching Assistant

Aug 2002-Aug 2005

Introduction to Oceanography

An introductory lecture and laboratory course for non-majors that surveys the physical, chemical, geological and biological processes that define the ocean environment and discusses how the ocean environment influences human society. Was responsible for development of new laboratory curricula and teaching laboratory sections. (Fall 2002, Spring 2003).

Reproductive Physiology of Fishes

A graduate level lecture, laboratory and field course that examines the environmental, hormonal and behavioral aspects of teleost reproduction. Assisted in all course components, including giving lectures, training students in the field collection of fish, training students to perform oocyte maturation and sperm motility bioassays and data analysis. (Summer 2004)

Biology of Fishes

An upper division course that discusses the anatomy, physiology, behavior, life history, taxonomy, and distribution of fishes, with emphasis on field sampling and laboratory studies. Served as a volunteer teaching assistant and provided training in deep-sea fish collection and dissection. (Summer 2005)

STUDENTS SUPERVISED

Graduate

2012-2014: Rachel Felton (co-chair of Master's committee, University of Missouri, Department of Animal Sciences)

2015-2018: Zeka Kuspa (member of Ph.D. committee, University of California, Santa Cruz)

Undergraduate

San Diego Zoo Institute for Conservation Research Summer Fellows

2019 Allison Carothers, University of Nebraska (co-mentor)

2018 Morgan Orsolini, California Polytechnic Institute (co-mentor)

2017 Alexis Ybarra, UC-San Diego (co-mentor)

2016 Juliana Candelaria, University of Maryland (currently Ph.D. student at UC-Davis)

2015 Corie Owen, California Polytechnic Institute (currently Ph.D. student at University of Connecticut)

2014 Katie Bidne, University of Nebraska-Lincoln (currently Ph.D. student at Iowa State University)

Rebecca Joyce, Rutgers University

2013 Laura Moley, University of Missouri (currently Ph.D. student, Utah State University, co-author on peer reviewed publication)

2012 Caitlin McDonough, Beloit College (currently Ph.D. student, Syracuse University, co-author on peer-reviewed publication)

2011 Rachel (Gerrard) Felton, Missouri State University (currently Research Coordinator, Reproductive Sciences, San Diego Zoo Institute for Conservation Research)

PUBLICATIONS

- 2020** Felton, R.G., C.M. Owen, J.M. Cossaboon, C.S. Steiner, C.W. Tubbs. 2020. Identification of California condor (*Gymnogyps californianus*) estrogen receptor variants and their activation by xenoestrogens. *General and Comparative Endocrinology* 289, 113392.
- Williams, C.L., N. Garcia-Reyero, C.J. Martyniuk, C.W. Tubbs, J.H. Bisesi. 2020. Regulation of endocrine systems by the microbiome: Perspectives from comparative animal models. *General and Comparative Endocrinology* 292: 113437.
- Glucs, Z.E., D.R. Smith, C.W. Tubbs, V.J. Bakker, R. Wolstenholme, K. Dudus, L.J. Burnett, M. Clark, M. Clark, M.E. Finkelstein. 2020. Foraging behavior, contaminant exposure risk, and the stress response in wild California condors (*Gymnogyps californianus*). *Environmental Research* 189: 109905
- 2019** Williams, C.L., A. R. Ybarra, A.N. Meredith, B.S. Durrant, C.W. Tubbs. Gut Microbiota and Phytoestrogen-Associated Infertility in Southern White Rhinoceros. *mBio* 10, e00311-00319
- Tan, W., Y. Pang, C. Tubbs, P. Thomas. Induction of sperm hypermotility through membrane progesterin receptor alpha (mPR α): A teleost model of rapid, multifaceted, nongenomic progesterin signaling. *General and Comparative Endocrinology* 279, 60-66.
- 2018** Glucs, Z.E., D.R. Smith, C.W. Tubbs, J.J. Scherbinski, A. Welch, J. Burnett, M. Clark, C. Eng, M.E. Finkelstein. Glucocorticoid measurement in plasma, urates, and feathers from California condors (*Gymnogyps californianus*) in response to a human-induced stressor. *PLoS ONE*. DOI: 10.1371/journal.pone.0205565.
- Tubbs, C.W., C.E. McDonough. Reproductive Impacts of Endocrine Disrupting Chemicals on Wildlife Species: Implications for the Conservation of Endangered Species. *Annual Review of Animal Biosciences* 6 287-304.
- Tubbs, C.W. Advancing Laboratory-Based Zoo Research to Enhance Captive Breeding of Southern White Rhinoceros. Pages 279-285 in *The Ark and Beyond: The Evolution of Zoo and Aquarium Conservation*. Edited by B.A. Minteer, J. Mainschein, and J.P. Collins. University of Chicago Press, Chicago, Illinois.
- 2017** Tubbs, C.W., Durrant, B.S., and Milnes, M.R. Reconsidering the use of soy and alfalfa in southern white rhinoceros diets. *Pachyderm*, 58 135-139.
- 2016** Tubbs, C.W., Moley, L.A., Ivy, J.A., Metrione, L.C., LaClaire, S., Felton, R.G., Durrant, B.S., and Milnes, M.R. Estrogenicity of captive southern white rhinoceros diets and their association with fertility. *General and Comparative Endocrinology*, 238 32-38.
- Tubbs, C.W. California condors and DDT: Examining the effects of endocrine

- disrupting chemicals in a critically endangered species. *Endocrine Disruptors*, 4(1).
- 2015** Felton, R.G., C.C. Steiner, B.S. Durrant, D.H. Keisler, M.M. Milnes, and C.W. Tubbs. Identification of California condor estrogen receptors 1 and 2 and their activation by endocrine disrupting chemicals. *Endocrinology* 156(12) 4448-4457.
- 2014** Tubbs, C, McDonough, C, Felton, R, and Milnes, M. Advances in conservation endocrinology: The application of molecular approaches to the conservation of endangered species. *General and Comparative Endocrinology*, 203 29-34.
- 2012** Tubbs, C, Hartig, P, Cardon, M, Varga, N and Milnes, M. Activation of southern white rhinoceros (*Ceratotherium simum simum*) estrogen receptors by phytoestrogens: potential role in the reproductive failure of captive-born females? *Endocrinology*, 153(3) 1444-1452.
- 2011** Tubbs, C, Tan, W, Shi, B and Thomas, P. Identification of 17,20 β ,21-trihydroxy-4-pregnen-3-one (20 β -S) receptor binding and membrane progesterin receptor alpha on southern flounder sperm (*Paralichthys lethostigma*) and their likely role in 20 β -S stimulation of sperm hypermotility. *General and Comparative Endocrinology*, 170 629-639.
- 2010** Tubbs, C, Pace, M, and Thomas, P. Expression and gonadotropin regulation of membrane progesterin receptor alpha in Atlantic croaker (*Micropogonias undulatus*) gonads: Role in gamete maturation. *General and Comparative Endocrinology*, 165 144-154.
- 2009** Tubbs, C and Thomas, P. Progesterin signaling through an olfactory G protein and membrane progesterin receptor alpha in Atlantic croaker sperm: potential role in induction of sperm hypermotility. *Endocrinology*, 150(1) 473-484.
- Thomas, P, Tubbs, C and Garry, VF. Progesterin functions in vertebrate gametes mediated by membrane progesterin receptors (mPRs): Identification of mPR α on human sperm and its association with sperm motility. *Steroids* 74 (7): 614-621.
- 2008** Tubbs, C and Thomas, P. Functional characteristics of membrane progesterin receptor alpha (mPR α) subtypes: A review with new data showing mPR α expression in seatrout sperm and its association with sperm motility. *Steroids* 73 (9-10): 935-941
- 2007** Nunez, B, Applebaum S, Berg A, Dressing, G, Evans A, Tubbs, C, Barry, T. Molecular aspects of steroid action in marine fishes. In: *Biotechnology*, Doelle, HW, DaSilva, EJ. *Encyclopedia of Life Support Systems (EOLSS)*, Oxford, UK, <http://www.eolss.net>
- Thomas, P, Tubbs, C, Berg, H, Dressing, G. Sex steroid hormone receptors in fish ovaries. In: *The fish oocyte: from basic studies to biotechnological applications*, 203-233. Babin, P, Cerda, J and Lubzens, E (eds). Springer.

- Thomas P, Pang Y, Dong J, Groenen P, Kelder J, de Vlieg J, Zhu Y, and Tubbs C. Steroid and G protein binding characteristics of the seatrout and human progesterin membrane receptor alpha subtypes and their evolutionary origins. *Endocrinology* 148 (2): 705-718.
- 2006** Thomas P, Dressing G, Pang Y, Berg H, Tubbs C, Benninghoff AD, and Doughty K. Progesterin, estrogen and androgen G-protein coupled receptors in fish gonads. *Steroids* 71: 310-316.
- 2005** Thomas P, Tubbs C, Detweiler D, Das S, Ford L, and Breckenridge-Miller D. Binding characteristics, hormonal regulation and identity of the sperm membrane progesterin receptor in Atlantic croaker. *Steroids* 70: 427-433.
- Bermudez DS, Milnes MR, Bryan TA, Gunderson MP, Tubbs C, Woodward AR, and Guillette LJ Jr. 2005. Seasonal variation in plasma thyroxine concentrations in juvenile alligators (*Alligator mississippiensis*) from three Florida Lakes. *Comparative Biochemistry and Physiology A Molecular and Integrative Physiology* May 141(1): 8-14.

SELECT GRANTS, AWARDS and HONORS

- 2020** *Co-investigator*, Closing the Gap: Elephant Endotheliotropic Herpesvirus (EEHV) In African Elephants National, Sea Grant College Program [REDACTED]
- 2018** *Co-investigator*, Assessing marine endocrine disrupting chemicals in the critically endangered California condor: Implications for reintroduction to coastal environments, National Sea Grant College Program, [REDACTED]
- 2014** *Finalist*, Distinguished Faculty Award for Excellence in Teaching, Palomar College, San Marcos, CA
- 2011** *Nominee*, Distinguished Faculty Award for Excellence in Teaching, Palomar College, San Marcos, CA
- 2010** *Nominee*, Distinguished Faculty Award for Excellence in Teaching, Palomar College, San Marcos, CA
- Co-investigator*, Changes in Vaginal Cell Gene Expression as a Diagnostic Tool for Monitoring Reproductive Status in the Giant Panda, Morris Animal Foundation
- 2009** Postdoctoral Teaching Scholarship, National Science Foundation, Faculty Institutes for Reforming Science Teaching (FIRST IV)
- 2008** *Nominee*, Outstanding Dissertation Award, College of Natural Sciences, The University of Texas at Austin
- 2006** Scholarship, Frontiers in Reproduction, Marine Biological Laboratory, Woods Hole, MA

E.J. Lund Fellowship in Marine Science, Marine Science Institute, The University of Texas at Austin

2005 E.J. Lund Fellowship in Marine Science, Marine Science Institute, The University of Texas at Austin

Laura Brooks Flawn, M.D. Endowment, Marine Science Institute, The University of Texas at Austin

2002 Dean's Excellence Award, College of Natural Sciences, The University of Texas at Austin

SELECT RECENT PRESENTATIONS

2020 A new recipe for southern white rhino breeding success?
-Distinctive Voices Series, National Academies of Sciences, Irvine, CA.
-Perspectives on Science Seminar Series, Point Loma Nazarene University, San Diego, CA.

2019 San Diego Zoo's northern white rhino initiative: saving a species with science
-Sustainability Professional Speaker Series, University of Southern California, Los Angeles, CA
-Congreso Veterinario de León, León, Mexico.

Gut microbiota and phytoestrogen-associated infertility in southern white rhinoceros. North American Society for Comparative Endocrinology Biannual Meeting, Gainesville, FL.

Dietary phytoestrogens and southern white rhinoceros: A new recipe for breeding success? Association of Zoos and Aquariums Mid-Year Meeting, Phoenix, AZ.

2018 A new recipe for southern white rhino breeding success? Réseau Québécois en Reproduction, Université de Montréal, Montréal, Canada.

2017 Identification and assessment of potentially novel endocrine disrupting chemicals in coastal scavenging California Condors, California Condor Field Team Meeting, Hollister, CA.

PROFESSIONAL SERVICE

2016-present San Diego Zoo Global Institutional Animal Care and Use Committee (IACUC), IACUC Chair 2017-2018, Incoming Chair 2021-2022.

2017-2018 San Diego Zoo Global Animal Welfare Panel

2011-present International Rhino Keeper's Association, Inc., Served on Board of Director's and held Treasurer position since 2017.

2008-2016	Laboratory Instructor, San Diego Science Alliance, Better Education for Women in Science and Engineering (BE WiSE), San Diego Zoo's Institute for Conservation Research, Escondido, CA
2008-present	Laboratory Instructor, Zoo InternQuest, San Diego Zoo's Institute for Conservation Research, Escondido, CA
2008-2015	Judge, Animal Science Division, Greater San Diego Science Fair, San Diego, CA
<u>Reviewer:</u>	Theriogenology, Domestic Animal Reproduction, CBE-Life Sciences Education, Journal of Experimental Zoology, PLoS One, Bioscience, Environmental Science and Technology, Frontiers in Endocrinology, General and Comparative Endocrinology, Molecular and Cellular Endocrinology, Aquaculture, BMC Zoology
<u>Memberships:</u>	North American Society for Comparative Endocrinology



Curriculum Vitae

Thomas Jensen

San Diego Zoo Institute for Conservation Research
Reproductive Sciences
Zoological Society of San Diego
15600 San Pasqual Valley Rd
Escondido, CA 92027
tjensen@sandiegozoo.org

16528 Arena Drive
Ramona, CA 92065
(858) 354-7835

I. Education

UNIVERSITY OF NOTRE DAME, Notre Dame, Indiana
Doctor of Philosophy in Avian Physiology, August 1999
Advisor: Dr. A.L. Johnson
"Expression and function of neurotrophins and their receptors in the hen and chick ovary"

NORTHERN ARIZONA UNIVERSITY, Flagstaff, Arizona
Bachelor of Science in Zoology, May 1994

SOROE AKADEMI KOST-SKOLE, Soroe, Denmark
Gymnasie eksamen in Biological Sciences, June 1990

II. Work experience

Feb 2016-present	Senior Scientist, San Diego Zoo Institute for Conservation Research, Escondido, California
April 2007-Feb 2016	Scientist, San Diego Zoo Institute for Conservation Research, Escondido, California
2005-2012	Adjunct professor Palomar college, San Marcos, California
Oct 2002-Mar 2007	Research Fellow, Conservation and Research for Endangered Species, Escondido, California
2001-2006	Adjunct research associate, Department of Biology San Diego State University.
Oct 1999-Oct 2002	Post-doctoral Fellow, Center for Reproduction of Endangered Species, San Diego, California

The name of the San Diego Zoo Institute for Conservation Research has changed twice since 1999 from "Center for Reproduction of Endangered Species" to "Conservation and Research for Endangered Species" to "San Diego Zoo Institute for Conservation Research". In addition, the Institute was moved from the San Diego Zoo campus to the San Diego Zoo's Safari Park campus in 2005.

III. Teaching

- 2009 Sp-2012 Sp Animal Behavior (ZOO 120), Palomar Community College
This class was further developed and taught with co-instructors
- 2008 Spring Animal Behavior (ZOO 120), Palomar Community College
This class was developed by me
- 2007-Present Avian Incubation and Embryology Workshop (AIW)
This international workshop is organized by the San Diego Zoo and the Los Angeles Zoo and is intended for Zoo curators, avian incubation facility managers and incubation keepers. The workshop is one week long and focuses on teaching incubation management (taught by the San Diego Zoo Animal Care staff) and avian development and embryology (taught by me). We have taught the class once or twice a year since 2007.
- 2006 Spring Ornithology (BIOL 197) lecture and laboratory, Palomar Community College
I developed this class for Palomar, the lectures included a general overview of ornithology, and the lab included anatomy/physiology, embryology, and detection and analysis of microsatellites in kiwi.
- 2005 Spring/Fall General biology (BIOL 100) lecture and laboratory, Palomar Community College
- 2001-2005 San Diego Zoo Animal Care Education lecturer (avian anatomy and physiology).
This program is the San Diego Zoo's keeper training program, and has now been replaced by a webinar series.
- 1995-1999 Graduate teaching assistant, University of Notre Dame.
Integrative Comparative Physiology Lab 5 semesters; Embryology lab 2 semesters; General Biology lab 1 semester

IV. Funding Awards ([REDACTED])

Applications

Awarded and active

- 2018 NOJ-Foundation 3-year (active 2019-2021) grant for [REDACTED]

Awarded and completed

- 2017 NOJ-Foundation renewal for [REDACTED]; Danish private charity foundation
- 2016 NOJ-Foundation renewal for [REDACTED]; Danish private charity foundation
- 2015 Ocelots grant ([REDACTED]); Zoo fund raising group
- 2015 NOJ-Foundation renewal for [REDACTED]; Danish private charity foundation
- 2014 Donation for AIW/field training/field research (\$[REDACTED]); Private donor
- 2014 Donation for AIW ([REDACTED]); Private donor
- 2014 NOJ-Foundation renewal ([REDACTED]); Danish private charity foundation
- 2013 NOJ-Foundation renewal ([REDACTED]); Danish private charity foundation
- 2013 Ocelots grant ([REDACTED]); Zoo fund raising group
- 2013 Donation for AIW ([REDACTED]); Private donor
- 2013 Donation for AIW ([REDACTED]); Private donor
- 2012 NOJ-Foundation renewal ([REDACTED]); Danish private charity foundation
- 2012 Ocelots grant ([REDACTED]); Zoo fund raising group
- 2011 NOJ-Foundation renewal (\$[REDACTED]); Danish private charity foundation

2011 Ocelots grant (); Zoo fund raising group
 2010 NOJ-Foundation renewal (); Danish private charity foundation
 2010 Bay and Paul Foundations (); Private charity foundation
 2010 Ocelots grant (); Zoo fund raising group
 2009 NOJ-Foundation renewal (); Danish private charity foundation
 2009 Bay and Paul Foundations (); Private charity foundation
 2009 Zoo competitive internal Field Post-doctoral Program for a post-doctoral fellow doing field research in NZ (3 years x)
 2009-present OmniPod donation of equipment (); Corporate donation
 2008 NOJ-Foundation renewal (); Danish private charity foundation
 2008 Donation (); Private donor
 2008 Bay and Paul Foundations (); Private charity foundation
 2007 NOJ-Foundation renewal (); Danish private charity foundation
 2007 Sefton Foundation (); Private charity foundation
 2006 NOJ-Foundation renewal (); Danish private charity foundation
 2005 NOJ-Foundation renewal (); Danish private charity foundation
 2003 Klass Foundation (); Private charity foundation
 2003 Assay Designs Inc. gift in kind (); Corporate donation
 2002 NOJ-Foundation 3-year renewal (); Danish private charity foundation
 2001 Alpha Diagnostics International gift in kind (\$1,000); Corporate donation
 2001 Cruffel Foundation (); Private charity foundation
 1999 NOJ-Foundation 3-year grant (); Danish private charity foundation

V. Publications

* denotes undergraduate/graduate students, see VIII B below

a. Peer reviewed publications

- Jensen T**, S E Jamieson, I. Castro, B Gartrell, J F Cockrem, and B Durrant. (2019). Serum prolactin and testosterone levels in captive and wild northern brown kiwi (*Apteryx mantelli*) during the pre-breeding, breeding, and incubation periods. *Zoo Biology* DOI: 10.1002/zoo.21484
- Croyle* K, P Gibbons, C Light, E Goode, B Durrant, and T Jensen. (2016). Chelonian Perivitelline Membrane-bound Sperm Detection: A new breeding management tool. *Zoo Biology* 35 (2): 95–103
- Jamieson S, I Castro, **T Jensen**, K Morrison, B Durrant. (2016). Roosting preferences of North Island brown kiwi. *The Wilson Journal of Ornithology* 128 (4): 857-866. 2016
- Croyle* K, B Durrant, **T Jensen**. (2015). Detection of oocyte membrane-bound sperm: a tool for avian collection management. *Conservation Physiology* 3 (1): cou060 doi:10.1093/conphys/cou060
- Imus* N, M Roe*, S Charter, B Durrant, **T Jensen**. (2014). Transfer and detection of freshly isolated or cultured chicken (*Gallus gallus*) and exotic species' embryonic gonadal germ stem cells in host embryo. *Zoological Science* 31 (6): 360-368
- Roe* M, N McDonald*, B Durrant, and **T Jensen**. (2013). Xenogeneic Transfer of Adult Quail (*Coturnix coturnix*) Spermatogonial Stem Cells to Embryonic Chicken (*Gallus gallus*) Hosts: A Model for Avian Conservation. *Biology of Reproduction* 88 (5) 129: 1-7

- Jensen T**, M Mace, B Durrant. (2012). Sexing of mid-incubation avian embryos as a management tool for zoological breeding programs. *Zoo Biology* 31 (6): 694
- Cunningham SJ, I Castro, **T Jensen** and MA Potter. 2010. Remote touch prey-detection by Madagascar crested ibises *Lophotibis cristata urschi*. *Journal of Avian Biology* 41: 350-353
- Jensen T**, K Nutt, B Seal, L Fernandes, B Durrant. 2008. Isolation and characterization of microsatellite loci in the North Island brown kiwi, *Apteryx mantelli*. *Molecular Ecology Resources* 8: 399–401
- Jensen T** and B Durrant. 2006. Assessment of reproductive status and ovulation in female North Island Brown Kiwis (*Apteryx australis mantelli*) using fecal steroids and ovarian follicle size. *Zoo Biology* 25: 25-34.
- Jensen T**, F Pernasetti, B Durrant. 2003. Conditions for rapid sex determination in 47 avian species by PCR of genomic DNA from blood, shell-membrane blood vessels and feathers. *Zoo Biology* 22: 561-571.
- Jensen T** and AL Johnson. 2001. Expression and function of brain derived neurotrophin factor and its receptor, trkB, in ovarian follicles from the domestic hen (*Gallus gallus domesticus*). *Journal of Experimental Biology* 204: 2087-2095
- Johnson, AL, JT Bridgham, **T Jensen**. 1999. BCL-X long protein expression and phosphorylation in granulosa cells. *Endocrinology* 140: 4521-4529

b. Presentations from professional conferences/symposia

- K Kramer, P Byrne, **T Jensen**. 2020. Maintaining spermatogonial stem cells in testes cultured in vitro supplemented with steroids and gonadotropins. Society for the Study of Reproduction annual meeting, Virtual conference.
- T Tejakusuma, **T Jensen**, P Byrne. 2020. Verification of telomere and 18S primers in a monochrome multiplex qPCR assay to determine relative telomere length in multiple species of birds. Society for the Study of Reproduction annual meeting, Virtual conference.
- Molina J*, P Byrne, **T Jensen**. 2019. Post-thaw Survival of Presumptive Germline Stem Cells in Cryopreserved Quail Testes following Chorioallantoic Membrane Culture. Society for the Study of Reproduction annual meeting, San Jose, California.
- Mohapatra A*, J Molina*, P Byrne, **T Jensen**. 2019. Effect of post-cryopreservation chorioallantoic membrane culture on mouse testes cell survival and seminiferous tubule morphology. Society for the Study of Reproduction annual meeting, San Jose, California.
- Molina J*, **T Jensen**, P Byrne, T Spady, B Read. 2019. Post-thaw In-ovo Culture of Quail Testicular Tissue. CSUSM symposium on student research, creative activities, and innovation, San Marcos, California. Finalist for state competition.
- Mohapatra A*, **T Jensen**, P Byrne and J Molina*. 2019. Evaluation of cryopreserved murine testicular tissue following post thaw *in ovo* CAM culture. CSUSM symposium on student research, creative activities, and innovation, San Marcos, California
- Yu Su C, **T Jensen**, B Durrant and M C Gómez. 2019. Isolation and Purification of Rhinoceros and Horse Spermatogonial Stem Cells. International Embryo Technology Society annual conference, New Orleans, Louisiana.

- Byrne P, K Storey*, **T Jensen**. 2018. Xenotransplantation of gonadal tissue onto the chicken CAM: A model for avian germplasm preservation. Society for the Study of Reproduction annual meeting, New Orleans, Louisiana.
- Molina J*, **T Jensen**, P Byrne. 2018. Chorioallantoic Membrane Culture Increases the Percent of Live Cells in Cryopreserved Transgenic Quail (*Coturnix coturnix*) Testicular Tissue. Society for the Study of Reproduction annual meeting, New Orleans, Louisiana.
- Wood H*, P Byrne, **T Jensen**. 2018. A method to estimate relative telomere length in 27 taxonomically diverse captive avian species. Society for the Study of Reproduction annual meeting, New Orleans, Louisiana.
- Molina, J.** Byrne, P. Jensen, T. (2018) *Devising Techniques to Conserve Genetic Material Post-mortem* Symposium on Student Research. Creative Activities, & Innovation, CSUSM, San Marcos, CA
- Jabalameli S*, P Byrne, **T Jensen**. 2017. Cryopreservation of dispersed avian gonadal cells from adults and embryos chickens: a model for exotic avian species germplasm rescue. Poultry Science Association annual conference, Orlando, Florida
- Byrne P, S Jabalameli*, **T Jensen**. 2017. Sterilization of host chicken embryos by partial exsanguination in preparation for xeno-transfer. Poultry Science Association annual conference, Orlando, Florida
- Jensen T**, S E Jamieson, I Castro, B Gartrell, J Cockrem, B Durrant. 2016. Comparison of testosterone levels in captive and wild Northern brown kiwi (*Apteryx mantelli*) during the breeding and incubation periods. 11th International Symposium on Avian Endocrinology, Niagara-on-the-lake, Canada.
- Jensen T**. 2015. Methods for Management of Zoological Bird Populations. South East Asian Zoo Association annual conference, Singapore.
- Mannie* C, **T Jensen**. 2015. Ovarian stem cells: a case for adult avian oögonia? Poultry Science Association annual conference, Louisville, Kentucky.
- Hatashita* K, M Alohalı*, **T Jensen**. 2015. Cell-specific alignment for PEG-mediated fusion using avidin and biotin-bridging. Poultry Science Association annual conference, Louisville, Kentucky.
- Alohalı* M, K Hatashita*, **T Jensen**. 2015. PEG-mediated fusion of donor fibroblasts and inactivated germline stem cells: A new technology for avian conservation? Poultry Science Association annual conference, Louisville, Kentucky.
- Croyle* K, **T Jensen**. 2015. Isolation and amplification of PVM-bound sperm DNA for sperm competition, sperm storage, paternity, and species identification. Turtle Survival Alliance annual meeting, Tucson, Arizona.
- Jensen T**. 2015. Three Methods for Management of Zoological Bird Populations. Avian Scientific Advisory Group, Association of Zoos and Aquariums mid-year conference, Columbia, S.C.
- Croyle* K, B Durrant, **T Jensen**. 2014. Detection of Perivitelline Membrane-bound Sperm: Applications for Captive Chelonian Breeding Management. Turtle Survival Alliance annual meeting, Orlando, Florida.
- Croyle* K, B Durrant, **T Jensen**. 2014. Detection of Perivitelline Membrane-bound Sperm: Applications for Captive Breeding Management. Society for Experimental Biology annual conference, Manchester University, UK.
- Mannie* C, M Roe*, B Durrant, **T Jensen**. 2014. Conservation of endangered avian species: Using quail (*Coturnix coturnix*) testicular cells as a model for

- optimization of culture techniques in preparation for xenotransfer of adult germline stem cells into host chicken (*Gallus gallus*) embryos. CIRM/Bridges conference, San Francisco.
- Mannie* C, M Roe*, B Durrant, **T Jensen**. 2014. Analysis of short-term adult quail (*Coturnix coturnix*) testicular cell culture in preparation for xenotransfer to host chicken (*Gallus gallus*) embryos. International Society for Stem Cell Research annual meeting, Vancouver, Canada.
- Jensen T**, M Roe*, B Durrant. 2014. Xenotransfer of adult exotic bird germline stem cells to chicken (*Gallus gallus*) host embryos: Avian conservation in the 21st century. International Society for Stem Cell Research annual meeting, Vancouver, Canada.
- Roe* M, N Imus*, S Charter, B Durrant, **T Jensen**. 2013. Xenotransfer of Exotic Embryonic Gonadal Germ Stem Cells for Avian Conservation. Student Poster Showcase, CSUSM. Finalist for state competition.
- Croyle* K, B Durrant, **T Jensen**. 2013. In-ovo Sperm Detection in 31 Avian Species: Assessing Fertility for Conservation Management. Student Poster Showcase, CSUSM.
- Jensen, T**. 2013. Germ stem cells, eggs, sperm and avian conservation. Poultry Science Association annual conference, San Diego. Invited symposium speaker
- Jensen, T**. 2013. Candling: What is going on in there. Pheasant population management and exhibit conference, Taipei Zoo, Taiwan
- Jensen, T**. 2013. *In ovo* sexing: Taking control of your population's sex ratio. Pheasant population management and exhibit conference, Taipei Zoo, Taiwan
- Jensen, T**. 2013. Pheasant species, enclosures and breeding at the San Diego Zoo Global. Pheasant population management and exhibit conference, Taipei Zoo, Taiwan
- Roe* M, S Charter, N McDonald*, B Durrant, **T Jensen**. 2012. Xenotransfer of Adult Germ Stem Cells for Avian Conservation. Society for the Study of Reproduction annual meeting, Pennsylvania State University.
- Croyle* K, B Durrant, **T Jensen**. 2012. Degradation of Vitelline Membrane-bound Avian Sperm: Applications for Captive Breeding Management. Society for the Study of Reproduction annual meeting, Pennsylvania State University
- Hatashita* K, S Charter, M Roe*, B Durrant, **T Jensen**. 2012. Avian karyoplasts in inactivated chicken germ stem cells (GSCs): Avian somatic nuclear transfer facilitated by a novel antibody alignment method. Society for the Study of Reproduction annual meeting, Pennsylvania State University
- McDonald* N, S Charter, M Roe*, B Durrant, **T Jensen**. 2012. Detection of embryonic gonadal stem cells following short-term culture using flow cytometry and cell-transfer. Society for the Study of Reproduction annual meeting, Pennsylvania State University
- Jamieson, S.E., I.C. Castro, **T. Jensen**, A. Wilson, B. Durrant. 2012. Factors influencing breeding success of wild North Island Brown Kiwi. North American Ornithological Conference, Vancouver, Canada.
- Zacariotti R, M Guimarães, **T Jensen**, and B Durrant. (2011). 117 Cryopreservation of snake semen: are we frozen in time? *Reproduction, Fertility and Development* 24: 171–171.
- Jensen T**, S Charter, B Durrant. 2011. Characterization, culture and xenotransfer of adult *Coturnix japonica* testicular germ stem cells to host chicken embryos (*Gallus*

- gallus*). 1st International Symposium on Conservation and Propagation of Endangered Species of Birds. Abu Dhabi, United Arab Emirates
- Jensen T** and B Durrant. 2011. Avian conservation projects in the Reproductive Physiology Division of San Diego Zoo Institute for Conservation Research. 1st International Symposium on Conservation and Propagation of Endangered Species of Birds. Abu Dhabi, United Arab Emirates
- Jamieson, S.E., I.C. Castro, **T. Jensen**, A. Wilson, B. Durrant. 2011. The breeding ecology of North Island Brown Kiwi. Australasia Ornithological Conference. Cairns, Australia
- Jensen T**, M Poling*, S Charter, B Durrant. 2010. Characterization of cultured adult *Corturnix japonica* testicular germ stem cells using seven stem cell markers. Society for the Study of Reproduction annual meeting. Milwaukee, Wisconsin.
- Jensen T**, M Poling*, J Parks, B Durrant. 2009. Xenotransfer and Detection of Adult *Corturnix japonica* Testicular Stem Cells to Stage 16 *Gallus gallus* Embryos. Society for the Study of Reproduction annual meeting. Pittsburgh, Pennsylvania.
- Poling* M, J Parks, B Durrant, **T Jensen**. 2009. Isolation of Adult Gonadal Stem Cells from *Coturnix japonica* and Characterization of Embryonic Gonadal Stem Cells in *Gallus gallus* for Xenotransfer. Society for the Study of Reproduction annual meeting. Pittsburgh, Pennsylvania.
- Jensen T** and B Durrant. 2007. Detection of testicular germ stem cells using ema-1 and ssea-1 antibodies in non-domestic avian species. Society for the Study of Reproduction annual meeting. San Antonio, Texas.
- Jensen T** and B Durrant. 2004. Timing of ovulation in the egg lay cycle of the North Island Brown Kiwi (*Apteryx australis mantelli*): Ovarian follicle growth and fecal steroid hormones. Eighth International Symposium on Avian Endocrinology, Scottsdale, Arizona.
- Jensen T**, P. Hebert, D Orthmeyer, R Golightly. 2002. The use of ultrasound scanning to determine the sex of marbled murrelets (*Brachyramphus marmoratus*) captured at sea. Pacific Seabird Group annual meeting, Santa Barbara, California.
- Jensen T** and AL Johnson. 1999. Function and regulation of the trkB neurotrophin receptor in ovarian follicles. Society for the Study of Reproduction annual meeting. Pullman, Washington. Biol. Reprod. 60 (suppl. 1): 171.
- Jensen T** and AL Johnson. 1998. Expression of neurotrophin-3 (nt-3), brain derived neurotrophic factor (BDNF) and neurotrophin receptors (trkB, trkC and p75^{LNTR}) in hen ovarian follicles. Society for the Study of Reproduction annual meeting, College Station, Texas. Biol. Reprod. 58 (suppl. 1): 255.
- Jensen T** and AL Johnson. 1995. Expression of SCF and *c-kit* mRNA in embryonic and adult chicken ovary. Society for the Study of Reproduction annual meeting. UC Davis, California. Biol. Reprod. 52 (suppl. 1): 194.
- Bridgham JT, **T Jensen**, B Wagner, AL Johnson. 1995. Characterization of a partial cDNA for chicken luteinizing-hormone receptor (LH-R) and LH-R messenger-RNA expression in the ovary. Society for the Study of Reproduction annual meeting. UC Davis, California. Biol. Reprod. 52 (suppl. 1): 98.

c. Popular press

- Jensen, T.** 2012. *In ovo* sexing: A new management tool for captive bird populations. San Diego Zoo Global Webinar series.

- Jensen T**, P Witman, N LaGreco and J Theule. 2010. A practical Guide to Avian Embryonic Development: Developmental Stages of the Avian Embryo (laboratory manual for the San Diego Zoo Incubation Workshop)
- Jensen T** 2004. Making the egg that evolution forgot. CRES report Fall 2004:1-2
- Jensen T** 2003. The egg that evolution forgot: Reproduction in the Kiwi. *Zoonooz* February: 8-9
- Online chat ZSSD web site 7 August 2002 to allow the public the opportunity to interact with a kiwi researcher (<http://www.sandiegozoo.org/>)

VI. Invited talks and guest lectures

- 2019 Missouri
- 2019 CSU San Marcos, Spring Semester Seminar Series
- 2017 San Diego Zoo Institute for Conservation Research, department seminar
- 2017 San Diego Turtle and Tortoise Society
- 2016 Kuai Bird Conservation Center and Maui Bird Conservation Center
- 2015 SDSU, Biology group presentation
- 2014 University of Georgia, Poultry Science Department Spring semester seminar
- 2013 Poultry Science Association annual conference, San Diego. Invited symposium speaker
- 2013 CSU San Marcos, CIRM program
- 2010 CSU San Marcos, CIRM program
- 2009 Cornell University, Reproductive Physiology/Endocrinology department seminar
- 2009 Cornell University guest lecture for a Gamete Physiology course
- 2009 San Diego State University, Biology Department
- 2009 Copenhagen University Department of Basic Animal and Veterinary Sciences
- 2009 San Diego Zoo Institute for Conservation Research departmental seminar
- 2009 Ardvaark (Fund raising group supporting San Diego Zoo)
- 2008 Massey University, Palmerston North, New Zealand
- 2008 Victoria University Wellington, Wellington, New Zealand
- 2008 CRES Conservation education's teacher seminar
- 2007 Organon, San Diego, CA
- 2007 UC Davis, Animal Science Department
- 2007 Celebration for the Critters (organizing and fund raising group, San Diego Zoo)
- 2005 Ardvaark (Fund raising group supporting San Diego Zoo)
- 2005 Center for the Research of Endangered Species departmental seminar
- 2005 Danish House (local San Diego cultural organization)
- 2004 Center for the Research of Endangered Species departmental seminar
- 2003 San Diego Zoo's Avian Propagation
- 2002 Center for the Research of Endangered Species colloquium
- 2002 Celebration for the Critters (organizational and fund raising group)
- 2001 Massey University, Palmerston, New Zealand
- 2000 Center for the Research of Endangered Species departmental seminar

VII. Service

a. Zoological Society of San Diego and Zoo community

2015-2016	Animal Welfare Panel for San Diego Zoo Global
2015-2016	IACUC Chair
2014-2016	Salk AAAS education grant panel member
2014-present	Develop method for and provide routine assessment of egg fertility in avian and chelonian species for collection management at zoological institutions
2013	Wilderness first aid training (American Safety and Health Institute) certified through 2015
2013-2015	IACUC Vice-chair
2013	PRIM&R's IACUC conference
2013	IACUC 101 training
2011-present	Develop method for and provide routine <i>in ovo</i> sexing of avian species for collection management
2008-2017	IACUC committee member
2007-present	Avian Incubation Workshop Including participant training in <i>in ovo</i> sexing and oocyte fertility assessment
2001-2005	San Diego Zoo Animal Care Education lecturer (avian anatomy and physiology). Replaced by web-based training (see San Diego Zoo Global Webinar series above)

b. Professional

2020-present	Reviewer for Journal of Raptor Research
2017-present	Reviewer for Systems Biology in Reproductive Medicine
2017-present	Reviewer for the Auk
2015-present	Reviewer for The Journal of Veterinary Science
2015-present	Reviewer for International Journal of Molecular Sciences
2015-present	Reviewer for PLoS ONE
2014-present	Reviewer for Conservation Genetics Resources
2014-present	Reviewer for Animal Reproduction Science
2014-present	Reviewer for Gene
2013-Present	Reviewer for Zoological Science
2013-Present	Reviewer for New Zealand Journal of Zoology
2010-Present	Reviewer for Poultry Science journal
2010	Wilson Ornithological Society Research Grant reviewer
2009-Present	Reviewer for Journal of Ornithology
2009-Present	Reviewer for New Zealand Journal of Ecology
2004-Present	Reviewer for Acta Zoologica Sinica journal
2003-Present	Reviewer for Zoo Biology journal
2000-Present	Reviewer for Biology of Reproduction journal

c. Community

2014	Judge for the San Diego Zoo Global Young Conservation Award
2004-present	Design and provide laboratory exercises for the BEWiSE program

2002-Present	Lectures for Science classes at Ramona High School and Steele Canyon High School (various presentations for AP-biology classes visits to my laboratory and Career Fairs)
2000-Present	Judge, Greater San Diego Science and Engineering Fair, San Diego, California
2000-present	Lectures for the Zoo InternQuest program (San Diego Zoo) This program provides an opportunity for San Diego area high school students to experience and learn from the experts at the San Diego zoo and Safari Park.
1995-1999	Judge, Annual Science Fair at Prairie Vista Elementary, South Bend, Indiana
1998-1999	Lifeline volunteer pilot, Indiana chapter

VIII. Training

a. Visiting scientist

Dr Tajima (University of Tsukuba, Japan) embryonic germline stem cell
 Dr John Parks (Cornell University) isolation, quantification and culture of avian spermatogonial cells (2009 SSR abstracts)
 Dr Castro and her graduate student (Massey University, New Zealand) investigating the probing sensors in kiwi and ibis beaks (Cunningham 2010 publication)

b. Students

i. Undergraduate students

Lauren Sullivan 2018 student CSUSM: Development of a telomere assay to estimate bird stress
 Caroline Cherry 2018-2019 student CSUSM: Development of a telomere assay to estimate bird stress
 Kathryn Storey 2017 Summer intern (12 weeks paid internship). Telomere assessment project; Ph.D. program Missouri State University
 Chelsea Mannie 2013 Fall to 2015 Summer Undergraduate CIRM CSUSM (40 hours/week). Avian germ stem cell project; Research technician
 Kaitlin Croyle 2011 Fall to 2013 Fall (20 hours/week). Avian management project; M.S. program California State University San Marcos
 Mandi Roe 2011 Fall (2011 CIRM intern) to 2014 Spring. Undergraduate CSUSM (20-40 hours/week). Avian germ stem cell project; Ph.D. program Montana State University
 Nastassja McDonald/Imus 2010 Spring to 2012 Spring. Undergraduate CSUSM (10 hours/week). Embryonic avian germ stem cell project; Ph.D. program Michigan State University
 Zerlina Clementsmith 2010 Spring to 2010 Fall. Undergraduate CSUSM (6 hours/week). Avian germ stem cell project
 Brian Soderman 2010 Spring to 2013. Undergraduate CSUSM (0-6 hours/week). Hormonal stimulation project; M.S. program CSUSM
 Kyle Hatashita 2010 Fall to 2015 Summer and 2018 fall to now.
 Undergraduate South Western Community College, Grossmont

Community College, College, Palomar College (15 hours/week) Avian somatic nuclear transfer project
Matthew Poling 2008 Fall (2008 ICR summer intern) to 2009 Fall.
Undergraduate UCSD (10-20 hours/week). Avian germ stem cell project; Ph.D. program University of California San Diego

ii. Graduate students

Arpita Mohapatra 2018 Fall-present. Professional Science Master's student
CSUSM: Development of an *in ovo* tissue culture system
Yamini Gore 2018 Fall-present. Professional Science Master's student
CSUSM: Development of a telomere assay to estimate bird stress
Mark Teshera 2017 Fall-present. Ph.D. student University of Texas El Paso:
Rattlesnake behavior, kin recognition, and hybridization
Jonathan Molina 2017 Fall-present. Master's in Biology student CSUSM:
Germline stem cell rescue through gonadal transplant
Haleigh Wood 2017 Fall-present. Professional Science Master's student
CSUSM: Development of a telomere assay to estimate bird age
Sara Jabalameli 2016 winter-2017 Spring. Professional Science Master's student CSUSM: Germline stem cell sorting and detection of adult ovarian germline stem cells
Madhawi Alohalo 2014 Fall-graduated 2015. Professional Science Master's student CSUSM: Cell fusion for conservation of exotic species germplasm
Kaitlin Croyle 2013 Fall-graduated 2015. Master's in Biology student CSUSM: Perivitellin membrane-bound sperm detection for fertility testing

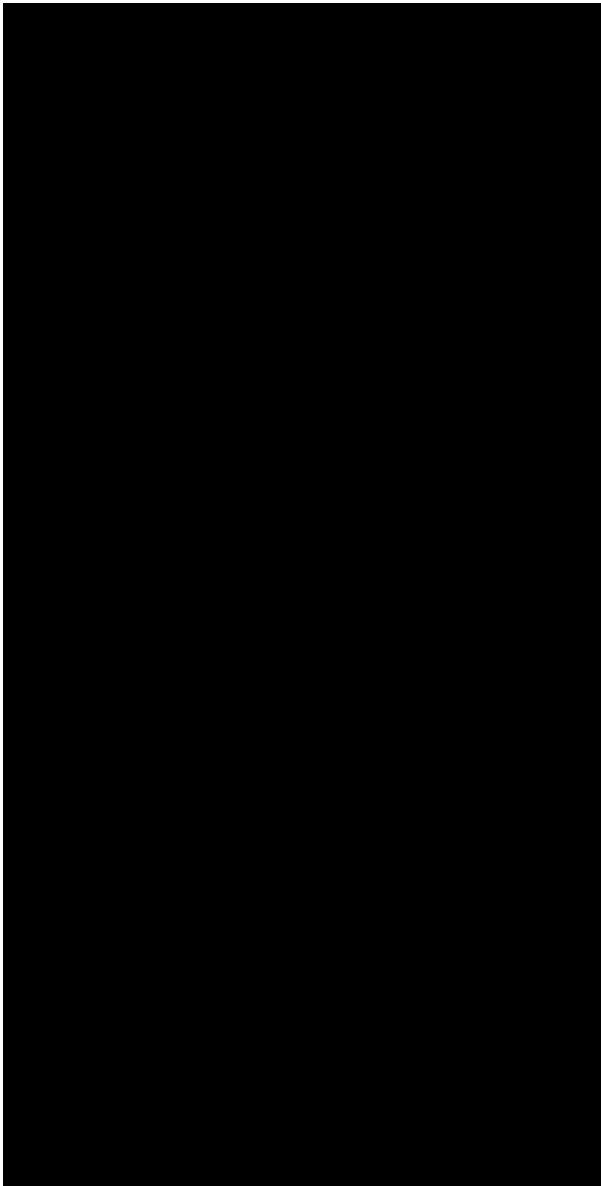
iii. Post doctoral fellow/Research Scientist

Dr. Martha Gomez. Project: Isolation and differentiation of rhinoceros spermatogonial stem cells for use in ART
Dr. Sarah Jamieson, (Housed at Massey University, New Zealand). Project: Investigation of parental behavior, kiwi chick dispersal strategies and environmental effects on kiwi chick rearing success

IX. Professional society membership

Present	Poultry Science Association
2013-2015	Member International Society for Stem Cell Research
2013-present	Member Society for Experimental Biology
1995-present	Member Society for the Study of Reproduction

X. References



Curriculum Vitae

Mathias Werner Tobler, Ph.D.

