Form 3-200-37

OMB Control No. 1018-0093
Expires 08/31/2020

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

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		1.b. Doing business as (DBA)	
National Museum of Natural History, Smithsonian Institution			
2. Tax identification no.		3. Description of business, agency, Tribe, or institution	
4.a. Principal officer Last name	4.b. Principal officer First Name	4.c. Principal officer Middle name/initial	4.d. Suffix
5. Principal officer title	6. Primary contact name		
	Dr. Terry Chesser		
7.a. Business telephone number	7.b. Alternate telephone number	7.c. Business fax number	7.d. Business e-mail address
			chessert@si.edu

Section C: All applicants complete address information

1.a. Physical address (Street address; Apartment #, Suite #, or Room #; no P.O. Boxes)				
Division of Birds, National Museum of Natural History, 1000 Constitution Ave., NW				
1.b. City	1.c. State	1.d. Zip code/Postal code	1.e. County/Province	1.f. Country
Washington	DC	20560		USA
2.a. Mailing address (include if different than physical address; include name of contact person if applicable)				
Division of Birds, MRC 116, National Museum of Natural History, P O Box 37012, Smithsonian Institution				
2.b. City	2.c. State	2.d. Zip code/Postal code	2.e. County/Province	2.f.Country
Washington	DC	20013-7012		

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.

Terry Chesser — 08/30/2019

Signature of applicant/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.

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

   Dr. Terry Chesser, 202-633-4886 or 301-497-5742, chessert@si.edu
   (if not available, contact Dr. Helen James, 202-633-0792, jamesh@si.edu)

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.

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: *Pan troglodytes*	Chimpanzee						
See attached document ta							
See attached document ta							
See attached document ta							
See attached document ta							

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

Name: Dr. Andreanna Welch
Address: Department of Biosciences, Durham University, South Road, DH1 3LE
Durham, UK
City: Durham
State/Province: County Durham, UK
County, Postal Code: DH1 3LE

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: Dr. Andreanna Welch
Address: Department of Biosciences, Durham University, South Road, DH1 3LE
Durham, UK
City: Durham
State/Province: County Durham, UK
County, Postal Code: DH1 3LE

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;

See attached document table E.9

    b. Specific location of where, when, and by whom (name and address) the specimen was removed from the wild;

See attached document table E.9

    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;

These are previously catalogued samples collected for museum biodiversity collections.

    d. If and how any remuneration, either financial or in-kind, was provided for taking or capturing animals or for the collection of samples.

None.

    e. Your efforts to use captive specimens (e.g., captive-born, captive-held), or parts thereof, in lieu of taking animals from the wild.

There are no captive specimens of these taxa.

    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.

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;

N/A

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;

N/A

c. The number of years each species has been maintained at the facility;

N/A

d. The number of births by year for each species for the last 5 years; and

N/A

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.

N/A

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

N/A

b. The arrangements for watering or otherwise caring for the wildlife during transport.

N/A

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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.

See attached document Section E

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.

See attached document Section E
See attached CV for Dr. Terry Chesser

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).

See attached document Section E

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. 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

    b. A cleared copy of Form 3-177, wildlife Declaration for Import (hard copy or electronic release); **OR**

    c. 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).

Table E.5

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)
Oceanodroma castro	Band-rumped storm-petrel	Unknown	Wild	3	1F, 1M, 1 Unknown	N/A	2 DNA, 1 Tissue
Diomedea amsterdamensis	Amsterdam Albatross	Unknown	Wild	2	Unknown	N/A	DNA
Pseudobulweria macgillivrayi	Fiji Petrel	Unknown	Wild	1	Unknown	N/A	Tissue
Pterodroma aterrima	Mascarene Black Petrel	Unknown	Wild	1	Unknown	N/A	Tissue
Pterodroma madeira	Freira	Unknown	Wild	2	Unknown	N/A	Blood
Pterodroma cahow	Bermuda Petrel	Unknown	Wild	1	Unknown	N/A	Tissue