Education

- 2003 - 2008 **Ph.D. in Wildlife and Fisheries Sciences;** Texas A&M University. Graduation: May 10th, 2008.
- 1995 - 2001 **M.Sc. in Environmental Sciences;** Swiss Federal Institute of Technology Zürich (ETHZ), with concentration on the ecology of terrestrial ecosystems. Graduation: April 19th, 2001.
- 1990 - 1995 **Higher degree in sciences (Matura Type C);** Kantonsschule Pfäffikon SZ. Five years of higher education covering sciences, languages and social sciences.

Research

- 2014- **The value of managed forests for biodiversity conservation.** PI. This research uses camera traps, acoustic monitoring and interviews we evaluate the value of sustainably managed logging concessions and Brazil nut concessions for the conservation of mammals and birds. By now we have surveyed several 1000 km² and were able to show that logging concessions maintain important populations of jaguars, tapirs, peccaries and other endangered mammal species. Work also includes a study of human-wildlife conflicts and ways to reduce those.
- 2012- **Las Californais linkage for large mammals: cross-border connectivity for bighorn sheep and mountain lions between San Diego and Baja California.** In collaboration with TNC, Universidad Autonoma de Baja California, and UC Davis. Study of landscape connectivity for bighorn sheep between Baja California and San Diego using camera traps, GPS telemetry and genetics.
- 2012-2017 **Enhancing access to Peruvian plant specimens through herbarium digitization.** Digitization effort to make the collections of three major Peruvian herbaria available through the Atrium Biodiversity Information System.
- 2011-2014 **Terns and Plover breeding monitoring on Marin Corps Camp Pendleton and Naval Base Coronado.** Navy funded research on the breeding success and population dynamics of Western snowy plovers and California least terns. I was responsible for study design and statistical data analysis.
- 2011- **The ecology of large mammals in Madre de Dios, Peru.** In collaboration with WWF. Continuation of research on the ecology of large mammals in Madre de Dios, Peru. Work includes camera trap surveys and GPS tracking of large cats, peccaries and lowland tapirs, data analysis, and writing publications.
- 2010-2011 **Tapir ecology in French Guiana:** Post-doctoral research with the ONCFS (Office National de la Chasse et de la Faune Sauvage) on tapir ecology. Work includes capturing and collaring tapirs, the analysis of camera trap and transect data and the writing of publications.
- 2003-2011 **Andes to Amazon Biodiversity Program at BRIT:** Co-Director with John Janovec and Amanda Neill. Multidisciplinary research project in the Andes to Amazon region of south-eastern Peru. Studies include plants, mammals, insects and landscape ecology as well as the development and use of new technologies for biodiversity research. The AABP also has a strong educational component. (*See publication list*).
- 2003- **Atrium Biodiversity Information System:** Director with John Janovec. Atrium is an innovative online database for publishing, managing and analyzing biodiversity data. Main work includes concept development, higher level systems architecture, database design and front-end programming. <http://atrium.andesamazon.org>
- 2003-2008 **The ecology of lowland tapirs (*Tapirus terrestris*) in Madre de Dios, Peru;** PI, Ph.D. research. The goal of this study is to investigate the home range size, movement patterns and diet of tapirs the department of Madre de Dios, Peru. Work includes capturing tapirs, collaring them with GPS collars, identifying seeds dispersed by the species and testing monitoring methods such as transects and camera traps. (*See publication list*).

- 2002-2005 **The botanical diversity and vegetation ecology of Aguajales in Madre de Dios**; Co-PI with John Janovec. Vegetation ecology of wetlands in south-eastern Peru. Work includes remote sensing, vegetation surveys and data analysis.
- 2001-2002 **Swiss Ornithological Institute, Sempach, Switzerland**; research assistant in two projects; (1) a brown hare monitoring program where work included the collection of field data (hare census, disturbances, land-use data) and data analysis using GIS and spatial modeling to predict habitat use, and (2) a project on the disturbance of wintering water birds by low flying airplanes where the work mainly consisted of the collection of field data (behavior of birds during fly-overs).
- 2000 **Impact of cattle ranching on a coastal savanna in Tanzania**. Six month of fieldwork for Master thesis, vegetation survey and collection of ground reference for a multispectral classification of a Landsat TM satellite image, participation in project organization and logistics, field technician (computers, GPS and other equipment); data analysis using remote sensing and GIS software. (*See publication list*).
- 1999 **Tapirs (*Tapirus bairdii*) in a montane cloud forest in Costa Rica**. PI, nine month of fieldwork with the Centro Agronómico Tropical de Investigación y Enseñanza (CATIE), habitat analysis for tapirs in a montane cloud forest using transects and analysis of fecal samples to determine diet. (*See publication list*).
- 1998 **Sharks in an estuary in south-west Florida**; research assistant, work included catching and tagging of sharks (bonnethead, bull shark and blacktip shark), the development of tracking methods using supersonic transmitters and a fish-species survey in an estuary.

Employment

- 2018- **San Diego Zoo Global Institute for Conservation Research**: Associate Director, Population Sustainability.
- 2013-2018 **San Diego Zoo Global Institute for Conservation Research**: Scientist, Population Sustainability.
- 2011-2013 **San Diego Zoo Global Institute for Conservation Research**: Senior Researchers, Applied Animal Ecology.
- 2010-2011 **Office National de la Chasse et de la Faune Sauvage (ONCFS) - Direction Etudes et Recherches, French Guiana**: Post-doctoral researcher on tapir project.
- 2007-2011 **Botanical Research Institute of Texas**: Research Ecologist, Co-Director Andes to Amazon Biodiversity Program.
- 2002 **American Museum of Natural History, New York**: GIS / Remote Sensing Lab of the Center for Biodiversity and Conservation. Classification of satellite images, preparation of maps and GIS analysis, under the direction of Dr. Ned Horning.
- 2001-2002 **Swiss Ornithological Institute, Sempach, Switzerland**: civil service, work included field data collection, data analysis and writing reports.
- 1997 - 2000 **Beglinger Holenstein, Attorneys at law, Zürich**: computer support for hardware and software, work included the administration of a Windows NT Network with 25 clients, the development of MS Word templates and macros for use with a document management system and user support. Part time work.
- 1999 **Mountain Wilderness Switzerland**: civil service, work included small project for different campaigns, administrative work, mailings, organization of events.

Special Training

- 2017 **Using the Open Standards for the Practice of Conservation to Plan and Produce Enduring Conservation Outcomes**; three-day training in the use of Open Standards at the San Diego Zoo Institute for Conservation Research.
- 2014 **CLASlite forest monitoring software**; online course required to obtain a license to use CLASlite, a software developed by the Carnegie Institution for Science for mapping deforestation in tropical forests using satellite imagery.
- 2002 **Radio-Telemetry, Swiss Ornithological Institute**; two weeks of radio-tracking partridges in the course of a reintroduction program.

- 1999 - 2000 **GIS and Remote Sensing, University of Zürich;** GIS: ArcView 3.2, ArcGIS/ArcInfo including AML programming, Remote Sensing: PCI and Envi for multispectral classification of satellite images.
- 1999 **Padi Advanced Open Water Diver.**

Teaching

- 2004 **FRSC 689: Computer Programming for Natural Resources Applications: Programming ArcGIS with VBA;** Texas A&M Spatial Sciences Laboratory, College Station, TX, Spring 2004.
- 2003 **ArcView 3.2;** 5 day intensive training for technicians and students of the Asociación para la Conservación de la Cuenca Amazonica (ACCA), Puerto Maldonado, Perú; May 5-9, 2003.
- 2003 **Curso Taller: "Reconocimiento y Estandarización de Nombres Comunes para los Principales Árboles Maderables";** Centro de Investigación y Capacitación Río Amigos, (CICRA); Madre de Dios, Perú; organized for WWF and Pro Naturaleza; January 29 to February 2, 2003.
- 2003 **Biology 225: Tropical Field Studies in Biology and Environmental Science;** Southampton College, Long Island, New York; field course in Peru; January 1-20, 2003.

Other Experiences

- 1989 - 2001 **YMCA Richterswil, Switzerland;** group counselor for weekly activities, camp counselor in 9 summer camps and counselor training camps, certified counselor Youth&Sport level 2 for hiking and outdoor activities.
- 1995 **YMCA Camp Arbolado, California;** counselor for the hiking and ropes course program.

Computer Software

GIS / Remote Sensing: ESRI ArcGIS, ENVI, Erdas Imagine , Geomatica PCI, CLASlite

Programming: PHP, HTML,CSS, Visual Basic 6.0, VBA, Java

Database: MySQL, SQL Server, Access

Statistics: R, WinBUGS, JAGS

Other: Windows (including server and network administration), Linux (including server administration), MS Office, Photoshop, Illustrator

Software development

Camera Base: Developer of Camera Base, a database software for organizing, managing and analyzing camera trap data. Camera base is freely available and is being used by over 50 projects around the world.

<http://www.atrium-biodiversity.org/tools/camerabase/>

Atrium Biodiversity Information System: Atrium is a web-based software for managing, sharing, and analyzing biodiversity data. It currently includes modules for plant specimens, GIS data, weather data, literature and forest plot data. I am one of the inventors, project managers and programmers of Atrium.

<http://atrium.andesamazon.org/>

Grants and Awards

Tobler, M.W. , Janovec, J.P. 2014. *Enabling full public access to Peruvian plant specimens through herbarium digitization.* [REDACTED]

Tobler, M.W. 2014. *Estimating the jaguar density in two FSC certified logging concessions in Peru.* WWF Switzerland. [REDACTED]

- Tobler, M.W. 2013. *Sustainable logging and mammals Amazon*. Disney Wildlife Conservation Fund. [REDACTED]
- Tobler, M.W., Nordstrom, L. 2013. *Las Californias linkage for large mammals*. The Nature Conservancy. [REDACTED]
- Tobler, M.W., Janovec, J.P. 2012. *Enhancing access to Peruvian plant specimens through herbarium digitization*. JRS Biodiversity Foundation. [REDACTED]
- Tobler, M.W., Nordstrom, L. 2012. *Las Californias linkage for large mammals*. The Nature Conservancy. [REDACTED]
- Janovec, J.P., Neill, A., Tobler, M.W. 2008. *Support for the Andes to Amazon Biodiversity Program at BRIT*. Discovery Fund of Fort Worth, Texas. \$ [REDACTED]
- Janovec, J.P., Neill, A., Tobler, M.W. 2007. *Support for the Atrium Biodiversity Information System at BRIT*. Private donation, Fort Worth, Texas. [REDACTED]
- Janovec, J.P., Tobler, M.W., Neill, A. 2004. *Conserving Amazonian Biodiversity by Creating and Field Testing New Technologies and Software with Rigorous Data Standards and Scientific Protocols*. Gordon and Betty Moore Foundation. [REDACTED]
- Janovec, J.P., Tobler, M.W. 2004. *The Aguajal Project- Studies of the Aguaje Palm Swamp Habitat in the SW Amazon*. World Wildlife Fund. [REDACTED]

Memberships

- 2006- IUCN Tapir Specialist Group
- 2000- Association for Tropical Biology and Conservation

Conferences and Workshops

- 2018 The Wildlife Society Annual Conference, October 7-11, Cleveland, Ohio.
- 2015 Andes Amazon Biodiversity Conservation BIOCON Peru. October 15-19, 2015, Lima, Peru.
- 2014 Sixth International Tapir Symposium, 16-20 November, Campo Grande, Brazil.
- 2014 Symposium on Animal Movement and the Environment. May 5-8, Raleigh, NC.
- 2011 Fifth International Tapir Symposium, 16-21 October, 2011, Kuala Lumpur, Malaysia..
- 2009 Biodiversity Information Standards (TDWG) Annual Conference. November 9-13 2009, Montpellier, France
- 2009 10th International Mammalogical Congress, August 9-14, 2009. Mendoza, Argentina.
- 2008 I Congreso de la Sociedad Peruana de Mastozoología, October 30-31, 2008, Cusco, Peru.
- 2008 Peruvian Botanical Congress (CONABOT), September 18-21, 2008. Puerto Maldonado, Peru.
- 2008 The 8th International Conference for the Management of Wildlife in Amazonia and Latin America. September 1-5, 2008. Rio Branco, Brazil.
- 2008 Forth International Tapir Symposium. April 26-May 1, 2008. Cancun, Mexico.
- 2007 Lowland Tapir Conservation Workshop: Population and Habitat Viability Assessment (PHVA). April 15-19, 2007. Sorocaba, São Paulo, Brazil.
- 2006 The 7th International Conference for the Management of Wildlife in Amazonia and Latin America. September 3-7, 2006. Ilhéus, Brazil.
- 2006 Third International Tapir Symposium. January 26-31, 2006. Buenos Aires, Argentina.
- 2005 Lowland Tapir and White-lipped Peccary Range-Wide Priority Setting Workshop. WCS. April 3-10, 2005. Santa Cruz, Bolivia.
- 2004 The 6th International Conference for the Management of Wildlife in Amazonia and Latin America. September 5-10, 2004. Iquitos, Peru.

Publications

- Knox, J., Negrões, N., Marchini, S., Barboza, K., Guanacoma, G., Balhau, P., **Tobler, M. W.**, Glikman, J. A. (2019). Jaguar persecution without “cowfight”: Insights from protected territories in the Bolivian Amazon. *Frontiers in Ecology and Evolution* 7.
- Nagy-Reis, M. B. et al. (697 authors) 2020. NEOTROPICAL CARNIVORES: a data set on carnivore distribution in the Neotropics. *Ecology*
- Bowler, M., Beirne, C., **Tobler, M. W.**, Anderson, M., DiPaola, A., Fa, J. E., Gilmore, M. P., Lemos, L. P., Mayor, P., Meier, A., Menie, G. M., Meza, D., Moreno-Gutierrez, D., Poulsen, J. R., de Souza Jesus, A., Valsecchi, J., El Bizri, H. R. Led flashlight technology facilitates wild meat extraction across the tropics. doi:10.1002/fee.2242
- Bowler, M., Couceiro, D., Martinez, R., Orihuela, G., Shoobridge, J. D., Nycander, E., de Miranda, E. B. P., **Tobler, M. W.** (2020). Harpy eagles (*harpia harpyja*) nesting at refugio amazonas, tambopata, peru feed on abundant disturbance-tolerant species. *Food Webs* 24, e00154.
- Whitworth, A., Beirne, C., Pillco Huarcaya, R., Whittaker, L., Serrano Rojas, S.J., **Tobler, M.W.**, and Macleod, R. (2019). Human disturbance impacts on rainforest mammals are most notable in the canopy, especially for larger-bodied species. *Diversity and Distributions* 25, 1166-1178.
- Tobler, M.W.**, Kéry, M., Hui, F.K.C., Guillera-Aroita, G., Knaus, P., and Sattler, T. (2019). Joint species distribution models with species correlations and imperfect detection. *Ecology* 100, e02754.
- Tobler, M.W.**, Garcia Anleu, R., Carrillo-Perceatogui, S.E., Ponce Santizo, G., Polisar, J., Zúñiga Hartley, A., Goldstein, I., 2018. Do responsibly managed logging concessions adequately protect jaguars and other large and medium-sized mammals? Two case studies from Guatemala and Peru. *Biological Conservation* 220, 245-253.
- Lazenby, B.T., **Tobler, M.W.**, Brown, W.E., Hawkins, C.E., Hocking, G.J., Hume, F., Huxtable, S., Iles, P., Jones, M.E., Lawrence, C., Thalmann, S., Wise, P., Williams, H., Fox, S., Pemberton, D., 2018. Density trends and demographic signals uncover the long-term impact of transmissible cancer in Tasmanian devils. *Journal of Applied Ecology* 55,1368-1379.
- Luskin, M.S., Albert, W.R., **Tobler, M.W.**, 2017. Sumatran tiger survival threatened by deforestation despite increasing densities in parks. *Nature Communications* 8, 1783.
- Householder, E., Janovec, J., **Tobler, M.W.** and Wittmann, F. 2017. A Diversity of Biogeographies in an Extreme Amazonian Wetland Habitat. ed. R.W. Myser. *Forest structure, function and dynamics in Western Amazonia*, pp. 145-157. John Wiley & Sons, Ltd, Chichester, UK.
- Bowler, M.T., **Tobler, M.W.**, Endress, B.A., Gilmore, M.P., Anderson, M.J., 2017. Estimating mammalian species richness and occupancy in tropical forest canopies with arboreal camera traps. *Remote Sensing in Ecology and Conservation* 3, 146-157.
- Reilly, M.L., **Tobler, M.W.**, Sonderegger, D.L., Beier, P., 2017. Spatial and temporal response of wildlife to recreational activities in the San Francisco Bay ecoregion. *Biological Conservation* 207, 117-126.
- Buchalski, M.R., Navarro, A.Y., Boyce, W.M., Winston Vickers, T., **Tobler, M.W.**, Nordstrom, L.A., García, J.A., Gille, D.A., Penedo, M.C.T., Ryder, O.A. & Ernest, H.B., 2015. Genetic population structure of Peninsular bighorn sheep (*Ovis canadensis nelsoni*) indicates substantial gene flow across US–Mexico border. *Biological Conservation*, 184, 218-228.
- Tobler, M.W.**, Zúñiga Hartley, A., Carrillo-Perceatogui, S.E. & Powell, G.V.N. 2015. Spatiotemporal hierarchical modelling of species richness and occupancy using camera trap data. *Journal of Applied Ecology*, 52, 413-421.
- Householder, J.E., Wittmann, F., **Tobler, M.W.**, Janovec, J.P., 2015. Montane bias in lowland Amazonian peatlands: Plant assembly on heterogeneous landscapes and potential significance to palynological inference. *Palaeogeography, Palaeoclimatology, Palaeoecology* 423, 138-148.
- Meek, P.D., Ballard, G., Claridge, A., Kays, R., Moseby, K., O'Brien, T., O'Connell, A., Sanderson, J., Swann, D.E., **Tobler, M.** & Townsend, S., 2014. Recommended guiding principles for reporting on camera trapping research. *Biodiversity and Conservation*, 1-23.
- Tobler, M.W.**, Hibert, F., Debeir, L., Richard-Hansen, C., 2014. Estimates of density and sustainable harvest of the lowland tapir *Tapirus terrestris* in the Amazon of French Guiana using a Bayesian spatially explicit capture–recapture model. *Oryx* 48, 410-419.

- Tobler, M.W.**, Carrillo-Percastegui, S.E., Zúñiga Hartley, A., Powell, G.V.N., 2013. High jaguar densities and large population sizes in the core habitat of the southwestern Amazon. *Biological Conservation* 159, 375-381.
- Tobler, M.W.**, Powell, G.V.N., 2013. Estimating jaguar densities with camera traps: Problems with current designs and recommendations for future studies. *Biological Conservation* 159, 109-118.
- Householder, J.E., Janovec, J.P., **Tobler, M.W.**, Page, S., Lähteenoja, O., 2012. Peatlands of the Madre de Dios River of Peru: Distribution, Geomorphology, and Habitat Diversity. *Wetlands* 32, 359-368.
- Ignatov, I. I., Janovec, J. P., Centeno, P., **Tobler, M. W.**, Grados, J., Lamas, G. & Kitching, I. J. 2011. Patterns of Richness, Composition, and Distribution of Sphingid Moths Along an Elevational Gradient in the Andes-Amazon Region of Southeastern Peru. *Annals of the Entomological Society of America* 104: 68-76.
- Rovero, F., **Tobler, M. W.** and Sanderson, J. 2010. Camera-trapping for inventorying terrestrial vertebrates. In: J. Eymann, J. Degreef, C. Häuser, J. C. Monje, Y. Samyn & D. VandenSpiegel (Eds). *Manual on Field Recording Techniques and Protocols for All Taxa Biodiversity Inventories + Monitoring (ATBI+M)*, *Abc Taxa* 8. European Distributed Institute of Taxonomy.
- de Thoisy, B., da Silva, A., Ruiz-Garcia, M., Tapia, A., Ramirez, O., Arana, M., Quse, V., Paz-y-Mino, C., **Tobler, M.**, Pedraza, C. & Lavergne, A. 2010. Population history, phylogeography, and conservation genetics of the last Neotropical mega-herbivore, the lowland tapir (*Tapirus terrestris*). *Bmc Evolutionary Biology* 10: 278.
- Labruna, M. B., Romero, M., Martins, T. F., **Tobler, M.** and Ferreira, F. 2010. Ticks of the genus *Amblyomma* (Acari: Ixodidae) infesting tapirs (*Tapirus terrestris*) and peccaries (*Tayassu pecari*) in Peru. *Systematic and Applied Acarology* 15: 109-112.
- Tobler, M. W.**, Janovec J. P., and Cornejo F.. 2010. Frugivory and Seed Dispersal by the Lowland Tapir *Tapirus terrestris* in the Peruvian Amazon. *Biotropica* 42:215-222.
- Tobler, M. W.**, Carrillo-Percastegui, S. E. & Powell, G.. 2009. Habitat use, activity patterns and use of mineral licks by five species of ungulate in south-eastern Peru. *Journal of Tropical Ecology*. 25, 261-270.
- Tobler, M. W.**. 2009. New GPS technology improves fix success for large mammal collars in dense tropical. *Journal of Tropical Ecology*, 25,217–221.
- Tobler, M. W.**, Carrillo-Percastegui, S. E., Leite Pitman, R., Mares, R. & Powell, G. 2008. An evaluation of camera traps for inventorying large- and medium-sized terrestrial rainforest mammals. *Animal Conservation*, 11(3), 169-178.
- Tobler, M. W.**, Carrillo-Percastegui, S. E., Leite Pitman, R., Mares, R. & Powell, G. 2008. Further notes on the analysis of mammal inventory data collected with camera traps. *Animal Conservation*, 11(3), 187-189.
- Hamilton, S.K., Kellndorfer, J., Lehner, B. & **Tobler, M.** 2007. Remote sensing of floodplain geomorphology as a surrogate for biodiversity in a tropical river system (Madre de Dios, Peru). *Geomorphology*, 89, 23–38.
- Tobler, M. W.**, Honorio, E., Janovec, J., & Reynel, C. 2007. Implications of collection patterns of botanical specimens on their usefulness for conservation planning: an example of two Neotropical plant families (Moraceae and Myristicaceae) in Peru. *Biodiversity and Conservation* 16(3): 659-677.
- Cornejo, F., Janovec, J. P. and **Tobler, M.W.**. 2006. Floristic diversity and composition of terra firme and seasonally inundated palm swamp forests in the Palma Real Watershed in lower Madre de Dios, Peru. *SIDA* 22(1), 615-633.
- Tobler, M. W.**, Naranjo, E. J., and Lira-Torres, I.. 2006. Habitat Preference, Feeding Habits and Conservation of Baird's Tapir in Neotropical Montane Oak Forests. In M. Kapelle (Ed.). *Ecology and Conservation of Neotropical Montane Oak Forests*, pp. 347-359. Springer-Verlag, Berlin Heidelberg.
- Tobler, M.W.**, Cochard, R., and Edwards, P.J. 2003. The impact of cattle ranching on large-scale vegetation patterns in a coastal savanna in Tanzania. *Journal of Applied Ecology* 40, 430-444.
- Tobler, M. W.** 2002. Habitat Use and Diet of Baird's Tapirs (*Tapirus bairdii*) in a Montane Cloud Forest of the Cordillera de Talamanca, Costa Rica. *Biotropica* 34(3): 468-474.

Presentations and Posters

- Tobler, M.W.** Camera Base: A database for processing, managing, and analyzing camera trap images. *Camera Trap Tech Symposium*. November 7-8, 2019. Mountain View, CA
- Tobler, M.W.** Into the Deep: An ecologists journey into machine learning. *Camera Trap Tech Symposium*. November 7-8, 2019. Mountain View, CA

- Tobler, M.W.**, Kery, M., Knaus, P., Sattler, T. *Modeling species interactions in multi-species occupancy models*. The Wildlife Society Annual Conference, October 7-11, 2018 Cleveland, Ohio.
- Tobler, M.W.**, Kery, M., Knaus, P., Sattler, T. *Joint species distribution models (JSDMs) with imperfect detection*. 6th International Statistical Ecology Conference, July 2-6, 2018 St. Andrews, Scotland.
- Tobler, M. W.** *A comparison of methods for surveying large and medium-sized mammals in tropical forests*. Andes Amazon Biodiversity Conservation BIOCON Peru. October 15-19, 2015, Lima, Peru.
- Tobler, M. W.**, Janovec, J. P., Reynell, C., Huamantupa, I. *Brining voucher specimens into the digital age. Lessons learned from a large herbarium digitization project in Peru*. Andes Amazon Biodiversity Conservation BIOCON Peru. October 15-19, 2015, Lima, Peru.
- Bowler, M., Anderson, M., Endress, B., Gilmore, M., **Tobler, M. W.** *Canopy camera trapping within an occupancy framework to monitor arboreal wildlife*. Andes Amazon Biodiversity Conservation BIOCON Peru. October 15-19, 2015, Lima, Peru.
- Tobler, M. W.**, Hibert, F., Debeir L., Richard-Hansen C. *Estimating tapir densities with camera traps and spatially explicit capture-recapture models*. Sixth International Tapir Symposium, 16-20 November 2014, Campo Grande, Brazil.
- Tobler, M. W.**, Jordan C. *Field methods for tapir studies. Workshop*. Sixth International Tapir Symposium, 16-20 November 2014, Campo Grande, Brazil.
- Appleton, R. D., **Tobler, M. W.**, and Van Horn, R.C.. *Comparison of Andean Bear (Tremarctos ornatus) Densities Using Camera Traps at Waterholes and Bear Trails in the Tropical Dry Forest of Northwestern Peru*. 22nd International Conference on Bear Research and Management, September 15-20, 2013, Provo, Utah, USA.
- Powell, G. V. N. and **Tobler, M. W.**. 2013. *High resolution GPS-based animal monitoring in tropical moist forests: Examples from the Madre de Dios basin, southwestern Amazon*. 2013 Association for Tropical Biology and Conservation, June 23-27, 2013, San Jose, Costa Rica.
- Tobler, M. W.**, Janovec, P. J., Best, J. H., Neill, A. K., Webber, A.. 2009. *The Atrium Biodiversity Information System: sharing, managing, analyzing, and disseminating biodiversity data*. TDWG Annual Conference, November 9-13, 2009, Montpellier, France.
- Tobler, M. W.**, Janovec, P. J., Best, J. H., Neill, A. K., Webber, A.. 2009. *Bringing advanced statistical data analysis to the web: the integration of R with the Atrium Biodiversity Information System*. TDWG Annual Conference, November 9-13, 2009, Montpellier, France
- Tobler, M. W.**, Carrillo-Percastegui, S. E.. 2009. *Using Occupancy Models to Investigate the Distribution, Habitat use and Relative Abundance of Terrestrial Mammals from Camera Trap Data*. 10th International Mammological Congress, August 9-14, 2009. Mendoza, Argentina.
- Tobler, M. W.**, Carrillo-Percastegui, S. E., Powell, G.. 2008 *La Ecología de los Ungulados de la Amazonía Peruana - Un Estudio con Trampas Cámaras*. I Congreso de la Sociedad Peruana de Mastozoología. November 2-5, 2008, Cusco, Peru.
- Tobler, M. W.**. 2008b *El uso de salitrales por tapires (Tapirus terrestris) en la Amazonía Peruana*. I Congreso de la Sociedad Peruana de Mastozoología. October 30-31, 2008, Cusco, Peru.
- Carrillo-Percastegui, S. E., Powell, G., **Tobler, M. W.** & Donadi, R.. 2008. *Pumas, jaguares, y rios en la Amazonia: Una nueva tecnología revela asociaciones desconocidas y nuevos retos para la conservación*. I Congreso de la Sociedad Peruana de Mastozoología. November 2-5, 2008, Cusco, Peru.
- Carrillo-Percastegui, S. E., **Tobler, M. W.** & Powell, G.. 2008 *La vida de los ocelotes (Leopardus pardalis) revelado por trampas cámara en Los Amigos y Tambopata en Madre de Dios, Peru*. I Congreso de la Sociedad Peruana de Mastozoología. November 2-5, 2008, Cusco, Peru.
- Tobler, M. W.**. 2008. *Ecología y movimientos de grandes mamíferos amazónicos*. I Symposium: Estudios de Biodiversidad & Conservación en los Andes Orientales y la Amazonía del Sur-Este del Perú. November 2-5, 2008, Cusco, Peru.
- Tobler, M. W.**, Janovec, J., Cornejo, F. Huinga, J. and Cruz, D.. 2008. *Frugivoria y dispersión de semillas por el tapir (Tapirus terrestris) en la Amazonía Peruana*. Peruvian Botanical Congress (CONABOT), September 18-21, 2008. Puerto Maldonado, Peru.
- Tobler, M. W.**, Janovec, J., Neill, A., Best, J., Webber, A., Murphy, S., McNew, K., Franklin, T. & Valega, R.. 2008. *Atrium, el Sistema de Información sobre Biodiversidad, y nuevas aplicaciones para recolectar, integrar, analizar, y publicar datos de Inventarios Cuantitativos de Vegetación*. Peruvian Botanical Congress (CONABOT), September 18-21, 2008. Puerto Maldonado, Peru.

- Janovec, J., **Tobler, M. W.**, Householder, E., Valega, R., Cornejo, F., Wells, J., Chambi, B. Huinga, J. Balarezo, A., Centeno, P. & Neill, A.. 2008. *La Botánica de Humedales de Madre de Dios, Perú, con Implicaciones para su Conservación y Manejo Sostenible*. Peruvian Botanical Congress (CONABOT), September 18-21, 2008. Puerto Maldonado, Peru.
- Janovec, J., **Tobler, M. W.**, Neill, A., Best, J., Franklin, F., McNew, K., Valega, R.. 2008. *Rapid Floras for the 21st Century: Virtually Connecting Specimens, Herbaria, and Botanists for Maximum Datasharing and Synthesis in Record Time*. Peruvian Botanical Congress (CONABOT), September 18-21, 2008. Puerto Maldonado, Peru.
- Tobler, M. W.** 2008. *El uso de salitrales por tapires (Tapirus terrestris) en la Amazonía Peruana*. VIII Congresso Internacional Sobre Manejo De Fauna Silvestre Na Amazônia E América Latina. September 1-5, 2008. Rio Branco, Brazil.
- Tobler, M. W.**, Janovec, J. & Cornejo, F. 2008. *Frugivoria y dispersión de semillas por el tapir (Tapirus terrestris) en la Amazonía Peruana*. VIII Congresso Internacional Sobre Manejo De Fauna Silvestre Na Amazônia E América Latina. September 1-5, 2008. Rio Branco, Brazil.
- Carrillo-Percegué, S., Powell, G., **Tobler, M. W.** and Donadi, R. 2008. *Pumas, jaguares, y rios en la Amazonia: Una nueva tecnología revela asociaciones desconocidas y nuevos retos para la conservación*. VIII Congresso Internacional Sobre Manejo De Fauna Silvestre Na Amazônia E América Latina. September 1-5, 2008. Rio Branco, Brazil.
- Tobler, M.W.** 2008. *Movement Patterns and Home Range Use of Lowland Tapirs (Tapirus terrestris) in the Peruvian Amazon*. Forth International Tapir Symposium. April 26-May 1, 2008. Cancun, Mexico.
- Tobler, M.W.**, Janovec, J. P., Cornjeio, F. 2008. *Fruit Consumption and Seed Dispersal by Lowland Tapirs (Tapirus terrestris) in the Peruvian Amazon*. Forth International Tapir Symposium. April 26-May 1, 2008. Cancun, Mexico.
- Carrillo-Percegué, S., **Tobler, M. W.** and Powell, G. 2007. *Studying large and medium sized terrestrial mammals in a lowland rainforest in southeast Peru, through the use of camera traps*. July 15-19 2007 Annual Meeting of the Association for Tropical Biology and Conservation, Morelia, Mexico.
- Carrillo-Percegué, S., **Tobler, M. W.** and Powell, G. 2006. *Estimating Jaguar Density Using Camera Traps in the Lowland Tropical Rainforest of Peru*. November 12-15, 2006 Carnivores 2006, St. Petersburg, FL.
- Tobler, M. W.** 2006. *Ecología de Tapirus terrestris en la selva de Madre de Dios, Perú: Datos preliminares de un estudio con collares de GPS*. The 7th International Conference for the Management of Wildlife in Amazonia and Latin America. September 3-7, 2006. Ilhéus, Brazil.
- Tobler, M. W.** 2006. *Todo digital: Una base de datos para manejar fotos de trampas cámaras*. The 7th International Conference for the Management of Wildlife in Amazonia and Latin America. September 3-7, 2006. Ilhéus, Brazil.
- Carrillo-Percegué, S., **Tobler, M. W.**, Leite Pitman, R., Mares, R. and Powell, G. 2006. *Estudiando a los mamíferos grandes de la Amazonía Peruana mediante el monitoreo con trampas de cámara*. The 7th International Conference for the Management of Wildlife in Amazonia and Latin America. September 3-7, 2006. Ilhéus, Brazil.
- Tobler, M. W.**, Moreno Gimenes, V., Calderón Ormeño, C. A. and Sanchez, C. 2006. *Capture and Immobilization of Tapirus terrestris in Madre de Dios, Peru*. Third International Tapir Symposium. January 26-31, 2006. Buenos Aires, Argentina.
- Tobler, M. W.** 2006. *Ecology of Tapirus terrestris in the Rainforest of Madre de Dios, Peru: Preliminary Results from a GPS Collar and Telemetry Study*. Third International Tapir Symposium. January 26-31, 2006. Buenos Aires, Argentina.
- Kellndorfer, J. M., Hamilton, S. K., Lehner, B. and **Tobler, M. W.** 2005. *Conservation Planning in Upper Amazonian Floodplains Supported by Integration of Landsat ETM, JERS-1 and SRTM Datasets*. New Currents In Conserving Freshwaters Systems. AMNH. April 7-8, 2005, New York, NY.

Invited Lectures

- April 22, 2009. *Studying the Ecology of Ungulates and Carnivores in the Peruvian Amazon*. Botanical Research Institute of Texas, Fort Worth, Texas.
- April 21, 2009. *Studying the Ecology of Ungulates and Carnivores in the Peruvian Amazon*. Fort Worth Zoo, Fort Worth, Texas.
- April 1, 2009. *Studying the Ecology of Ungulates and Carnivores in the Peruvian Amazon*. Center for Research on Endangered Species, San Diego Zoo, San Diego, California.

- December 15, 2008. *Investigaciones de la Ecología y Conservación de Tapires y otros Mamíferos Grandes en la Concesión para Conservación de Río Amigos*. INRENA, Lima, Peru.
- July 1, 2008. *An Overview of the Andes to Amazon Biodiversity Program at BRIT*. IUCN, Galnd, Switzerland.
- January 26, 2007. *Ecología y Conservación del Tapir (Tapirus terrestris) en la selva de Madre de Dios*. APECO, Lima, Peru.
- April 5, 2006. *Estudio de la ecología del tapir (Tapirus terrestris) en la selva baja de Madre de Dios, Perú*, Universidad Cayetano Heredia, Lima, Peru
- December 7, 2005. *A Study of the Ecology of Lowland Tapirs (Tapirus terrestris) in the Lowland Rainforest of Madre de Dios, Peru*, Brown Bag, Botanical Research Institute of Texas, Fort Worth, Texas.
- January 19, 2005. *Use of New Technologies in Biodiversity Exploration*, Brown Bag, Botanical Research Institute of Texas, Fort Worth, Texas.

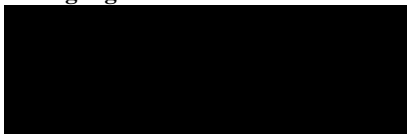
Other Publications and Reports

- Janovec, J. P., J. E. Householder, **M. W. Tobler**, et al. 2013. *Evaluación de los Actuales Impactos y Amenazas Inminentes en Aguajales y Cochazos de Madre De Dios, Perú*. 244 pages, 180 color image and map figures. World Wildlife Fund (WWF), Lima, Peru.
- Tobler, M. W.** 2008. *The Ecology of the Lowland Tapir in Madre de Dios, Peru: Using New Technologies to Study Large Rainforest Mammals*. PhD Dissertation, Texas A&M University, College Station, Texas.
- Tobler, M. W.** 2001. *The impact of cattle ranching on the large-scale vegetation structure of a coastal savanna in Tazania*. M.Sc. Thesis, Geobotanical Institute, ETH Zürich, Switzerland.
- Tobler, M. W.** 2000. *Habitat Use and Alimentation of Baird's Tapirs (Tapirus bairdii) in a Montane Cloud Forest of the Cordillera de Talamanca, Costa Rica*. CATIE, Turrialba, internal report.
- Tobler, M. W.** 2000. *Persönlicher Nutzen und Moral in der Theorie des geplanten Verhaltens*. Semester work, Institute for Human-Environment-Relations, ETH Zürich, Switzerland.
- Tobler, M. W.** 2000. *Die Möglichkeiten der nachhaltigen Forstwirtschaft an einem Beispiel aus Costa Rica und der Schweiz*. Semester work. Professur für Forstschutz u. Dendrologie, ETH Zürich, Switzerland.

Manuscript Reviewer

Biodiversity and Conservation, Biological Conservation, Biotropica, Conservation Biology, European Journal of Wildlife Management, Integrative Zoology, Journal of Biogeography, Journal of Tropical Ecology, Mastozoología Neotropical, Mammalia, Methods in Ecology and Evolution, PLOS ONE

Languages



TIMOTHY M. EPPLEY, PhD

TEppley@sandiegozoo.org

(USA)

+261 032.843.18.39 (Madagascar)

Education

Doctor of Philosophy

June 2015

Animal Ecology and Conservation

University of Hamburg, Hamburg, Germany

Dissertation: Ecological flexibility of the southern bamboo lemur *Hapalemur meridionalis* in southeast Madagascar.

Master of Science

January 2009

Primate Conservation

Oxford Brookes University, Oxford, United Kingdom

Bachelor of Science

August 2006

Zoology

Michigan State University, East Lansing, Michigan, United States

Professional Appointment

Madagascar Postdoctoral Fellow

Oct. 2017 – Present

Institute for Conservation Research

San Diego Zoo Global

- Conduct population density surveys and genetic analyses on red ruffed lemurs (*Varecia rubra*) throughout Masoala National Park, Makira Natural Park, and adjacent unprotected forests in Northeast Madagascar

Member

Jan. 2018 - Present

IUCN / SSC Primate Specialist Group - Madagascar section

- Assess Red List status of all lemur species, including creating Action Plans as needed

Affiliate Postdoctoral Fellow

Dec. 2018 – Present

Collaborating investigator: Prof. Natalie Vasey

Department of Anthropology

Portland State University

- Conduct behavioral ecology research on a population of red ruffed lemurs (*Varecia rubra*)

Affiliate Postdoctoral Fellow

Sep. 2015 – Sep. 2016

Principal Investigator: Dr. Rebecca J. Lewis.

Department of Anthropology

University of Texas – Austin

- Conducted genetic analyses in Primate Molecular Ecology and Evolution Lab (BSL – 2) to establish paternity of Verreaux's sifaka from Kirindy-Mitea National Park, Madagascar

Grants

2020	San Diego Zoo Global Ocelot Fund
2020	Global Wildlife Conservation – Lemur Conservation Action Fund
2019	San Diego Zoo Global Ocelot Fund
2018	ASP Deb Moore Award for Early Career Primatologists
2018	San Diego Zoo Global Ocelot Fund
2017	Margot Marsh Biodiversity Foundation
2012	Mohamed bin Zayed Species Conservation Fund
2011	Primate Conservation, Inc.
2011	American Society of Primatologists Small Research Grant
2011	Primate Society of Great Britain Conservation Grant
2011	Idea Wild (equipment donation)
2011	Conservation International, Primate Action Fund
2008	NEZS (Chester Zoo) Zoological Studentship Grant
2008	Primate Society of Great Britain travel bursary
2006	MSU College of Natural Science Study Abroad Scholarship

Peer-Reviewed Publications (*denotes co-/mentored undergraduate)

Eppley TM, Santini L, Tinsman JC, Donati G (2020) Do functional traits offset the effects of fragmentation? The case of large-bodied diurnal lemur species. *American Journal of Primatology* 82: e23104.

Campera M, Phelps M, Besnard F, Balestri M, **Eppley TM**, Nijman V, Donati G (2019) Forest management and researchers' presence reduced hunting and forest exploitation by local communities in Tsitongambarika, Madagascar. *Oryx* 53(4):677-686.