Table E.9

a. Scientific name	a. Common name	b. Where (collecting location)	b. When (date collected)	b. Whom (name of collector/institution)	b. Whom (address)
Oceanodroma castro	Band-rumped storm-petrel	Hidejima, Iwate, Japan	08/06/2006	Yamashina Institute for Ornithology	Yamashina Institute for Ornithology, Konoyama 115, Abiko, Chiba 270-1145, Japan
Oceanodroma castro	Band-rumped storm-petrel	Hidejima, Iwate, Japan	07/30/2015	Yamashina Institute for Ornithology	Yamashina Institute for Ornithology, Konoyama 115, Abiko, Chiba 270-1145, Japan
Oceanodroma castro	Band-rumped storm-petrel	Madeira	19/09/1990	Zoological Museum Copenhagen	Zoological Museum, Universitetsparken 15, DK-2100, Copenhagen, Denmark
Diomedea amsterdamensis	Amsterdam Albatross	Amsterdam Island	Unknown	Henri Weimerskirch	Centre d'Etudes Biologiques de Chize, UMR 7372 CNRS, France
Diomedea amsterdamensis	Amsterdam Albatross	Amsterdam Island	Unknown	Henri Weimerskirch	Centre d'Etudes Biologiques de Chize, UMR 7372 CNRS, France
Pseudobulweria macgillivrayi	Fiji Petrel	Gau Island, Fiji	04/12/2007	Vincent Bretagnolle	Equipe AGRIPOP, CEBC-CNRS, 79360, Beauvoir-sur-Niort, France
Pterodroma aterrima	Mascarene Black Petrel	Reunion Island	Unknown	Vincent Bretagnolle	Equipe AGRIPOP, CEBC-CNRS, 79360, Beauvoir-sur-Niort, France
Pterodroma madeira	Freira	Madeira	07/13/2010	Vincent Bretagnolle	Equipe AGRIPOP, CEBC-CNRS, 79360, Beauvoir-sur-Niort, France
Pterodroma madeira	Freira	Madeira	04/09/2010	Vincent Bretagnolle	Equipe AGRIPOP, CEBC-CNRS, 79360, Beauvoir-sur-Niort, France
Pterodroma cahow	Bermuda Petrel	Bermuda	Unknown	British Natural History Museum	Molecular Collections, Natural History Museum, Cromwell Road, London, UK

Section E

E.9f, 9g, and 9h.
These are pre-existing samples already catalogued in museum collections or institutions with the appropriate permits. The samples are identified in their respective collections by the catalog numbers below:

species	museum or institution	catalog number
Oceanodroma castro	Yamashita Institute for Ornithology, Japan	YIO 2006-0220
Oceanodroma castro	Yamashita Institute for Ornithology, Japan	YIO 2016-1998
Oceanodroma castro	Zoological Museum, Univ. of Copenhagen, Denmark	ZMUC P1042
Diomedea amsterdamensis	Centre National de la Recherche Scientifique, France	CNRS HW AM01
Diomedea amsterdamensis	Centre National de la Recherche Scientifique, France	CNRS HW AM02
Pseudobulweria macgillivrayi	Centre National de la Recherche Scientifique, France	CNRS VB 10-53/BI26
Pterodroma aterrima	Centre National de la Recherche Scientifique, France	CNRS VB 10.36/1995.165
Pterodroma madeira	Centre National de la Recherche Scientifique, France	CNRS VB PM0274-1
Pterodroma madeira	Centre National de la Recherche Scientifique, France	CNRS VB PM0106
Pterodroma cahow	British Museum of Natural History, England	BMNH 109516437

E.10a.
I am collaborating on a research project with Dr. Helen James of the Smithsonian Institution and the research group of Dr. Andreanna Welch at Durham University, Durham, UK. The purpose of the project is to construct a subspecies-level phylogeny for the seabird order Procellariiformes, which includes the albatrosses, petrels, and shearwaters. A copy of our research proposal is attached. In addition, I can provide the following update regarding progress on this project:

To date we have successfully gathered genomic sequence data for 152 individuals of Procellariiformes. We have samples in hand for 68 additional individuals, which will be sequenced soon. We are working with museums in North America, Europe, and Australia, field biologists and conservation agencies, and other researchers to obtain samples of species not currently represented in our dataset. My collaborators in Durham have obtained samples of several taxa covered by the U.S. Endangered Species Act from other researchers and museum collections. These samples are essential for our study, and we request permission to import them to the Smithsonian Institution, where our molecular work is being conducted.

E.10b.
I have more than 20 years' experience conducting genetic studies of birds, beginning with modest Sanger sequencing studies in the 1990s and now incorporating genomic data. I served as USGS Curator of Birds at the Smithsonian Institution's National Museum of Natural History from 2005 to 2018 and previously held curatorial positions at the American Museum of Natural History, New York (1999-2000), and at the Australian National Wildlife Collection, Canberra (2000-2005). I am currently a Research Associate at the Smithsonian and USGS Research Zoologist specializing in bird genetics. I am part of several large ongoing studies using the genomic methods that will be used for our study of Procellariiformes, including Open Wings, an NSF-funded collaborative project to sequence genomic data for all species of birds (see openwings.org). In addition to my molecular research on systematics

and taxonomy of birds, I have been chairman of the AOS (formerly AOU) Committee on Classification and Nomenclature for North American birds since 2008 and have served on the committee since 2006. See my attached CV for more details.

E.10c.
Not applicable.

E.11.
Procellariiformes are among the most threatened of all bird groups. This project aims to address a crucial lack of phylogenetic and taxonomic work on Procellariiformes by sampling at a fine scale and using advanced genomic methods. The project will provide taxonomic and genetic information for many rare and poorly known taxa. This will improve our understanding of geographic ranges of genetic populations and define management units for future conservation. Importing pre-existing samples in collections will avoid any further disturbance to these species in the wild.

See Call for Proposals for complete application requirements.