Eppley TM, Watzek J, Hall K, Donati G (2017) Climatic, social, and reproductive influences on behavioural thermoregulation in a female-dominated lemur. *Animal Behaviour* 134:25-34.

Eppley TM, Tan CL, Arrigo-Nelson SJ, Donati G, Ballhorn DJ, Ganzhorn JU (2017) High energy or protein concentrations in food as possible offsets for cyanide consumption by specialized bamboo lemurs in Madagascar. *International Journal of Primatology* 38(5): 881-899.

Donati G, Santini L, **Eppley TM**, Arrigo-Nelson SJ, Balestri M, Boinski S, Bollen A, Bridgeman LL, Campera M, Carrai V, Chalise MK, Lewis AD, Hohmann G, Kinnaird MF, Koenig A, Kowalewski M, Lahann P, McLennan MR, Nekaris KAI, Nijman V, Norscia I, Ostner J, Polowinsky SY, Schülke O, Schwitzer C, Stevenson PR, Talebi MG, Tan C, Tomaschewski I, Vogel ER, Wright PC, Ganzhorn JU (2017) Low levels of fruit nitrogen as

drivers for the evolution of Madagascar's primate communities. *Scientific Reports* 7: 14406.

-Top 100 *Scientific Reports* Ecology papers in 2017.

Eppley TM, Watzek J, Dausmann KH, Donati G, Ganzhorn JU (2017) Huddling is more important than rest site selection for thermoregulation in southern bamboo lemurs. *Animal Behaviour* 127:153-161.

Eppley TM, Balestri M, Campera M, Rabenantoandro J, Ramanamanjato J-B, Randriatafika F, Ganzhorn JU, Donati G (2017) Ecological flexibility as measured by the use of pioneer and exotic plants by two lemurs: *Eulemur collaris* and *Hapalemur meridionalis*. *International Journal of Primatology* 38(2): 338-357.

Eppley TM, Watzek J, Ganzhorn JU, Donati G (2017) Predator avoidance and dietary fibre predict diurnality in the cathemeral folivore *Hapalemur meridionalis*. *Behavioral Ecology and Sociobiology* 71(1): 4.

Ganzhorn JU, Arrigo-Nelson SJ, Carrai V, Chalise MK, Donati G, Droescher I, **Eppley TM**, Irwin MT, Koch A, Koenig A, Kowalewski MM, Mowry CB, Patel ER, Pichon C, Ralison J, Reisdorff C, Simmen B, Stalenberg E, Starrs D, Terboven J, Wright PC, Foley WJ (2017) The importance of protein in leaf selection of folivorous primates. *American Journal of Primatology* 79(4): e22550.

Hall K, Oram MW, Campbell MW, **Eppley TM**, Byrne RW, de Waal FBM (2017) Chimpanzee uses manipulative gaze cues to conceal and reveal information to foraging competitor. *American Journal of Primatology* 79(3): e22622.

Eppley TM, Donati G, Ganzhorn JU (2016) Determinants of terrestrial feeding in an arboreal primate: the case of the southern bamboo lemur (*Hapalemur meridionalis*). *American Journal of Physical Anthropology* 161(2): 328-342.

Suchak M, **Eppley TM**, Campbell MW, Feldman RA, Quarles LF, de Waal FBM (2016) How chimpanzees cooperate in a competitive world. *Proceedings of the National Academy of Sciences* 113(36): 10215-10220.

Eppley TM, Donati G, Ganzhorn JU (2016) Unusual sleeping site selection by southern bamboo lemurs. *Primates* 57(2): 167-173.

Eppley TM, Donati G, Ganzhorn JU (2016) Asynchronous parturition in a multi-fetal strepsirrhine. *Animal Reproduction* 13(1): 50-54.

Eppley TM, Ganzhorn JU, Donati G (2016) Latrine behaviour as a multimodal communicatory signal station in wild lemurs: the case of *Hapalemur meridionalis*. *Animal Behaviour* 111(1): 57-67.

Eppley TM, Donati G, Ramanamanjato J-B, Randriatafika F, Andriamandimbiarisoa LN, Rabehevitra D, Ravelomanantsoa R, Ganzhorn JU (2015) The use of an invasive species

habitat by a small folivorous primate: implications for conservation. *PLoS ONE* 10(11): e0140981.

Eppley TM, Ganzhorn JU, Donati G (2015) Cathemerality in a small, folivorous primate: proximate control of diel activity in *Hapalemur meridionalis*. *Behavioral Ecology and Sociobiology* 69(6): 991-1002.

Eppley TM, Hall K, Donati G, Ganzhorn JU (2015) An unusual case of affiliative association of a female *Lemur catta* in a *Hapalemur meridionalis* social group. *Behaviour* 152(7-8): 1041-1061.

Suchak M, **Eppley TM**, Campbell MW, de Waal FBM (2014) Ape duos and trios: Spontaneous cooperation with free partner choice in chimpanzees. *PeerJ* 2: e417.

Mingle ME*, **Eppley TM**, Campbell MW, Hall KM, Horner V, de Waal FBM (2014) Chimpanzees prefer African and Indian music over silence. *Journal of Experimental Psychology: Animal Learning and Cognition* 40(4): 502-505.

Hall K, Oram MW, Campbell MW, **Eppley TM**, Byrne RW, de Waal FBM (2014) Using cross correlations to investigate how chimpanzees (*Pan troglodytes*) use conspecific gaze cues to extract and exploit information in a foraging competition. *American Journal of Primatology* 76(10): 932-941.

Eppley TM, Suchak M, Crick J*, de Waal FBM (2013) Perseverance and food sharing among closely affiliated female chimpanzees. *Primates* 54(4): 319-324.

Crick J*, Suchak M, **Eppley TM**, Campbell MW, de Waal FBM (2013) The roles of food quality and sex in chimpanzee sharing behavior (*Pan troglodytes*). *Behaviour* 150(11): 1203-1224.

Eppley TM, Verjans E, Donati G (2011) Coping with low-quality diets: a first account of the feeding ecology of the southern gentle lemur, *Hapalemur meridionalis*, in the Mandena littoral forest, southeast Madagascar. *Primates* 52(1): 7-13.

Book Chapter / Encyclopedia Entries

Eppley TM, Goodman SM (accepted) Non-native habitat use by endemic terrestrial Malagasy mammals. In: Goodman SM, et al (eds) *The Natural History of Madagascar*, Second Edition. The University of Chicago Press, Chicago, USA, pp. ###-###.

Eppley TM, Steffens KJE, Colquhoun IC, Birkinshaw CR (accepted) Lemur Food Plants. In: Goodman SM, et al (eds) *The Natural History of Madagascar*, Second Edition. The University of Chicago Press, Chicago, USA, pp. ###-###.

Donati G, **Eppley TM**, Ralison J, Youssouf J, Ganzhorn JU (2019) Lemurs in mangroves and other flooded habitats. In: Barnett AA, Matsuda I, Nowak K (eds) *Primates in flooded*

habitats: ecology and conservation. Cambridge University Press, Cambridge, UK, pp. 29-32.

Eppley TM, Donati G (2019) Cathemeral. In: Vonk J, Shackelford TK (eds) *Encyclopedia of animal cognition and behavior*. Springer Nature, New York, USA.

Serio-Silva JC, Ramírez-Julián R, **Eppley TM**, Chapman CA (2019) Terrestrial locomotion and other adaptive behaviors in howler monkeys (*Alouatta pigra*) living in forest fragments. In: Reyna R, Chapman CA (eds) *Movement ecology of neotropical forest mammals*. Springer Nature, New York, USA, pp. 125-140.

Commentaries/Notes/Other (*denotes co-/mentored undergraduate)

Eppley TM, Refaly E, Tsagnangara C, Ramanamanjato J-B, Donati G (2020) Urgent action needed: the forgotten forests of the Lavasoa-Ambatotsirongorongo Mountains, southeast Madagascar. *Lemur News* 22: 30-32.

Eppley TM (2019) Evidence of spatiotemporal planning in a panther chameleon (*Furcifer pardalis*) on the Masoala Peninsula, Madagascar. *Herpetology Notes* 12: 909-911.

Eppley TM (2018) Southern bamboo lemur (*Hap Alemur meridionalis*). In: All the World's Primates website database. Rowe N, and Myers M (eds.). Pogonias Press, Charlestown, Rhode Island.

Eppley TM, Donati G (2017) Hypomelanism among collared brown lemurs (*Eulemur collaris*) in littoral forest fragments. *Lemur News* 20: 4-6.

Eppley TM, Ravelomanantsoa R (2015) Predation of an adult southern bamboo lemur *Hap Alemur meridionalis* by a Dumeril's boa *Acrantophis dumerili*. *Lemur News* 19: 2-3.

Eppley TM, Donati G, Ganzhorn JU (2014) Association of a giant coua and southern bamboo lemurs in Mandena. *Lemur News* 18: 4-5.

Mingle ME*, **Eppley TM**, Campbell MW, Hall KM, Horner V, de Waal FBM (2014). Clarification to Mingle et al. (2014). *Journal of Experimental Psychology: Animal Learning and Cognition* 40(4): 400.

Nguyen T, **Eppley TM**, Donati G (2013) Rapid assessment of lemur density in the lowland rainforest of Ampasy, Tsitongambarika, south-east Madagascar. *Lemur News* 17: 39-43.

Eppley TM, Donati G (2010) Observations of terrestrial latrine behaviour by the southern gentle lemur *Hap Alemur meridionalis* in the Mandena littoral forest, southeast Madagascar. *Lemur News* 15: 51-54.

Eppley TM, Hickey JR, Nibbelink NP (2010) Observation of albinistic and leucistic black mangabeys (*Lophocebus aterrimus*) within the Lomako-Yokokala Faunal Reserve, Democratic Republic of Congo. *African Primates* 7: 50-54.

Eppley TM, Donati G (2009) Grazing lemurs: exhibition of terrestrial feeding by the southern gentle lemur, *Haplemur meridionalis*, in the Mandena littoral forest, southeast Madagascar. *Lemur News* 14: 16-20.

Publications Submitted / In Prep

Amato KR, Chaves OM, Mallott EL, **Eppley TM**, Abreu F, Baden AL, Barnett AA, Bicca-Marques JC, Boyle S, Chapman CA, Diemer Lopes KG, Fan P, Fashing P, Felton A, Fontes IP, Fortes V, Fruth B, de la Fuente MFC, Grueter CC, Hohmann G, Irwin M, Matthews J, Mekonnen A, Melin A, Ostner J, Nguyen N, Piel A, Pinacho-Guendulain B, Quintino Aredes EP, Razanaparany PT, Rothman JM, Schiel N, Schuelke O, Shanee S, Souto A, Souza-Alves JP, Stewart F, Stone A, Sun B, Tecot S, Valenta K, Vogel E, Wich S, Zeng Y (in revision) Occurrence of fermented food consumption in wild non-human primates and its ecological drivers.

Donadeo BC, Randrianindrina VRA, Burke SL, Louis Jr. EE, Morris CL, Kerr KR, **Eppley TM**, Bauer LL, Fahey Jr. GC, Swanson KS (in revision) Preliminary assessment of the nutritional ecology of diademed sifaka (*Propithecus diadema*) reintroduced to Analamazaotra Special Reserve, eastern Madagascar.

Eppley TM, Santini L, Lauterbur ME, Barnett AA, ... Wright PC (in prep) Descending from the trees: Factors leading to terrestriality in arboreal primates.

Reinhardt K, Poindexter S, Hernandez-Aguilar RA, Imron MA, **Eppley TM**, Donati G, Nekaris KAI (in prep) Insulation capacity of bamboo sleeping sites aids thermoregulation for a small nocturnal primate.

Research Experience

Postdoctoral Research

Oct. 2017 - Present

Masoala NP / Makira NP, Madagascar

San Diego Zoo Global

- Formulated all research aspects and acquired necessary external funding to perform project. Collected behavioral ecology data on red ruffed lemurs, which allowed for macronutrient analyses, and conducted botanical surveys to characterize habitats.

Postdoctoral Research

Sep. 2015 – Sep. 2016

Primate Molecular Ecology Lab

University of Texas-Austin

- Conducted genetic analyses in Primate Molecular Ecology and Evolution Lab (BSL – 2) to establish paternity of Verreaux's sifaka from Kirindy-Mitea National Park, Madagascar.

PhD Research

Jun. 2012 – Jun. 2015

Mandena, Madagascar

University of Hamburg

- Formulated all research aspects and acquired necessary external funding to perform project. Collected behavioral ecology data on southern bamboo lemurs, which allowed for macronutrient analyses, and conducted botanical surveys to characterize habitats.

- Analyzed data via SPSS and R statistical software, with ArcMap for additional GIS visualizations. Project results have been disseminated in >15 peer-reviewed articles.
- Trained and supervised >20 local assistants, six local MS-level ecology students, and four international volunteers in data collection techniques.

Research Specialist

Jan. 2010 – May 2012

Principal Investigator: Prof. Frans B.M. de Waal

Living Links Center, Yerkes National Primate Research Center Emory University

- Formulated and implemented non-invasive behavioral and cognitive research on chimpanzees, as well as assisted PhD and postdoctoral students with their research.
- Performed laboratory maintenance activities, revised IACUC protocols, compiled data records in UNIX for publications, grants and seminar presentations. Analyzed data via SPSS and R statistical software.

Field Research Assistant

Feb. 2009 – Jul. 2009

Principal Investigator: Dr. Jena R. Hickey

Lomako Faunal Reserve, Democratic Republic of Congo University of Georgia

- Assisted in all field aspects of PI's doctoral research, including in-country logistics, collection of ecological data on signs of bonobos, large mammals, and humans in the Congo Basin.
- Hired and managed three Congolese teams of approximately 8 local individuals each for conducting line-transect surveys on expeditions in remote areas of the Maringa-Lopori-Wamba landscape.

MSc Research

May 2008 – Aug. 2008

Mandena, Madagascar

Oxford Brookes University

- Habituated, collected behavior and feeding ecology data on southern bamboo lemurs.
- Trained and supervised local assistants and an international volunteer in data collection techniques.

Field Research Assistant and Camp Manager

Aug. 2006 – Apr. 2007

Principal Investigators: Drs. Gottfried Hohmann and Barbara Fruth

Lui Kotale, Dem. Rep. of Congo Max Planck Institute for Evolutionary Anthropology

- Collected behavioral ecology data on bonobos, assisted PhD students in their research.
- Performed camp administration duties, including payment of salaries, organizing work schedules for approx. 20 local field assistants, maintaining communication with MPI-Leipzig via satellite phone, and continued maintenance of infrastructure and supplies for a remote field research camp.

Research Assistant

Jan. – May 2006

Department of Zoology

Michigan State University

- Assisted a Masters student in zoo and aquarium science management with their research exploring the effectiveness of zoo educational programs.

Internship

May – Aug. 2005

Small Mammal Department

San Antonio Zoological Gardens & Aquarium

- Gained understanding and performed basic duties of captive management/husbandry for a wide variety of mammal species, including overnight hand-rearing of two orphaned black bear cubs.

Teaching Experience

Guest Lecturer

AIP, SDZG / Miami University, OH Oct., 2020
San Diego Zoo Global Lemur Conservation Program.

General Ecology, Friends University Sep., 2020
Ecological flexibility of lemurs.

Biological Anthropology in Madagascar, Stony Brook University Jul., Nov., 2019
San Diego Zoo Global Lemur Conservation Program.

Biodiversity and Natural Resource Management, SIT Feb., Sep., 2013
Lemur ecology and conservation in Madagascar.

Primate Social Psychology, Emory University Jan. 2011, 2012
Field work and data collection methods.

Animal Behavior, Georgia State University Nov. 2011
Human-wildlife conflict and conservation.

Co-Instructor

Primate Behavior and Conservation Field Course Dec. 2008 – Jan. 2009
El Zota Biological Field Station, Costa Rica
Course organized by DANTA: Association for Conservation of the Tropics and accredited by State University of New York: Oneonta, New York, United States

Math Instructor

Mathnasium, Inc., Michigan, United States Jun. 2007 – Sep. 2007
Provided instruction to pre-kindergarten through 12th grade students in the improvement of their math skills and numerical thinking.

Supervisory Experience

(Co-)Mentor / Supervisor

Bethany Watkins 2020
Department of Social Science, Oxford Brookes University
Jointly supervised an MSc project that investigated various travel routes / networks employed by southern bamboo lemurs in Mandena, Madagascar.

Celeste Williams 2020
Department of Social Science, Oxford Brookes University

Jointly supervised an MSc project that investigated sleep patterns of southern bamboo lemurs, southern woolly lemurs, and Fleurete's sportive lemurs, and how sleep bouts may be affected by habitat fragmentation / forest edge.

Donie Volatiana 2019-Present
Department of Biological Anthropology and Sustainable Development, University of Antananarivo
Supervised a DEA (masters-level) field project focused on the effects of tree-fall canopy gaps on the distribution of nocturnal lemur species throughout the Masoala-Makira landscape of northeast Madagascar.

McAntonin Andriamahihavana 2017-2020
Department of Zoology and Animal Biodiversity, University of Antananarivo
Jointly supervised a DEA (masters-level) field project that investigated the effect of canopy gaps on lemur distribution within a coastal lowland rain forest.

Corey L. Tondreau 2013
School for International Training (SIT) Madagascar Program
Supervised an undergraduate field project that investigated the theoretical explanations for polyspecific associations between two lemur species.

Jen Tinsman (formerly Crick) 2011
Summer Undergraduate Research Experience, Emory University
Jointly supervised an undergraduate project that investigated the effect of food quality on sharing strategies in chimpanzees.

Morgan E. Mingle 2010
Summer Undergraduate Research Experience, Emory University
Jointly supervised an undergraduate project that investigated acoustic preferences in chimpanzees.

Conference Presentations (*denotes co-/mentored undergraduate/graduate)

Eppley TM, Andriamahihavana A*, Volatiana D, Mogilewsky M, Rasamisoa CD, Rakotomalala Z, Razafindramanana J, Owen M, Gibson D, Vasey N (2020) Lemur density and distribution in relation to tree-fall canopy gaps in the Masoala-Makira landscape, northeast Madagascar. International Primatological Society XXVIII Congress, Quito, Ecuador, August 16-22

Reinhardt K, Poindexter S, Hernandez-Aguilar RA, **Eppley TM**, Wirdateti, Donati G, Nekaris KAI (2020) Microhabitat refuge supports thermoregulation and sleep of wild slow lorises. International Primatological Society XXVIII Congress, Quito, Ecuador, August 16-22 †Invited symposium: Primate thermoregulation in a world of rising temperatures

Andriamahihavana A*, Mogilewsky M, Rasamisoa CD, Rakotomalala Z, Gibson D, Vasey N, **Eppley TM** (2019) Lemur distribution in relation to tree-fall canopy gaps in Masoala

National Park, northeast Madagascar. Association for Tropical Biology and Conservation, Annual meeting, Antananarivo, Madagascar, July 30 – August 3

Rasamisoa CD, Andriamahaiavana A*, Gibson D, Vasey N, **Eppley TM** (2019) The impact of a tropical storm on the forest habitat and feeding ecology of red ruffed lemurs (*Varecia rubra*) in northeast Madagascar. Association for Tropical Biology and Conservation, Annual meeting, Antananarivo, Madagascar, July 30 – August 3

Mogilewsky M, Vasey N, Andriamahaiavana MA*, Rakotomalala Z, **Eppley TM** (2019) Contribution of tree-fall canopy gaps to variation in nitrogen content of fruits and leaves from *Varecia* and *Eulemur* food trees in a northeastern Madagascar rainforest. American Association of Physical Anthropologists, Annual meeting, Cleveland, United States, March 27-30

Eppley TM, Santini L, Tinsman J, Donati G (2018) Exploring bamboo lemur ability to persist in fragmented habitats. International Primatological Society XXVII Congress, Nairobi, Kenya, August 19-24 †Invited symposium: Surviving in fragmented landscapes: Identifying variables that influence primate population persistence or extirpation in forest fragments

Eppley TM, Watzek J, Ganzhorn JU, Donati G (2016) Predator avoidance and dietary fibre predict diurnality in the cathemeral folivore *Hapalemur meridionalis*. Midwest Primate Interest Group, Annual meeting, Allendale, United States, October 28-29

Eppley TM, Ganzhorn JU, Donati G (2016) Determinants of cathemeral activity in a small-bodied folivorous primate, *Hapalemur meridionalis*. International Primatological Society XXVI Congress (joint meeting with the American Society of Primatologists), Chicago, United States, August 11-16

Eppley TM, Donati G, Ganzhorn JU (2016) Determinants of terrestrial feeding in an arboreal primate: the case of *Hapalemur meridionalis*. American Association of Physical Anthropologists, Annual meeting, Atlanta, United States, April 13-16

Eppley TM, Ganzhorn JU, Donati G (2014) Influence of abiotic factors on cathemeral activity among southern bamboo lemurs. American Society of Primatologists, Annual meeting, Decatur, Georgia, September 12-15 †Student competition finalist

Eppley TM, Donati G, Ganzhorn JU (2014) Flexible feeding ecology of the southern bamboo lemur (*Hapalemur meridionalis*). International Primatological Society XXV Congress, Hanoi, Vietnam, August 11-16

Donati G, **Eppley TM** (2014) Nocturnal activity and cathemerality in “day-active” lemurs. International Primatological Society XXV Congress, Hanoi, Vietnam, August 11-16

Eppley TM, Donati G, Ganzhorn JU (2014). Cathemeral activity among southern bamboo lemurs (*Hapalemur meridionalis*) in the Mandena littoral forest, southeast Madagascar. Primate Society of Great Britain Spring Meeting, Oxford, United Kingdom, April 8-9

†Student competition 3rd prize

Eppley TM, Donati G, Ganzhorn JU (2013) Swamp corridor utilization by *Hapalemur meridionalis* in a human-altered landscape. International Prosimian Congress, Center Valbio, Ranomafana, Madagascar, August 5-9

Hall K, Byrne RW, Oram M, Campbell MW, **Eppley TM**, de Waal FBM (2013) Chimpanzees (*Pan troglodytes*) socially reference gaze cues to correct their own misinformation. American Society of Primatologists, Annual meeting, San Juan, Puerto Rico, June 19-22

Eppley TM, Donati G, Ganzhorn JU (2013) Forest grazers: the southern bamboo lemur of the Mandena littoral forest. Gesellschaft für Primatologie, Annual meeting, Hamburg, Germany, February 6-8

Eppley TM, Hall K, Donati G, Ganzhorn JU (2013) Observations of affiliative polyspecific association between *Lemur catta* and *Hapalemur meridionalis*. Gesellschaft für Primatologie, Annual meeting, Hamburg, Germany, February 6-8

Suchak M, **Eppley TM**, Campbell MW, de Waal FBM (2012) Three chimpanzees coordinate to solve a cooperative task. International Primatological Society XXIV Congress, Cancun, Mexico, August 12-17

Hall K, Byrne RW, Oram M, Campbell MW, **Eppley TM**, de Waal FBM (2012) Chimpanzees use gaze cues to conceal and reveal information to foraging competitors. International Primatological Society XXIV Congress, Cancun, Mexico, August 12-17

Suchak M, **Eppley TM**, Campbell MW, de Waal FBM (2012) Why freeloading does not pay in chimpanzees. The Evolution of Morality: The Biology and Philosophy of Human Conscience, International School of Ethology workshop, Erice, Italy, June 17-22

Suchak M, **Eppley TM**, Campbell MW, de Waal FBM (2012) Partner choice in chimpanzee cooperation. Animal Behavior Society, Annual meeting, Albuquerque, United States, June 10-14

Hall K, Byrne RW, Oram M, Campbell MW, **Eppley TM**, de Waal FBM (2011) Chimpanzees follow conspecifics' gaze in naturalistic informed forager competition: using cross correlation analysis. American Society of Primatologists, Annual meeting, Austin, United States, September 16-19

Watkins KE, Parr LA, Herndon JG, Horner V, **Eppley TM**, de Waal FBM (2011) The effect of demonstrator's age on social learning in captive chimpanzees (*Pan troglodytes*). American Society of Primatologists, Annual meeting, Austin, United States, September 16-19

Crick J*, Suchak M, **Eppley TM**, Campbell MW, de Waal FBM (2011) Food sharing strategies in captive chimpanzees (*Pan troglodytes*). Emory Summer Undergraduate Research Experience, Emory University, Atlanta, United States, August.

Hall KM, Byrne RW, Oram M, Campbell MW, **Eppley TM**, de Waal FBM (2011) Chimpanzee gaze following in the informed forager paradigm. Association for the Study of Animal Behaviour, Summer conference, St. Andrews, United Kingdom, August 18-19

Hall KM, Campbell MW, Horner V, **Eppley TM**, Carter JD, Byrne RW, de Waal FBM (2010) Do chimpanzees have “shifty eyes”? An analysis of gaze following in the informed forager paradigm. International Primatological Society XXIII Congress, Kyoto, Japan, September 12-18

Hickey JR, **Eppley TM**, Nibbelink NP, Carroll J (2010) Habitat modeling of bonobos in relation to bushmeat hunting, slash and burn agriculture, and timber harvest. International Primatological Society XXIII Congress, Kyoto, Japan, September 12-18

Mingle M*, Horner V, **Eppley TM**, Campbell MW, Hall K, de Waal FBM (2010) Acoustic preferences among captive chimpanzees (*Pan troglodytes*). Emory Summer Undergraduate Research Experience, Emory University, Atlanta, United States, August. †Honorable mention.

Eppley TM, Donati G (2009) Dietary flexibility: Subsistence of the southern gentle lemur *Haplemur meridionalis* on a low quality diet in the Mandena littoral forest, SE Madagascar. American Association of Physical Anthropologists, Annual meeting, Chicago, United States, March 31 – April 4

Eppley TM, Donati G (2008) Preliminary study on the feeding ecology of the southern gentle lemur, *Haplemur meridionalis*, in the Mandena littoral forest, southeastern Madagascar. International Primatological Society XXII Congress, Edinburgh, United Kingdom, August 3-9

Invited Talks (*Honorarium)

Oxford Brookes University, Department of Social Science	November 2, 2020
Portland State University, Department of Anthropology	January 24, 2020
Friends University, Zoo Science Program	October 8, 2019
University of Antananarivo, Department of Biological Anthropology	July 26, 2019
Purdue University Northwest, Department of Biological Sciences*	January 26, 2018
San Diego Zoo Global, Institute for Conservation Research	September 12, 2017
Northern Illinois University, Department of Anthropology*	November 10, 2016
University of Texas-Austin, Department of Anthropology	October 9, 2015
University of Texas MD Anderson Cancer Center, Keeling Center	October 7, 2015
Oxford Brookes University, Department of Social Science	March 31, 2014

Professional Service

- Scientific Committee (abstract reviewer), International Primatological Society Congress, Nairobi, Kenya (August 2018)
- Scientific Committee (abstract reviewer) and student presentation judge, Malagasy Primatological Society Congress, Tamatave, Madagascar (December 2017)

Public Outreach / Service

- Guest Speaker: Sedgwick County Zoo, Lunch & Learn Program Series, Wichita, Kansas (October 2019)
- Guest Expert Scientist, National Geographic Society High School Conservation Education Expedition (June 2019)
- Guest Speaker: "San Diego Zoo Global's Lemur Conservation Program" American School Antananarivo (High School), Antananarivo, Madagascar (April 2019)
- Guest Speaker: "Madagascar The Eighth Continent" San Diego Zoo Global Wildlife Expedition Tour, Antananarivo, Madagascar (September 2018)
- Guest Expert Scientist, National Geographic Society K-12 ecology education initiative at Nosy Mangabe, Madagascar (November 2017)
- Nature Guide, Mandena Conservation Zone, Madagascar (2012-2014)
- Guest Speaker: "The eighth continent: biodiversity in Madagascar." American School Antananarivo (Elementary School), Antananarivo, Madagascar (January 2014)
- Guest Speaker: "The flexible ecology of the southern bamboo lemur *Haplemur meridionalis*." Rio Tinto, Biodiversity Dept., Fort-Dauphin, Madagascar (January 2014)
- Guest Speaker: "Lemur ecology and conservation." American School Antananarivo (High School), Antananarivo, Madagascar (September 2013)
- Tour Guide, Yerkes National Primate Research Center, Lawrenceville, GA (2010-2012)
- Volunteer - The Monkey Bridge Project, Puerto Viejo, Costa Rica (2006, 2009)
- Volunteer - Kids Saving the Rainforest, Manuel Antonio, Costa Rica (2006)

Ad hoc Journal Reviewer

<i>Acta Tropica</i> (2)	<i>Diversity and Distributions</i>
<i>American Journal of Physical Anthropology</i> (8)	<i>Endangered Species Research</i>
<i>American Journal of Primatology</i> (8)	<i>Ethology</i>
<i>Animal Behaviour</i> (2)	<i>Folia Primatologica</i> (6)
<i>Animal Cognition</i>	<i>Frontiers in Ecology and Evolution</i>
<i>Arid Land Research and Management</i>	<i>International Journal for Parasitology: Parasites and Wildlife</i>
<i>Behavioral Ecology</i>	<i>International Journal of Primatology</i> (14)
<i>Behavioral Ecology and Sociobiology</i> (4)	<i>Journal of Comparative Psychology</i>
<i>Behaviour</i> (3)	<i>Madagascar Conservation & Development</i> (2)
<i>Biodiversitas: Journal of Biological Diversity</i>	<i>Oecologia</i>
<i>Biological Conservation</i>	<i>Primate Conservation</i>
<i>Biological Invasions</i> (3)	<i>PLoS ONE</i> (2)
<i>Contributions to Zoology</i> (2)	<i>Royal Society Open Science</i>
<i>Diversity</i>	

Ad hoc edited Volume / Grants Reviewer

Cambridge University Press
National Geographic Society
National Science Foundation (U.S.A.)
Primate Conservation, Inc. (4)
Rufford Small Grants Foundation (2)

Photographic Credits

- Goodman SM, Raherilalao MJ, Wohlhauser S (2018) The terrestrial protected areas of Madagascar: Their history, description, and biota. Pp. 1,716, University of Chicago Press, Chicago, USA – various photos throughout
 - International Journal of Primatology 2017, volume 38(5) – Cover image
 - Primate Connections Calendar – 2010, 2012, 2013, 2014, 2015, 2016, 2017
 - National Geographic Italia online article ‘Salviamo i lemuri’ - 2014
 - www.alltheworldsprimates.org website
-

Professional Affiliations

American Association of Physical Anthropologists
American Society of Primatologists
Association for Tropical Biology and Conservation
International Primatological Society
Nocturnal Primate Research Group
Primate Society of Great Britain
Society for Conservation Biology

Glenn Philip Gerber, Ph.D.
Abbreviated CV

Caribbean Program Head and
Scientist, Population Sustainability
San Diego Zoo Institute for Conservation Research
15600 San Pasqual Valley Road
Escondido, CA 92027

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Fax: 760-291-5428
Email: ggerber@sandiegozoo.org

EDUCATION

Ph.D. 2000 - University of Tennessee: Ecology and Evolutionary Biology
M.S. 1987 - State University of New York College at Brockport: Biological Sciences
B.S. 1983 - Cornell University: Biological Sciences

SYNOPSIS OF CARIBBEAN EXPERIENCE

- 30 years conducting conservation and research projects in the Caribbean
- Over 400 islands visited and more than 10 years of field time in the Caribbean
- Established working relationships with local biologists, government agencies, non-governmental organizations, and private stakeholders throughout much of the Caribbean
- Field experience in Anguilla and its offshore cays, the Bahamas, the British Virgin Islands, the Cayman Islands, Cuba, Dominica, the Dominican Republic, Jamaica and its offshore cays, Puerto Rico and its offshore cays, Saba, Saint Eustatius, the Turks and Caicos Islands, and the United States Virgin Islands
- Principal Investigator for the Turks and Caicos iguana reintroduction program
- Founder and Chair of the Caribbean Wildlife Foundation, a non-profit organization based in the Turks and Caicos dedicated to the preservation of Caribbean biodiversity

HONORS AND AWARDS

- Millennium Postdoctoral Fellowship, Zoological Society of San Diego: 2000 – 2005
- Turks and Caicos Conservation Award, Turks and Caicos National Trust: 2003
- Caymanian Natural Heritage Award, National Trust for the Cayman Islands: 1993
- Fulbright Award for Graduate Study Abroad, United States Information Agency: 1992-1993

PROFESSIONAL SERVICE RELATED TO IGUANAS

- Steering Committee, IUSC/SSC Iguana Specialist Group: 2000 – 2020
- Conference Organizer, Caribbean Iguana Conservation Workshop: Exploring a Region-Wide Approach to Recovery Programs, 3-5 December 2013, San Juan, Puerto Rico
- Co-Chair, IUSC/SSC Iguana Specialist Group: 2008 – 2012
- Organizer, Conservation and Management Planning Workshop for the Turks and Caicos Iguana, Turks and Caicos Islands: 2003 and again in 2019
- Project Leader for Reptile and Amphibian Surveys, UK Darwin Initiative, Middle Caicos Biodiversity Project, Turks and Caicos Islands: 2000 – 2003

PUBLICATIONS & REPORTS

- Reynolds, R.G., **G.P. Gerber**, J.P. Burgess, G.H. Waters, and B.N. Manco. In Press (2020). Characterization of color pattern dimorphism in Turks and Caicos Boas, *Chilabothrus chrysogaster chrysogaster*, on Big Ambergris Cay, Turks and Caicos Islands. *Journal of Herpetology*.
- Gerber, G.P.**, Colosimo, G. & Grant, T.D. 2020. *Cyclura carinata*. The IUCN Red List of Threatened Species 2020: e.T6026A3097754.
<https://dx.doi.org/10.2305/IUCN.UK.20202.RLTS.T6026A3097754.en>
- Pasachnik, S.A., G. Colosimo, R. Carreras-De León, **G.P. Gerber**. 2020. Genetic structure of Rhinoceros Rock Iguanas, *Cyclura cornuta*, in the Dominican Republic, with insights into the impact of captive facilities and the taxonomic status of *Cyclura* on Mona Island. *Conservation Genetics*. Published online 1 July 2020. doi:10.1007/s10592-020-01290-6.
- Colosimo, G., G. Di Marco, A. D'Agostino, A. Gismondi, C.A. Vera, **G.P. Gerber**, M. Scardi, A. Canini, and G. Gentile. 2020. Chemical signatures of femoral pore secretions in two syntopic but reproductively isolated species of Galápagos land iguanas (*Conolophus marthae* and *C. subcristatus*). *Scientific Reports* 10, Article number: 14314 (2020). Published online 31 August 2020. doi:10.1038/s41598-020-71176-7.
- Moss, J.B., **G.P. Gerber**, T. Lasser, M. Goetz, T. Oyog, and M.E. Welch. 2020. Conditional female strategies influence hatching success in a communally nesting iguana. *Ecology and Evolution*. 2020: 3424-3438.
- Moss, J.B., **G.P. Gerber**, M. Goetz, J.E. Haakonsson, J.C. Harvey, T. Laaser, and M.E. Welch. 2020. Contrasting patterns of movement across life stages in an insular iguana population. *Journal of Herpetology*. 54: 67-77.
- Moss, J.B., **G.P. Gerber**, and M.E. Welch. 2019. Heterozygosity-fitness correlations reveal inbreeding depression in neonatal body size in a critically endangered rock iguana. *Journal of Heredity*. 110: 818-829.
- Carreras-De León, R., S.A. Pasachnik, **G.P. Gerber**, C.P. Brooks, E. Rupp E, and M.E. Welch. 2019. Genetic structure at three spatial scales is consistent with limited philopatry in Ricord's Rock Iguanas (*Cyclura ricordii*). *Ecology and Evolution* 9: 8331-8350.
- Moss, J.B., **G.P. Gerber**, A. Schwirian, A.C. Jackson, and M.E. Welch. 2019. Dominant males but not choosy females in an insular rock iguana. *Behavioral Ecology* 30: 181-193.
- Moss, J. B., M. E. Welch, F. J. Burton, M. V. Vallee, E. W., Houlcroft, T. Laaser, and **G. P. Gerber**. 2018. First evidence for crossbreeding between invasive *Iguana iguana* and native rock iguana (genus *Cyclura*) on Little Cayman Island. *Biological Invasions*. 20:817–823
- Welch, M. E., G. Colosimo, S. A. Pasachnik, C. L. Malone, J. Hilton, J. Long, A. G. Getz, A. C. Alberts, and **G. P. Gerber**. 2017. Molecular variation and population structure in critically endangered Turks and Caicos Rock Iguanas: identifying intraspecific conservation units and revising subspecific taxonomy. *Conservation Genetics*. Published online 13 January 2017. doi: 10.1007/s10592-016-0922-6.
- García, M. A., and **G. P. Gerber**. 2016. Conservation and management of *Cyclura* iguanas in Puerto Rico. Pp. 61–67 In *Iguanas: Biology, Systematics, and Conservation*. Iverson, J.B., T.D. Grant, C.R. Knapp, and S.A. Pasachnik (Eds.). *Herpetological Conservation and Biology* 11(Monograph 6).
- Martin, J. L., C. R. Knapp, **G. P. Gerber**, R. S. Thorp, and M. E. Welch. 2015. Phylogeography of the endangered Lesser Antillean Iguana, *Iguana delicatissima*: A recent diaspora in an archipelago known for herpetological endemism. *Journal of Heredity* 2015: 312-315.
- Gerber, G. P.**, and S. A. Pasachnik. 2014. Blood collection and preservation for genetics. IUCN SSC Iguana Specialist Group. Available online at http://www.iucn-isg.org/wp-content/uploads/2014/04/Blood_Protocol_for_Genetics_GG_SP.pdf.

- Gerber, G. P.** and L. Pagni (eds.) 2012. Turks and Caicos Iguana Conservation and Management Plan, 2005–2009. Gland, Switzerland: IUCN/SSC Iguana Specialist Group.
- Reynolds, R.G. and **G.P. Gerber**. 2012. Ecology and conservation of the endemic Turks Island Boa (*Epicrates c. chrysogaster*: Serpentes: Boidae) on Big Ambergris Cay. *Journal of Herpetology* 46:578-586.
- Mitchell, A. A., J. Lau, L. G. Chemnick, E. A. Thompson, A. C. Alberts, O. A. Ryder, **G. P. Gerber**. 2011. Using microsatellite diversity in wild Anegada iguanas (*Cyclura pinguis*) to establish relatedness in a captive breeding group of this critically endangered species. *Conservation Genetics* 12: 771-781.
- Perry, G., and **G. P. Gerber**. 2011. Conservation of amphibians and reptiles in the British Virgin Islands: status and patterns. Pages 105-127 in *Conservation of Caribbean Island Herpetofaunas Volume 2: Regional Accounts of the West Indies*. A. Hailey, B. Wilson, J. Horrocks (eds.). Brill. Leiden, The Netherlands.
- Reynolds, R.G., **G.P. Gerber**, and B.M. Fitzpatrick. 2011. Unexpected shallow genetic divergence in Turks Island Boas (*Epicrates c. chrysogaster*) reveals single evolutionary significant unit for conservation. *Herpetologica* 67:477-486.
- Welch, M. E., G. J. Long, J. W. Berk, A. H. Getz, **G. P. Gerber**, L. E. Wallace. 2011. Twenty-nine polymorphic microsatellite loci in *Cyclura carinata*, the Turks and Caicos Iguana, a critically endangered island endemic. *Conservation Genetic Resources* 2011: 209-212.
- Lau, J., A. A. Alberts, L. G. Chemnick, **G. P. Gerber**, K. C. Jones, A. A. Mitchell, and O. R. Ryder. 2009. Isolation and characterization of 23 polymorphic microsatellite loci for a West Indian iguana (*Cyclura pinguis*) from the British Virgin Islands. *Molecular Ecology Resources*. 2009: 1412-1414.
- Goodman, R. M., C. R. Knapp, K. A. Bradley, **G. P. Gerber**, A. C. Alberts. 2009. Review of radio transmitter attachment methods for West Indian rock iguanas (genus *Cyclura*). *Applied Herpetology*. 6: 151-170.
- Bryan, J.J., **G. P. Gerber**, M. E. Welch, C.L. Stephen. 2007. Re-evaluating the taxonomic status of the Booby Cay Iguana, *Cyclura carinata bartschi*. *Copeia* 2007: 734-739.
- MacDonald, E. A., N. M. Czekala, **G. P. Gerber**, and A. C. Alberts. 2007. Diurnal and seasonal patterns in corticosterone in the Turks and Caicos iguana (*Cyclura carinata carinata*). *Caribbean Journal of Science* 43: 266-272.
- Gerber, G. P.** 2007. Turks and Caicos iguana translocation program, Bahama Archipelago. *Re-introduction News* 26: 53-55.
- Perry, G., and **G. P. Gerber**. 2006. Conservation of amphibians and reptiles in the British Virgin Islands: status and patterns. *Applied Herpetology*. 3: 237-256
- Bradley, K. A., and **G. P. Gerber**. 2006. Release of headstarted iguanas in Anegada, British Virgin Islands. *Re-introduction News*. 25: 14-16.
- Bradley, K. A., and **G. P. Gerber**. 2005. Conservation of the Anegada Iguana (*Cyclura pinguis*). *Iguana*: 12(2): 78-85.
- Gerber, G. P.** 2004. Update on the ecology and conservation of *Cyclura pinguis* on Anegada. *Iguana*. 11: 23-26.
- Gerber G. P.** 2004. *Cyclura carinata*. In: IUCN red list of threatened species. IUCN—The World Conservation Union, Gland, Switzerland.
- Welch, M. E., **G. P. Gerber**, and S. K. Davis. 2004. The genetic structure of the Turks and Caicos rock iguana and its implications for species conservation. In: *Biology and Conservation of Iguanas*, A.C. Alberts, R.L. Carter, W.K. Hayes, and E.P. Martins, editors. University of California Press, Berkeley, California.
- Pagni, L., and **G. P. Gerber**. 2003. Back from the brink: restoring rock iguanas in the TCI. *Discover Turks and Caicos* 2003: 118-119.
- Gerber, G. P.**, T. D. Grant, A. C. Alberts, and M. A. Hostetter. 2002. *Cyclura nubila nubila* (Cuban iguana) carrion feeding. *Herpetological Review* 33:133-134.

- Pagni, L., and **G. P. Gerber**. 2002. Definitely not dinosaurs: Turks and Caicos rock iguanas. *Discover Turks and Caicos* 2002: 106-107.
- Alberts, A. C., T. D. Grant, **G. P. Gerber**, K. E. Comer, P. J. Tolson, J. M. Lemm, and D. Boyer. 2001. Critical Reptile Species Management on the U.S. Naval Base, Guantanamo Bay, Cuba. Report to the United States Navy for Project No. 62470-00-M-5219. 101 pp.
- Gerber, G. P.** 2000. Taxonomic account for the Lesser Cayman Islands iguana, *Cyclura nubila caymanensis*. Pages 41-44 in *West Indian Iguanas: Status Survey and Conservation Action Plan*. A.C. Alberts (ed.). IUCN – The World Conservation Union, Gland, Switzerland.
- Gerber, G. P.** 2000. Conservation of the Anegada iguana, *Cyclura pinguis*: field research report. Report to the British Virgin Islands National Parks Trust, Fauna and Flora International, and the Zoological Society of San Diego. 53 pp.
- Gerber, G. P.**, and J. B. Iverson. 2000. Taxonomic account for the Turks and Caicos iguana, *Cyclura carinata carinata*. Pages 15-18 in *West Indian Iguanas: Status Survey and Conservation Action Plan*. A.C. Alberts (ed.). IUCN – The World Conservation Union, Gland, Switzerland.
- Gerber, G. P.** 1999. Taxon Report: Common Iguana (*Iguana iguana*). Newsletter of the IUCN SSC West Indian Iguana Specialist Group 2(1): 8-9.
- Gerber, G. P.** 1998. Management plan for the protection of the iguana. Pages C1-C37 in *Strategic Environmental Assessment for Big Ambergris Cay, Turks and Caicos Islands, British West Indies*. Coastal Systems International, Coral Gables, FL.
- Gerber, G. P.** 1997. Conservation of the Lesser Antillean Iguana, *Iguana delicatissima*, on Anguilla. Report to the Anguilla National Trust, and Fauna and Flora International. 22 pp.
- Gerber, G. P.** 1995. Population status of the Turks and Caicos rock iguana (*Cyclura carinata*). Report to the National Trust of the Turks and Caicos Islands. 23 pp.

TANDORA DEL GRANT

EDUCATION

University of California, Santa Cruz; Bachelor of Arts: Biochemistry and Molecular Biology, degree conferred June 1988. Additional studies in zoology included: natural history, population dynamics, genetics, behavior, anatomy, physiology, scientific illustration, and ecology.

EMPLOYMENT HISTORY

6/1994–present: San Diego Zoo Global

Current Position: Conservation Program Specialist, Population Sustainability Division,
San Diego Zoo Institute for Conservation Research

12/1988–11/1993: SRI International, Life Science Division, Cell and Molecular Biology Laboratory.

Departing Position: Biologist II.

SELECTED RESEARCH PROJECTS

1) Population Manager and Studbook Keeper for AZA Rock Iguana Species Survival Plans and U.S. Navy/USFWS San Clemente Loggerhead Shrike Recovery Program. Shrike and Grand Cayman Blue Iguana programs include molecular research to supplant gaps in studbook knowledge, and meta-population analysis for release.

2) Conservation strategies for the rapid recovery of depleted populations of rock iguanas in the West Indies. Research areas include: reintroduction of captive-bred and headstarted iguanas, translocation of iguanas after ecological restoration, data management and analysis of captive headstart and released populations, applied population biology management strategies, molecular research of genetic diversity and population trends, and informal education of local residents.

3) Conservation of the San Diego coast horned lizard on the Southwestern Riverside County Multi-Species Reserve: foraging ecology, microhabitat use, home range, and reproductive biology.

4) Development of non-invasive techniques to determine sex and monitor reproductive function in endangered large lizards.

Responsibilities also include:

Program Officer for IUCN SSC Iguana Specialist Group. Duties include: conservation program coordination, editor for annual IUCN SSC Iguana Specialist Group newsletters. ISG and IIF website development manager. ISG membership and meeting coordinator.

Red List Authority for Iguanidae for the Iguana Specialist Group: author, editor, and coordinator for Red List assessments and revisions.

Key contributor to creation of several Species Recovery Plans and Conservation Action Plans for West Indian, Central American, and Fijian Iguanas.

GIS design and mapping for research projects in New Zealand, Turks & Caicos, and California.

AZA SSP Coordinator for Grand Cayman Blue Iguana SSP and Jamaican Iguana SSP.

Member of AZA's Small Population Management Advisory Group, grandfathered Population Manager

Laboratory management and computer technical support for the Population Sustainability Division.

Proficiency in Microsoft Office suite, Adobe Creative Suite, iWork Suite, WordPress, SPARKs, ARKs, PopLink, PM2000, PMX, Papers, Endnote, Access, FileMaker, and ArcGIS software.

PUBLICATIONS

Edited Journal Monograph:

Iverson, J.B., T.D. Grant, C.R. Knapp, and S.A. Pasachnik (Eds.). 2016. Iguanas: Biology, Systematics, and Conservation. Herpetological Conservation and Biology 11(Monograph 6).

Book Chapters:

Alberts, A.C., J.M. Lemm, T.D. Grant, and L.A. Jackintell. 2004. Testing the utility of headstarting as a viable conservation strategy for West Indian rock iguanas. Pp 210–219 In: *Iguanas: Biology and Conservation*. Alberts, A.C., Carter, R.L., Hayes, W.K., and Martins, E.P. (eds.), University of California Press, Berkeley, CA.

Peer Reviewed Journals:

Bradley, K.A. and T.D. Grant. 2020. *Cyclura pinguis*. *The IUCN Red List of Threatened Species* 2020: e.T6031A3098403.

Fisher, R., S. Hathaway, K. Gray, and T.D. Grant. 2020. *Brachylophus gau*. *The IUCN Red List of Threatened Species* 2020: e.T152294642A152294669.

Garcia, M.A., C. Figuerola, and T.D. Grant. 2020. *Cyclura stejnegeri*. *The IUCN Red List of Threatened Species* 2020: e.T29605A2790768.

Gentile, G. and T.D. Grant. 2020. *Conolophus pallidus*. *The IUCN Red List of Threatened Species* 2020: e.T5239A3014028.

Gerber, G.P., G. Colosimo, and T.D. Grant. 2020. *Cyclura carinata*. *The IUCN Red List of Threatened Species* 2020: e.T6026A3097754.

Kumar, K., G. Gentile, and T.D. Grant. 2020. *Conolophus subcristatus*. *The IUCN Red List of Threatened Species* 2020: e.T5240A3014082.

MacLeod, A., K. Nelson, and T.D. Grant. 2020. *Amblyrhynchus cristatus*. *The IUCN Red List of Threatened Species* 2020: e.T1086A499235.

MacLeod, A., K. Nelson, and T.D. Grant. 2020. *Amblyrhynchus cristatus* ssp. *cristatus*. *The IUCN Red List of Threatened Species* 2020: e.T152328291A2992772.

MacLeod, A., K. Nelson, and T.D. Grant. 2020. *Amblyrhynchus cristatus* ssp. *godzilla*. *The IUCN Red List of Threatened Species* 2020: e.T152330878A152331044.

MacLeod, A., K. Nelson, and T.D. Grant. 2020. *Amblyrhynchus cristatus* ssp. *hassi*. *The IUCN Red List of Threatened Species* 2020: e.T44175A2992874.

MacLeod, A., K. Nelson, and T.D. Grant. 2020. *Amblyrhynchus cristatus* ssp. *hayampi*. *The IUCN Red List of Threatened Species* 2020: e.T152331100A152331156.

- MacLeod, A., K. Nelson, and T.D. Grant. 2020. *Amblyrhynchus cristatus* ssp. *jeffreysi*. *The IUCN Red List of Threatened Species* 2020: e.T152331073A152331148.
- MacLeod, A., K. Nelson, and T.D. Grant. 2020. *Amblyrhynchus cristatus* ssp. *mertensi*. *The IUCN Red List of Threatened Species* 2020: e.T152329949A2992985.
- MacLeod, A., K. Nelson, and T.D. Grant. 2020. *Amblyrhynchus cristatus* ssp. *nanus*. *The IUCN Red List of Threatened Species* 2020: e.T44177A2993093.
- MacLeod, A., K. Nelson, and T.D. Grant. 2020. *Amblyrhynchus cristatus* ssp. *sielmanni*. *The IUCN Red List of Threatened Species* 2020: e.T44178A2993201.
- MacLeod, A., K. Nelson, and T.D. Grant. 2020. *Amblyrhynchus cristatus* ssp. *trillmichi*. *The IUCN Red List of Threatened Species* 2020: e.T152331440A152331451.
- MacLeod, A., K. Nelson, and T.D. Grant. 2020. *Amblyrhynchus cristatus* ssp. *venustissimus*. *The IUCN Red List of Threatened Species* 2020: e.T175537718A2993292.
- MacLeod, A., K. Nelson, and T.D. Grant. 2020. *Amblyrhynchus cristatus* ssp. *wikelskii*. *The IUCN Red List of Threatened Species* 2020: e.T152331459A152331476.
- Reynoso, V.H., M. Vázquez-Cruz, R.C. Rivera-Arroyo, M.C. Blázquez, and T.D. Grant. 2020. *Ctenosaura hemilopha*. *The IUCN Red List of Threatened Species* 2020: e.T174475A1414471.
- Reynoso, V.H., M. Vázquez-Cruz, R.C. Rivera-Arroyo, C.L. Malone, and T.D. Grant. 2020. *Ctenosaura flavidorsalis*. *The IUCN Red List of Threatened Species* 2020: e.T44188A2993811.
- Reynoso, V.H., M. Vázquez-Cruz, R.C. Rivera-Arroyo, J. Morales-Mávil, and T.D. Grant. 2020. *Ctenosaura acanthura*. *The IUCN Red List of Threatened Species* 2020: e.T174473A1414410.
- Reynoso, V.H., M. Vázquez-Cruz, R.C. Rivera-Arroyo, E. Zarza-Franco, and T.D. Grant. 2020. *Ctenosaura macrolopha*. *The IUCN Red List of Threatened Species* 2020: e.T174476A1414477.
- Reynoso, V.H., M. Vázquez-Cruz, R.C. Rivera-Arroyo, E. Zarza-Franco, and T.D. Grant. 2020. *Ctenosaura pectinata*. *The IUCN Red List of Threatened Species* 2020: e.T174478A1414553.
- Reynoso, V.H., M. Ubeda, M. Vázquez-Cruz, R.C. Rivera-Arroyo, C.L. Malone, and T.D. Grant. 2020. *Ctenosaura quinquecarinata*. *The IUCN Red List of Threatened Species* 2020: e.T44193A2993977.
- Iverson, J., T.D. Grant, and S. Buckner. 2019. Allen Cays Rock Iguana, *Cyclura cyclura* ssp. *inornata*. *The IUCN Red List of Threatened Species* 2019: e.T6041A3099869.
<http://dx.doi.org/10.2305/IUCN.UK.2019-2.RLTS.T6041A3099869.en>
- Iguana Taxonomy Working Group (Buckley, de Queiroz, Grant, Hollingsworth, Iverson, Pasachnik, and Stephen). 2016. A checklist of the iguanas of the world (Iguanidae; Iguaninae). Pp. 4–46 In: Iguanas: Biology, Systematics, and Conservation. Iverson J.B., T.D. Grant, C.R. Knapp, and S.A. Pasachnik (Eds.) Herpetological Conservation and Biology 11(Monograph 6).

Wilson, B., T.D. Grant, R. van Veen, R. Hudson, D. Fleuchaus, O. Robinson, and K. Stephenson. 2016. The Jamaican Iguana (*Cyclura collei*): a report on 25 years of conservation effort. Pp. 237–254 In: Iguanas: Biology, Systematics, and Conservation. Iverson J.B., T.D. Grant, C.R. Knapp, and S.A. Pasachnik (Eds.) Herpetological Conservation and Biology 11(Monograph 6).

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IIF 2011

Disney Sep 2012 and 2013 and....

Others.....

Curriculum Vita

Ronald Ray Swaisgood

Brown Chair/Director, Recovery Ecology

Co-Head, Giant Panda Conservation Unit

General Scientific Director, Cocha Cashu Biological Station, Manu National Park, Peru

San Diego Zoo Institute for Conservation Research

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email: rswaisgood@sandiegozoo.org

Key Points:

- Research interests: Application of behavioral and ecological research, theoretically driven, to conservation problems in the field and captivity, including:
 - Conservation science programs for endangered species, including reintroduction and translocation strategies
 - Population monitoring and adaptive management
 - Habitat selection, dispersal, and ranging patterns
 - Field-captive synergism
 - The role of chemical communication in reproductive, social and conflict behavior applied to conservation problems
 - Mating strategies, maternal care patterns, and denning ecology
 - Developing enrichment strategies in captive animals to promote wellbeing and captive breeding, and prepare animals for release to the wild

- Supervisor for conservation programs in Recovery Ecology Division, including recovery programs for California condors, Hawaiian birds, Marianas crow (Aga), San Clemente Island loggerhead shrikes, California least terns, Western snowy plovers, burrowing owls, desert tortoise, mountain yellow-legged frogs, bighorn sheep, giant otters, Tasmanian devil, kangaroo rats, and Pacific pocket mice
- 25-year cross-cultural conservation science collaboration enhance reproductive success and welfare of captive giant pandas and to develop improved management strategies for panda nature reserves in China
- Student and foreign scholar mentorship; capacity-building
- Coordination and training of > 150 volunteers on aims and methods of behavioral and ecological research and conservation
- Major research activities in China, South Africa, Namibia, Peru, Mexico, Australia, and USA

Education

University of North Carolina, Chapel Hill	Zoology	B.A. 1985
	Anthropology	B.A. 1985 (Highest Honors)
University of California, Davis	Animal Behavior	M.Sc. 1990
		Ph.D. 1994

Professional Experience

March, 2006-present. *Director, Recovery Ecology Division, San Diego Zoo Institute for Conservation Research*

Conduct and supervise conservation science programs specializing in recovery of endangered species. Responsible for nearly 100 employees. Shared administrative role for setting direction and policy of the Institute.

2011-present. *General Scientific Director, Cocha Cashu Biological Station, Manu National Park, Peru*

2003-2011. *Adjunct Professor, Department of Ecology and Evolutionary Biology, University of California, Los Angeles*

2005-present. *Adjunct Professor, Department of Biology, San Diego State University.*

2003-2006. *Scientist. Conservation and Research for Endangered Species, Zoological Society of San Diego.*

Principal Investigator/Collaborating Investigator for applied and theoretical behavioral research on endangered and model species, including giant panda, polar bear, black bear, rhinoceros spp., pygmy loris, and several artiodactylids.

1999-2003. *Field Biologist. Center for Reproduction of Endangered Species, Zoological Society of San Diego.*

Responsibilities as above.

1995-1999. *J. Dallas Clark Postdoctorate in Animal Behavior. Center for Reproduction of Endangered Species, Zoological Society of San Diego.*

Responsibilities as above.

1994-1995. *Ecologist. Dr. J. H. Carter III & Associates, Environmental Consultants.*

Conducted field surveys, habitat assessment and management, data analysis, and authored biological assessments for the red-cockaded woodpecker, and other threatened and endangered species.

1993. *Associate Faculty. The School for Field Studies.*

Taught two undergraduate courses in Primate Ecology in Conservation in Barbados, emphasizing research methodology and guidance of independent projects. Received one of the best evaluations in the history of the school.

1993. *Natural Science Technician. North Carolina State Museum of Natural Sciences.*

Conducted field surveys and habitat assessments for endangered and threatened herpetofauna.

1990-1992. *Research Assistant. University of California, Davis.*

Conducted behavioral and endocrine research on antipredator, mating, and parental behavior in ground squirrels and rattlesnakes in the field and laboratory settings.

1988-1990. *Teaching Assistant. University of California, Davis.*

Gave lectures, wrote tests, graded student coursework, guided research projects, led discussions.

1987-1989. *Postgraduate Researcher I. California Primate Research Center, University of California, Davis.*

Conducted behavioral and endocrine research on the territorial, monogamous social system of titi monkeys in a one-hectare field cage.

1986-1987. *Primate Behavioral Technician. Morgan Island Rhesus Monkey Colony.*

Field census, biological data collection and management for free-ranging rhesus monkeys living on a natural, 450-acre island off the coast of South Carolina.

1982-1984. *Biological Aid. Systemic Toxicology Branch of the National Institute of Environmental Health Sciences.*

Sample collection and processing, preparation of laboratory solutions, histological evaluation, radioimmunoassay of reproductive hormones, operation of scanning electron microscope, and semen evaluation.

Grants and Donations (Principal or Co-Principal Investigator)

1. National Fish & Wildlife Foundation. 2020. Head-starting desert tortoises and understanding juvenile tortoise habitat requirements
2. Favrot Foundation. 2020. Good to great: understanding and managing habitat for the threatened desert tortoise. [REDACTED]
3. US Fish & Wildlife Service. 2020. California Condor Bi-national Recovery and Reintroduction Program, United States and Mexico. [REDACTED]
4. The U.S. Department of the Navy. 2020. Least tern and snowy plover monitoring and raptor management on Coronado. [REDACTED]
5. National Fish and Wildlife Foundation. 2020. Reintroduction of the 'Alalā to Hawai'i Island. [REDACTED]
6. National Fish and Wildlife Foundation. 2019. Review of Hawaiian petrel reproductive success monitoring at Lanai Island. [REDACTED]
7. Orange County Community Foundation, Warne Family Fund. 2019. Conservation Breeding and Reintroduction of the Endangered Pacific Pocket Mouse to Facilitate Recovery. [REDACTED]

8. Association of Zoos and Aquariums Conservation Grant Fund. 2019. Monitoring, breeding and reestablishing the critically endangered 'Alalā (*Corvus hawaiiensis*) through spatial and social networks. [REDACTED]
9. California Department of Fish & Wildlife Natural Community Conservation Planning, Local Assistance Grant Program 2019. Development of a Strategic Conservation and Management Plan for Burrowing Owls in Western Riverside County. [REDACTED]
10. Amphibian Ark Conservation Grant. 2019. Using radio-telemetry to track survival and disease outcomes in the mountain yellow-legged frog (*Rana muscosa*) to inform *ex situ* management. [REDACTED]
11. United States Department of the Interior Fish and Wildlife Service. 2019. Captive Propagation and Introduction of Hawaiian and Marianas Islands Forest Birds. [REDACTED]
12. State of Hawaii Department of Land and Natural Resources. 2019. Hawaii Endangered Bird Conservation Program. [REDACTED]
13. National Fish and Wildlife Foundation. 2019. Reintroduction of the 'Alalā to Hawai'i Island. [REDACTED]
14. Wallace Research Foundation. 2019. Reintroducing the 'Alalā, an ecologically and culturally significant Hawai'ian bird. [REDACTED]
15. California Department of Fish & Wildlife Section 6 Funding. 2019. Recovery of the endangered southern Mountain yellow-legged frog (*Rana muscosa*) through population monitoring, conservation breeding and reintroduction. [REDACTED]
16. Schwemm Family Foundation. 2019. Recovery of the Endangered Mountain Yellow-Legged Frog (*Rana muscosa*) in Southern California. [REDACTED]
17. Amphibian Ark Conservation Grant. 2019. Using radio-telemetry to track survival and disease outcomes in the mountain yellow-legged frog (*Rana muscosa*) to inform *ex situ* management. [REDACTED]

18. The U.S. Department of the Navy. 2019. Monitoring and Management of California Least Tern and Western Snowy Plover Nesting Sites on Naval Base Coronado, San Diego, CA [REDACTED]
19. The U.S. Department of the Navy. 2019. California least tern and western snowy plover monitoring on Marine Corp Base Camp Pendleton, California. [REDACTED]
20. Marisla Foundation. 2019. Reintroducing the Critically Endangered 'Alala (Hawaiian Crow) in the Wild. [REDACTED]
21. National Science Foundation Field Station and Marine Laboratory Program. 2018. Enhancing capacity for aquatic research at the Cocha Cashu Biological Station in the Peruvian Amazon. [REDACTED]
22. U.S.D.A. Forest Service. 2018. Mountain yellow-legged frog captive breeding and reintroduction program [REDACTED].
23. US Fish & Wildlife Service. 2018. Breeding and Reintroduction of the California Condor. [REDACTED]
24. Max and Yetta Karasik Family Foundation. 2018. Hawaii Endangered Bird Conservation Program 'Alalā Reintroduction Year 3. [REDACTED]
25. National Fish and Wildlife Foundation. 2018. Reintroduction of the 'Alalā to Hawai'i Island [REDACTED]
26. Metropolitan Airpark LLC, Biological Monitoring, Implementation, and Environmental Consultation Services. 2018-2022. Advancing burrowing owl conservation in San Diego County through mitigation measures using science and adaptive management. Award amount [REDACTED]
27. San Diego Association of Governments (SANDAG). TransNet Environmental Mitigation Program: 2018. Burrowing owl conservation breeding and release preparation. [REDACTED]
28. RECON Environmental, Inc. 2018. Burrowing owl mitigation plan development and implementation for construction of secondary border fence in the San Diego Border Infrastructure System. [REDACTED]

29. California Department of Fish & Wildlife Natural Community Conservation Planning, Local Assistance Grant Program. 2017. Assessing California's mitigation guidelines for burrowing owls: better science, better conservation, better economic outcomes. [REDACTED].
30. United States Department of the Interior Fish and Wildlife Service. 2018. Captive Propagation and Introduction of Hawaiian and Marianas Islands Forest Birds. [REDACTED]
31. Marisla Foundation. 2017. Reestablish Breeding populations of endangered birds in the wild. [REDACTED]
32. National Fish and Wildlife Foundation. 2017. Reintroduction of the 'Alalā to Hawai'i Island. [REDACTED]
33. State of Hawaii Board of Land and Natural Resources. 2018. Prevent the extinction of Akikiki and Akekee on Kauai. [REDACTED]
34. State of Hawaii Board of Land and Natural Resources. 2018. Provide services to operate the Maui Bird Conservation Center (MBCC) captive propagation facility at Olinda, Maui and conduct related Hawaiian forest bird conservation and restoration projects at the Keauhou Bird Conservation Center (KBCC) and throughout the State. [REDACTED]
35. Moore Family Foundation. 2018. 'Alalā Recovery Program. [REDACTED]
36. San Diego Foundation/USFWS. 2018. An adaptive management approach to recovering burrowing owl populations and restoring a grassland ecosystem in San Diego County. \$
37. Favrot Foundation. 2019. Good to great: understanding and managing habitat for the threatened desert tortoise. [REDACTED]
38. The U.S. Department of the Navy. 2018. Monitoring and Management of California Least Tern and Western Snowy Plover Nesting Sites on Naval Base Coronado, San Diego, CA. [REDACTED]
39. The U.S. Department of the Navy. 2018. California least tern and western snowy

- plover monitoring on Marine Corp Base Camp Pendleton, California. [REDACTED].
40. Stiefel-Behner Foundation. 2017. The Cocha Cashu Biological Station: science and training for a brighter future in the Peruvian Amazon. [REDACTED] Endowment
41. Heller Foundation. 2017. Mountain yellow-legged frog conservation breeding and reintroduction [REDACTED].
42. Wallace Research Foundation. 2017. Tropical Ecology and Management Field Course at the Cocha Cashu Biological Station, Manu National Park, Peru. [REDACTED] 0.
43. US Fish & Wildlife Service. 2017. California Condor Program. [REDACTED]
44. Favrot Foundation. 2017. Science, capacity building and training for conservation: the Cocha Cashu Biological Station in the Peruvian Amazon. [REDACTED]
45. U.S.D.A. Forest Service. 2017. *Rana muscosa* conservation at the San Diego Zoo Institute for Conservation Research. [REDACTED]
46. Orange County Community Foundation. 2017. Habitat enhancement and monitoring for recovery of endangered California Least Terns. [REDACTED].
47. California Energy Commission. 2017. Habitat influences on desert tortoise head-starting and translocation programs. [REDACTED]
48. People's Trust for Endangered Species. 2017. Giant otters, gold, mercury and fish and the sustainable development of the Madre de Dios region, southeastern Peru. [REDACTED].
49. San Diego Foundation/USFWS. 2017. An adaptive management approach to recovering burrowing owl populations and restoring a grassland ecosystem in San Diego County. [REDACTED].
50. National Fish & Wildlife Foundation. Reintroduction of the 'Alala to Hawai'i Island. [REDACTED]
51. The U.S. Department of the Navy. 2017. Monitoring and Management of California Least Tern and Western Snowy Plover Nesting Sites on Naval Base Coronado, San Diego, CA. [REDACTED]
- [REDACTED] of Land and Natural Resources. 2016. Provide services to

operate the Maui Bird Conservation Center (MBCC) captive propagation facility at Olinda, Maui and conduct related Hawaiian forest bird conservation and restoration projects at the Keauhou Bird Conservation Center (KBCC) and throughout the State. [REDACTED]

53. The U.S. Department of the Navy. 2017. California least tern and western snowy plover monitoring on Marine Corp Base Camp Pendleton, California. [REDACTED]
54. The U.S. Department of the Navy. 2016. Monitoring and Management of California Least Tern and Western Snowy Plover Nesting Sites on Naval Base Coronado, San Diego, CA. [REDACTED]
55. The U.S. Department of the Navy. 2016. California least tern and western snowy plover monitoring on Marine Corp Base Camp Pendleton, California. [REDACTED]
56. Conservation, Food and Health Foundation. 2016. Defaunation and its impacts in the Peruvian Amazon: monitoring, education, and capacity building [REDACTED].
57. Imperial Valley Community Foundation. 2016. Assessing California's mitigation guidelines for Imperial Valley burrowing owls: better science, better conservation, better economic outcomes. [REDACTED]
58. US Fish & Wildlife Service. 2016. California Condor Program. [REDACTED].
59. Bailey Wildlife Foundation. 2016. Enhancing the Conservation of California condors and Hawaiian 'Alala Crows by Improved Understanding of their Spatial Ecology and Habitat Needs. [REDACTED]
60. San Diego Foundation/USFWS. 2016. An adaptive management approach to recovering burrowing owl populations and restoring a grassland ecosystem in San Diego County. [REDACTED].
61. Department of Forestry. 2016. *Rana muscosa* conservation at the San Diego Zoo Institute for Conservation Research. [REDACTED]
62. Favrot Foundation. 2016. Science, capacity building and training for conservation: the Cocha Cashu Biological Station in the Peruvian Amazon. [REDACTED]
63. Wallace Research Foundation. 2016. Tropical Ecology and Management Field

- Course at the Cocha Cashu Biological Station, Manu National Park, Peru [REDACTED].
64. Ellen Browning Scripps Foundation. 2016. Expanding & Enhancing the Ellen Browning Scripps Foundation Spatial Ecology Lab at San Diego Zoo Global. [REDACTED]
65. US Fish & Wildlife Service Wildlife Without Borders. 2016. From reintroduction to sustainability: building a California condor population in Baja. [REDACTED]
66. California Energy Commission. 2016. Assessing California's mitigation guidelines for burrowing owls impacted by habitat development and project activities: better science, better conservation, better economic outcomes. \$ [REDACTED]
67. Conservation, Food and Health Foundation. 2015. Gauging the long-term impact of defaunation on tropical forest regeneration. [REDACTED]
68. The U.S. Department of the Navy. 2015. Monitoring and Management of California Least Tern and Western Snowy Plover Nesting Sites on Naval Base Coronado, San Diego, CA. [REDACTED]
69. The U.S. Department of the Navy. 2015. California least tern and western snowy plover monitoring on Marine Corp Base Camp Pendleton, California. [REDACTED]
70. Favrot Foundation. 2015. Synergy between science, education, and conservation found: the Cocha Cashu Biological Station in the Peruvian Amazon. [REDACTED].
71. Bailey Wildlife Foundation. 2015. Enhancing California Condor Conservation by Understanding their Spatial Ecology and Habitat Use [REDACTED].
72. Wallace Research Foundation. 2015. Tropical Ecology and Management Field Course at the Cocha Cashu Biological Station, Manu National Park, Peru [REDACTED]
73. US Fish & Wildlife Service. 2015. Restoration of the `Alala or Hawaiian Crow (*Corvus hawaiiensis*) to Puu Makaala Natural Area Reserve. [REDACTED]
74. Association of Zoos and Aquariums Conservation Grant Fund. 2015. Understanding Habitat Quality for the Desert Tortoise for the Purposes of Mitigation and Habitat Protection. [REDACTED]

75. Association of Zoos and Aquariums Conservation Grant Fund. 2015. Enhancing Natural Foraging Behavior in California Condors. [REDACTED]
76. US Fish & Wildlife Service. 2015. California Condor Program. \$ [REDACTED]
77. US Fish & Wildlife Service. 2015. `Akikiki and `Akeke`e Captive Propagation. [REDACTED]
78. US Fish & Wildlife Service. 2015. Hawaiian Endangered Bird Conservation Program. [REDACTED]
79. US Fish & Wildlife Service. 2015. Hawaiian Forest Bird Captive Propagation. [REDACTED]
80. San Diego Foundation/USFWS. 2015. An adaptive management approach to recovering burrowing owl populations and restoring a grassland ecosystem in San Diego County [REDACTED]
81. U.S.D.A. Forest Service. 2015. Mountain yellow-legged frog captive breeding, reintroduction, and field research. [REDACTED].
82. US Fish & Wildlife Service. 2015. Rear-and-Release Program for the Conservation of the Aga (*Corvus kubaryi*) on Rota, CNMI [REDACTED].
83. National Fish & Wildlife Foundation. 2015. Restoration of the `Alala or Hawaiian Crow to Hawaii Island. [REDACTED]
84. Favrot Foundation. 2014. Synergy between science, education, and conservation found: the Cocha Cashu Biological Station in the Peruvian Amazon. [REDACTED]
85. Wallace Research Foundation. 2014. Tropical Ecology and Management Field Course at the Cocha Cashu Biological Station, Manu National Park, Peru. [REDACTED]
86. US Fish & Wildlife Service. 2014. Hawaiian Endangered Bird Conservation Program. [REDACTED]
87. US Fish & Wildlife Service. 2014. Hawaiian Forest Bird Captive Propagation. \$ [REDACTED]
88. US Fish & Wildlife Service. 2014. `Akikiki and `Akeke`e Initiation of Captive Breeding Program. [REDACTED]

89. Bailey Wildlife Foundation. 2014. California condor conservation research and wind energy impact mitigation. [REDACTED].
90. Marisla Foundation. 2014. Reintroduction of the California condor to Baja, Mexico. [REDACTED]
91. Ellen Browning Scripps Foundation. 2014. Expanding & Enhancing the Ellen Browning Scripps Foundation Spatial Ecology Lab at San Diego Zoo Global. [REDACTED]
92. San Diego Foundation/USFWS. 2014. An adaptive management approach to recovering burrowing owl populations and restoring a grassland ecosystem in San Diego County. [REDACTED]
93. Conservation, Food and Health Foundation. 2014. Conclusion of a long-term study of the effects of defaunation on tropical forest regeneration. [REDACTED]
94. US Fish & Wildlife Service. 2014. California Condor Program. \$ [REDACTED].
95. San Diego Foundation/USFWS. 2014. Amendment: An adaptive management approach to recovering burrowing owl populations and restoring a grassland ecosystem in San Diego County: Spatial ecology. [REDACTED]
96. The U.S. Department of the Navy. 2014. Monitoring and Management of California Least Tern and Western Snowy Plover Nesting Sites on Naval Base Coronado, San Diego, CA. [REDACTED]
97. U.S.D.A. Forest Service. 2014. Mountain yellow-legged frog captive breeding, reintroduction, and field research. [REDACTED]
98. The U.S. Department of the Navy. 2014. California least tern and western snowy plover monitoring on Marine Corp Base Camp Pendleton, California. [REDACTED]
99. Conservation Endowment Fund, Association of Zoos and Aquariums. 2013. Reintroduction and monitoring of the mountain yellow-legged frog (*Rana muscosa*) in Southern California. [REDACTED]
100. Riverside County Habitat Conservation Agency. 2013. Behavioral ecology, genetics, endocrinology, vegetation management and their effects on

translocation of the endangered Stephens' kangaroo rat (*Dipodomys stephensi*).
[REDACTED]

101. Marisla Foundation. 2013. Hawaii Endangered Bird Conservation Program: Reintroduction of the 'Alala. [REDACTED]
102. San Diego Foundation/USFWS. 2013. An adaptive management approach to recovering burrowing owl populations and restoring a grassland ecosystem in San Diego County. [REDACTED]
103. U.S.D.A. Forest Service. 2013. *Rana muscosa* conservation at the San Diego Zoo Institute for Conservation Research. [REDACTED]
104. U.S.D.A. Forest Service. 2013. Developing Strategies to Improve Reintroduction Success of Mountain Yellow-legged Frogs (*Rana Muscosa*), [REDACTED]
105. The U.S. Department of the Navy. 2013. California least tern and western snowy plover monitoring on Marine Corp Base Camp Pendleton, California.
[REDACTED]
106. The U.S. Department of the Navy. 2013. California least tern and western snowy plover monitoring on Naval Base Coronado, California. [REDACTED]
107. US Fish & Wildlife Service. 2013. California Condor Program. [REDACTED]
108. Polar Bears International. 2012. Seasonal Dynamics of Urinary Cortisol Metabolites in the Polar Bear [REDACTED]
109. Riverside County Habitat Conservation Agency. 2012. Behavioral ecology, genetics, endocrinology, vegetation management and their effects on translocation of the endangered Stephens' kangaroo rat (*Dipodomys stephensi*).
[REDACTED]
110. Conservation Endowment Fund, Association of Zoos and Aquariums. 2012. Reintroduction and monitoring of the mountain yellow-legged frog (*Rana muscosa*) in Southern California. [REDACTED]
111. Wallace Research Foundation. 2012. Tropical Ecology and Management Field Course at the Cocha Cashu Biological Station, Manu National Park, Peru.

112. [REDACTED] The U.S. Department of the Navy. 2012. California least tern and western snowy plover monitoring on Marine Corp Base Camp Pendleton, California.
113. [REDACTED] The U.S. Department of the Navy. 2012. California least tern and western snowy plover monitoring on Naval Base Coronado, California. [REDACTED]
114. [REDACTED] San Diego Foundation/USFWS. 2012. An adaptive management approach to recovering burrowing owl populations and restoring a grassland ecosystem in San Diego County [REDACTED]
115. [REDACTED] U.S.D.A. Forest Service. 2012. Captive breeding for the reintroduction of the mountain yellow-legged frog. [REDACTED]
116. [REDACTED] Van Horn, R.C., and R.R. Swaisgood. 2012. Conservation research for the Andean (spectacled) bear in Perú. Favrot Fund [REDACTED] Funded.
117. [REDACTED] Van Horn, R.C., and R.R. Swaisgood. 2012. Conservation research for the Andean (spectacled) bear in Perú. Money/Arenz Foundation. [REDACTED]
118. [REDACTED] Favrot Fund. 2012. Conservation research for the Andean (spectacled) bear in Peru. [REDACTED].
119. [REDACTED] USFWS. 2012. Operation and management of the Desert Tortoise Conservation Center, Las Vegas, Nevada.
120. [REDACTED] Money/Arenz 2012. Foundation. Conservation research for the Andean (spectacled) bear in Peru. [REDACTED]
121. [REDACTED] Clark County - Desert Conservation Program. 2012. Operation and management of the Desert Tortoise Conservation Center, Las Vegas, Nevada. \$ [REDACTED]
122. [REDACTED] JRS Biodiversity Foundation. 2012. Enhancing access to Peruvian plant specimens through herbarium digitization. [REDACTED]
123. [REDACTED] Desert Tortoise Translocation Biology. 2012. U.S. Fish & Wildlife Service. [REDACTED]

124. Favrot Fund. 2011. Conservation research for the Andean (Spectacled) bear in Peru. [REDACTED].
125. IUCN SOS. 2011. Restoration of the California Condor to Baja California, Mexico. [REDACTED]
126. Money/Arenz Foundation. 2011. Conservation research for the Andean (spectacled) bear in Peru. [REDACTED]
127. Ocelots. 2011. Conservation research for the Andean (spectacled) bear in Peru. [REDACTED]
128. Marisla Foundation. 2009. Restoration of the California Condor to Baja, Mexico. [REDACTED]
129. U.S. Fish & Wildlife Service. 2011. Science-based Restoration of the California Condor in Baja California, Mexico. \$ [REDACTED]
130. U.S. Fish & Wildlife Service. 2011. Captive breeding, anti-predator behavior and reintroduction of the Pacific pocket mouse (*Perognathus longimembris pacificus*). [REDACTED]
131. Ellen Browning Scripps Foundation. 2011. A proposal to create a new spatial ecology lab at the San Diego Zoo Institute for Conservation Research. [REDACTED]
132. Gordon & Betty Moore Foundation. 2011. Management of the Cocha Cashu Biological Station, Manu National Park, Peru. [REDACTED]
133. World Wildlife Fund. subaward from Gordon & Betty Moore Foundation. 2011. Defining science-driven habitat and spatial criteria for protected areas in the Amazon. [REDACTED]
134. U.S.D.A. Forest Service. 2011. Captive breeding for the reintroduction of the mountain yellow-legged frog. [REDACTED]
135. USFWS. 2011. Operation and management of the Desert Tortoise Conservation Center, Las Vegas, Nevada.
136. Riverside County Habitat Conservation Agency. 2011. Behavior and

Ecological Approaches to Translocation in Stephens' kangaroo rat. [REDACTED].check amount

137. The U.S. Department of the Navy. 2011. California least tern and western snowy plover monitoring on Marine Corp Base Camp Pendleton, California. [REDACTED]
138. The U.S. Department of the Navy. 2011. California least tern and western snowy plover monitoring on Naval Base Coronado, California. [REDACTED]
139. Desert Tortoise Translocation Biology. 2011. U.S. Fish & Wildlife Service. [REDACTED]
140. Heller Foundation. 2010. Reintroduction of California condors. [REDACTED]
141. San Diego Foundation/USFWS. 2011. An adaptive management approach to recovering burrowing owl populations and restoring a grassland ecosystem in San Diego County. [REDACTED]
142. Favrot Fund. 2010. Conservation research for the Andean (Spectacled) bear in Peru. [REDACTED]
143. Lakeside Foundation. 2010. Andean bear conservation in Peru [REDACTED]
144. Sahan Daywi Foundation. 2010. Andean bear conservation in Peru. [REDACTED]
145. Ocelots. 2010. Conservation research for the Andean (spectacled) bear in Peru. [REDACTED]
146. USFWS. 2010. Operation and management of the Desert Tortoise Conservation Center, Las Vegas, Nevada.
147. The U.S. Department of the Navy. 2010. California least tern and western snowy plover monitoring on Marine Corp Base Camp Pendleton, California. [REDACTED]
148. Riverside County Habitat Conservation Agency. 2010. Behavior and Ecological Approaches to Translocation in Stephens' kangaroo rat. [REDACTED]
149. U.S.D.A. Forest Service. 2010. Captive breeding for the reintroduction of the mountain yellow-legged frog. [REDACTED]

150. Marisla Foundation. 2009. Restoration of the California Condor to Baja, Mexico. [REDACTED]
151. Favrot Fund. 2009. Conservation research for the Andean (Spectacled) bear in Peru. [REDACTED]
152. Money-Arenz Fund. 2009. Andean bear conservation in Peru. [REDACTED]
153. Lakeside Foundation. 2009. Andean bear conservation in Peru [REDACTED]
154. Sahan Daywi Foundation. 2009. Andean bear conservation in Peru. [REDACTED].
155. Strauss Family Foundation. 2009. Andean bear conservation in Peru [REDACTED]
156. Sony Corporation. 2009. Andean bear conservation in Peru. [REDACTED]
157. Conservation Endowment Fund, Association of Zoos and Aquariums. 2009. Reintroduction of the mountain yellow-legged frog. [REDACTED]
158. U.S.D.A. Forest Service. 2009. Captive breeding for the reintroduction of the mountain yellow-legged frog. [REDACTED]
159. Wildlife Without Borders, USFWS. 2009. Restoration of the California condor to Baja, Mexico. [REDACTED]
160. USFWS. 2009. Operation and management of the Desert Tortoise Conservation Center, Las Vegas, Nevada. [REDACTED]
161. Patricia Yuengling. 2008. Panda Conservation Science. [REDACTED]
162. Riverside County Habitat Conservation Agency. 2008. Behavior and Ecological Approaches to Translocation in Stephens' kangaroo rat. [REDACTED]
163. Camp Pendleton Marine Base. 2008. Population Survey of the Endangered Pacific Little Pocket Mouse, (*P. longimembris pacificus*) in Oscar One, Camp Pendleton. [REDACTED]
164. Favrot Fund. (2008). Reintroduction of the mountain yellow-legged frog. [REDACTED]
165. U.S.D.A. Forest Service. 2008. Captive breeding for the reintroduction of the mountain yellow-legged frog. [REDACTED].

166. Horn Family Fund. 2008. Field studies of mountain yellow-legged frogs. [REDACTED]
167. Polar Bear International. 2008. Olfactory Communication in Polar Bears: Implications for Conservation in the Face of Increasing Habitat Fragmentation and Disturbance. [REDACTED]
168. Marisla Foundation. 2007. Restoration of the California Condor to Baja, Mexico. [REDACTED]
169. Sahan Daywi Foundation. 2007. Conservation breeding for white rhinoceros. [REDACTED]
170. Rhinoceros reproduction. 2007. Dr. Helen Ranney [REDACTED]
171. Polar Bear International. 2007. Auditory sensitivity of the polar bear: a captive study with implications for the wild, part 2. [REDACTED].
172. Polar Bear International. 2007. Auditory sensitivity of the polar bear: a captive study with implications for the wild. [REDACTED]
173. Horn Family Fund. 2007. Biodiveristy monitoring and management of herpetofauna on Wild Animal Park natural lands [REDACTED]
174. Rhinoceros reproduction. 2006. Dr. Helen Ranney [REDACTED]
175. US Fish & Wildlife Service. 2006. Behavioral Ecology and Translocation of the Endangered Pacific Little Pocket Mouse, *P. longimembris pacificus*) [REDACTED].
176. 2006-2009. Manage donated funds supporting conservation ecology and behavior research of giant pandas at the Foping Nature Reserve, China. [REDACTED]
177. USFWS Rhinoceros and Tiger Conservation Fund. 2006. Black rhinoceros translocation biology: monitoring and experiments in donor, translocated, and post-release population management. [REDACTED]
178. Polar Bear International. 2006. Auditory sensitivity of the polar bear: a captive study with implications for the wild. [REDACTED]
179. Heller Family Foundation. 2005. Reproductive problems in white rhinos. [REDACTED]

180. International Rhino Foundation. 2005. Why do captive-born white rhinoceros females fail to reproduce? [REDACTED]
181. Favrot Foundation. 2005. Hormonal and behavioral studies of stress and reproduction at Pinnewala Elephant Orphanage, Sri Lanka. [REDACTED]
182. Butcher Fund. 2005. Asian elephant reproduction: [REDACTED]
183. Muchnic Foundation. 2005. Sri Lankan elephant research: [REDACTED].
184. Strauss Family foundation. 2005. Sri Lankan elephant research: [REDACTED].
185. Paul J. Williams Foundation. 2005. Asian elephant reproduction: [REDACTED]
186. USFWS Rhinoceros and Tiger Conservation Fund. 2004. Towards more effective meta-population management in southern Africa: is black rhino decline in strategic donor reserves caused by ecological or social constraints or competitor substitution?: [REDACTED]
187. Money/Arenz Foundation. 2003. Polar bear reproduction: [REDACTED]
188. The Weinberg Foundation. 2003. Understanding reproductive success: white rhino field study: [REDACTED]
189. Polar Bear International. 2003. Characterization of the estrous cycle in captive polar bears (*Ursus maritimus*): correlation of physiologic, behavioral and endocrine parameters: [REDACTED]
190. Hong Kong Society for Giant Panda Conservation. 2002. Behavioural and hormonal assessment of stress and the effects of environmental enrichment in captive giant pandas (*Ailuropoda melanoleuca*) II: [REDACTED]
191. USFWS Rhinoceros and Tiger Conservation Fund. 2002. Managing black rhino dispersal, range-use and conflict escalation after translocation for meta-population management: [REDACTED]
192. Woodland Park Zoological Society Conservation Fund. 2001 Environmental enrichment for giant pandas: [REDACTED]
193. Hong Kong Society for Giant Panda Conservation. 2001. Behavioural and hormonal assessment of stress and the effects of environmental enrichment in captive giant pandas (*Ailuropoda melanoleuca*): [REDACTED]

194. ZSSD Conservation Fund Grant. 2001. Reproductive endocrinology and behavior of the Indian rhinoceros (*Rhinoceros unicornis*) [REDACTED]
195. International Rhino Foundation/SOS Rhino. 2000. Observation of behavior and fecal steroids in free-ranging southern white rhino as compared to the captive population: [REDACTED]
196. Amerman Family Foundation. 2000. Southern white rhinoceros conservation: [REDACTED]
197. ZSSD Conservation Fund Grant, 2000. Chemical communication and mate choice in the pygmy loris: [REDACTED]
198. ZSSD Conservation and Research Grant. 1999. Olfactory communication in rhinoceros: experimental presentation of dung and urine: \$ [REDACTED].
199. ZSSD Conservation and Research Grant. 1997. Determining the cause of low birth rate of captive-born southern white rhinoceros: [REDACTED]
200. University of California at Davis Graduate Research Award. 1991: [REDACTED]
201. Sigma Xi Grant-in-Aid of Research. 1991: [REDACTED]

Awards, Memberships and Outside Advice

- 1999. American Association of Zoos and Aquariums and Wiley/Liss Best Paper in Zoo Biology.
- 2012. International Conservation Award. *Scientific approaches to conservation of giant pandas and their habitat*. American Association of Zoos and Aquariums. Lead author, awarded jointly to San Diego Zoo Global, National Zoological Park, Memphis Zoo, and Zoo Atlanta.

Outside Advice.

- Member, Animal Behavior in Conservation Working Group. Society for Conservation Biology (2019-present)

- Expert Panel, N% Global Research Collaboration Plan (2018-present)
- Member, Bear Specialist Group, IUCN (International Union for the Conservation of Nature) (2014-present)
- President and Founding Associate and Board of Directors, San Diego Zoo Global – Peru (2012-present)
- Member, Animal Behavior Society Conservation Committee (2003-2012)
- Chair, Animal Behavior Society Conservation Committee (2009-2012)
- Member, Animal Behavior Society Ethics Committee (2001-2008)
- Behavior and Ecology Advisor, Rhinoceros Advisory Group, Association of Zoos and Aquariums (2003-2018)
- Advisor, Animal Behavior, Giant Panda Species Survival Plan, Association of Zoos and Aquariums (2004-2009)
- Institutional Representative, Science and Technology Committee, Giant Panda Species Survival Plan, Association of Zoos and Aquariums (2007-2009)
- Coordinator, Giant Panda Species Survival Plan, Association of Zoos and Aquariums (2009-present)
- Advisor, Bear Specialist Group, IUCN (International Union for the Conservation of Nature) (2007-2008)
- Chair, Giant Panda Expert Team, Bear Specialist Group, IUCN (International Union for the Conservation of Nature) (2008-present)
- Scientific Advisory Council, Polar Bears International. (2007-2010)
- Desert Tortoise Science Advisory Committee, US Fish & Wildlife Service Desert Tortoise Recovery Office (2009-2015)
- Referee, Animal Behavior Society Student Research Grants (2008, 2009)

Reviewer:

1. Acta Ethologica
2. Acta Sinica

3. Acta Theriologica
4. Animal Behaviour
5. Behavioral Ecology
6. Behavioral Ecology and Sociobiology
7. Behavioral Processes
8. Biodiversity and Conservation
9. Biological Conservation
10. Biology Letters
11. Bioscience,
12. Canadian Journal of Zoology
13. Chinese Journal of Zoology
14. Condor
15. Conservation Biology
16. Conservation Letters
17. Conservation Physiology
18. Conservation Science & Practice
19. Copeia
20. Ecology
21. Ecology & Evolution
22. Evolutionary Applications
23. Endangered Species Research
24. Environmental Science and Pollution Research
25. Journal of the Acoustical Society of America
26. Journal of Animal Welfare
27. Journal of Animal Ecology
28. Journal of Applied Ecology
29. Journal of Chemical Ecology
30. Journal of Comparative Psychology

31. Journal of Ethology
 32. Journal of Mammalogy
 33. Journal of Wildlife Management
 34. Journal of Zoology (London)
 35. Journal of Zoo and Aquarium Research
 36. Integrative Zoology
 37. Mammalia
 38. Mammal Review
 39. Molecular Biology & Evolution
 40. Molecular Ecology
 41. Nature Ecology & Evolution
 42. Naturwissenschaften
 43. Philosophical Transactions of the Royal Society B
 44. Proceedings of the Royal Society of London
 45. Proceedings of the Royal Society B
 46. Royal Society Open Science
 47. Scientific Reports
 48. Trends in Ecology & Evolution
 49. Ursus
 50. Wildlife Biology
 51. Zoo Biology
- Numerous book chapters.

Community service:

- Sustainable Scripps Ranch Civic Association Steering Committee (2009-2013)
- San Diego Children and Nature (SDCaN) Executive Board Member (2009-2013; 2018-present)
- San Diego Children and Nature (SDCaN) Co-President (2018-2019)
- Family Adventures in Nature Club, Co-founder (2009-present)

- Advisory Committee, Natural Families Network, National Children & Nature Network (2010-2014)
- Community Volunteer Recognition Award, Scripps Ranch Civic Association: 2011, 2012, 2013

Workshops & symposia organized:

1. Swaisgood RR & Valentine I. 2016. How can inter-continental collaboration among zoos facilitate giant panda conservation? Summit workshop between North American & European zoos. Edinburgh, Scotland.
2. Swaisgood RR and Losos EC. 2014. Trends at tropical biological field stations: is there a future and what is it? 51st Annual Meeting of the Association for Tropical Biology and Conservation. Cairns, Australia.
3. 2013. Co-facilitator, Connecting zoos, aquariums and museums to the movement to reconnect people to nature. International Grassroots Gathering for the Children & Nature Network. San Diego, California.
4. 2013. Co-facilitator, Conservation behavior workshop: merging science with application. Animal Behavior Society Annual Meeting. Boulder, Colorado.
5. 2010. Applied Animal Ecology Research Symposium. Escondido, California.
6. 2009. Symposium: Conservation science for giant pandas and their habitat. 2009 International Conference for the Society for Conservation Biology. Beijing, China.
7. 2009. American Zoo & Aquarium's Giant Panda Survival Plan Workshop. Escondido, California
8. 2008. Second International Symposium on the Andean Bear. Lima, Perú (Fund-raising committee)
9. 2008. American Zoo & Aquarium's Rhino Research Council Workshop. Escondido, California
10. 2007. Conservation behavior: from implications to applications. Annual Meeting of the Animal Behavior Society. Burlington, Vermont.

11. 2004. The role of scientific inquiry in giant panda conservation. XIXth International Congress of Zoology. Beijing, China.
 12. 2000. Environmental enrichment workshop at Panda 2000: Conservation Priorities for the New Millennium. San Diego, California.
 13. 1998. Problems Associated with the Low Rate of Reproduction among Captive-born Female Southern White Rhinoceros (*Ceratotherium simum simum*). San Diego, California
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Editorial positions:

1. Specialty Chief Editor, Animal Conservation: **Frontiers in Conservation Science**
 2. Guest editor, **Special Issue of Applied Animal Behaviour Science**: Animal Behaviour, Conservation, and Enrichment (2006).
 3. Mills, DS, Marchant-Forde, JN, McGreevy, PD, Morton, DB, Nicol, CJ, Phillips, CJC, Sandoe, P, Swaisgood, RR. (eds.) 2010. **The Encyclopedia of applied animal behaviour and welfare**. CABI, Wallingford, UK.
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Publications in scientific journals

1. Swaisgood RR. In press. Grand challenges in animal conservation. **Frontiers in Conservation Science**.
2. Hammond TT, Curtis MJ, Jacobs LE, Tobler MW, Swaisgood RR, Shier DM. Behavior and detection method influence detection probability of a translocated, endangered amphibian. **Animal Conservation**

3. Tang J, Swaisgood RR, Owen MA, Zhao X, Wei W, Pilfold NW, Wei F, Yang X, Gu X, Yang Z, Dai Q, Hong M, Zhou H, Zhang J, Yuan S, Han H, Zhang Z., 2020. Climate change and landscape-use patterns influence recent past distribution of giant pandas. **Proceedings of the Royal Society B: Biological Sciences** 287, 20200358.
4. Wei W, Swaisgood RR, Pilfold NW, Dai Q, Owen MA, Yang Z, Han H, Yang X, Gu X, Zhang J, Yuan S, Hong M, Tang J, Zhou H, He K, Zhang Z. 2020. Assessing the effectiveness of China's panda protection system. **Current Biology** 30: 1280–1286.
<https://doi.org/10.1016/j.cub.2020.01.062>
5. Martin-Wintle MS, Owen MA, Wintle NJP, Zhou X, Zhang Q, Zhang H, Swaisgood RR. 2020. Stereotypic behaviors predict reproductive success and litter sex ratio in giant pandas (*Ailuropoda melanoleuca*). **Scientific Reports**
6. Charlton BD, Owen MA, Zhang H, Swaisgood RR. 2020. Scent anointing in giant pandas: functional and motivational insights from giant pandas. **Journal of Mammalogy** 10.1093/jmammal/gyaa014
7. Flanagan A, Rutz C, Farabaugh S, Masuda B, Swaisgood RR. 2020. Inter-aviary distance and visual access influence conservation breeding outcomes in a territorial, endangered bird. **Biological Conservation**
8. Greggor AL, Masuda B, Flanagan AM, Swaisgood RR. 2020. Age-related patterns of neophobia in an endangered island crow: implications for conservation and natural history. **Animal Behaviour** 160:61–68.
<https://doi.org/10.1016/j.anbehav.2019.12.002>.
9. Ruiz CR, Vilchis LI, Swaisgood RR. 2020. Exit strategies for wildlife conservation: why they are rare and why your institution needs one. **Frontiers in Ecology and the Environment**
10. Berger-Tal O, Blumstein DT, Swaisgood RR. 2020. Conservation translocations: a review of common difficulties and promising directions. **Animal Conservation**. 23: 121-131. 10.1111/acv.12534

11. Zhou W, Nie Y, Swaisgood RR, Li Y, Wei F. 2019. Ecological context influences scent-marking behavior in the giant panda. **Journal of Zoology** 309: 191-199.
doi:[10.1111/jzo.12711](https://doi.org/10.1111/jzo.12711)
12. Charlton BD, Owen MA, Swaisgood RR. 2019. Coevolution of vocal signal characteristics and hearing sensitivity in forest mammals. **Nature Communications** 10: 2778.
13. Charlton BD, Owen MA, Zhou X, Zhang H, Swaisgood RR. 2019. Influence of season and social context on male giant panda (*Ailuropoda melanoleuca*) vocal behaviour. **PLoS One** 14, e0225772.
14. Swaisgood RR, Montagne JP, Nordstrom LA, Lenihan C, Wisinski CL, Shier DM. 2019. Capturing pests and releasing ecosystem engineers: translocation of common but diminished species to re-establish ecological roles. **Animal Conservation** 22: 600-610. doi:[10.1111/acv.12509](https://doi.org/10.1111/acv.12509)
15. Nie, Y., Zhou, W., Gao, K., Swaisgood, R. R. , Wei, F. (2019). Seasonal competition between sympatric species for a key resource: Implications for conservation management. **Biological Conservation** 234: 1-6.
16. Wei W, Swaisgood RR, Owen MA Pilfold NW, Zhou Z, Han H, Hong M, Zhou H, Wei F, Nie Y, Zhang Z. 2019. The role of den quality in giant panda conservation. **Biological Conservation** 231: 189-196.
17. Greggor AL, Vicino GA, Swaisgood RR, Fidgett A, Brenner D, Kinney ME, Farabaugh S, Masuda B, Lamberski N. In press. Animal welfare in conservation breeding: applications and challenges. **Frontiers in Veterinary Science**
18. Martin-Wintle MS, Wintle NJP, Díez-León M, Swaisgood RR, Asa CS. 2019 Improving the sustainability of captive populations with free mate choice. **Zoo Biology** 38: 119– 132. <https://doi.org/10.1002/zoo.21450>
19. Zhou W, Nie Y, Hu Y, Swaisgood RR, Liu D, Wei F. 2019. Seasonal variation of chemical composition of anogenital gland secretions in wild giant panda

(*Ailuropoda melanoleuca*): implications for breeding adaptation. **Science China Life Sciences** 62: 648-660.

20. Charlton BD, Owen MA, Martin M, Zhang H, Swaisgood RR. 2018. Vocal behaviour predicts mating success in giant panda. **Royal Society Open Science** DOI 10.1098/rsos.181323
21. Charlton BD, Owen MA, Martin M, Keating JL, Swaisgood RR. 2018. Sound transmission in a bamboo forest and its implications for information transfer in giant panda (*Ailuropoda melanoleuca*) bleats. **Scientific Reports**
22. Wei, W., Swaisgood, R.R., Dai, Q., Yang, Z., Yuan S., Owen, M.A., Pilfold, N.W., Yang, X., Gu, X., Zhou, H., Han, H., Zhang, J., Hong, M. & Zhang, Z. 2018. Giant panda distributional and habitat-use shifts in a changing landscape. **Conservation Letters**. 11:e12575. <https://doi.org/10.1111/conl.12575>
23. Hennessy SM, Marczak S, Nordstrom LA Swaisgood RR. 2018. Reconsidering habitat associations in the Anthropocene. **Global Ecology and Conservation** 14: e00397
24. Wei F, Costanza R, Dai Q, Stoeckl N, Gu X, Farber S, Nie Y, Kubiszewski I, Hu Y, Swaisgood RR, Yang X, Bruford M, Chen Y, Voinov A, Qi D, Owen M, Yan L, Kenny DC, Zhang Z, Hou R, Jiang S, Liu H, Zhan X, Zhang L, Yan B, Zhao L, Zheng X, Zhou W, Wen Y, Gao H, Zhang W. 2018. The value of ecosystem services from giant panda reserves. **Current Biology** 28: 2174–2180
25. Appleton, R.D., R.C. Van Horn, K.V. Noyce, T.J. Spady, R.R. Swaisgood, and P. Arcese. 2018. Phenotypic plasticity in the timing of reproduction in Andean bears. **Journal of Zoology, London**. 305:196–202
26. Swaisgood RR, Martin-Wintle MS, Owen MA, Zhou X, Zhang H. 2018. Developmental stability of foraging behavior: evaluating suitability of captive giant pandas for translocation. **Animal Conservation**. <http://dx.doi.org/10.1111/acv.12418>

27. Nafus MG, Germano JM, Swaisgood RR. 2017. Cues from a common predator cause survival-linked behavioral adjustments in Mojave desert tortoises (*Gopherus agassizii*). **Behavioral Ecology and Sociobiology** 71:158
28. Li D, Wintle NJP, Zhang G, Wang C, Luo B, Martin-Wintle MS, Owen MA, Swaisgood RR. 2017. Analyzing the past to understand the future: natural mating yields better reproductive rates than artificial insemination in the giant panda. **Biological Conservation** 216, 10-17.
29. Swaisgood RR, Nordstrom LA, Schuetz JG, Boylan JT, Fournier JJ, Shemai B. 2017. Nest-site selection by beach-nesting birds: insights from a management experiment. **Journal of Wildlife Management**. 82: 192-201.
doi:[10.1002/jwmg.21342](https://doi.org/10.1002/jwmg.21342)
30. Hu Y, Nie Y, Wei W, Ma T, Van Horn R, Zheng X, Swaisgood RR, Zhou Z, Zhou W, Zhang Z, Wei F. 2017. Inbreeding and inbreeding avoidance in wild giant pandas. **Molecular Ecology**. 10.1111/mec.14284
31. Li Y, Swaisgood RR, Wei W, Nie Y, Hu Y, Yang X, Gu X, Zhang Z. 2017. Withered on the stem: is bamboo a seasonally limiting resource for giant pandas? **Environmental Science and Pollution Research**. 24: 10537. DOI 10.1007/s11356-017-8746-6
32. Martin-Wintle MS, Shepherdson D, Yan H, Zhang G, Bo L, Swaisgood RR. 2017. Personality as a predictor of reproductive success in captive giant pandas. **Biological Conservation**. 207: 27-37
33. Swaisgood RR, Wang DJ, Wei FW. 2017. Panda downlisted but not out of the woods. **Conservation Letters**. 11: e12355. doi:10.1111/conl.12355
34. Germano JM, Nafus MG, Perry JA, Hall DB, Swaisgood RR. 2017. Predicting translocation outcomes with personality for desert tortoises. **Behavioral Ecology** 28: 1075-1084. doi:10.1093/beheco/arx064

35. Zheng XG, Owen MA, Nie YG, Hu YB, Swaisgood RR, Wei FW. 2016. Individual identification of wild giant pandas from camera trap photos—a systematic and hierarchical approach. **Journal of Zoology**. 247-256
36. Nafus MG, Esque TC, Averill-Murray RC, Nussear KE, Swaisgood RR. 2017. Habitat drives dispersal and survival of translocated juvenile desert tortoises. **Journal of Applied Ecology** 54: 430-438.
37. Owen MA, Swaisgood RR, Blumstein DT. 2017. Contextual influences on animal decision-making: Significance for behavior-based wildlife conservation and management. **Integrative Zoology** 12:32-48
38. Owen MA, Keating JK, Denes SK, Hawk K, Fiore A, Thatcher J, Becerra J, Hall S, Swaisgood R. 2016. Hearing in context: Conservation implications for a vocal endangered species. **Global Ecology and Conservation**. 6: 121-131.
39. Hennessy SM, Deutschman DH, Shier DM, Nordstrom LA, Lenihan C, Montagne JP, Wisinski CL, Swaisgood RR. 2016. Grassland ecosystem restoration for burrowing owls using vegetation management and an ecosystem engineer. **Animal Conservation**. 6: 506-514. DOI: 10.1111/acv.12266
40. Greggor AL, Berger-Tal O, Blumstein DT, Angeloni L, Bessa-Gomes C, Blackwell BF, Cassady St. Clair C, Crooks K, de Silva S, Fernandez-Juricic E, Goldenberg SZ, Mesnick S, Owen M, Price CJ, Saltz D, Schell CJ, Suarez AV, Swaisgood RR, Winchell CS, Sutherland WJ. 2016. Research priorities from animal behaviour for maximizing conservation progress. **Trends in Ecology & Evolution** 31:954-964
41. Meek, M.H., Wells, C., Tomalty, K.M., Ashander, J., Cole, E.M., Gille, D.A., Putman, B.J., Rose, J.P., Savoca, M.S., Yamane, L. and Hull, J.M., ...Swaisgood, RR, May B. 2016. We should not be afraid to talk about fear of failure in conservation. **Biological Conservation** 194: 18-219.
42. Berger-Tal O, Blumstein DT, Fisher RN, Mesnick SL, Owen MA, Saltz D, Cassady St. Claire C, Swaisgood RR. 2016. A systematic survey of the integration of behavior into wildlife conservation and management. **Conservation Biology** 30: 744-753.

43. Owen MA, Swaisgood RR, Zhou X, Blumstein DT. 2016. Signalling behaviour is influenced by transient social context in a spontaneously ovulating mammal. **Animal Behaviour** 111:157-165.
44. Gilad O, Swaisgood RR, Owen MA, Zhou X. 2016. Odor cues for long-lasting mother-daughter recognition in the giant panda. **Current Zoology**. doi: 10.1093/cz/zow025
45. Wiederholt, R., Trainor, A. M., Michel, N., Shirey, P. D., Swaisgood, R. R., Tallamy, D., & Cook-Patton, S. C. 2015. The face of conservation responding to a dynamically changing world. **Integrative Zoology** 10: 436-452.
46. Martin-Wintle MS, Shepherdson DJ Zhang G, Li D, Zhou Z, Li R, Zhang H. Swaisgood RR. 2015. Free mate choice enhances conservation breeding in the endangered giant panda. **Nature Communications**. 10.1038/ncomms10125
47. Charlton BD, Keating JL, Rengui L, Huang Y, Swaisgood RR. 2015. The acoustic structure of male giant panda bleats varies according to intersexual context. **Journal of the Acoustical Society of America** 138:1305-12. doi:10.1121/1.4928606
48. Wei F, Swaisgood RR, Hu Y, Zhang Z, Nie Y, Qi D, Zhu L. 2015. Progress in the ecology and conservation of giant pandas. **Conservation Biology** 29: 1497-1507. DOI: 10.1111/cobi.12582
49. Nafus MG, Germano JM, Perry JA, Todd BD, Walsh A, Swaisgood RR. 2015. Hiding in plain sight: a study on camouflage and habitat selection in a slow-moving desert herbivore. **Behavioral Ecology** 26:1389-94. doi:10.1093/beheco/arv096
50. Sheppard JK, McGann A, Lanzone M, Swaisgood RR. An autonomous GPS geofence alert system to minimize avian fatalities at wind farms. **Animal Biotelemetry**.
51. Meek, M. H., C. Wells, K. M. Tomalty, J. Ashander, E. M. Cole, D. A. Gille, B. J. Putman, J. P. Rose, M. S. Savoca, L. Yamane, J. M. Hull, D. L. Rogers, E. B. Rosenblum, J. F. Shogren, R. R. Swaisgood, and B. May. 2015. Fear of failure in conservation: The problem and potential solutions to aid conservation of

extremely small populations. **Biological Conservation** 184:209-

217. [doi:10.1016/j.biocon.2015.01.025](https://doi.org/10.1016/j.biocon.2015.01.025)

52. Swaisgood RR. 2015. Everything you wanted to know about the giant panda. **Ecology** 96:599-600.
53. Germano JM, Field KJ, Griffiths RA, Clulow S, Foster J, Harding G, Swaisgood RR. 2015. Mitigation-driven translocations: are we moving wildlife in the right direction? **Frontiers in Ecology and the Environment** 13: 101-105. <http://dx.doi.org/10.1890/140137>
54. Owen MA, Swaisgood RR, Slocumb C, Amstrup SC, Durner G & Simac K. 2015. RR Swaisgood. 2014. An experimental investigation into chemical communication in the polar bear (*Ursus maritimus*). **Journal of Zoology, London**. DOI: 10.1111/jzo.12181
55. Tracey JA, Sheppard JK, Zhu J, Wei F, Marsh H, Swaisgood RR, Fisher RN. 2014. Movement-based visualization and estimation of space use in 3D for wildlife ecology and conservation. **PLoS One**. 9(7), e109065.
56. Santana FE, Swaisgood RR, Clark RW, Lemm JM, and Fisher RN. 2015 Chilled frogs are hot: hibernation and reproduction of the critically endangered mountain yellow-legged frog (*Rana muscosa*). **Endangered Species Research** 27:43-51.
57. Owen, MA, S Hall, L Bryant, and RR Swaisgood. 2014. The influence of ambient noise on maternal behavior in a Bornean sun bear (*Helarctos malayanus eurypilus*). **Zoo Biology** 33: 49-53. DOI: 10.1002/zoo.21105.
58. Zhang Z, Sheppard JK, Swaisgood RR, Wang G, Nie Y, Wei W, Zhao N, Wei F. 2014. Ecological scale and seasonal heterogeneity in the spatial behaviors of giant pandas. **Integrative Zoology** 9: 46-60. DOI: 10.1111/1749-4877.12030
59. Owen MA, Swaisgood RR, Zhou X, Lindburg DG. 2013. Dynamics of male-female multi-modal signaling and behaviour in the giant panda (*Ailuropoda melanoleuca*). **Ethology** 119: 869-880.

60. Sheppard JK, Walenski M, Wallace MR, Vargas Velazco JJ, Porras C, Swaisgood RR. 2013. Hierarchical dominance structure in reintroduced California condors: correlates, consequences and dynamics. **Behavioral Ecology and Sociobiology**. 67: 1227-1238.
61. Linklater WL, Mayer K, Swaisgood RR. 2013. Chemical signals of age, sex, and identity in black rhinoceros. **Animal Behaviour**. 85(3):671-677.
62. Greco BJ, Brown TK, Andrews JRM, Swaisgood RR, Caine NG. 2012. Social learning in captive African elephants (*Loxodonta africana africana*). **Animal Cognition**. Published online December 14, 2012. DOI 10.1007/s10071-012-0586-7.
63. Linklater WL, Gedir JV, Law PR, Swaisgood RR, Adcock K, Du Preez P, Knight M & Kerley GI. 2012. Translocations as experiments in the ecological resilience of an asocial mega-herbivore. **PloS One** 7: e30664.
64. Charlton BD, Swaisgood RR, Zhang Z, Snyder RJ. 2012. Giant pandas attend to androgen-related variation in male bleats. **Behavioral Ecology and Sociobiology**. 66: 969-974.
65. Nie Y, Swaisgood RR, Zhang Z, Hu Y, Ma Y, Wei F. 2012. Giant panda scent marking strategies in the wild: role of season, sex and marking surface. **Animal Behaviour** 84:39-44.
66. Nie, Y, Swaisgood, RR, Zhang, Z, Wei, F. 2012. Reproductive competition and fecal testosterone in wild male giant pandas (*Ailuropoda melanoleuca*). **Behavioral Ecology and Sociobiology**. 66: 721-730.
67. Nie, Y, Zhang, Z, Swaisgood, RR, Wei, F. 2011. Effects of season and social interaction on fecal testosterone metabolites in wild male giant pandas: implications for energetics and mating strategies. **European Journal of Wildlife Research** 58: 235–241.
68. Swaisgood, RR, Wei, F, McShea, WJ, Wildt, DE, Kouba, AJ, & Zhang, Z. 2011. Can science save the giant panda? Unifying science and policy in an adaptive

management paradigm. **Integrative Zoology** 6: 290-296. doi: 10.1111/j.1749-4877.2011.00250.x

69. Shier, DM, & Swaisgood, RR. 2012. Fitness costs of neighborhood disruption in translocations of a solitary mammal. **Conservation Biology** 26: 116-123.
70. Swaisgood, RR. & Sheppard, JK. 2011. Hope springs eternal: biodiversity conservation requires that we see the glass as half full. **BioScience** 61: 427-428.
71. Swaisgood, RR. & Sheppard, JK. 2011. Reconnecting people to nature is a prerequisite for the conservation agenda of the future. **BioScience** 61: 94-95. (Letter)
72. Zhang, Z, Swaisgood, RR, Zhang, S, Nordstrom, LA, Wang, H, Gu, X, Hu, J, & Wei, F. 2011. Old-growth forest is what giant pandas really need. **Biology Letters**. 7:403-406.
73. Linklater, WL, Adcock, K du Preez, P, Swaisgood, RR, Law, PR, Knight, M & Kerley, GIH. 2011. Guidelines for large herbivore translocation simplified: black rhinoceros case study. **Journal of Applied Ecology** 48:493-502.
74. Charlton, BD, Keating, JL, Li, R Yan, H & Swaisgood, RR. 2011. Vocal cues to androgen levels in male giant pandas. **Biology Letters** 7: 71-74.
75. Swaisgood, RR, Terborgh, JT, & Blumstein, DT. (2010). Funding should come to those who wait. **Science**. 329: 276.
76. Swaisgood, RR. (2010). Book review: Zoo Animals: Behaviour, Management, and Welfare, by Geoff Hosey, Vicky Melfi, and Sheila Pankhurst. **Quarterly Review of Biology**. 85:225-226.
77. Swaisgood, RR. & Sheppard, JK. 2010. The culture of conservation biologists: show me the hope! **BioScience**. 60: 626-630.
78. Swaisgood, RR, Wei, F, Wildt, DE, Kouba, AJ, & Zhang, Z. (2010) Giant panda conservation science: how far we have come. **Biology Letters**. 6: 143-145. (*1 of 10 most downloaded papers at Biology Letters in 2010)

79. Swaisgood, RR. (2010). The conservation-welfare nexus in reintroduction programs: a role for sensory ecology. **Animal Welfare**. 19:125-137.
80. Anonymous (Matthews, F et al.) (2010). Conservation and animal welfare: consensus statement and guiding principles. **Animal Welfare**. 19:191-192.
81. Charlton, BD, Keating, JL, Li, R Yan, H & Swaisgood. RR. (2010). Female giant panda (*Ailuropoda melanoleuca*) chirps advertise the caller's fertile phase. **Proceeding of the Royal Society of London B**. 277: 1101-1106.
82. Hall, S and Swaisgood, R R. (2009). Maternal care and cub development in the sun bear. **Ursus** 20: 143-151.
83. Swaisgood, R. R. (2009). Zoos dream of becoming conservation NGOs. **Conservation Biology** 23:1338-1340.
84. Charlton, BD, Huang, Y & Swaisgood, RR. (2009). Vocal discrimination of potential mates by female giant pandas (*Ailuropoda melanoleuca*). **Biology Letters**. 5:597-599.
85. Owen, MA & Swaisgood, RR. (2008). On thin ice: climate change and the future of polar bears. **Biodiversity** 9:123-129.
86. Linklater, WL and Swaisgood, RR. (2008). Reserve size, conspecific density, and translocation success for black rhinoceros. **Journal of Wildlife Management** 72:1059-1068.
87. Zhang, Z, Swaisgood, RR, Wu, H, Li, M, Yong, Y, Hu, J, Wei, F. (2007). Factors predicting den use by maternal giant pandas. **Journal of Wildlife Management** 71: 2694-2698.
88. White, AM. Swaisgood, RR & Czekala, NM. (2007). Ranging patterns in white rhinoceros (*Ceratotherium simum simum*): implications for mating strategies. **Animal Behaviour** 74: 349-356.
89. White, AM. Swaisgood, RR & Czekala, NM (2007). Differential investment in sons and daughters: do white rhinoceros mothers favor sons? **Journal of Mammalogy** 88: 632-638.

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16. Hennessy, SM, Wisinski, CL, Preston K, Swaisgood, RR, and Nordstrom, LA. **Land Journal** (Special Issue, with August deadline)

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Popular publications:

1. Swaisgood RR & Swaisgood, JL. 2020. Family Adventures in Nature. **San Diego Children and Nature Newsletter**.
2. Swaisgood RR. 2020. Fifty years of wonder in the Peruvian Amazon. **Zoonooz**.
3. Swaisgood RR . 2018. Cocha Cashu: our biological field station is going places. **Saving Species**. Vol. 3.

4. Swaisgood RR . 2019. How conservation diplomacy brought pandas to San Diego. **San Diego Union Tribune**. <https://www.sandiegouniontribune.com/opinion/story/2019-04-04/commentary-how-conservation-diplomacy-brought-pandas-to-san-diego>
5. Swaisgood RR . 2018. ' Alalā Conservation: Back from the Brink. **Saving Species**. Vol. 2: 2.
6. Swaisgood RR, Owen MA. 2017. Giant pandas: the road to recovery. **The Science of Saving Species** 1: 2-4.
7. Garshellis D, Swaisgood R, Wang D, Steinmetz R. 2016. Giant pandas a beacon for hope at World Conservation Congress. *International Bear News* 25: 6-8.
8. Martin M, Owen MA, Swaisgood RR. 2017. Giant panda conservation breeding: a call to action. **The Science of Saving Species** 1: 5-6.
9. Swaisgood, RR. 2014. Going to China is coming home: new frontiers in panda conservation. **Zoonooz**.
10. Swaisgood, RR. 2012. The panda program: looking back and looking forward. **Zoonooz**.
11. Durrant B, Swaisgood R. 2012. Still working hard for pandas. **Conservation Update**.
12. Swaisgood, RR. 2012. Adventures in the Amazon; managing a remote field station in Peru. **Zoonooz**. January: 8-11.
13. Shier DM, Swaisgood RR. 2010. Bring the neighbors! **American Scientist** 100: 27-28.
14. Swaisgood, RR. 2011. Cocha Cashu Cachet: A Peruvian field station extraordinaire. **Conservation Update**. Summer 2011: 1-3.
15. Swaisgood, RR. 2010. Keeping hope alive for conservation. **Zoonooz**. April. p. 18.
16. Owen, MA and Swaisgood, RR. 2010. Partnerships in polar bear conservation research. AZA Connect. May.
17. Nordstrom, L and R. Swaisgood. 2008. Burrowing owl conservation plans. *ZooView* June 2008: 4
18. Swaisgood, RR. (2008). The denning ecology of wild giant pandas. **Zoonooz**,
19. Swaisgood, RR. (2007). To see a panda: a researcher's journey. **Zoonooz**, 81: 10-13.
20. Swaisgood, RR. (2007). Scientific detective work in practice: trying to solve the mystery of poor captive-born white rhinoceros reproduction. **Zoonooz**, 80: 8-10.
21. Hall, S., & Swaisgood, R. (2006). Giant pandas: from popularity to conservation education. **CRES Report**, Fall, p. 1-2.

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23. Swaisgood, RR. (2006). Tackling white rhino breeding challenges. **Zoonooz**, May, p. 13.
24. Swaisgood, RR. (2006). We've come a long way, panda baby! **Zoonooz**, 79: 10-15.
25. Anonymous (Swaisgood, RR and Scharf, T) (2006). Why a Zoo? **Zoonooz**, 79: 18-19.
26. Swaisgood, R. R. (2005). Our newest panda and the China connection. **Zooview**. September 2005, p. 1-2.
27. Linklater, WL, RR Swaisgood & RL Hannon (2003) Match-fixing rhino fights: Improving the odds on successful black rhino transfer to game reserves. **Game & Hunt** 9(4): 47-49.
28. Swaisgood, R. R. 2002. New Hope for the Giant Panda? Recent successes in captive breeding in Wolong, China. **CRES Report**, Summer: 1-3
29. Swaisgood, RR. 2002. Rhino research in the African bush: hypothesis-testing, ticks, and big scary animals. **Zoonooz** 75: 8-14.
30. Lindburg, DG, Swaisgood, RR & Penny, C. 2000. Hua Mei grows up. **Zoonooz**, 74: 22-23
31. Swaisgood, RR. 1999. A brief introduction to the Wolong China Conservation and Research Center for the Giant Panda. **Wolong Panda News**, Vol. VII
32. Swaisgood, RR. 1999. Panda breeding breakthrough: panda infant reunited with her mother. **Wolong Panda News**, Vol. IV: 2-9.
33. Swaisgood, R. R. (1994). Who cares about big warm rattlesnakes? Natural history reflections on the dynamic lives of ground squirrels and rattlesnakes (and graduate students). **The North Carolina Herpetological Society Newsletter**. 17(2), 19-26.

Oral presentations (presenting author unless otherwise indicated)

***denotes external financial support for talk/travel:**

1. Alison Greggor, Bryce Masuda, Marty Kawasaki, Jacqueline Gaudioso-Levita, Donna Ball, Paul Banko, Lainie Berry, Michelle Bogardus, Colleen Cole, Susan Farabaugh, Jay Nelson, John Vetter, Alex Wang, Ron Swaisgood. September 1-3, 2020. Where We Are With 'Alalā: the Ups and Downs of Reintroducing Hawaii's Only Living Crow Species Back to the Wild. Hawaii Conservation Conference. Virtual.

2. August 2020. Panda downlisted but not out of the woods. The Explorers Club. Virtual.
3. Ibarguchi G, Wooten T, Aguiar A, Smith R, Post ML, Ozkan K, Vilchis I, Swaisgood R. October 2019. Environmental change, natural history and long-term trends of threatened Western Snowy Plover populations (*Charadrius nivosus nivosus*) in California. Special Symposium: Snowy Plovers. Western Hemisphere Shorebird Group Meeting. Panama City, Panama.
4. Wooten T and Ibarguchi G, Post ML, Smith R, Aguiar A, Murbock K, Nordstrom L, Vilchis I, and Swaisgood R. February 2019. Methods for estimating fledgling rates for California Least Terns. California Least Tern Range-wide Meeting. Newport Beach, California.
5. Greggor AL, Masuda, B, Gaudioso-Levita, JM... Farabaugh, S, SwaisgoodRR. July 2019. An 'Alalā update: data and reflections from 18 months in back in the wild. Hawaii Conservation Conference. Honolulu, HI
6. Hammond TT, Curtis MJ, Shier DM, Swaisgood RR. January 2020. Establishing a Conservation Breeding & Reintroduction Program for the Endangered Mountain Yellow-Legged Frog. San Diego Museum of Natural History State of Biodiversity Symposium. San Diego, CA.
7. Wisinski CL, SM Hennessy, NA Ronan, RR Swaisgood, CJ Gregory, LA Nordstrom. February 2019. Assessing Mitigation Relocation Strategies for Burrowing Owls in Southern California. Western Section of The Wildlife Society 2019 Annual Meeting. Fish Camp, CA.
8. Shier, D.M., R.Y. Chock, A. Wilder, S. McCullough Hennessy, A. Navarro, E. Gray, R. Swaisgood, O. Ryder, A. Alberts. August 2019. San Bernardino kangaroo rat genetics, habitat suitability, night lighting impacts and population viability modeling. State of California Fish and Game Commission Hearing. Sacramento, CA.
9. November 2019. Community partnerships to build support for local endangered species. High Tech High Directors Meeting. San Diego, California.
10. November 2019. Reflections from a Sisyphean science. Keynote address. Science Community of Practice, California Partnership for Math and Science Education:

California County Superintendents Educational Services Association, California Department of Education and the California State Board of Education. Sacramento, California.

11. Montagne JP, Shier DM, Swaisgood RR. October 2019. Encouraging ecosystem engineers to disperse into unoccupied habitat for the benefit of other species. The Wildlife Society Annual Meeting. Reno, Nevada.
12. October 2019. History and development of conservation behavior research at San Diego Zoo Global. Workshop: Developing Change Models for Enhanced Uptake of Conservation Behavior Science. Escondido, California.
13. October 2019. Hope with the sleeves rolled up. Keynote speaker, San Dieguito River Valley Conservancy annual meeting. San Diego, California.
14. July 2019. Translocating ecosystem engineers to re-establish ecological roles. International Congress for Conservation Biology. Kuala Lumpur, Malaysia
15. Greggor AL, Masuda B, Swaisgood RR. July 2019. Why animal social networks matter in wildlife translocations: case study with 'alalā, the Hawaiian crow. International Society for Conservation Biology. Kuala Lumpur, Malaysia.
16. Building a recovery program for burrowing owls in Southern California. 2019 State of Biodiversity Symposium. San Diego Natural History Museum. San Diego, California
17. Conservation ecology of the desert tortoise. United States Fish & Wildlife Service Mojave Desert Tortoise Coordination Meeting. Escondido, California
18. Germano JM, Field KJ, Griffiths RA, Clulow S, Foster J, Harding G, Linhoff L and Swaisgood RR. 2019. Mitigating for development: where are we at and where are we going? World Congress of Herpetology. Dunedin, New Zealand
19. February 2019. Can science save the giant panda? The ecology and behavior of a conservation icon. Evolution and Ecology Seminar Series. University of California, Davis
20. February 2019. Application of behavioral research to improve conservation breeding and translocation outcomes. Animal Behavior Seminar Series. University of California, Davis
21. November 2018. From Endangered to Vulnerable: A personal walk through two decades of science and policy for the giant panda. National Association of Biology

- Teachers. San Diego, California
22. May 2018. Burrowing owl conservation and recovery. Escondido Rotary Club. Escondido, California
 23. April 2018. Science and partnerships at the Cocha Cashu Biological Station. San Diego Rotary Club. San Diego, California.
 24. March 2018. Using science to save the panda. San Diego Independent Scholars. San Diego, California.
 25. February 2018. Restoring the extinct-in-the-wild 'Alalā to the wild. Ocelots Meeting. Escondido, California.
 26. January 2018. Giant otter program at Cocha Cashu. Aardvarks Meeting. San Diego, California.
 27. January 2018. Cocha Cashu Biological Station: It takes a village. Miami University Advanced Inquiry Program. Escondido, California.
 28. Shier DM, Catayalud N, Curtis M, Gardner N, Swaisgood RR. 2017
 29. Swaisgood RR, Nafus MG, Germano JM. 2017. Behavioral ecology and conservation of a desert icon, the desert tortoise. Point Loma Nazarene University, San Diego, California.
 30. Van Horn R, Sheppard J, Alamilla J, Pilfold N, Swaisgood RR and Owen MA. Topographic and landscape features affecting trail use by Andean bears (*Tremarctos ornatus*) in the tropical dry forest of NW Peru. 25th International Conference on Bear Research and Management. Ecuador.
 31. Hennessy SM, Marczak S, Nordstrom LA, Swaisgood RR. 2017. Habitat associations of an ecosystem engineer: returning the California ground squirrel to its rightful place. International Urban Wildlife Conference. San Diego, California.
 32. Wisinski CL, LA Nordstrom, JL Lincer, KRY Ceballos, KL Marshall, RR Swaisgood. February 2017. Artificial burrow design and productivity of western burrowing owls in San Diego County. Western Section of The Wildlife Society 2017 Annual Meeting. Reno, NV.
 33. Wisinski CL, LA Nordstrom, JL Lincer, KRY Ceballos, KL Marshall, RR Swaisgood. June 2017. Artificial burrow design and productivity of western burrowing owls in San Diego County. 2017 Urban Wildlife Conference. San Diego, CA.

34. January 6, 2017. The Role of Science and Policy in the Remarkable Recovery of a Conservation Icon, the Giant Panda. Perspectives on Science Seminar Series. Point Loma Nazarene University, San Diego California.
35. October 2016. Conservation Partnerships Between Zoos and Regulatory Agencies: Bridging Gaps, Filling Gaps. The Wildlife Society Annual Meeting. Raleigh, North Carolina.
36. Wisinski CL, RR Swaisgood, LA Nordstrom, D Shier, S Hennessy, JL Lincer, JP Montagne, K Marshall, S Marczak. March 2016. An adaptive management approach to recovering BUOW populations and restoring a grassland ecosystem. Southern California Chapter
37. Swaisgood RR, King SND, Leivers S, and Shier DM. November 2016. San Diego Zoo Global. Dana Point Community Center Science Night. Dana Point, California.
38. Van Horn RC, Sheppard J, Owen MA, Appleton R, Sanchez I, Vallejos J, Vallejos J, Swaisgood RR. 2016. Selection of natal dens and den sites by Andean bears (*Tremarctos ornatus*) in the seasonally dry tropical forest of NW Peru. The Wildlife Society Annual Meeting. Raleigh, North Carolina.
39. September 2016. Adaptive management strategies for recovering burrowing owl populations in Southern California. IUCN World Conservation Congress. Honolulu, Hawaii.
40. McCullough Hennessy, S., J.M. Eadie, M.L. Miller, R.R. Swaisgood, D.H. Deutschman. 2016. Linking existing field data with agent-based model development to support conservation decision making for western burrowing owls. Presentation: International Society for Ecological Modelling, Baltimore, MD.
41. May 15, 2016. Giant panda conservation science: opportunities for collaboration. How can inter-continental collaboration among zoos facilitate giant panda conservation? Summit workshop between North American & European zoos. Edinburgh, Scotland.
42. Nafus MG, Esque TC, Averill-Murray RC, Nussear KE, and Swaisgood RR. (2016) Seeking to hide: Habitat effects of dispersal and survival of translocated juvenile desert tortoises. Paper presented at Joint Meeting of Ichthyologists and Herpetologists. New Orleans, LA.

43. Nafus MG, Esque TC, Averill-Murray RC, Nussear KE, and Swaisgood RR. (2016) Seeking to hide: Habitat effects of dispersal and survival of translocated juvenile desert tortoises. Paper presented at Desert Tortoise Council 41st Annual Symposium. Las Vegas, NV.
44. May 13, 2016. New approaches to species conservation science. Oxford University. Oxford, England.
45. Rosell F, Clapham M, Swaisgood RR, Owen MA, Swenson JE, Zedrosser A. *Chemical communication in bears (Ursidae)*. IBA
46. Van Horn RC, Sheppard J, Owen MA, Appleton R, Sanchez I, Vallejos J, Vallejos J, Swaisgood RR. *Selection of natal dens and den sites by Andean bears (Tremarctos ornatus) in the seasonally dry tropical forest of NW Peru*. IBA
47. November 2, 2015. Patterns of scent marking and chemosignal discrimination in wild and captive giant pandas. Point Loma Nazarine University. San Diego, California.
48. Owen MA, Keating JL, Denes SK, ...Swaisgood RR. Psychophysical assessment of giant panda hearing sensitivity: Implications for conservation and management. *International Conference of the Society of Conservation Biology*. Montpellier, France. August 2015.
49. Owen MA, Wisdom S, Kirschhoffer J, O'Neill C, Swaisgood RR, Bowles AE. Transmission of vehicular noise into sub-nivean dens: Implications for noise disturbance of denning polar bears. *Society for Marine Mammalogy*, December 2015, San Francisco, California.
50. Wisinski CL, Nordstrom LA, Lincer JL, Swaisgood RR. 2015. Burrowing owl breeding and foraging ecology at natural and artificial burrows in San Diego County. The Wildlife Society Western Section Meeting. Santa Rosa, California.
51. Marczak SA, Wisinski CL, Nordstrom LA, Swaisgood RR. 2015. Habitat associations of California ground squirrels and implications for Western burrowing owl conservation in San Diego County Grasslands. The Wildlife Society Western Section Meeting. Santa Rosa, California.
52. Germano, JM, Nafus, MG, Perry, JA, Walsh A, and RR Swaisgood. February 20-22, 2015. The Importance of Animal Personality for Individual Suitability in Desert

- Tortoise Reintroduction Programs. 40th Annual Meeting and Symposium of the Desert Tortoise Council. Las Vegas, NV.
53. Wisinski CL, LA Nordstrom, JL Lincer, RR Swaisgood. November 2015. Western Burrowing Owl (*Athene cunicularia hypugaea*) Breeding and Foraging Ecology in San Diego County, California. Raptor Research Foundation Annual Conference. Sacramento, CA
54. McCullough Hennessy, S., D.H. Deutschman, C. Lenihan, D. Shier, L.A. Nordstrom, J.P. Montagne, C. Wisinski R.R. Swaisgood. 2015. Restoring Key Grassland Processes for Western Burrowing Owls (*Athene cunicularia hypugaea*) Using Ecosystem Engineers and Vegetation Management. Presentation: Raptor Research Foundation, Sacramento, CA.
55. August 6, 2015. The big move: dispersal and habitat settlement in translocations. International Congress for Conservation Biology. Montpellier, France.
56. 2015. An adaptive management approach to burrowing owl conservation. Planning and Development Services, County of San Diego. San Diego, California.
57. 2015. Conservation breeding and reintroduction. San Diego Institute for Conservation Research Weekly Seminary. Escondido, California.
58. 2015. Using behavioral experiments to dampen dispersal following translocation. Department of Primary Industries, Parks, Water and Environment, Tasmanian Government. Hobart, Tasmania.
59. 2015. Capacity building at Cocha Cashu Biological Station. San Diego Zoo Foundation Board. San Diego, California.
60. Appleton, R.D., R.C. Van Horn, K.V. Noyce, T.J. Spady, and R.R. Swaisgood. 2 December 2014. La influencia de la variación del fotoperíodo y la disponibilidad de alimentos sobre la estacionalidad reproductiva del oso andino. III Simposio Internacional para la Conservación y Manejo del Oso Andino. Cartagena, Colombia. 1-5 December 2014
61. Van Horn, R.C., R.D. Appleton, D.J. Vallejos Aguinaga, R.I. Sanchez Aguinaga, J. Vallejos Guerrero, M.A. Owen, and R.R. Swaisgood. 3 December 2014. Madrigueras natales de los osos andinos (*Tremarctos ornatus*) en el bosque tropical estacionalmente seco de Lambayeque, Perú. III Simposio Internacional para la

- Conservación y Manejo del Oso Andino. Cartagena, Colombia. 1-5 December 2014.
62. Walsh A, Averill-Murray R, Fields K, Swaisgood RR. 2014. Smart Science from the Start: Implications of desert tortoise translocation and disease research conducted by San Diego Zoo at the Desert Tortoise Conservation Center, Las Vegas, Nevada. Turtle Survival Alliance Annual Meeting. Orlando, Florida.
63. 2014. Restoration and recovery of burrowing owls in San Diego County. USFWS Carlsbad Office Monthly Seminar.
64. July 24, 2014. Challenges for the future of tropical biological field stations. 51st Annual Meeting of the Association for Tropical Biology and Conservation. Cairns, Australia.
65. July 24, 2014. Losos EC, Swaisgood RR, Kinnaird M. Trends in tropical field station use and implications for long-term sustainability. 51st Annual Meeting of the Association for Tropical Biology and Conservation. Cairns, Australia.
66. *April 30, 2014. Applying behavioral and ecological research to conservation: the transnational experience. Latin American Association for Zoological Parks and Aquariums Annual Conference. Lima, Peru.
67. *May 1, 2014. Conservation fund-raising: it's about building trust and reputation. Latin American Association for Zoological Parks and Aquariums Annual Conference. Lima, Peru.
68. March 4, 2014. San Diego Zoo's giant panda conservation program. San Diego Zoo, San Diego, California.
69. March 1, 2014. Hope for giant pandas. San Diego Zoo, San Diego, California.
70. February, 2014. Perry J, J. Germano K. Field, A. Walsh, R. Swaisgood. Microclimate of Mojave desert tortoise burrows as a common resource for Western Burrowing owls. 4th International Burrowing Owl Conference, Pasco, Washington
71. January 29, 2014. Ecological approaches to conservation science. Symposium, Species on the Edge: Monitoring and Management of Southern California's Most Imperiled Wildlife. Escondido, California
72. January 16, 2014. Scientific approaches to panda conservation. San Diego Zoo Wildlife Conservancy, San Diego, California.
73. *November 6, 2013. Plenary talk: Application of behavioral and ecological research

- to conservation of the giant panda. International Symposium on Giant Panda Conservation. Chengdu, China.
74. 2013. Behavior and ecology of the giant panda. Point Loma University. San Diego, California.
 75. Swaisgood RR, Wang D, Wei FW. 2013. Giant pandas: are they still endangered? International Union for the Conservation of Nature Bear Specialist Group Redlist Symposium, International Bear Association Conference, Provo, Utah.
 76. Swaisgood RR, Zhang Z, Wei FW. 2013. Giant Panda Foraging Strategies and Bamboo as a Seasonally Limiting Resource. International Bear Association Conference, Provo, Utah.
 77. Appleton, R.D., M.W. Tobler, and R.C. Van Horn, R.R. Swaisgood, and K. Noyce. 2013. A comparison of Andean bear (*Tremarctos ornatus*) densities using camera traps at waterholes and bear trails in the tropical dry forest of north-western Peru. 22nd International Conference on Bear Research and Management. Provo, Utah.
 78. Swaisgood RR, Nordstrom LA, Shier D, Wisinski C, Montagne JP, Marczak S, McCullough S, Deutschman D, and Lincer JL. 2013. An adaptive management approach to recovering burrowing owl populations and restoring a grassland ecosystem in San Diego County. Sacramento-Shasta Chapter of The Wildlife Society Burrowing Owl Workshop 2013. Elk Grove, California.
 79. September 11, 2013. In situ and ex situ conservation for giant pandas. 2013. Giant Panda Research Symposium. Edinburgh, Scotland.
 80. August 27, 2013. White rhinoceros reproduction: Insights from the wild and semi-wild. International Elephant and Rhino Conservation and Research Symposium. Pittsburg, Pennsylvania.
 81. August 25, 2013. Recent progress in behavior and ecology of rhinoceros species and recommendations for the future. Rhinoceros Research Council Masterplan Workshop. Pittsburg, Pennsylvania.
 82. May 1, 2013. Perspectives on species conservation. Department of Ecology & Evolutionary Biology, University of California San Diego. San Diego, California.
 83. Owen MA, Lindburg DG, Swaisgood RR. 2013. Associations between cub vocalizations and the In-den behavior of black bear mothers and their cubs:

- Implications for acoustic monitoring of denning bears. 20th International Conference on Bear Research and Management, Provo, Utah.
84. 2013. Schuetz J, Fournier J, Swaisgood RR. Long-term shifts in reproduction of California Least Terns: *What does age have to do with it?*
85. Appleton, R.D., R. Van Horn, K. Noyce, and R.R. Swaisgood. 17 October 2012. Ecología y conservación del oso de anteojos (*Tremarctos ornatus*) en el bosque tropical estacionalmente seco en el nor-oeste de Perú. III Congreso de la Sociedad Peruana de Mastozoología. Piura.
86. November 6, 2012. San Diego Zoo Global's Giant Panda Program. Annual Teacher's Event. San Diego, California.
87. Germano J, Field K, Walsh A, Kahn, Sheppard J, and Swaisgood RR. 2012. Do differences in release habitat affect post-translocation movement? Desert Tortoise Council Symposium. Las Vegas, Nevada.
88. Germano J, K. Field, A. Walsh, J. Sheppard, S. Madill, and R. Swaisgood. Differences in release area habitat affect post-translocation movement: a case study on desert tortoises (*Gopherus agassizii*), 7th World Congress of Herpetology, Vancouver, British Columbia, Canada, 2012.
89. Germano, J.M., K. Field, D. Hinderle, A. Walsh, and R. Swaisgood. Integrating science and translocations: improving tools for desert tortoise conservation. Southwest Partners in Amphibian and Reptile Conservation, Las Vegas, Nevada.
90. October 1, 2012. Introduction to applied conservation programs in Peru. Andes Biodiversity and Ecosystem Research Group Annual Meeting. Sequoia National Park, California.
91. *September 17, 2012. An Introduction to the Cocha Cashu Biological Station. Organization for Biological Field Stations Annual Conference (Funded by NSF Research Coordination Network grant to Organization for Tropical Studies)
92. July 25, 2012. Hope, society and new approaches to conservation science. La Selva Biological Station. Sarapiquí, Costa Rica.
93. June 7, 2012. Applications of ecological research to conservation. La Molina University. Lima, Peru.

94. May 30, 2012. Behavioral and ecological approaches to reintroduction. Hawaii Department of Fish and Wildlife, Hilo, Hawaii.
95. May 14, 2012. Perspectives on species conservation. Department of Ecology & Evolutionary Biology, University of California San Diego. San Diego, California.
96. *February 26, 2012. Finding hope for conservation and endangered species because we must. Developing Ecologically-Based Conservation Targets Under Global Change. The Second Emerging Issues Conference of the Ecological Society of America. National Conservation Training Center, Shepherdstown, West Virginia.
97. *February 10, 2012. Captive breeding, reintroductions, and translocations as a tool for small population rescue. Symposium on the Conservation of Extremely Small Populations. University of California, Davis.
98. January 19, 2012. The San Diego Zoo's Giant Panda Scientific Program. AZA Giant Panda Species Survival Plan Workshop. Front Royal, Virginia.
99. February 18, 2012. Germano J, Field K, Wallace K, Perry L, Kahn P, Swaisgood R. Do differences in release area habitat features affect post-translocation movement? A case study on desert tortoises (*Gopherus agassizii*). Desert Tortoise Council Symposium. Las Vegas, NV.
100. January 2012. Giant panda conservation research in the Foping Nature Reserve. Point Loma University. San Diego, California.
101. *Swaisgood, RR & Linklater, WL. October 26, 2011. Post-release Movement and Settlement in Translocations: Black Rhinoceros as a Case Study. Giant Panda Reintroduction Workshop. Dujianyan, China.
102. Swaisgood, RR. Owen, MA, Wiese, R & Wei, F. September 13, 2011. Conservation and ecology of giant pandas in situ. 2011 AZA Annual Conference. Atlanta, Georgia.
103. *August 22, 2011. Conservation behavior. International Training Course: New Trends and Methodology in Animal Ecology and Conservation Biology. International Society of Zoological Sciences. Beijing, China (invited speaker).
104. R.D. Appleton, K.V. Noyce, R.C. Van Horn, and R.R. Swaisgood. 17-12 July 2011. Seasonality of reproduction in wild spectacled bears in the dry forests of Cerro Venado, Perú. 20th International Conference on Bear Research and Management, Ottawa, Canada.

105. R.C. Van Horn, and R.R. Swaisgood. 17-23 July 2011. Daily and seasonal activity patterns of Andean bears photographed by camera traps in montane forests of southeast Perú. 20th International Conference on Bear Research and Management, Ottawa, Canada.
106. Owen MA, Slocomb C & RR Swaisgood. 2011. Polar bears are seasonally motivated to discriminate conspecific sex and reproductive status via pedal scent. 20th International Conference on Bear Research and Management. Ottawa, Canada.
107. Owen MA, Slocomb C, Goodwin T, Mark D, Yin Q & RR Swaisgood. 2011. Polar bears (*Ursus maritimus*) discriminate between the sex and reproductive status of conspecifics via pedal scent. 12th Meeting on Chemical Signals in Vertebrates. Berlin, Germany.
108. Owen MA, Keating JL, Denes SL, Hawk K, Boroski J, Fiore A & RR Swaisgood. 2011. Behavioral audiogram of the giant panda (*Ailuropoda melanoleuca*): Preliminary results. 162nd Meeting of the Acoustical Society of America, San Diego, CA.
109. Keating, J.L., Brown, T.K., Caine, N.G., Bowles, A.E., Charlton, B.D. & Swaisgood, R.R. (2011). Implications of vocalizations during giant panda breeding. 162nd Meeting of the Acoustical Society of America. San Diego, CA. (Awarded Best Student Paper Award in Animal Bioacoustics-Second Prize)
110. *May 21, 2011. If not us, then who: why and how conservation professionals need to engage the broader public. Volcan Mountain Foundation Annual Gathering. Julian, California.
111. May 17, 2011. Ten reasons for hope. National Endangered Species Day Event. San Diego, California.
112. May 6, 2011. Introducing Richard Louv, author of The Nature Principle. The Nature Principle Book Launch. Point Loma Nazarine University, San Diego.
113. Van Horn, R.C., R.D. Appleton, and R.R. Swaisgood. 8 March 2011. The ecology of Andean bear (*Tremarctos ornatus*) conservation in the dry forest of northwest Perú. Zoos and Aquariums Committing to Conservation, Seattle, WA.

114. February 10, 2011. Unnatural America? The future of conservation biology depends on reconnecting people to nature. 2011 Annual Conference, The Wildlife Society, Western Section, Riverside, California. (Invited plenary speaker)
115. Fournier, J., Lewison, R., Swaisgood, RR. February 9, 2011. Evaluating reproductive trends in California least tern nesting in San Diego County, California: a stable isotope application. 2011 Annual Conference, The Wildlife Society, Western Section, Riverside, California.
116. February 3, 2011. Habitat selection, dispersal and conservation biology. Department of Ecology & Evolution, UCLA, Los Angeles, California.
117. November 10, 2010. Reintroduction biology and restoration ecology in Southern California. Mission Trails Regional Park. San Diego, California.
118. November 13, 2010. The importance of sensory ecology in reintroduction programs. Annual Meeting, Southern California Regional Primate Research Forum. San Diego, California. (Invited speaker)
119. From here to there: a journey from behavioral ecology to conservation biology in a zoo setting. Department of Ecology & Evolution Symposium Series, UCLA, Los Angeles, California.
120. *September 1, 2010. Two rights shouldn't make a wrong: behavioral research can make conservation- and welfare-motivated reintroductions more successful. Compassionate Conservation—An International Symposium. Oxford University, United Kingdom. (Invited speaker)
121. July 26, 2010. How animals choose where to settle affects conservation outcomes of reintroduction & translocation. Animal Behavior Society Annual Meeting. Williamsburg, Virginia.
122. Shier, D & Swaisgood, R. July 26, 2010. Nonintuitive social effects in animal translocations for conservation. Animal Behavior Society Annual Meeting. Williamsburg, Virginia.
123. May 28, 2010. Introduction to the Institute for Conservation Research and Applied Animal Ecology. First Annual Applied Ecology Research Symposium. Escondido, California.

124. May 28, 2010. Application of behavioral and ecological research to conservation. First Annual Applied Ecology Research Symposium. Escondido, California.
125. May 28, 2010. Giant panda conservation science: where we've been and where we're going. First Annual Applied Ecology Research Symposium. Escondido, California.
126. May 28, 2010. Careers in conservation ecology. First Annual Applied Ecology Research Symposium. Escondido, California.
127. Wang, D. & Swaisgood, R. May 21, 2010. IUCN Giant Panda Expert Team conservation status report. 19th International Conference on Bear Research & Management. Tbilisi, Georgia Republic.
128. May 12, 2010. Old-growth forest is what giant pandas really need. Institute of Zoology, Chinese Academy of Science. Beijing, China.
129. May 11, 2010. Conservation science for giant pandas. San Diego Zoo Worldwide Tours. Beijing, China
130. April 27, 2010. San Diego Zoo and Cocha Cashu, Peru: A natural connection. ZSSD Board of Trustees. San Diego, California.
131. *April 9, 2010. Species reintroductions in the Southwest. Anza Borrego Natural History Association. Borrego Springs, California
132. March 12, 2010. Cocha Cashu: the beginning of a new adventure? Conservation & Identity Council, Zoological Society of San Diego. Escondido, California.
133. *February 20, 2010. Invited keynote speaker. Adventures in conservation science for the giant panda. Pandas International 10th Anniversary Celebration. Denver, Colorado.
134. February 5, 2010. Behavioral ecology and conservation biology: two great tastes that taste better together. University of California at San Diego. Ecology, Behavior and Evolution seminar series. San Diego, California.
135. January 13, 2010. The San Diego Zoo's Giant Panda Scientific Program. AZA Giant Panda Species Survival Plan Workshop
136. January 7, 2010. Climate change and the Zoological Society of San Diego: Saving more than just polar bears. San Diego Zoo's Institute for Conservation. Escondido, California.

137. January 5, 2010. Climate change and the Zoological Society of San Diego: Saving more than just polar bears. San Diego Zoo's Institute for Conservation. San Diego, California.
138. Cocha Cashu Biological Station, Manu and the San Diego Zoo: A match made in heaven? (Internal presentation). San Diego Zoo. San Diego, California.
139. December 2, 2009. Management of endangered species. Tucson High School. Tucson, Arizona.
140. November 11, 2009. Approaches to conservation science in applied animal ecology. San Diego Zoo's Institute for Conservation Research Seminar Series.
141. November 9, 2009. The ecology of movement behavior in a fragmented landscape. Symposium on Habitat conservation plans: Moving across boundaries. Escondido, California.
142. *October 25, 2009. How is climate change impacting polar bears in the Hudson Bay and globally? Churchill, Manitoba, Canada.
143. October 14, 2009. Reconnect your children to nature. Scripps Ranch Community Center, San Diego, California.
144. August 26, 2009. Habitat selection and conservation. San Diego Zoo's Institute for Conservation Research seminar series. Escondido, California.
145. Zhang, Z, Swaisgood, RR, Sheppard, J, Nie, Y, Wei, F. July 13, 2009. Foraging strategy and spatial ecology of wild giant pandas at the Foping Nature Reserve, China. 2009 International Congress for the Society of Conservation Biology. Beijing, China.
146. Swaisgood, RR, Zhang, ZJ & Wei, FW. July 13, 2009. Are birth dens a factor limiting giant panda population size in reserves with a history of logging? 2009 International Congress for the Society of Conservation Biology. Beijing, China.
147. Shier, DM & Swaisgood, RR. July 12, 2009. Social relationships among solitary animals influence translocation success: a case study with the endangered Stephens' kangaroo rat. 2009 International Congress for the Society of Conservation Biology. Beijing, China.
148. Linklater, WL and Swaisgood, RR. May 13, 2009. Leading hypotheses fail to describe survival after reintroduction and re-stocking of black rhinoceros (*Diceros*

- bicornis) in southern Africa, 1981-2005: what does? San Diego Zoo's Institute for Conservation Research Lecture Series. Escondido, California
149. May 5, 2009. Can science save the giant panda? First United Methodist Church. San Diego, California.
150. *March 13, 2009. Behavioral management for reintroduction programs: Conservation and welfare implications. Animal Behavior Seminar Series. University of California, Davis.
151. February 7, 2009. Species reintroductions as a conservation tool in Southern California. State of Endangered Species Annual Symposium.
152. January 9, 2009. The San Diego Zoo's Giant Panda Scientific Program. AZA Giant Panda Species Survival Plan Workshop. Escondido, California
153. December 10, 2008. New directions for panda conservation science at the San Diego Zoo. Ocelots Club, San Diego, California.
154. November 12, 2008. Reintroduction as a conservation strategy for Andean bears? Pros and cons. Second International Symposium on the Andean Bear. Lima, Perú.
155. November 13, 2008. Panelist: *Rescue, Rehabilitation and Reintroduction of Andean Bears: an analysis of experiences and necessities*. Second International Symposium on the Andean Bear. Lima, Perú.
156. November 13, 2008. Reintroduction of Andean bears: conservation, welfare, and ecological relevance. Second International Symposium on the Andean Bear. Lima, Perú.
157. October 7, 2008. Black and white but not a panda: conservation programs for black and white rhinos. Aardvarks Club Monthly Meeting. San Diego, California.
158. September 21, 2008. Habitat selection and dispersal: manipulating behavior for conservation. Chinese Academy of Science. Beijing, China.
159. July 15, 2008. New directions for behavioral and ecological research for rhinoceros. Association of Zoos' Rhino Research Council Workshop. Escondido, California.
160. July 5, 2008. Conservation science for rhinoceros. A Taste of CRES. San Diego Wild Animal Park, California.

161. June 5, 2008. Zoo-based strategies for endangered species conservation: the case of the giant panda. The Wylie Annual Conference for Vascular Surgeons. San Diego, California.
162. *April 28, 2008. Opening Plenary: The big move: dispersal, habitat settlement and conservation. Ontario Ecology and Ethology Colloquium. Guelph, Canada.
163. *April 29, 2008. Keynote Lecture: The Campbell Centre for the Study of Animal Welfare Research Symposium Sponsored by University Federation of Animal Welfare. Notoriously difficult to breed in captivity: behavioral research to the rescue of the giant panda. Guelph, Canada.
164. Shier, D & Swaisgood. RR. April 16, 2008. Behavioral theory to the rescue? How manipulating the behavioral environment at time of release can increase reintroduction success. First International Wildlife Reintroduction Conference: Applying Science to Conservation. Chicago, Illinois.
165. February 22, 2008. Global climate change and polar bear conservation. Conservation Innovator's Council. San Diego, California.
166. January 28, 2008. Behavioral and ecological basis of conservation in the giant panda. University of California Riverside Extension Teacher Program. San Diego, California.
167. January 14, 2008. The San Diego Zoo's Giant Panda Scientific Program. AZA Giant Panda Species Survival Plan Workshop. Washington, D.C.
168. December 7, 2007. Conservation research strategies for giant pandas. California State University, Fullerton (undergraduate class in animal behavior).
169. November 27, 2007. Social behavior and conservation. Point Loma University, San Diego, California.
170. November 26, 2007. The San Diego Zoo's giant panda conservation program: past, present and future. Panda Naming Ceremony. San Diego, CA.
171. *November 17, 2007. Invited speaker, Conservation & Welfare Symposium. The conservation-welfare nexus in reintroduction programs: a role for sensory ecology. University of British Columbia. Vancouver, Canada.
172. November 14, 2007. A personal perspective on panda conservation. Zoological Society of San Diego's Director's Club Annual Meeting, San Diego, California.

173. November 8, 2007. Patterns of scent marking and chemosignal discrimination in captive and wild pandas. 18th International Conference on Bear Research and Management. Monterrey, Mexico.
174. *October 6, 2007. How dispersal and habitat selection theory are helping conservation. Invited speaker, The Stamps Symposium, University of California, Davis.
175. September 17, 2007. Ecological and behavioral approaches to conservation of wild giant pandas. CRES Seminar Series, San Diego, California
176. August 29, 2007. CRES bear conservation science programs: past, present and future. ZSSD's Joint Council Meeting. San Diego, California.
177. August 7, 2007. Conservation of giant pandas in captivity and the field. CRES Teacher's Institute. San Diego, California.
178. July 25, 2007. Invited speaker, Symposium: Conservation Behavior. Manipulating social behavior for conservation. Animal Behavior Society Annual Meeting. Burlington, Vermont
179. White, AM, Swaisgood, RR, and Czekala, NM. July 4, 2007. What can home range analysis contribute to conservation? A case study of the white rhinoceros (*Ceratotherium simum*). Society for Conservation Biology 21st Annual Meeting. Port Elisabeth, South Africa.
180. Zhang, Z, Swaisgood, RR, Wu, H, Li, M, Yong, Y, Hu, J, Wei, F. July 2, 2007. Factors predicting den use by maternal giant pandas. Society for Conservation Biology 21st Annual Meeting. Port Elisabeth, South Africa.
181. June 2, 2007. The panda story: my personal adventures in science and conservation. ZSSD. A Taste of CRES. San Diego Wild Animal Park, CA.
182. May 25, 2007. Behavior and conservation of the giant panda. San Diego Zoo, California.
183. Wei FW, Swaisgood RR. 2007. Factors predicting maternal den use in giant pandas. International Congress for the Society of Conservation Biology. Durban, South Africa.
184. May 23, 2007. The panda story: my personal adventures in science and conservation. ZSSD Founder's Circle Annual Meeting. San Diego, CA.

185. April 26, 2007. Adventures in science and conservation. La Jolla Rotary Club. La Jolla, California.
186. April 19, 2007. Case studies in conservation behavior and ecology. San Marcos State University. San Marcos, California.
187. April 12, 2007. Applied animal ecology: adventures in conservation science. San Diego Wild Animal Park Educators.
188. January 25, 2007. A strategy for weaning giant pandas. AZA Giant Panda Species Survival Plan Workshop. Atlanta, Georgia.
189. January 24, 2007. The San Diego Zoo's Giant Panda Scientific Program. AZA Giant Panda Species Survival Plan Workshop. Atlanta, Georgia.
190. January 18, 2007. Science and Saving the Panda. Phoenix Zoo Explorer's Club. Phoenix, AZ.
191. *January 17, 2007. San Diego Zoo's CRES and the Division of Applied Animal Ecology: An Autobiographical Account. Phoenix Zoo. Phoenix, AZ.
192. December 13, 2006. Psychological well-being and enrichment in giant pandas and other mammals. Beijing Normal University. Beijing, China.
193. December 12, 2006. Behavioral research for rhinoceros conservation. Beijing Normal University. Beijing, China.
194. November 15, 2006. Giant panda conservation and research. Cabrillo High School. San Diego, CA.
195. October 11, 2006. The secrets of panda success: a conservation story. Zoological Society of San Diego Special Speaker Seminar Series. San Diego, CA.
196. July 24, 2006. The New Applied Animal Ecology Division. ZZSD President's Pride Club. San Diego, CA.
197. July 11, 2006. Behavioral aspects of the CRES giant panda conservation program. CRES Summer Teacher Institute. San Diego, CA.
198. May 16, 2006. Conservation of pandas and other bears. Bear Awareness Week Special Seminar. San Diego Zoo.
199. April 20, 2006. The San Diego Zoo-Wolong Giant Panda Breeding Center Connection: A decade of collaboration for conservation. Wolong Nature Reserve, Sichuan, China.

200. April 5, 2006. Ex situ conservation for giant pandas: a holistic approach. CRES seminar series, San Diego, CA.
201. January 19, 2006. San Diego Zoo giant panda research program overview. AZA Giant Panda Species Survival Plan Workshop. Omaha, Nebraska.
202. January 13, 2006. Hypothesis testing in conservation behavior. Point Loma College, San Diego, CA.
203. November 10, 2005. Chemical communication and conservation in mammals, including the giant panda. Hubbs-SeaWorld Research Institute Science Seminar Lecture Series. San Diego, California.
204. *September 21, 2005. Behavioral research on stress, enrichment and social behavior in support of giant panda captive breeding. Madrid Zoo, Madrid, Spain.
205. *September 10, 2005. Motivational theories for stereotypes and enrichment efficacy: generating testable predictions for competing hypotheses. Workshop: Stereotypes: from function to pathology. Lanzarote, the Canary Islands, Spain
206. August 23, 2005. We've come a long way, panda baby. Board of Trustees Meeting, Zoological Society of San Diego.
207. July 17, 2005. Linklater, W. L., and R. R. Swaisgood. Black rhinoceros olfactory communication and post-release behavioural management. XIX Annual Meeting of the Society for Conservation Biology, University of Brasilia, Brazil.
208. July 16, 2005. Baggallay, T., W. L. Linklater, N. Owen-Smith, and R. R. Swaisgood. Black rhinoceros browsing facilitates resource availability: implications for donor population management. XIX Annual Meeting of the Society for Conservation Biology, University of Brasilia, Brazil.
209. January 27, 2005. San Diego Zoo giant panda research program overview. AZA Giant Panda Species Survival Plan Workshop. Washington, D. C.
210. December 6, 2004. Conservation behavior research with pandas, rhinos and lorises. San Diego State University, Department of Biology Seminar Series.
211. September 2, 2004. Designing research for conservation: case studies in chemical communication. Institute of Zoology, Chinese Academy of Sciences. Beijing, China.

212. August 30, 2004. Chemical communication and conservation in mammals. Beijing Normal University. Beijing, China.
213. August 26, 2004. How can research on captive animals contribute to in situ giant panda conservation? 19th International Congress of Zoology. Beijing, China.
214. August 26, 2004. Concluding remarks, the role of scientific inquiry in giant panda conservation. 19th International Congress of Zoology. Beijing, China.
215. August 25, 2004. Donald G. Lindburg, T. J. Spady & Ronald R. Swaisgood . Seasonality of reproduction in the giant panda: captive and wild. 19th International Congress of Zoology. Beijing, China.
216. August 23, 2004. Manipulating scent to influence mate preferences: applications for conservation. 19th International Congress of Zoology. Beijing, China. (invited speaker)
217. August 23, 2004. Research on stereotypies and environmental enrichment in zoos: where have we been in the last fifteen years and where are we going? 19th International Congress of Zoology. Beijing, China. (invited speaker)
218. July 2004. White, A.M., Swaisgood, R. R. and Czekala, N. Sex-biased investment in white rhinoceros. 10th International Behavioural Ecology Congress, Jyväskylä, Finland.
219. June 3, 2004. Scientific approaches to rhinoceros conservation. University of Peradeniya, Sri Lanka
220. *April 1, 2004. Conservation and the San Diego Zoo's behavior research program for giant pandas. Invited speaker, Sigma Xi Scientific Society Annual Chapter Meeting. Highland Heights, Kentucky.
221. *April 2, 2004. Olfactory communication. Northern Kentucky University.
222. March 12, 2004. Can science save the giant panda? Featured speaker, San Diego Science Educators Association, 19th Annual Conference. San Diego, California.
223. February 19, 2004. San Diego Zoo giant panda research program overview. AZA Giant Panda Species Survival Plan Workshop. Washington, D. C.
224. February 13, 2004. Contrasting patterns of maternal care in giant pandas and American black bears. Fifteenth International Conference on Bear Research and Management. San Diego, California.

- 225. *January 30, 2004. Behavioral approaches to rhino conservation. Ecology Graduate Group, University of California, Riverside. (invited speaker)
- 226. *January 29, 2004. Invited speaker. A new role for chemical communication in conservation. Department of Biology, University of California, Riverside.
- 227. November 13, 2003. Behavior meets conservation. Point Loma College, San Diego, CA.
- 228. *October 2, 2003. Invited speaker. Scent signal manipulation for conservation of endangered species. Psychobiology Seminar Series, UC Davis. Davis, California.
- 229. September 7, 2003. Recent progress in behavioral research with rhinoceros species. American Zoo and Aquarium Association Annual Conference. Columbus, Ohio.
- 230. August 21, 2003. Invited speaker, Symposium on Behavior and Conservation. Conservation through smell; scent communication in endangered species. XXVIII International Ethological Conference. Florianopolis, Brazil.
- 231. July 17, 2003 Behavioral research for captive breeding problem-solving in southern white rhinoceros: lessons from captivity and the field. Animal Behavior Society Annual Meeting. Boise, Idaho.
- 232. October 29, 2002. Rhinoceros reproduction and conservation. ZSSD Keeper Seminar Series. San Diego, CA
- 233. October 23, 2002. Invited, speaker, Behavior and conservation: all creatures great and small. UCLA Organismic Biology, Ecology and Evolution Seminar Series. Los Angeles
- 234. October 16, 2002. Southern white rhinoceros reproduction: behavioral and endocrinological studies from captivity and the field. Center for Reproduction of Endangered Species Seminar Series, ZSSD. San Diego, CA.
- 235. July 16, 2002 Determining the functions of scent marking in the giant panda: a role for conservation? Animal Behavior Society Annual Meeting. Bloomington, Indiana.
- 236. Fisher, H. S., Swaisgood, R. R. July 17, 2002 Chemical communication and mate choice in the pygmy loris. Animal Behavior Society Annual Meeting. Bloomington, Indiana.

237. April 26, 2002. Application of behavioral knowledge to captive breeding of the giant panda. American Zoo and Aquarium Association, Western Regional Workshop. Tucson, Arizona.
238. March 15, 2002. Monitoring pregnancy in the giant panda: physical and behavioral signs. Wolong Nature Reserve, Sichuan, China.
239. *February 20, 2002. Creating an optimal environment for captive giant pandas. Ocean Park, Hong Kong
240. January 21, 2002. Distinguishing pregnancy from pseudopregnancy. Carnivore Reproduction Workshop. San Diego, CA.
241. Fisher, H.S., Swaisgood, R.R. November 28, 2001. Chemical communication and mate choice in the pygmy loris. Center for Reproduction of Endangered Species Seminar Series, ZSSD. San Diego, CA.
242. November 5-6, 2001. Managing black rhino dispersal and conflict after translocation: experiments in olfactory communication. Open Forum, ZSSD, San Diego.
243. November 6, 2001. The application of behavioral research to rhinoceros conservation. Point Loma College, San Diego, CA.
244. October 16, 2001. Conservation in action: captive and field research on giant pandas and rhinoceros. San Diego County Teachers Annual Preview, San Diego, CA.
245. August 8, 2001. Giant panda reproduction: recipes for success. San Diego Zoo Special Speaker Series.
246. May 10, 2001. Reproductive Failure in Southern White Rhinoceros: Testing Hypotheses with Behavioral and Hormonal Data from Captivity and the Field. Second National Rhino Keepers Workshop. San Diego, CA.
247. October 16, 2000. Chemical communication in giant pandas: experimentation and application. Panda 2000: Conservation Priorities for the New Millennium. San Diego, California.
248. October 17, 2000. Management strategies for promoting natural mating in giant pandas. Panda 2000: Conservation Priorities for the New Millennium. San Diego, California.

249. October 18, 2000. Developing enrichment strategies for giant pandas. Panda 2000: Conservation Priorities for the New Millennium. San Diego, California.
250. October 18, 2000. Courtship and mating of giant pandas at the Wolong Breeding Center: successes and failures. Panda 2000: Conservation Priorities for the New Millennium. San Diego, California.
251. Durnin, ME, Swaisgood, RR, Czekala, N & Zhang, H. October 17, 2000. The effect of radiocollars on stress-related behavior and hormones in the giant panda. Panda 2000: Conservation Priorities for the New Millennium. San Diego, California.
252. Hare, VJ, Ripsky, D, Battershill, R, Bacon, K, Hawk, K & Swaisgood, R. Giant panda enrichment: meeting everyone's needs. Panda 2000: Conservation Priorities for the New Millennium. San Diego, California.
253. August 9, 2000. Environmental enrichment for giant pandas: a test of the ethological needs hypothesis. Animal Behavior Society Annual Meeting. Atlanta, Georgia.
254. December 9, 1999. Promoting physical and psychological well-being in giant pandas through an environmental enrichment program. Giant Panda Technical Conference. Chengdu, China.
255. October 26, 1999. Reproductive behavior and physiology of the southern white rhinoceros: implications for conservation. Point Loma College, San Diego, CA.
256. Hare, V., Tepper, E., Swaisgood, R., Lindburg, D., Zhang, G, Ripsky, D., Hawk, K. & Hilpman, G. S. September 26, 1999. Enrichment for two: giant panda enrichment at the San Diego Zoo. American Zoo and Aquarium Association's Annual National Conference. Minneapolis, Minnesota.
257. Hare, V., Tepper, E., Swaisgood, RR. Lindburg, DG., Zhang, G, Ripsky, D., Hawk, K., & Hilpman, G. September 2, 1999. Evaluating enrichment strategies with giant pandas at the San Diego Zoo. International Conference on Environmental Enrichment. Edinburgh, Scotland.
258. *January 22, 1999. Applying behavioral research to captive breeding and conservation: giant pandas and white rhinoceros. Invited speaker for the University of California, Davis Seminar Series in Applied Behavior. Davis, California.

259. January 27, 1999. The importance of research on social behavior and communication for captive breeding. Moorpark College keeper course. San Diego, California.
260. February 3, 1999. Reproductive and social behavior of the giant panda and white rhinoceros. San Diego Wild Animal Park Keeper Forum.
261. February 23, 1999. Conservation and behavioral biology of the giant panda. Steiff Special Event. San Diego, California.
262. August 9, 1999. Discrimination of conspecific odors by giant pandas: effects of sex and reproductive status. XXVI International Ethological Conference, Bangalore, India.
263. Patton, ML, Swaisgood, RR, Fetter, GA, Montagne, JP, Czekala, NM, Rieches, RG, Lance & VA. 1998. Reproductive cycle length in southern white rhinoceros (*Ceratotherium simum simum*) as determined by fecal pregnane analysis and behavioral observations. 31st Annual Meeting of the Society for the Study of Reproduction. College Station, Texas.
264. October 1998. Giant panda conservation and olfactory communication. UCSD Biology Seminar Series. San Diego, California.
265. July 1998. Giant pandas discriminate individual conspecific scents. Animal Behaviour Society Annual Meeting. Carbondale, Illinois.
266. June 1998. The San Diego Zoo's research and conservation program for the giant panda. Moorpark College keeper course. San Diego, California.
267. June 1998. An evaluation of potential behavioral mechanisms of reproductive failure in captive-born southern white rhinoceros. Workshop on Problems Associated with the Low Rate of Reproduction among Captive-born Female Southern White Rhinoceros (*Ceratotherium simum simum*). San Diego, California.
268. June 1997. Reproductive behavior in giant pandas at Wolong, China. CRES forum. San Diego, California.
269. December 1997. Olfactory communication in giant pandas. International Symposium on the Environmental Protection and City Development of the 21st Century, Chengdu.

270. May 1997. Conservation of the giant panda through research. Fleischmann-Hillard Meeting. Beijing, China.

271. December 1996. Behavioral monitoring at the San Diego Zoo: implications for captive enrichment. Giant Panda Technical Conference, Chengdu, China.

Poster presentations at scientific conferences

1. Wisinski CL, LA Nordstrom, JL Lincer, KL Marshall, RR Swaisgood. February 2016. Spatial ecology of western burrowing owls in San Diego County during the breeding season. Western Section of The Wildlife Society 2016 Annual Meeting. Pomona, CA.
2. Masuda B, Gaudioso-Levita J, Cogswell J, Nelson J, Ball D, Vetter J, Bogardus M, Banko P, Browning M, Cole C, Misajon K, Wang A, Farabaugh S, Swaisgood R. 2017. Conservation Breeding and Reintroduction of the 'Alalā (*Corvus hawaiiensis*). Hawaii Conservation Conference. Honolulu, Hawaii.
3. Greggor AL, Berger-Tal O, Blumstein DT, Angeloni L, Bessa-Gomes C, Blackwell BF, Cassady St. Clair C, Crooks K, de Silva S, Fernandez-Juricic E, Goldenberg SZ, Mesnick S, Owen M, Price CJ, Saltz D, Schell CJ, Suarez AV, Swaisgood RR, Winchell CS, Sutherland WJ. 2016. Prioritising animal behaviour research to increase conservation efficacy. Cambridge, UK.
4. Swaisgood, RR. 2016. Cocha Cashu Biological Station: Promoting biological diversity conservation, engaging local indigenous communities, and training the next generation of conservation professionals. World Conservation Congress, International Union of Conservation for Nature. Honolulu, Hawaii.
5. Wisinski CL, Nordstrom LA, Lincer JL, Marshall KL, and Swaisgood RR. 2016. Spatial ecology of Western burrowing owls in San Diego County during the breeding season. The Wildlife Society Western Section Meeting. Pomona, California.
6. Boylan JT, Murbock K, Wooten T, Post ML, Smith R, Nordstrom LA, Swaisgood RR. 2016. Comparison of methods to estimate fledging rates for California least terns. The Wildlife Society Western Section Meeting. Pomona, California.
7. Deutschman D, Swaisgood R, Shier D, Nordstrom L, McCullough S, Lenihan C, Montagne JP, Wisinski C. 2014. Habitat structure and ecosystem engineers: Critical components of sustainable habitat restoration for burrowing owls. Ecological Society of America.

8. Montagne JP, Shier D, Swaisgood RR, Clark R. 2014. How temperament influences translocation of California ground squirrels. International Society for Behavioral Ecology. New York, New York.
9. Wisinski CL, Nordstrom LA, Lincer JL, and Swaisgood RR. 2014. Use of remote cameras for monitoring burrowing owl nesting ecology in San Diego County. Raptors of the Pacific Northwest
10. Van Horn, R.C., R.D. Appleton, and R.R. Swaisgood. 2013. Characteristics of natal dens of Andean bears (*Tremarctos ornatus*) in the tropical dry forest of Lambayeque, Peru. Poster presentation at the 22nd International Conference on Bear Research and Management. Provo, Utah.
11. Van Horn, R.C., R.D. Appleton, and R.R. Swaisgood. 2013. Natal dens of Andean bears in the tropical dry forest of Lambayeque, Peru. 2013. Poster presentation at the 20th Annual Conference of The Wildlife Society. Milwaukee, Wisconsin.
12. Van Horn, R.C., R.D. Appleton, S.A. Young, J. Amanzo, J. Danoff-Burg, and R.R. Swaisgood. 2013. Citizen science data supporting Andean bear (*Tremarctos ornatus*) conservation in the tropical dry forest of northwest Peru. Poster presentation at the 2013 Conference of Zoos and Aquariums Committing to Conservation. Des Moines, Iowa.
13. Owen MA, Lindburg D, Swaisgood R. 2013. Associations between Cub Vocalizations and the In-den Behavior of Black Bear Mothers and their Cubs: Implications for Acoustic Monitoring of Denning Bears. International Bear Association Conference, Provo, Utah
14. Wisinski CL, Marshall KL, Nordstrom LA, Lincer JL, and Swaisgood RR. 2013. Use of remote cameras for monitoring burrowing owl nesting ecology in San Diego County. Sacramento-Shasta Chapter of The Wildlife Society Burrowing Owl Workshop 2013. Elk Grove, California.
15. Marczak S, Nordstrom LA, Nourn N, Sheppard J, and Swaisgood RR. 2013. Creating a habitat suitability model for California ground squirrels and western burrowing owls in San Diego County to help inform conservation management decisions. Sacramento-Shasta Chapter of The Wildlife Society Burrowing Owl Workshop 2013. Elk Grove, California.
16. Flores C, Groenendijk J, Chavez V, Lieberman A, R Swaisgood. 2012 Cocha Cashu Biological Station: A unique place to study birds. IXth Neotropical Ornithology Congress, Cusco, Peru.

17. Covert, A., D. Essary, D. , P. Flores, R. Foster, L Scott, K,Field, R. Averill-Murray, N . Lamberski, R. Swaisgood, A. Walsh. Multi-state role of integrative research and conservation training provided by the Desert Tortoise Conservation Center. Southwest Partners in Amphibian and Reptile Conservation, Las Vegas, Nevada.
18. M. E. Eckstut, J. Perry, K. Field, A. Walsh, A. Covert, R. Swaisgood, and J. M. Germano. How do desert tortoise retreat sites vary in their ability to buffer environmental temperatures? SWPARC, Las Vegas, NV, 2012
19. J. M. Germano, K. Field, D. Hinderle, A. Walsh, and R. Swaisgood. Integrating science and translocations: improving tools for desert tortoise conservation, SWPARC, Las Vegas, NV 2012.
20. Qin Yin, Innocent H. Hirwa, Daniel B. Mark, and Thomas E. Goodwin, Megan A. Owen, Christine Slocumb, and Ronald R. Swaisgood. 2012. Searching for chemical signals in polar bear pedal scents using automated solid phase dynamic extraction (spde)/gc-ms. National Meeting of the American Chemical Society. San Diego, California.
21. Owen MA, Slocumb C, Goodwin T, Mark D, Yin Q & RR Swaisgood. 2012 (Submitted). Polar bears (*Ursus maritimus*) discriminate between the sex and reproductive status of conspecifics via pedal scent. 12th Meeting on Chemical Signals in Vertebrates. Berlin, Germany.
22. Germano J, Field K, Wallace K, Perry L, Kahn P, Swaisgood R. 2011. Do differences in release area habitat features affect post-translocation movement? A case study on desert tortoises (*Gopherus agassizii*). Annual Meeting, Southwest Partners in Amphibian and Reptile Conservation. Tucson, Arizona.
23. Germano J, Kahn P, Swaisgood R. 2011. Conserving the Mojave Desert Tortoises through recovery, repatriation, and education: efforts from the Desert Tortoise Conservation Center. Joint Meeting of Ichthyologists and Herpetologists, Minneapolis, Minnesota, USA.
24. Owen MA, Crowe PD, Dewing A, Robbins CT & RR Swaisgood. 2011. In den mother-cub behavior and communications in the grizzly bear (*Ursus arctos horibilis*). 20th International Conference on Bear Research and Management. Ottawa, Canada.
25. Crowe PD, Owen MA Zhang Z, Zhou Z & RR Swaisgood. 2011. Age affects embryonic diapause in female giant pandas. 20th International Conference on Bear Research and Management. Ottawa, Canada.

26. Hall SS, Miller LJ, Owen MA & RR Swaisgood. 2011. Weaning giant pandas in a zoological setting. 20th International Conference on Bear Research and Management. Ottawa, Canada.
27. Keating, J.L., Brown, T.K., Caine, N.G., Bowles, A.E., Charlton, B.D., & Swaisgood, R.R. (2011). Acoustic analysis of vocalizations during giant panda breeding. *20th International Conference on Bear Research and Management*, Ottawa, Canada
28. Slocomb CL, Owen MA & RR Swaisgood. 2011. The Interactive effects of novelty and season in polar bear olfactory discrimination via pedal scent. Advancing Bear Care 2011, Banff, Canada.
29. July 12, 2009. Hall, SS, Owen, MA, Crowe, PD, & Swaisgood, RR. Humming and vocalizations in bear cubs: a contrast between hibernating and non-hibernating species. 2009 International Congress for the Society of Conservation Biology. Beijing, China.
30. November 7, 2007. Hall, S Swaisgood, RR, Owen, MA, and Lindburg, DG. The behavioral development of mother-reared giant panda cubs in a captive facility. 18th International Conference on Bear Research and Management. Monterrey, Mexico.
31. November 7, 2007. Hall, S Swaisgood, RR. The effects of maternal experience on infant care patterns in the giant panda. 18th International Conference on Bear Research and Management. Monterrey, Mexico.
32. November 7, 2007. Owen MA, Bowles AE, Simerson J, Keating JL, Denes SL & RR Swaisgood. 2007. Auditory sensitivity of the polar bear: preliminary results from behavioral testing. 18th International Conference on Bear Research and Management. Monterrey, Mexico.
33. November 7, 2007. Owen MA, Swaisgood, RR & TJ Spady. 2007. Can polar bears discriminate sex and estrus status from olfactory cues? 18th International Conference on Bear Research and Management. Monterrey, MexicoMay 10, 2007. Nordstrom, L, Swaisgood, RR, et al. 5th International Rhino Keepers Workshop. Werribee Open Range Zoo. Australia.
34. Owen MA, Hall SS, & Swaisgood RR. 2005. The Impact of Environmental Noise on Maternal Behavior in a Bornean Sun Bear. 16th International Conference on Bear Research and Management. Riva del Garda, Italy.
35. February 12, 2004. Owen, M., Czekala, N., Swaisgood, R., Steinman, K. & Lindburg, D. Poster: Seasonal and diurnal dynamics of glucocorticoids and behavior in giant pandas

(*Ailuropoda melanoleuca*): implications for monitoring and well-being. Fifteenth International Conference on Bear Research and Management. San Diego, California.

Student advisor

1. Cindy Hurtado 2014-2017. Towson University. Foraging and Spatial Ecology of Reintroduced Collared Peccaries (*Pecari tajacu*) in Ibera Natural Reserve, Argentina
2. María Díez León. University of Guelph. Effects of environmental enrichment on the stereotypic behaviours and reproductive success of the American mink *Neovison vison*. 2010-2014
3. Xiaoguang Zheng. Ph.D. Institute of Zoology, Chinese Academy of Science. Beijing, China. Temperament and behavior in giant pandas. 2012-2016.
4. Sarah McCullough. Ph.D. 2012-2015. San Diego State University/University of California at Davis. Burrowing owl ecology and conservation.
5. J.P. Montagne. M.Sc. 2011-2016. San Diego State University. California ground squirrel temperament and translocation.
6. Robyn Appleton. Ph.D. 2011-present. University of British Columbia. Vancouver, Canada. Ecology and conservation of the Andean bear in Peru.
7. Megan Owen. 2011-2014. University of California, Los Angeles. Mating ecology and communication in wild giant pandas.
8. Meghan Martin-Wintle, Ph.D. 2010-2014. Portland State University. The role of mate preference and personality on reproductive success in an *ex-situ* conservation breeding program for the giant panda (*Ailuropoda melanoleuca*).
9. Keating, Jennifer L. M.Sc. San Marcos California State University. Implications of vocalizations during giant panda breeding encounters. 2009-2011.
10. Frank Santana, M.Sc., San Diego State University. Mountain Yellow Legged Frog (*Rana muscosa*) Conservation: Multiple Approaches. 2009-2012.
11. Nie Yongang. Ph.D. Institute of Zoology, Chinese Academy of Science. Beijing, China. Communication and endocrinology of wild giant pandas. 2008-2012.
12. Brian Greco. M.Sc. San Marcos State University. Social learning in captive African elephants 2008-2011.

13. Walters, K. Ph.D. 2007-8. University of California, Los Angeles. Acoustic communication in giant pandas and other ursids.
 14. Yamada, K. 2007. M.Sc. San Diego State University. Motivational effects of environmental enrichment in pygmy loris.
 15. Dewing, A. 2005. M.Sc. San Diego State University. Hibernation and Mother-Infant Relationship in Grizzly Bears (*Ursus arctos horribilis*).
 16. Caiozzi, A. 2003. Bonner Student Fellowship. Olfactory discrimination of conspecific and predator odors and the role of scent during exposure to a novel environment in the pygmy loris
 17. Fisher, H. S. 2001. The role of chemical communication in female mate choice in the pygmy loris, *Nycticebus pygmaeus*. M.Sc Thesis. University of California, San Diego.
 18. Taraska , C. 2000. Bonner Student Fellowship. Developmental stability in bamboo feeding style in giant pandas
 19. White, A. M. 2000. M.Sc. Chemical communication in giant pandas: the role of marking posture and age of signaler. San Diego State University
 20. Dickman, DM. 1999. Examination of the reproductive suppression hypothesis as a cause of reproductive failure in captive-born southern white rhinoceros females. M.Sc. Thesis. University of California, San Diego.
 21. Holliday D. 1996. San Diego State University McNair scholarship. Olfactory communication and reproduction in the white rhinoceros
- Numerous undergraduate independent projects

Postdoctoral fellow advisor

1. Wayne Linklater. 2001-2005. Black rhinoceros translocation in southern Africa.
2. Debra Shier. 2006-2009. Behavioral ecology and translocation biology of heteromyid rodents.
3. James Sheppard. 2007-2012. Spatial and social ecology of reintroduced California condors.

4. Brian Horne. 2008-2010. Reproductive ecology and conservation of the red-crowned roof turtle and gharial in India.
5. Colleen Lenihan. 2011-2012. An adaptive management approach to recovering burrowing owl populations and restoring a grassland ecosystem in San Diego County.
6. Paquita Hoeck. 2011-2015. Genetics in the conservation breeding of bird species.
7. Jen Germano. 2011-2013. Translocation biology of desert tortoises.
8. Melia Nafus. 2014-2016. Ecology and conservation of desert tortoises.
9. Oded Berger-Tal. 2014-2016. Conservation behavior and ecology of California condors
10. Natalie Catalayud. 2015-2018. Mountain yellow-legged frog conservation breeding
11. Sarah Hennessy. 2015-2018. Ecology and conservation of burrowing owls and grassland restoration
12. Meghan Martin. 2015-present. Mate choice and male-male competition in giant panda breeding programs
13. Nick Pilfold. 2016-2017. Population ecology of bear species
14. Kate Richardson. 2016-2017. Reintroduction biology of the Hawaiian crow.
15. Alison Greggor. 2017-2020. Pre-release training and reintroduction of the 'Alala to its historic range
16. Adi Barocas. 2017-present. Giant otter conservation and ecology. Integrating giant otter research and conservation with sustainable development of the Madre de Dios region
17. Rachel Chock. 2018-present. Heteromyid habit evaluations, translocation, and conservation.
18. Tali Hammond. 2018-present. Mountain yellow-legged frog breeding, disease, and reintroduction.
19. Mathew Petelle. 2020-present. Conservation breeding of the endangered 'Alala and other Hawaiian forest birds.

Media Interviews & articles

More than 150 interviews, including coverage in:

Natural History, New Scientist, National Wildlife, Science News, National Geographic, Nature Online, Discover, Boston Globe, CNN, ABC News, NBC Today Show, CNN, PBS Nature, local TV stations, Discovery Channel, Animal Planet, Science Daily, Audubon, Zoonooz, Mother Jones magazine, Mongabay, Sierra Club Magazine, San Diego Union Tribune, and other media outlets.

L. IGNACIO VILCHIS

Associate Director of Recovery Ecology
San Diego Zoo Institute for Conservation Research
Institute of Conservation Research - San Diego Zoo Global
15600 San Pasqual Valley Road, Escondido, CA 92027-7000
760-796-5685 ivilchis@sandiegozoo.org

Education

Micro-MBA - UC San Diego Rady School of Management |2015|
Conservation Biology Postdoctoral Fellowship - UC Davis, School of Veterinary Sciences |2012|
Ph.D. Biological Oceanography - Scripps Institution of Oceanography |2010|
M.S. Marine Science - Universidad Católica de Chile |1998|
B.A. Biology - University of San Diego |1994|

Appointments

Associate Director, Recovery Ecology: San Diego Zoo |2015–Present|
Postdoctoral Research Scientist: Scripps Institution of Oceanography |2013–2015|
Visiting Scholar: University of Washington School of Aquatic and Fisheries Sciences |2012|
Postdoctoral Fellow: UC Davis, School of Veterinary Sciences |2010–2012|
Marine Ecologist: Southwest Fisheries Science Center, NMFS–NOAA |2003–2010|
Research Associate: Scripps Institution of Oceanography |1998–2003|

Selected Publications

Ruiz-Miranda, C.R., **Vilchis, L.I.**, and R.R. Swaisgood. In press. Exit strategies for wildlife conservation: why they are rare and why your institution needs one. *Frontiers in Ecology and the Environment* *Frontiers in Ecology and the Environment* doi: 10.1002/fee.2163


Mills, K.L., Gaydos, J.K., Fiorello, C.V., Whitmer, E.R., De la Cruz, S., Mulcahy, D.M., Ziccardi, M.H., and **L.I. Vilchis** 2016 Post-Release Survival and Movement of Western Grebes (*Aechmophorus occidentalis*) Implanted with Intracoelomic Satellite Transmitters *Waterbirds* 39(2): 175-186

Vilchis, L.I., Johnson, C.K., Pearson, S.F., Evenson, J.R., Davidson, P., Barry, K.L. and J.K. Gaydos. 2014 Assessing ecological correlates of marine bird declines to inform marine conservation. *Conservation Biology*: DOI: 10.1111/cobi.12378

Leichter, J.J., Stokes, M.D., **Vilchis, L.I.**, and J. Fletcher. 2014 Regional synchrony of temperature variation and internal wave forcing along the Florida Keys reef tract. *Journal of Geophysical Research: Oceans* 119, doi:10.1002/2013JC009371.

Meir, J.U., Robinson, P.W., **Vilchis, L.I.**, Kooyman, G.L., Costa, D.P. and P.J. Ponganis. 2013 Blood oxygen depletion is independent of dive function in a deep diving vertebrate, the northern elephant seal. *PLoS ONE* 8(12) e83248

Gaydos J.K., **Vilchis, L.I.**, Lance, M.M., Jeffries, S.J., Thomas, A., Greenwood, V., Harner, P., and M.H. Ziccardi. 2012 Post-release movement of rehabilitated harbor seals (*Phoca vitulina richardii*) compared to age-matched wild seals. *Marine Mammal Science* 29 E282-E294

Forney K.A., Ferguson, M.C., Becker, E.A., Fielder, P.C., Redfern, J.V., Barlow, J., **Vilchis, L.I.** and L.T. Ballance. 2012  Habitat-based spatial models of cetacean density in the eastern Pacific Ocean. *Endangered Species Research* 16:113–133

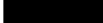
Vilchis, L.I., Ballance L.T., and W. Watson. 2009. Temporal variability of neustonic ichthyoplankton assemblages of the eastern Pacific warm pool: *Deep-Sea Research* 56:125–140

Vilchis, L.I., L.T. Ballance, and P. C. Fiedler. 2006. Pelagic habitat of seabirds in the eastern tropical Pacific: effects of foraging ecology on habitat selection. *Marine Ecology Progress Series* 315:279–292

Vilchis, L. I., Tegner, M. J., Moore, J., Friedman, C. S., Riser, K., Robbins, T. T., & Dayton, P. K. 2005. Ocean warming effects on growth, reproduction, and survivorship of Southern California abalone. *Ecological Applications*, 15(2), 469–480.

Fellowships and Awards

National Science Foundation Postdoctoral Fellowship
UC–Davis Conservation Biology Postdoctoral Fellowship
National Science Foundation Graduate Fellowship

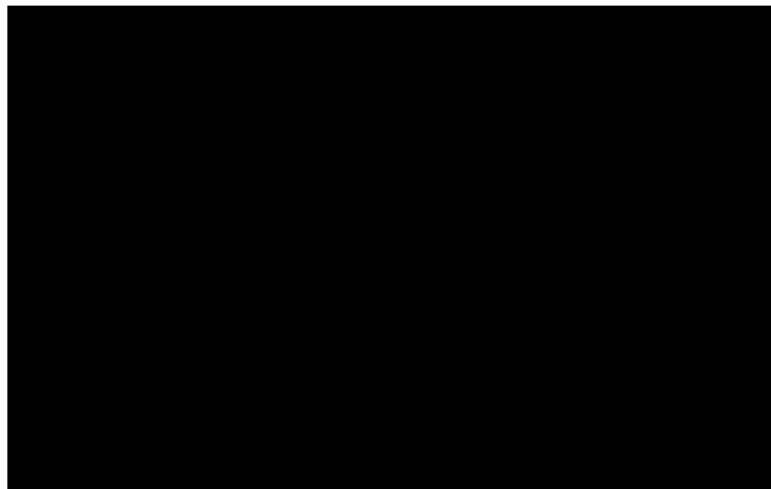
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Synergistic Activities

Sonoran Joint Venture Management Board; Scientific advisor to WildCoast (San Diego based NGO); Reviewed manuscripts for the following scientific journals: *Ecological Applications*, *Deep Sea Research*, *Journal of Aquatic Animal Health*, *Journal of Shellfish Research*, *Journal of Experimental Biology and Ecology*, *Global Change Biology*, *Marine Ecology Progress Series*; *Marine Ornithology*, *PLOsone*, *Revista de Biología Marina y Oceanografía* and *PeerJ*; Reviewed proposals for: USDA, NOAA, USGS and the North Pacific Research Board; Vice Chair and Chair for UCSD Graduate Student Government; Dive Control Board Member - Scripps Institution of Oceanography; Thesis Advisor for masters students at Southern Cross University, University of Washington and San Diego State University, Volunteer Scientist and Naturalist at the Chula Vista Nature Interpretive Center, Volunteer Research Diver - Instituto de Investigaciones Oceanológicas de la Universidad Autónoma de Baja California.

BENJAMIN NEVITT, DVM,
DACZM

CURRICULUM VITAE



BENJAMIN NEVITT, DVM, DACZM

OBJECTIVE: Obtain an associate veterinarian position at a world-class zoologic institution that provides the opportunity for research and field work in addition to a high-volume clinical caseload.

EDUCATION

- University of Illinois**, College of Veterinary Medicine, Chicago, IL
Graduate student with course work focusing on statistics, epidemiology, and 2011-2014
advanced topics in zoologic medicine.
- University of Florida**, College of Veterinary Medicine Gainesville, FL
Doctor of Veterinary Medicine 2005-2009
- Washington University in St. Louis** St. Louis, MO
Bachelor of Arts and Sciences in Biology 2001-2005

EMPLOYMENT:

- San Diego Zoo**, San Diego Zoo Global San Diego, CA
Associate Veterinarian 2014-Present
Duties included clinical veterinary care focusing on routine clinical procedures, medical case management, critical care case management, preventative medicine procedures, veterinary support for field projects conducted by San Diego Zoo Global, clinical investigation and publication, and mentoring of veterinary students and zoological medicine residents in the joint residency program with the UC Davis School of Veterinary Medicine.
- Illinois Zoological and Aquatic Animal Residency**, University of Illinois, Chicago, IL
College of Veterinary Medicine, 2011-Present
Chicago Zoological Society (Brookfield Zoo) and John G. Shedd Aquarium
Zoological and Aquatic Animal Medicine Residency working with extremely diverse and large collections between the zoo and aquarium, including terrestrial and marine mammals, birds, reptiles, amphibians, fish and invertebrates; participation in preventative health program, quarantine procedures, and preshipment examinations; worked closely with nutrition and curatorial staff and reviewed diets and behavioral training; instructed over 35 veterinary students during clinical rotations through the zoo and aquarium; performed coursework in epidemiology, statistics, and advanced topics in zoo medicine.
- Denver Zoo** Denver, CO
Relief veterinarian Spring 2011
Provided veterinary coverage during weekends while the zoo was short staffed.
- Colorado State University**, College of Veterinary Medicine Fort Collins, CO
Internship in Exotics and Zoological Medicine 2010-2011
Internship focusing on privately owned exotics species, including avian, herptile, and exotic companion animals. Additionally, provided the veterinary care for the Rocky Mountain Raptor program, the Denver Downtown Aquarium, and assisted in the veterinary care for the Cheyenne Mountain Zoo in Colorado Springs, CO.
- Iowa State University**, College of Veterinary Medicine Ames, IA
Rotating Internship in Small Animal Medicine 2009-2010
Internship in general small animal medicine and emergency medicine. Rotations included anesthesia, surgery, internal medicine, radiology, and cardiology.

BENJAMIN NEVITT, DVM, DACZM

MEMBERSHIPS AND COMMITTEES:

American College of Zoo Medicine, Diplomate	2017-Present
American Association of Zoo Veterinarians, Member	2011-Present
AAZV nominating committee member	2018-2020
American Veterinary Medical Association, Member	2014-Present
Association of American Reptile and Amphibian Veterinarians, Member	2014-Present
International Association for Aquatic Animal Medicine, Member	2016-Present

PEER-REVIEWED PUBLICATIONS:

Nevitt BN, Langan JN, Adkesson MJ, Delaney MA, Rubin DA, Muhlbauer MC, Colegrove-Calvey KM. Multifocal *Cryptococcus neoformans* var. *neoforms*: Infection, treatment, and monitoring by serial computed tomography in a Schmidt's red-tailed guenon (*Cercopithecus ascanius schmidtii*). *Journal of Zoo and Wildlife Medicine* 44(3): 728-736, 2013.

Nevitt BN, Langan JN, Adkesson MJ, Drees R. Comparison of air sac volume, lung volume, and air sac density in awake and anesthetized Humboldt penguins (*Spheniscus humboldti*) positioned in ventral, dorsal, and right lateral recumbency using computed tomography. *American Journal of Veterinary Research* 75(8): 739-745, 2014.

Nevitt BN, Langan JN, Adkesson MJ, Wilson R. Diagnosis, treatment, and monitoring of chronic lymphocytic leukemia in a bat-eared fox (*Otocyon megalotis*). *Journal of the American Veterinary Medical Association* 245(12): 1391-1395, 2014.

Nevitt BN, Robinson N, Kratz G, Johnston M. Effectiveness of physical therapy as an adjunctive treatment for trauma-induced chronic torticollis in raptors. *Journal of Avian Medicine and Surgery* 29(1): 30-39, 2015.

Nevitt BN, Chinnadurai SK, Langan JN, Flower JE, Adkesson MJ. Prothrombin time and activated partial thromboplastin time using a point-of-care analyser (Abaxis VSpro®) in Bennett's wallabies (*Macropus rufogriseus*). *Australian Veterinary Journal* 94(10): 384-386, 2016.

Nevitt BN, Langan JN, Adkesson MJ, Jankowski G, West PG. Lumbar hemilaminectomy for treatment of discospondylitis in an armadillo (*Oryzomys ather*). *Journal of the American Veterinary Medical Association* 252(4): 464-472, 2018.

Nevitt BN, Naples LM, Poll CP, Mitchell MA. Evaluation of a portable chemistry analyzer for measurement of serum chemistry panels in beluga whales (*Delphinapterus leucas*). *In preparation*.

Kane LP, Langan JN, Adkesson MJ, Chinnadurai SK, Nevitt BN, Drees R. Successful treatment of mandibular osteomyelitis in two red-necked wallabies (*Macropus rufogriseus*) using long-term intensive pharmaceutical therapy and serial monitoring by computed tomography imaging. *Journal of the American Veterinary Medical Association* 251(9): 1070-1077, 2017.

Weeks JM, Langan JN, Gelb H, Nevitt BN, Corner S, Adkesson MJ. Syringomyelia in the thoracolumbar spinal cord of an African wild dog (*Lycaon pictus*). *Biomed J Sci and Tech Res* 1(5), 2017.

Flower JE, Langan JN, Nevitt BN, Chinnadurai SK, Stacey R, Ivančić M, Adkesson MJ. Neonatal Critical Care and Hand-Rearing of a Bottlenose Dolphin (*Tursiops truncatus*) Calf. *Aquatic Mammals* 44(5): 482-490, 2018.

PRESENTATIONS WITH PUBLISHED ABSTRACTS:

BENJAMIN NEVITT, DVM, DACZM

Nevitt BN, Johnson SP, Adkesson MJ, Naples LM, Van Bonn WG. Evaluation of alfaxalone-midazolam for sedation and anesthetic induction in California sea lions (*Zalophus californianus*) in a rehabilitation center. Proceedings of the 46th Annual International Association for Aquatic Animal Medicine Conference. Chicago, IL. 2015.

Flower JE, Langan JN, Chinnadurai S, **Nevitt BN**, Stacey R, Adkesson MJ. Neonatal critical care and hand-rearing of a bottlenose dolphin calf (*Tursiops truncatus*). Proceedings of the 46th Annual International Association for Aquatic Animal Medicine Conference. Chicago, IL. 2015.

Nevitt BN, Johnson SP, Adkesson MJ, Naples LM, Van Bonn WG. Evaluation of alfaxalone-midazolam for sedation and anesthetic induction in California sea lions (*Zalophus californianus*) in a rehabilitation center. Proceedings of the 46th Annual American Association of Zoo Veterinarians Conference. Orlando, FL. 2014.

Flower JE, Langan JN, Chinnadurai S, **Nevitt BN**, Stacey R, Adkesson MJ. Neonatal critical care and hand-rearing of a bottlenose dolphin calf (*Tursiops truncatus*). Proceedings of the 46th Annual American Association of Zoo Veterinarians Conference. Orlando, FL. 2014.

Nevitt BN, Langan JN, Adkesson MJ, Mitchell MA, Drees R. Comparison of air sac and lung volume in awake and anesthetized Humboldt penguins (*Spheniscus humboldti*) positioned in ventral, dorsal, and right lateral recumbency using computed tomography. Proceedings of the 45th Annual American Association of Zoo Veterinarians Conference. Salt Lake City, UT. 2013. p. 111.

Nevitt BN, Adkesson MJ, Sanchez CR, Langan JN, Jankowski G, West P. Treatment of Diskospondylitis Associated Intervertebral Disk Herniation in an Aardvark (*Orycteropus afer*): Lessons on ICU Care and Rehabilitation Following a Lumbar Hemilaminectomy. Proceedings of the 44th Annual American Association of Zoo Veterinarians Conference. Oakland, CA. 2012. p. 80.

Johnston MS, **Nevitt BN.** Effectiveness of Physical Therapy as an Adjunctive Treatment for Chronic Traumatically Induced Torticollis in Raptors. Proceedings of the 32nd Annual Association of Avian Veterinarians Annual Conference. Seattle, WA. 2011. p.79

RESEARCH IN PROGRESS:

Nevitt BN, Johnson SP, Naples LM, Van Bonn W, Adkesson MJ. Evaluation of alfaxalone-midazolam for sedation and anesthetic induction in California sea lions (*Zalophus californianus*) in a rehabilitation center. Sausalito, CA.

PRESENTATIONS AND TEACHING EXPERIENCE:

Toxic plants. Advanced Topics in Zoological Medicine, VCM 592 (2014)

Primate virology. Advanced Topics in Zoological Medicine, VCM 592 (2013)

Comparison of air sac volumes and lung density in awake and anesthetized Humboldt penguins (*Spheniscus humboldti*) positioned in ventral, dorsal recumbency, and right lateral using computed tomography for the evaluation of respiratory disease. College Research Day, College of Veterinary Medicine, University of Illinois, Urbana, IL (2013)

Disco-spondylitis and hemilaminectomy in an aardvark (*Orycteropus afer*) – Lessons Learned from Post-op and Intensive Care, Internal presentation, Brookfield Zoo (2012)

Amphibian medicine. Advanced Topics in Zoological Medicine, VCM 592 (2012)

Elephant reproduction and reproductive diseases, Advanced Topics, VCM 592 (2011)

Case controlled retrospective study determining the effect of physical therapy on resolution of head tilt secondary to head trauma in raptors. Intern Research presentation, Colorado State University, College of Veterinary Medicine (2011)

BENJAMIN NEVITT, DVM, DACZM

Meningitis in the cat and dog. Pathophysiology rounds. Iowa State University, College of Veterinary Medicine (2010)

Intestinal torsion post-splenectomy in a large breed dog. Morbidity and Mortality Rounds. Iowa State University, College of Veterinary Medicine (2010)

Septic emboli in the brainstem of a dog. Morbidity and Mortality rounds. Iowa State University, College of Veterinary Medicine (2010)

Basic small mammal medicine. Student teaching rounds. Iowa State University, College of Veterinary Medicine (2009, 2010)

Eclampsia. Student teaching rounds. Iowa State University, College of Veterinary Medicine (2009, 2010)

Common toxicities. Student teaching rounds. Iowa State University, College of Veterinary Medicine (2009, 2010)

Organization of the inferior colliculus and lateral lemniscus in manatees (*Trichechus manatus latirostris*). Phi Zeta Day. University of Florida, College of Veterinary Medicine (2009)

PROFESSIONAL TRAINING AND CONTINUING EDUCATION

Annual American Association of Zoo Veterinarians Conference. (2011-2014, 2019)

International Association for Aquatic Animal Medicine Conference. (2015-2018)

Clinical Techniques: Avian Orthopedics, 44th AAZV Conference Workshop, Oakland, CA (2012)

ACZM Short Course, North Carolina State University, Raleigh, NC (2012)

VCM 594: Clinical Epidemiology and Biostatistics, University of Illinois, College of Veterinary Medicine, Chicago, IL (2011)

HONORS, AWARDS, & SCHOLARSHIPS:

St. Francis Pet Care Clinic Community Service Award, University of Florida, College of Veterinary Medicine (2009)

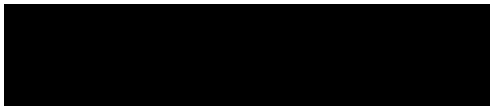
J. E. Salsbury Veterinary Medical Scholarship, University of Florida, College of Veterinary Medicine (2008)

Gainesville Bird Fancier Society Award, Gainesville Bird Fancier Society, Gainesville, FL (2008)

William R. Rambo Scholarship, University of Florida College of Veterinary Medicine (2006, 2007)

National Merit Scholar; National Merit Corporation (2001)

STEVEN VICTOR KUBISKI



skubiski@sandiegozoo.org

CURRENT POSITION

Senior Scientist, Disease Investigations

Institute for Conservation Research

San Diego Zoo Global

- * Anatomic pathologist and molecular researcher with emphasis on viral discovery and infectious diseases of wildlife and non-domestic species
- *Oversee Steel Endowed anatomic pathology Resident and Fellow
- *Advisory and operational role in Molecular Diagnostic and Amphibian Disease Labs

EDUCATION

Ph.D in Integrative Pathobiology, 2017

University of California, Davis, School of Veterinary Medicine

Thesis: Investigating the prevalence and pathogenesis of novel canine circovirus (CaCirV); emphasizing molecular biology and virology as it relates to pathogen discovery and population health

Thesis Advisor: Patricia Pesavento, DVM, PhD, DACVP

Qualifying Exam Fields: Viral genetics, viral immunology, general pathobiology

A.C.V.P. Certification in Anatomic Pathology, 2013

University of California, Davis, School of Veterinary Medicine

D.V.M., Summa Cum Laude, 2009

University of Georgia, College of Veterinary Medicine

B.S.A., With Honors, 2004

University of Georgia, College of Agricultural and Environmental Sciences

PROFESSIONAL EXPERIENCE

Boehringer-Ingelheim Vetmedica Inc. (BIVI) Post-Doctoral Scholar (August 2015 - present)

University of California, Davis

- * Primary responsibilities included presenting evening lectures externally to veterinarians and technicians and internally to students, interns, and residents; Providing expert opinion advice to veterinarians, technicians and pet owners through telephone and email consults; Assisting the professional services veterinarians, marketing veterinarians through telephone or email consultation on adverse event cases.

*Ad-hoc duties included writing technical bulletins and assisting with media events that require expert opinion.

Supervisor: Dr. Scott Weinman

Senior Anatomic Pathology Resident (July 2012 – August 2013)

Wildlife Disease Labs, Institute for Conservation Research, San Diego Zoo Global

*Rotating responsibility for necropsy, biopsy and cytology specimens from all collection animals at the San Diego Zoo and Safari Park.

*Supervised veterinary student externs during necropsy examination

*Participated in monthly morbidity and mortality rounds with clinicians, animal care managers, and keepers for all collection animals from the San Diego Zoo and Safari Park.

Supervisor: Dr. Bruce Rideout

Anatomic Pathology Resident (August 2010 – July 2012)

University of California-Davis, School of Veterinary Medicine, Davis, CA

*Rotating primary clinical responsibility for diagnostic biopsy and necropsy services under faculty supervision.

*Shared responsibility with other residents for organizing weekly joint Friday Biopsy Conference Seminars for the veterinary pathology department and California Animal Health and Food Safety Laboratories.

*Supervised 4th year veterinary students in gross and histologic techniques in biopsy and necropsy rotations as well as instruction on written case reports and presentations for rounds

*Responsible for teaching 2nd year veterinary students during laboratory sections in general and special pathology.

*Presented case material at bimonthly joint comparative pathology rounds with the pathology department of the UC-Davis School of Medicine.

*Coordinated bi-weekly zoologic pathology rounds for the zoological medicine and companion animal/pet exotic services at the Veterinary Medical Teaching Hospital.

*Lead numerous histology sessions aimed at familiarizing students with identification of basic disease processes.

*Co-instructed laboratory portions of general and systemic pathology courses for second and third year veterinary students.

*Performed a retrospective review of avian mycobacteriosis; Characterized distribution and morphology of lesions in seven orders of birds, collected from the archives of the California Animal Health and Food Safety lab from 1993 – 2012 and the UC Davis Veterinary Medical Teaching Hospital from 1988 – 2012.

*Participated as co-instructor for numerous necropsy wetlabs including Food Animal and Reproduction Medicine club - bovine necropsy (April 2011, April 2012), Wildlife and Aquatic Animal Medicine Club (WAAM) - raptor, sea-bird, and marine mammal necropsy (2011, 2012), WAAM - 18th annual Wildlife Medicine Symposium (April 2012), WAAM – fish necropsy (2011).

Supervisor: Dr. Verena Affolter

Wildlife disease diagnostician (June 2009-June 2010)

Southeastern Cooperative Wildlife Disease Study, University of Georgia, Athens, GA

*Investigated wildlife mortality events from seventeen Southeastern states and Puerto Rico. Necropsies include gross and microscopic examination, selection of ancillary diagnostics, and composing diagnostic reports for state wildlife agencies.

*Generated reports aimed at advisement of biologists, veterinarians, laboratory diagnosticians, and

public health officials on wildlife diseases as they relate to the overall population, the interface with livestock, and public health.

Supervisor: Dr. M. Kevin Keel

Chronic Wasting Disease Surveillance Coordinator (August 2009 – June 2010)

Southeastern Cooperative Wildlife Disease Study, University of Georgia, Athens, GA

- *Responsible for coordinating sample submission as well as ELISA and immunohistochemical testing for chronic wasting disease (CWD) on tissue specimens from free-ranging cervids from twelve southeastern states and for reporting results to state wildlife agencies.
- *Advised state wildlife agencies regarding sampling strategies and collection, carcass disposal, disinfection, and regulatory issues associated with CWD.

Supervisor: Dr. M. Kevin Keel

Student Research Assistant (December 2006 – March 2008)

Southeastern Cooperative Wildlife Disease Study, University of Georgia, Athens, GA

- *Performed and analyzed agar gel immunodiffusion assays and serum neutralization for avian influenza viruses in shorebirds and waterfowl, and for epizootic hemorrhagic disease virus in white tailed deer.

Supervisor: Dr. David Stallknecht

Veterinary Technician (December 2004 – July 2006)

Roswell Animal Hospital, Roswell, GA

- *Performed technical and diagnostic procedures at a nine-doctor practice in all aspects of small animal clinical medicine including surgical, emergency, and intensive care.

Supervisors: Drs. Lisa Hillier and Cheryl O'neal

VETERINARY EXTERNSHIPS AND TRAININGS

Aquatic Pathology Clerkship (February 2009)

University of Georgia, College of Veterinary Medicine, Department of Pathology

- *Performed routine necropsy and histology duties for the Athens Veterinary Diagnostic Laboratory
- *Performed immunohistochemistry on *Uronema*-infected tissue from clinical cases, culminating in authorship of a case report and literature review of scuticociliatosis in captive aquatic species.

Supervisors: Drs. Elizabeth Howerth and Alvin Camus

Clinical Pathology Clerkship (February 2009)

University of Georgia, College of Veterinary Medicine, Department of Pathology

- *Reviewed clinical cytologic preparations from the teaching hospital
- *Authored a review on intra-theal immunoglobulin analysis for on-line publication in the department of pathology's clerkship program.

Supervisors: Drs. Tripp Almy and Bruce LeRoy

Diagnostic Pathology Clerkship (June 2008)

University of Georgia, College of Veterinary Medicine, Department of Pathology

- *Performed routine necropsy and histology duties for the Athens Veterinary Diagnostic Laboratory and UGA College of Veterinary Medicine.
- *Authored a case report and literature review of Equine Multinodular Pulmonary Fibrosis.

Supervisor: Dr. Elizabeth Howerth

Southeastern Cooperative Wildlife Disease Study (September – October 2008)

University of Georgia, College of Veterinary Medicine

- *Assisted in necropsy and histopathology preparation of clinical submissions.
- *Prepared reports on salmonellosis, cercarial dermatitis, leprosy, and non-tuberculous mycobacteriosis for an internal publication for wildlife biologists on zoonoses.

Supervisor: Dr. M. Kevin Keel

Georgia Sea Turtle Center and St. Catherine's Island Center (July and December 2008)

Jekyll Island and St. Catherine's Island, Georgia

- *Participated in rehabilitation and research on stranded and injured sea turtle species found off the Atlantic coast.
- *Performed necropsies on numerous shorebird species for the Sea Bird Ecological Assessment Network (SEANet).
- *Performed surgical implantation of radio transmitters in Eastern King snakes.
- *Participated in routine medical and surgical procedures for Ring-Tailed Lemurs, Jackson's Hartebeest, and Hornbill species.

Supervisor: Dr. Terry Norton

Brothers Safaris Wildlife Immobilisation and Conservation Course (August 2008)

De Wildt Cheetah Center, Venetia-Limpopo Nature Reserve, Pilanesberg Game Reserve, and Mattanu Game Reserve, South Africa

- *Conducted wildlife immobilizations for conservation-based research and management procedures on a host of mammalian species.

Supervisor/Instructor: Dr. Peter Brothers

Population Health Research Externship (April – June 2008)

University of Georgia, College of Veterinary Medicine, Department of Large Animal Medicine

- *Propagated continuous and primary cell lines as well as bovine respiratory syncytial virus (BRSV) stocks of both high passage, low virulence, and low passage, high virulence isolates.
- *Performed immunofluorescence assay and immunocytochemistry for BRSV.
- *Optimized a tissue culture infective dose 50 (TCID₅₀) assay and plaque assay to determine titer of BRSV.
- *Wrote weekly literature reviews of current issues regarding the impact of wildlife infectious diseases on domestic animals, culminating in a summary review paper.
- *Optimized a plaque assay for determining viral titer of bovine respiratory syncytial virus.
- *Optimized protocol for transfection of BRSV infected cells with siRNA to down-regulate P-gene expression.

Supervisor: Dr. Amelia Woolums

Safe Capture International Inc. (February 2008)

University of Georgia, College of Veterinary Medicine

- *Workshop in chemical immobilization included all aspects of chemical immobilization including physical and chemical restraint, physiology and pharmacology of immobilizing drugs, anesthetic monitoring, human exposure safety, and public safety considerations, and included a certificate of training upon satisfactory completion.

Instructor: Dr. Keith Amass

Student Assistant, Avian and Reptile Diagnostic Endoscopy Symposium (November 2006)

University of Georgia, College of Veterinary Medicine

*Assisted in restraint, anesthesia, and minimally invasive celioscopy and endosurgery of avian and reptile species.

Supervisors: Drs. Stephen Divers and Sonia Hernandez

Sea Turtle Post Mortem Examinations (April 2006)

Ace Basin, South Carolina

*Performed necropsies on stranded loggerhead sea turtles for the South Carolina Department of Natural Resources.

Supervisor: Dr. Thomas Murphy

Wildlife Medicine and Necropsy Short Course (April 2006)

University of Georgia, College of Veterinary Medicine

*National Wildlife Rehabilitators Association conducted course on clinical techniques in wildlife rehabilitation, epidemiology of infectious diseases in rehab facilities, facts about native wildlife in the United States, and responsible management of sick and injured wildlife

PUBLICATIONS

Eda Altan, **Steven V Kubiski**, Jennifer Burchell, Elizabeth Bicknese, Xutao Deng, and Eric Delwart. The First Reptilian Circovirus Identified Commonly infects Gut and Liver Tissues of Black-headed Pythons. *Veterinary Research*. 2019 May; 50(35)

Eda Altan, **Steven V Kubiski**, Akos Boros, Gabor Reuter, Mohammedreza Sadeghi, Xutao Deng, Erica K Creighton, Marcus J Crim, and Eric Delwart. A Highly Divergent Picornavirus Infecting the Gut Epithelia of Zebrafish (*Danio rerio*) in Research Institutions. *Zebrafish*. 2019 Jun 16(3): 291-299

Robert R Fitak, Jennifer D Antonides, Eric J Baitchman, Elisa Bonaccorso, Josephine Braun, **Steven Kubiski**, et al. The Expectations and Challenges of Wildlife Disease Research in the Era of Genomics: Forecasting with a Horizon Scan-Like Exercise. *Journal of Heredity*, 2019 May; 110(3): 261-274

Nicole Hackenbrack, Matthew Rogers, Robert Ashley, M. Keel, **Steven Kubiski**, John Bryan, Elodie Ghedin, Edward Holmes, Susan Hafenstein, and Andrew Allison. Evolution and cryo-EM capsid structure of a North American bat adenovirus and its relationship to other mastadenoviruses. *Journal of Virology*. Vol. 91(2), January 2017.

Steven V. Kubiski, Sílvia Sisó, Molly E. Church, Andrew N. Cartoceti, Bradd Barr, and Patricia A. Pesavento. Unusual necrotizing encephalitis in raccoons and skunks concurrently infected with canine distemper virus and *Sarcocystis* spp. *Veterinary Pathology*, May 2016; vol. 53(3): pp674 – 676

Nicole Nemeth, Mark Ruder, Richard Gerhold, Justin Brown, Brandon Monk, Paul Oesterle, **Steven Kubiski**, and Kevin Keel. Demodectic mange, dermatophilosis, and other infectious dermatologic diseases in free-ranging white-tailed deer (*Odocoileus virginianus*) in the Southeastern United States from 1977-2012. *Veterinary Pathology*, May 2014; vol. 51(3): pp 633 – 640

Linlin Li, Sabrina McGraw, Kevin Zhu, Christian M. Leutenegger, Stanley Marks, **Steven Kubiski**, Patricia Gaffney, Florante Dela Cruz, Chunlin Wang, Eric Delwart, and Patricia A Pesavento. A circovirus in tissues of dogs with vasculitis and hemorrhage. *Emerging Infectious Diseases*, September 2013; Vol. 19 (9): 1385-1392.

Ruder, MG, AB Allison, DE Stallknecht, DG Mead, SN McGraw, DL Carter, **SV Kubiski**, CA Batten, E Klement, and EW Howerth. Susceptibility of white-tailed deer (*Odocoileus virginianus*) to experimental infection with epizootic hemorrhagic disease virus serotype 7. *Journal of Wildlife Diseases*, July 2012; vol. 48(3): pp 676-685

Ostrowski SR, **Kubiski SV**, Palmero J, Reilly CM, Higgins JK, Cronin S, Tawde SN, Crossley B, Yant P, Cazarez R, Uzal FA. An outbreak of fatal equine botulism type-A associated with feeding grass clippings. *Journal of Veterinary Diagnostic Investigation*, May 2012; Vol. 24 (3): pp 601-603

Kubiski SV, Howerth EW, Clauss TM, Berliner AL, Camus AC. Pathology in Practice (Scuticociliatosis in eight squarespot anthias (*Pseudanthias pleurotaenia*)). *Journal of the American Veterinary Medical Association*, February 1, 2011, Vol. 238 (3): pp 301 - 303

Kubiski SV, Rech RR, Camus MS, Pellegrini-Masini A, Elfenbein JR, Howerth EW. Pathology in Practice (Equine multinodular pulmonary fibrosis in a horse). *Journal of the American Veterinary Medical Association*, August 15, 2009, Vol. 235 (4): pp 381-383.

POSTERS AND PRESENTATIONS

Steven Kubiski, Eda Altan, Annika Diaz, Lisa Regula, Xutao Deng, Jennifer Burchell, Elizabeth Bicknese, Carmel Witte, and Eric Delwart. The First Reptilian Circovirus and Liver Vitamin A: Investigating Spinal Osteoarthropathy in Snakes. 2019 Annual Meeting of the American College of Veterinary Pathologists. San Antonio, TX, 2019.

Steven Kubiski, Jennifer Stuart, Andrea Fidgett, Katie Kerr, Elizabeth Bicknese, Meg Sutherland-Smith, Kim Lovich, and Carmel Witte. Spinal Osteoarthropathy in Multiple Snake Species at San Diego Zoo. 2018 Joint AAZV/EAZWV/Leibniz-IZW Conference. Reptile Session. Prague, Czech Republic

Raymund F Wack, Charles E. Alex, **Steven V Kubiski**, and Patricia A Pesavento. Discovery and Preliminary Characterization Including Viral Shedding Patterns of a New Amdoparvovirus Infection in a Group of Red Pandas (*Ailurus fulgens*). 2018 Joint AAZV/EAZWV/Leibniz-IZW Conference. AZA/EAZA Vet Advisors session. Prague, Czech Republic

Hsu S, Watanabe R, **Kubiski S**, Pesavento P. Transfection and Expression of a Full-Length Canine Circovirus Molecular Clone. Poster session presented at: Veterinary Student Poster Session. Meril-NIH National Veterinary Scholars Symposium. 2016 July 28-31; Columbus, OH.

Steven Kubiski. "Practical Vaccinology" Boehringer Ingelheim VetMedica Winter Retreat. January 23-24, 2016, Lake Tahoe, California

Steven Kubiski. "A Little Virus Update" Merced-Mariposa Veterinary Medical Association. October 13, 2015, Merced, California

Steven Kubiski, Christian Leutenegger, Florante De La Cruz, and Patricia Pesavento. Investigating the

Prevalence and Pathogenesis of Canine Circovirus. Achievement Awards for College Scientists (ARCS) Annual Board Meeting and Site Visit. November, 17, 2015, Davis, California

Pesavento, L. Li, S. Diab, **S.V. Kubiski**, S. McGraw, B. Barr, R. Traslavina, P. Blanchard, G. Rimoldi, R. Higgins, and E. Delwart. Neurologic Disease in Cattle Caused by the Novel Bovine Astrovirus BovAstV-NeuroS1. Concurrent Annual Meeting of the American College of Veterinary Pathologists and American Society of Veterinary Clinical Pathologists, Montreal, Quebec, Canada November 17, 2013

S. Kubiski, P.A. Pesavento, S. McGraw, L. Li, K. Zhu, S. Marks, P. Gaffney, F. Dela Cruz, C.M. Leutenegger, C. Wang, and E. Delwart. Genomic Characterization and Disease Association of a Newly Discovered Canine Circovirus. Concurrent Annual Meeting of the American College of Veterinary Pathologists and American Society of Veterinary Clinical Pathologists, Montreal, Quebec, Canada November 17, 2013

Kubiski SV, Braun J, Burchell J, Witte C, Rideout B, and Lowenstine LJ. Histologic Classification and Molecular Speciation of Avian Mycobacteriosis. University of California, Davis, School of Veterinary Medicine, House Officer Seminar Day. March 22, 2013

Kubiski SV, Yabsley MJ, Shock BC, VK Affolter, EPS Weber, and Groff JM. Telencephalic scuticociliatosis in a wild leopard shark (*Triakis semifasciata*). American Association of Zoological Veterinarians, Zoo and Wildlife Pathology Workshop. October 22, 2012, Oakland, California.

Brown, J.D., Allison, A.B., Cartoceti, A.N., Munk, B.A., **Kubiski, S.V.**, Nemeth, N.M., Keel, M.K., Fadly, A.M. 2011. Identification of lymphoproliferative disease virus in wild turkeys (*Meleagris gallopavo*) in the southeastern United States [Abstract]. American Association of Veterinary Laboratory Diagnosticians, September 29-October 5, 2011, Buffalo, New York.

Kevin Keel, **Steven Kubiski**, Richard Gerhold, and Terry Norton. A Case Review of Protozoal Encephalitis Among Northern Gannets (*Morvus bassanus*). Wildlife Disease Association 59th Annual Meeting. Puerto Iguazú, Argentina. May 31 - June 1, 2010.

Steven Kubiski, Justin Brown, and Kevin Keel. Streptomycotic Dermatitis in a White-tailed Deer (SCWDS Clinical Case 366-09). Oral Presentation; Southeastern Veterinary Pathology Conference. Tifton, GA. May 2010

Steven Kubiski. "Zoonotic Risks for Wildlife Biologists." Co-coordinator and instructor: Wildlife Disease Workshop. Southeastern Cooperative Wildlife Disease Study in cooperation with the Arkansas Game and Fish Commission. Mayflower, AR. June 2, 2010.

Steven Kubiski. "Describing Disease Incidents: Clinical Signs." Co-coordinator and instructor: Wildlife Disease Workshop. Southeastern Cooperative Wildlife Disease Study and Arkansas Game and Fish Commission. Mayflower, AR. June 2, 2010.

Steven Kubiski. "Describing Disease Incidents: Clinical Signs and Environmental Factors." Co-coordinator and instructor: Necropsy and Biological Specimen Collection Training for Wildlife Biologists. Southeastern Cooperative Wildlife Disease Study and Wildlife Services, Animal and Plant Health Inspection Service, United States Department of Agriculture. Ft. Collins, CO. June 10, 2010

GRANTS AND FELLOWSHIPS

Boehringer Ingelheim Post-Doctoral Fellowship, University of California, Davis, 2015-2017

Morris Animal Foundation Established Investigator Award, University of California, Davis, 2015

Achievement Awards for College Scientists (ARCS) Fellowship, University of California, Davis, 2015-2016; 2016-2017

Graduate Student Support Program (GSSP) Award Recipient, University of California, Davis, 2015

Russell L. Rustici Rangeland and Cattle Research Endowment University of California, Davis College of Agriculture and Environmental Sciences, 2014

Graduate Group in Comparative Pathology Fellowship, University of California, Davis, 2013

AWARDS AND HONORS

***Harold W. Casey Award**, American College of Veterinary Pathologists, 2013

***Dean Emeritus Thomas J. Jones Cup**, University of Georgia College of Veterinary Medicine, 2009

***Certificate of Merit for exceptional proficiency in small animal medicine and surgery**, University of Georgia, College of Veterinary Medicine, 2009

***Certificate of Proficiency for superior performance in anatomic pathology**, University of Georgia College of Veterinary Medicine, 2009

***Merck Veterinary Student Award**, University of Georgia College of Veterinary Medicine, 2009

***Rotaract Student Service Award**, University of Georgia College of Veterinary Medicine, 2009

***European Chapter of the Wildlife Disease Association 2009 Student Workshop** participant

***Profiled in Aesculapian** – University of Georgia College of Veterinary Medicine Alumni Magazine, Spring 2009

***Senior Externship Stipend**, University of Georgia College of Veterinary Medicine, 2008

***Salsbury Endowment**, University of Georgia College of Veterinary Medicine, 2008

***Phi Zeta National Veterinary Honor Society, 2008** inductee

***AVMA International Study Abroad Stipend**, University of Georgia College of Veterinary Medicine, 2007

***SCAVMA Auxiliary Award**, University of Georgia College of Veterinary Medicine, 2006

***Golden Key International Honor Society** Alumni

***Alpha Lambda Delta National Honor Society** Alumni

***National Society of Collegiate Scholars** Alumni

***University of Georgia Honors College** Alumni

TEACHING EXPERIENCE

VET403 - Musculoskeletal Block (Winter 2016)

University of California, Davis, School of Veterinary Medicine

***Anatomy Lab Clinical Instructor: Vessels of the forelimb; Joints of the forelimb and hind limb**

***Case Facilitator: Problem Based Learning (PBL) module**

VET401 - Foundations Block (Fall 2015)

University of California, Davis, School of Veterinary Medicine

*Laboratory Clinical Instructor: “Inflammation”

PMI202 - Integrative Pathobiology Core II (Spring 2015)

University of California, Davis Graduate Group in Integrative Pathobiology

*Instructor

VET403 - Musculoskeletal Block (Winter 2015)

University of California, Davis, School of Veterinary Medicine

*Anatomy Lab Clinical Instructor: Vessels of the forelimb; Joints of the forelimb and hind limb

*Case Facilitator: Problem Based Learning (PBL) module

VET401 - Foundations Block (Fall 2014)

University of California, Davis, School of Veterinary Medicine

*Laboratory Clinical Instructor: “Inflammation”

Extern Supervisor (June 2009 – June 2010)

Southeastern Cooperative Wildlife Disease Study, University of Georgia, College of Veterinary Medicine

*Instructed senior veterinary students on gross and microscopic examination of wildlife species.

Wildlife Treatment Crew Supervisor (May 2006 – March 2008)

University of Georgia, College of Veterinary Medicine, Zoological Medicine Section

*Coordinated weekly volunteers for the teaching hospital’s wildlife treatment center. The student operated WTC accepted injured and debilitated wildlife species for triage and stabilization before submission for rehabilitation.

Supervisor: Stephen Divers

Tutor (Fall 2006 – Spring 2007)

University of Georgia, College of Veterinary Medicine

*VARB 5130 – Laboratory in Anatomy of Food Animals

*VARB 5105 – Clinical Anatomy of Large Animals

STUDY ABROAD

VEM 5506 – International Veterinary Medicine – In conjunction with the University of Florida and Universidad Autónoma de Yucatan. Rabies eradication and spay/neuter clinic. **Tunkás, Yucatán, Mexico, March 2007**

IDIS 5900 – Special Topics in Infectious Diseases – University of Georgia College of Public Health. **Hanoi, Vietnam, May 2007.**

Curriculum Vitae - Josephine Braun

Qualifications

Degrees: **Veterinary degree** (similar DVM) [12/2005],
Doctor degree (Dr. med. vet.; similar PhD) [11/2010].
 Extensive training: **Veterinary pathology** (eligibility for the American College of Veterinary Pathologists (ACVP) and European College of Veterinary Pathologists (ECVP) board examinations).

Employment history

2014 to date ▪ **Sr. Scientist**, Disease Investigations
 2012 to 2014 ▪ **Scientist**, Disease Investigations
 2010 to 2012 ▪ **Postdoctoral Research Associate**, Disease Investigations, Institute for Conservation Research, San Diego Zoo Global, CA, USA

Doctorate and pathology residency and research associate

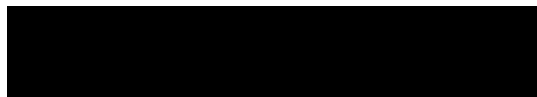
▪ Department of **Veterinary Pathology**,
Freie Universitaet Berlin; Berlin, Germany;
 Supervisor: Prof. Dr. Achim D. Gruber, Dr. med. vet., PhD, DECVP.
Doctorate (similar to PhD) [completed 11/2010]
 01/2007 to 12/2009 ▪ Field: **molecular biology, veterinary pathology**;
 Project title: Candidates for alternative chloride conductance in cystic fibrosis: Localization of mCLCA5 and mCLCA6 and quantitative mRNA expression analyses of 15 candidate genes;
 Position funded by: **Research-scholarship** from the Mukoviszidose e.V.; Bonn, Germany.
Pathology residency (ECVP) [training for board certification]
 01/2006 to 12/2009 ▪ **Residency** in veterinary pathology for the board examination of the European College of Veterinary Pathologists (**ECVP**).
Research associate
 01/2006 to 12/2009 ▪ Tasks: **Diagnostic pathology service**, student instructions (practical courses and lectures).

Education

Academic training
 10/2000 to 12/2005 ▪ Study of Veterinary Medicine at the Faculty of Veterinary Medicine,
Freie Universitaet Berlin; Berlin, Germany;
 Degree: Approbation (similar **DVM**)

Languages

German:
 English:



Extramural funding

- 01/2012 to 11/2014 ▪ Research **grant** and cooperative agreement from the **Bureau of Land Management** (BLM), CA, USA;
Principal Investigator: myself;
Project: Desert Tortoise Disease Study;
Award: \$257,000.
- 01/2007 to 12/2009 ▪ Research-**scholarship** from the Mukoviszidose e.V.; Bonn, Germany;
Project: Doctoral thesis.

Conference presentations and workshops (as presenter)

- 02/2019 ▪ **Talk** at the American Association of Zoo Veterinarians (AAZV) annual conference; Saint Louis, MO, USA.
- 02/2019 ▪ **Talk** at the Desert Tortoise Council Symposium, Tucson, AZ, USA
- 10/2017 ▪ **Talk** at the American Association of Veterinary Laboratory Diagnosticians (AAVLD) conference, San Diego, CA, USA
- 08/2016 ▪ **Talk** at the Wildlife Disease Associations (WDA) annual conference, Ithaca, NY, USA
- 10/2014 ▪ **Talk** at the American Association of Zoo Veterinarians (AAZV) annual conference; Orlando, FL, USA.
- 03/2014 ▪ **Invited speaker** for the Conservation Ecology Class of Point Loma Nazarene University; Escondido, CA, USA.
- 02/2014 ▪ **Two Talks** at the Desert Tortoise Council Symposium; Ontario, CA, USA.
- 11/2013 ▪ **Invited speaker** at the Giant panda disease assessment and prevention center workshop; Dujianyan, China.
- 09/2013 ▪ **Invited speaker** for the SDSU Topics in Veterinary Medicine class; SDSU, San Diego, CA, USA.
- 04/2013 ▪ **Talk** at the DTCC health assessment training; Las Vegas, NV, USA.
- 02/2013 ▪ **Invited speaker** for the Natural History Club; SDSU, San Diego, CA, USA.
- 04/2012 ▪ **Talk** at the DTCC health assessment training; Las Vegas, NV, USA.
- 10/2011 ▪ **Talk** at the American Association of Zoo Veterinarians (AAZV) annual conference; Kansas City, MO, USA.
- 02/2011 ▪ **Talk** at the Desert Tortoise Council Symposium; Las Vegas, NV, USA.
- 08/2008 ▪ **Talk and poster** at the 2nd European CF Young Investigator Meeting (EYIM); Lille, France.
- 06/2008 ▪ **Talk** (German) at the 3rd Symposium for Doctoral Students at the Faculty of Veterinary Medicine, Freie Universitaet Berlin; Berlin, Germany.
- 11/2007 ▪ **Poster** (German) at the 10th German Mucoviscidosis Congress; Wuerzburg, Germany [2nd prize].
- 09/2007 ▪ **Talk** at the 7th Project Supervisor Meeting of the Mukoviszidose e.V.; Duesseldorf, Germany.

Publications – peer reviewed

- Barbon AR, Lopez J, Jamriska J, Price E, Thomasson A, Whitehead H, **Braun J**, Stidworthy M (2019); Clinical and pathological aspects of systemic isospora infection in blue-crowned laughingthrushes (*Garrulax courtoisi*) at Jersey Zoo. Journal of Avian Medicine and Surgery 33(3):265-277
- Fitak RR et al including **Braun J** (2019); The Expectations and Challenges of Wildlife Disease Research in the Era of Genomics: Forecasting with a Horizon Scan-like Exercise. Journal of Heredity, esz001
- Pfeiffer W, Braun J, Burchell J, Witte CL, Riderout BA (2017); Whole-genome analysis of mycobacteria from birds at the San Diego Zoo. PLoS ONE 12(3): e0173464

- Drake KK, Bowen L, Lewison RL, Esque T, Nussear KE, **Braun J**, Waters S, Miles K (2017); Coupling gene-based and classic veterinary diagnostics improves interpretation of health and immune function in the Agassiz's desert tortoise (*Gopherus agassizii*). *Conserv Physiol* 5(1): cox037
- Amato KR, Metcalf JL, Song Se Jin, Hale VL, Clayton J, Ackermann G, Humphrey G, Niu K, Cui D, Zhao H, Schrenzel MD, Tan CL, Knight R, **Braun J** (2016); Using the gut microbiota as a novel tool for examining colobine primate GI health. *Global Ecology and Conservation* 7 (2016) 225-237
- Straub MH, Kelly TR, Rideout BA, Eng C, Wynne J, **Braun J**, Johnson CK (2015); Seroepidemiologic survey of potential pathogens in obligate and facultative scavenging avian species in California. *PLoS ONE* 10(11): e0143018
- **Braun J**, Schrenzel M, Witte C, Gokool L, Burchell J, Rideout B (2014); Evaluation of serologic and molecular methods to determine infection status in desert tortoises and implications for disease management. *J Wildl Dis*. Accepted for publication.
- Burns RE, **Braun J**, Armien AG, Rideout BA (2013); Hepatitis and splenitis due to systemic tetratrichomoniasis in an American white pelican (*Pelecanus erythrorhynchos*). *J Vet Diagn Invest*. 2013 Jul;25(4):511-4.
- Jacobson ER, Berry KH, Wellehan JF Jr, Origgi F, Childress AL, **Braun J**, Schrenzel M, Yee J, Rideout B (2012); Serological and molecular evidence for testudinid herpesvirus 2 infection in wild agassiz's desert tortoises, *gopherus agassizii*. *J Wildl Dis*. 2012 Jul;48(3):747-57.
- Mundhenk L, Johannesson B, Anagnostopoulou P, **Braun J**, Bothe MK, Schultz C, Mall MA, Gruber AD (2012); mCLCA3 does not contribute to the calcium-activated chloride conductance in mouse airways. *Am J Respir Cell Mol Biol*. 2012 Jul;47(1):87-93.
- **Braun J**, Mundhenk L, Range F, Gruber AD (2010); Quantitative expression analyses of candidates for alternative anion conductance in cystic fibrosis mouse models. *J Cyst Fibros*. 2010 Sep;9(5):351-64.
- Lisy M, Pennecke J, Brockbank KG, Fritze O, Schleicher M, Schenke-Layland K, Kaulitz R, Riemann I, Weber CN, **Braun J**, Mueller KE, Fend F, Scheunert T, Gruber AD, Albes JM, Huber AJ, Stock UA (2010); The performance of ice-free cryopreserved heart valve allografts in an orthotopic pulmonary sheep model. *Biomaterials*. 2010 Jul;31(20):5306-11.
- Lisy M, Pennecke J, Brockbank K, Fritze O, Schleicher M, Schenke-Layland K, Kaulitz R, Riemann I, Weber C, **Braun J**, Mueller K, Scheunert T (2009); Vitrification of heart valve allografts – optimal preservation of extracellular matrix translates into improved in vivo function. *Thorac cardiovasc surg*. 2009; 56
- **Braun J**, Bothe MK, Mundhenk L, Beck CL, Gruber AD (2009); Murine mCLCA5 is expressed in granular layer keratinocytes of stratified epithelia. *Histochem Cell Biol*. 2010 Ma;133(3):285-99.
- Bothe MK, **Braun J**, Mundhenk L, Gruber AD (2008); Murine mCLCA6 is an integral apical membrane protein of non-goblet cell enterocytes and co-localizes with the cystic fibrosis transmembrane conductance regulator. *J Histochem Cytochem*. 2008 May;56(5):495-509.

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EDUCATION

University of California, Davis	PhD Integrative Pathobiology	2015
University of California, Davis	MPVM Masters in Preventive Veterinary Medicine	2010
University of California, Davis	DVM Doctor of Veterinary Medicine	2004
University of California, San Diego	BS Animal Physiology and Neuroscience	1998

SPECIALTY BOARD CERTIFICATION AND LICENSURE

Diplomate, American College of Veterinary Pathology, Anatomic Pathology	2009
Veterinary Medical Board, State of California, License #15608	2004

EMPLOYMENT HISTORY

Senior Scientist	2018 - present
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- San Diego Zoo Global, San Diego, CA 92112
- Veterinary pathologist with primary diagnostic responsibility for collection animals and pathology surveillance and oversight for field programs
- Supervisor- ICR post-doctoral fellow
- Instruction and training- resident, fellow, veterinary students
- Pathology advisor- Island Fox Recovery Group, EEHV Advisory Group, ICR programs: Ringtail, Pacific Pocket Mice, Mountain Yellow Legged Frogs, California Least Tern, Snowy Plover, Burrowing Owl
- SSP pathologist- Mexican wolf

Veterinary Pathologist	2016 - 2018
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- California Animal Health and Food Safety Laboratory, San Bernardino, CA 92408
- Primary case responsibility and instruction- residents and veterinary students
- Case load- production livestock, poultry, herd health, zoo, wildlife, companion domestic and exotic species

Post-doctoral scholar	2015 - 2016
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- University of California, San Diego, School of Medicine, La Jolla, CA 92093
- NIH Office of Research Training for Veterinarians --- T32 OD017863
- Research- amyloid pathogenesis in non-model (wildlife) species utilizing high through-put gene sequencing, stem cell biology and bio-informatic analysis

Graduate student	2012 - 2015
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- University of California, Davis, School of Veterinary Medicine, Davis, CA 95616
- ACVP/STP Linda Munson Fellowship for Wildlife Pathology Research and UC Davis Peter C Kennedy Fellowship in Veterinary Anatomic Pathology
- Research- pathology, risk analysis and molecular pathogenesis of AA amyloidosis in island foxes
- Skills- Histochemistry, immunohistochemistry, con-focal microscopy, Western blot, mass-spectrometry, proteomics, genomics.

- Associate Pathologist 2010 - 2012
- University of California, Davis, Veterinary Medical Teaching Hospital, Davis, CA 95616
 - Primary case responsibility and instruction- residents in anatomic pathology, veterinary students.
 - Case load- domestic animals, companion pet exotics, zoo and wildlife species.
 - Special reviewer- companion pet exotics, zoo, wildlife species: fish, amphibian, reptile, avian, carnivore, megavertebrate
 - Instructor- reproductive pathology, comparative pathology of organ systems.
 - Research- diagnostics and collaborative research in island fox, California fisher, and Mexican wolf as American Zoo and Aquarium Associations (AZA) Species Survival Plan (SSP) pathologist.
- Pathology Fellow 2009 - 2010
- University of California, Davis, School of Veterinary Medicine, Davis, CA 95616
 - Mentor: Dr. Linda Munson
 - Research- diagnostic pathology in population and disease surveillance of the island fox, AZA contraceptive pathology survey, and red wolf, Mexican wolf and Cheetah SSP pathology surveillance programs
- Veterinary Graduate Academic Position 2008 - 2009
- University of California, Davis, School of Veterinary Medicine, Davis, CA 95616
 - Instructor- general, systemic, and reproductive pathology courses.
- Pathology Resident: Anatomic Pathology (Zoo/Wildlife resident) 2005 - 2008
- University of California, Davis, School of Veterinary Medicine, Davis, CA 95616 and Wildlife Disease Laboratories, Zoological Society of San Diego, San Diego, CA 92112
 - Research- Pathology and risks for *Pseudomonas* sp. infection in wild and captive pinnipeds
 - Skills- Necropsy, biopsy, and cytology training and instruction of veterinary students in a veterinary specialty teaching hospital and AZA accredited zoological facility.
- Graduate Student Researcher 2004 - 2005
- University of California, Davis, School of Veterinary Medicine, Davis, CA 95616
 - Research- Determining shedding patterns of feline coronavirus in captive cheetahs.
 - Skills- RNA extraction, cDNA synthesis, PCR and gene sequencing, multivariate statistical analysis.
- Research Fellow 6/2002 - 8/2002
- Wildlife Disease Laboratories, Zoological Society of San Diego, San Diego, CA 92112
 - Research- Characterization of *Atoxoplasma* spp. in passerine birds by comparative genetic analysis
 - Skills- DNA extraction, PCR and gene sequencing, denatured gradient gel electrophoresis.
- Research Fellow 1997 - 2000
- Zoological Society of San Diego, Department of Animal Behavior, San Diego, CA 92112
 - Research- Olfactory induced reproductive behavior in three species of endangered rhinoceros.
 - Skills- Behavioral ethogram data recording including video analysis, field sample collection.

ADDITIONAL EXPERIENCE

- Experimental Biology Annual Meeting
 - Session chair, Urogenital Disorders and Interventions, San Diego CA 2016
- UCSD Lecturer- CSE 190, Issues in Bioinformatics 2015, 2016
- UCD Research mentor- Students Training in Advanced Research (STAR) program
 - Project: SAA gene transcription in island foxes with AA amyloidosis 2015
- UCSD Research mentor- BMS 199, Undergraduate independent study
 - Project: SAA genotyping in island foxes with AA amyloidosis 2014
 - Project: Characterization of uterine amyloidosis in goats 2013
- Ad hoc reviewer- Veterinary Pathology, Journal of Zoo and Wildlife Medicine, 2010 - present

FELLOWSHIPS AND ACADEMIC AWARDS

- UCSD Research Training for Veterinarians, NIH Office of Research Infrastructure Programs – Comparative Medicine, T32 OD017863, 2015-present.
- Linda Munson Fellowship for Wildlife Pathology Research, ACVP/STP, 2012–2015.
- Peter C. Kennedy Fellowship in Veterinary Anatomic Pathology, University of California, Davis, 2012–2015.
- AAZV Zoological Medicine and Wildlife Health research grant, 2014–2015.
- ARCS® Foundation scholar, Northern California chapter, 2013–2015.
- Karen C. Drayer Wildlife Health Center Fellowship, University of California, Davis, 2015.
- Young Investigator Award (1st place), Natural Disease, ACVP Annual Meeting, Atlanta, GA, 2014.
- UCD Travel Award, ACVP Annual Meeting, Atlanta, GA, 2014.
- Society of International Systemic Amyloidosis, Travel award, Indianapolis IN, 2014.
- Resident presentation award (1st place), International Association of Aquatic Animal Medicine, Rome, Italy, 2008.
- Graduate Student Support Program, University of California, Davis, 2004.
- Karen C. Drayer Wildlife Health Center Fellowship, University of California, Davis, 2004.
- MPVM Scholarship, University of California, Davis, 2004.
- Samson Fellowship, University of California, Davis, 2004.
- Frontiers for Veterinary Medicine” Student Fellowship, Geraldine R. Dodge Foundation, 2002.
- Peigh Memorial Scholarship, University of California, Davis, 2001–2003.
- Borst “Bright Star” Scholarship, University of California, Davis, 2002.
- Phi Beta Kappa, *Sigma* Chapter, 1998.
- Golden Key National Honor Society, 1997.
- National Dean’s List, 1995.

PEER REVIEWED PUBLICATIONS

- 1) Schrenzel MD, Maalouf GA, Keener LL, **Gaffney PM**. 2003. Molecular characterization of malarial parasites in captive passerine birds. Journal of Parasitology. 89(5): 1025–33. PMID: 14627151. <http://dx.doi.org/10.1645/GE-3163>.
- 2) Schrenzel MD, Maalouf GA, **Gaffney PM**, Tokarz D, Keener LL, McClure D, Griffey S, McAloose D, Rideout BA. 2005. Molecular characterization of Isosporoid Coccidia (*Isospora* and *Atoxoplasma spp.*) in passerine birds. Journal of Parasitology. 91(3):635–47. PMID: 16108559. <http://dx.doi.org/10.1645/GE-3310>.
- 3) Mitchell EB, Hawkins MG, **Gaffney PM**, MacLeod AG. 2010. Gastric dilatation-volvulus in a guinea pig (*Cavia porcellus*). Journal of the American Animal Hospital Association. May–Jun;46(3):174–80. PMID: 20439940. <http://dx.doi.org/10.5326/0460174>.
- 4) Quinn JH, **Gaffney PM**, Gilardi K, Murray M, Jessup DA, Johnson CK. 2010. Complication associated with abdominal surgical implantation of a radio transmitter in an American badger (*Taxidea taxus*). Journal of Zoo and Wildlife Medicine. 41(1):174–177. PMID: 20722276. <http://dx.doi.org/10.1638/2009-0125.1>.
- 5) Giri J, Magdesian KG, **Gaffney PM**. 2011. Insulin dependent diabetes mellitus associated with presumed autoimmune polyendocrine syndrome in a mare. Canadian Veterinary Journal. 52(5):506–512. PMCID: PMC3078003.
- 6) Pesavento PA, Stokol T, Liu H, van der List DA, **Gaffney PM**, Parker JS. 2011. Distribution of the Feline

Calicivirus receptor JAM-A in feline tissues. Veterinary Pathology. 48(2): 361-8. PMID: 20634409.
<http://vet.sagepub.com/content/48/2/361.long>

7) Glavis J, Larsen RS, Lamberski N, **Gaffney PM**, Gardner I. **2011**. Evaluation of antibody response to vaccination against West Nile virus in thick billed parrots (*Rhynchopsitta pachyrhyncha*). Journal of Zoo and Wildlife Medicine. September, 42(3): 495-498. PMID: 22950325. <http://dx.doi.org/10.1638/2010-0138.1>

8) **Gaffney PM**, Kennedy M, Gardner I, Terio K, Lothamer C, Coleman K, Munson L. **2012**. Shedding patterns of feline coronavirus in cheetah (*Acinonyx jubatus*) feces detected by reverse transcriptase – polymerase chain reaction. Journal of Zoo and Wildlife Medicine. December, 43(4): 776-86. PMID: 23272344.
<http://dx.doi.org/10.1638/2011-0110R1.1>

9) Li L, McGraw S, Zhu K, Leutenegger CM, Marks SL, Kubiski S, **Gaffney PM**, Dela Cruz Jr FN, Wang C, Delwart E, and Pesavento PA. **2013**. Circovirus in Tissues of Dogs with Vasculitis and Hemorrhage. Emerging Infectious Diseases. April, 19(4): 534-41. PMCID: PMC3647419.

10) Goodnight AL, Traslavina RP, Emanuelson K, Affolter VK, **Gaffney PM**, Vernau W, Williams C, Wu CI, Sturges BK, and Lownestine LJ. **2013**. Squamous cell carcinoma of the anal sac in a spotted hyena (*Crocuta corcuta*). Journal of Zoo and Wildlife Medicine: December, 44(4): 1068-74. PMID: 24450071.
<http://dx.doi.org/10.1638/2012-0153R1.1>

11) Grosset C, Wellehan JF Jr, Owens SD, McGraw S, **Gaffney PM**, Foley J, Childress AL, Yun S, Malm K, Groff JM, Paul-Murphy J, Weber ES 3rd. **2014**. Intraerythrocytic iridovirus in central bearded dragons (*Pogona vitticeps*). Journal of Veterinary Diagnostic Investigation: May, 26(3): 354-362. PMID: 24855223.
<http://vdi.sagepub.com/content/26/3/354.long>

12) Grosset C, Guzman DSM, Keating K, **Gaffney PM**, Lowenstine L, Zwingenberger A, Young AC, Vernau KM, Sokoloff AM, Hawkins MG. **2014**. Central Vestibular Disease in a Blue and Gold Macaw (*Ara ararauna*) with Cerebral Infarction and Hemorrhage. Journal of Avian Medicine and Surgery: June, 28(2): 132-142. PMID: 25115042. <http://dx.doi.org/10.1647/2012-069>

13) **Gaffney PM**, Imai DM, Clifford DL, Ghassemian M, Sasik R, Chang AN, O'Brien TD, Coppinger J, Trejo M, Masliah E, Munson L, Sigurdson CS. **2014**. Proteomic analysis of highly prevalent serum amyloid A amyloidosis endemic to endangered island foxes. PLoS One. 2014; 9(11): e113765. PMCID: PMC4245998.

14) **Gaffney PM**, Barr B, Rowe JD, Drygiannakis I, Giannitti F, Trejo M, Ghassemian M, Masliah E, Sigurdson CS. **2015**. Protein profiling of isolated uterine AA amyloidosis causing fetal death in goats. FASEB J: Mar, 29(3): 911-9. <http://www.fasebj.org/content/29/3/911.long>.

15) **Gaffney PM**, Witte C, Clifford DL, Imai DM, O'Brien TD, Trejo M, Liberta F, Annamalai A, Fändrich M, Masliah E, Munson L, Sigurdson CS. **2015**. Systemic AA amyloidosis in island foxes (*Urocyon littoralis*): Severity and risk factors. Veterinary Pathology, 2015 Sep 29 [Epub ahead of print]. PMID:26419399. PMCID: pending.

16) Gabriel MW, Woods LW, Wengert GM, Stephenson N, Higley JM, Thompson C, Matthews SM, Sweitzer RA, Purcell K, Barrett RH, Keller SM, **Gaffney P**, Jones M, Poppenga R, Foley JE, Brown RN, Clifford DL, Sacks BN. **2015**. Patterns of Natural and Human-Caused Mortality Factors of a Rare Forest Carnivore, the Fisher (*Pekania pennanti*) in California. PLoS One. 2015; 10(11): e0140640. PMCID: PMC4633177.

- 17) Vickers TW, Clifford DL, Garcelon DK, King JL, Duncan CL, Gaffney PM, and Boyce WM. **2015**. Pathology and epidemiology of ceruminous gland tumors among endangered Santa Catalina Island Foxes (*Urocyon littoralis catalinae*) in the Channel Islands, USA. PLoS One. 2015; 10(11): e0143211. PMCID: PMC4664485.
- 18) Moriarty ME, Vickers TW, Clifford DL, Garcelon DK, Gaffney PM, Lee KW, King JL, Duncan CL, and Boyce WM. **2015**. Ear Mite Removal in the Santa Catalina Island Fox (*Urocyon littoralis catalinae*): Controlling Risk Factors for Cancer Development. PLoS One. 2015; 10(12): e0144271. PMCID: PMC4671584.
- 19) Karthikeyan Annamalai, Karl-Heinz Gührs, Rolf Koehler, Matthias Schmidt, Henri Michel, Cornelia Loos, Patricia M. Gaffney, Christina J. Sigurdson, Ute Hegenbart, Stefan Schönland, Marcus Fändrich: *Polymorphism of Amyloid Fibrils In Vivo*. Angewandte Chemie International Edition 03/2016; 55(15):n/a-n/a., DOI:10.1002/anie.201511524
- 20) Patricia M. Gaffney: *Amyloid A Amyloidosis: The Influence of Genetics and Seeding on Pathogenesis and the Utility of Mass Spectrometry*. Veterinary Pathology 11/2016; 54(1)., DOI:10.1177/0300985816677150
- 21) Rachel E. Burns, Patricia M. Gaffney, KPR Nilsson, AG Armien, Allen P. Pessier: *Systemic Amyloidosis is an African Tiger Snake (Telescopus semiannulatus)*. Journal of Comparative Pathology 2017; 157(2-3)., PMID 28942295

PROFESSIONAL PRESENTATIONS

- Molecular characterization of *Atoxoplasma spp.* in passerine birds. Geraldine R. Dodge Foundation. White Oak, FL, 2003.
- Disseminated *Acanthameoba sp.* infection in a dog. C.L. Davis, West Coast Pathology Conference. Monterey, CA, 2006.
- Pulmonary emphysema in a Capuchin monkey (*Cebus capusinus*). American Association of Zoo Veterinarians. Tampa, FL, 2006.
- Autoimmune polyendocrine syndrome in a horse. C.L. Davis, West Coast Pathology Conference. Monterey, CA, 2007.
- Oligodendroglioma in a California sea lion (*Zalophus Californianus*). International Association of Aquatic Animal Medicine. Orlando, FL, 2007.
- Coxiella burnetii* associated abortion in a Uganda giraffe (*Giraffa camelopardalis rothschild*). C.L. Davis, West Coast Pathology Conference. Monterey, CA, 2008.
- Pathologic, microbiologic, and epidemiologic characterization of *Pseudomonas sp.* infections in stranded California sea lions (*Zalophus Californianus*) and Pacific harbor seals (*Phoca vitulina*). International Association of Aquatic Animal Medicine. Rome, Italy, 2008.
- Nephrolithiasis in a reticulated giraffe (*Giraffa camelopardalis reticulate*). American Association of Zoo Veterinarians. South Padre Island, TX, 2010.
- Amyloidosis of island foxes: Research approach. 4th ACVP/STP Coalition Scientific Conference in association with the ACVP/ASVCP annual meeting. Nashville, TN, 2011.
- Pathology summary, 1998-2011: Causes of death and diseases of concern of the endangered Island fox (*Urocyon littoralis*). 13th Annual meeting of the Island Fox Recovery Team. Ventura, CA, 2011.
- Pathology summary, 1998-2012: Causes of death and diseases of concern of the endangered Island fox (*Urocyon littoralis*). 14th Annual meeting of the Island Fox Recovery Team. Ventura, CA, 2012.
- Systemic amyloidosis of island foxes (*Urocyon littoralis*). American College of Veterinary Pathology. Seattle, Washington, 2012.
- Update on systemic amyloidosis of island foxes. 15th Annual meeting of the Island Fox Recovery Team. Ventura, CA 2013.

- Mechanisms underlying systemic amyloidosis of island foxes (*Urocyon littoralis*). Society for Toxicologic Pathology. Portland, OR, 2013.
- Mechanisms underlying systemic amyloidosis of island foxes (*Urocyon littoralis*). University of California, Davis Integrative Pathobiology Symposium. Davis, CA, 2013.
- Defining the protein causing systemic amyloidosis of endangered island foxes. University of California, San Diego Joint Neurodegeneration Meeting. La Jolla, CA 2014.
- Endemic and highly prevalent systemic amyloidosis in island foxes. XIV International Symposium on Amyloidosis. Indianapolis, IN, 2014.
- Amyloid A amyloidosis in island foxes: Ongoing research. 16th Annual meeting of the Island Fox Recovery Team. Ventura, CA, 2014.
- Proteomic Analysis of Highly Prevalent Amyloid A Amyloidosis in Endangered Island Foxes. American College of Veterinary Pathology. Atlanta, GA, 2014.
- Proteomic Analysis of Highly Prevalent Amyloid A Amyloidosis in Endangered Island Foxes. ARCS Scholar Symposium. San Jose, CA 2015.
- Amyloidosis in island foxes: Risk factors and the SAA gene. 17th Annual meeting of the Island Fox Recovery Team. Ventura, CA, 2015.
- Determining the role of pro-inflammatory cytokines and serum amyloid A transcription in island foxes with AA amyloidosis. University of California, San Diego, Joint Neurodegeneration Meeting. La Jolla, CA 2015.
- Amyloid A (AA) amyloidosis: An endemic disease of the island fox (*Urocyon littoralis*). San Diego Zoo Global, Beckman Institute for Conservation Research Seminar Series. San Diego, CA, 2015.
- Amyloid A (AA) amyloidosis: An endemic disease of the island fox (*Urocyon littoralis*). University of California, San Diego, San Diego Cutaneous Biologists Meeting. La Jolla, CA 2015.
- Investigating a genetic basis for amyloid A amyloidosis in island foxes. University of California, San Diego, Institute for Genomic Medicine Research Retreat. La Jolla, CA 2015.
- AA amyloidosis in island foxes (*Urocyon littoralis*): Pathology, risk factors and the genetic basis for disease. University of California, Davis, Department of Pathology, Microbiology, and Immunology Seminar. Davis, CA 2016.
- AA amyloidosis in island foxes (*Urocyon littoralis*): Pathology, risk factors and the genetic basis for disease. Experimental Biology Annual Meeting, San Diego, CA 2016.

PROFESSIONAL AFFILIATIONS

- American College of Veterinary Pathology
- The CL Davis Foundation for the Advancement of Veterinary and Comparative Pathology
- American Association of Zoo Veterinarians
- Wildlife Disease Association
- Island Fox Recovery Team, pathology advisor
- Mexican Wolf SSP, pathology advisor

PROFESSIONAL REFERENCES