SI Biogenomics/GGI Cover Sheet

• **Proposal Title: Phylogenomics of Oceanic Seabirds (Procellariiformes)**
• **PI Name (one person only): Terry Chesser**
• **PI email address: chessert@si.edu**
• **Co-PI's (list all): Helen James (NMNH), Andreanna Welch (NZP and Durham University, UK), Vincent Bretagnolle (CNRS, France)**
• **PI's Department: Vertebrate Zoology**
• **Smithsonian Unit: NMNH**
• **Supervisor approval received [yes] [no] yes**
• **Proposal Abstract (100 words)** During their evolutionary history, birds have colonized the open oceans beyond the continental shelves only rarely. The Procellariiformes (albatrosses, shearwaters, storm-petrels, etc.) are by far the largest group of oceanic birds, but their molecular phylogeny is practically unknown (no multi-locus study with a broad taxonomic sample of the order). We will use genomic sequencing methods to capture a rich genomic dataset and resolve the phylogeny of all extant and recently extinct Procellariiformes, at and below the species level. This will advance understanding of the evolutionary history of oceanic birds, and inform conservation management of this globally-threatened group.

Phylogenomics of Oceanic Seabirds (Procellariiformes)

Introduction. – Birds that forage far out in open oceans, beyond the continental shelves or the near-shore regions around islands, occur in only five taxonomic groups: the Procellariiformes (albatrosses and relatives), Phaethontiformes (tropicbirds), Charadriiformes (terns and noddies), Suliformes (frigatebirds and boobies), and Sphenisciformes (penguins). With more than 120 species [1], the order Procellariiformes contains over 2/3 of all oceanic birds. Our overarching goal is to develop a phylogenomic framework for studying the evolutionary and ecological history of oceanic birds. As the first and major step toward our goal, we propose to develop a genomic phylogeny of the Procellariiformes, with taxonomic sampling of all species and subspecies. An added benefit of our project is that we will address many taxonomic questions about species limits in this order, which contains a high number of vulnerable and endangered species.

Life for birds in the oceanic realm appears to place certain constraints on morphology, physiology, and life history, just as it does for marine mammals. For example, all oceanic seabirds are marine predators, all but penguins have the ability to fly large distances over the oceans, and all have well-developed nasal glands for salt excretion [2]. Procellariiform seabirds have a highly developed olfactory sense that may help them locate prey and breeding grounds at great distances [2]. Oceanic seabirds typically have long life spans, strong pair bonds, and high parental investment in chick rearing; they breed colonially on remote islands or other hard-to-reach landscapes that are relatively free of ground-dwelling predators, and they are usually highly philopatric to their breeding colonies as adults [3]. Within their constraints, however, the Procellariiformes show remarkable diversity. Their range in body mass is greater than that of any other order of birds (500-fold difference, from 20 g to 10 kg) [4]. Their locomotory modes include wing and foot-propelled underwater swimming and a variety of flight patterns, including dynamic soaring, which minimizes energy expenditure when traveling large distances [3]. They seize prey with the beak but may do so while diving, swimming underwater, hydroplaning, surface-seizing while in flight or while sitting on the water, and some species even pat the water surface with the feet to attract prey [3]. Their foraging methods include diurnal and nocturnal foraging, scavenging, foraging in conjunction with tuna schools, foraging on vertically migrating mesopelagic prey, and solitary vs. social foraging [5].

The Procellariiformes are taxonomically well described, but their phylogeny is poorly documented and species limits are controversial. A well-resolved species- and subspecies-level phylogeny of the order would be an invaluable tool for studying the history of avian diversification in the oceanic realm. The phylogeny can be calibrated with the fossil record of the order, which extends to 30 Mya [6, 7].Thus, we will be able to compare the time frame and pattern of diversification of oceanic birds with those of other groups of marine predators, and with radiations of birds in other biomes (e.g., [8]). Further, a well-resolved species- and subspecies-level tree will enable us and others to perform diverse comparative studies of trait evolution in the Procellariiformes. Sampling intraspecifically will also enable us to address species limits by providing preliminary assessments of genetic divergence, gene flow, and possible cryptic speciation. This is especially important in the Procellariiformes because many species are of conservation interest.

Phylogenetics. – Previous molecular studies of phylogenetic relationships within the Procellariiformes [9-15], whether concentrated on the entire group or on specific families or

species groups, have been based on small amounts of data, generally complete or partial sequences of the mitochondrial gene cytochrome-*b*. The order-wide studies have suffered from incomplete taxon sampling (fewer than 90 taxa were sampled for any individual study, and even the supertrees of Kennedy and Page [16] and Penhallurick and Wink (2004) contained a maximum of 103 taxa) and a lack of resolution owing to the small amount of sequence data. This lack of resolution is prevalent throughout the tree but is especially noticeable at deeper phylogenetic levels, where bootstrap support is very low. Thus, relationships among, and even monophyly of, the four traditional families of Procellariiformes – the Diomedeidae (albatrosses), Hydrobatidae (storm-petrels), Procellariidae (petrels and shearwaters), and Pelecanoididae (diving petrels) – are unresolved. Recent large-scale genomic studies of avian phylogenetics have included a few representatives of the Procellariiformes, but, given the broad scope of these studies, they suffer from poor taxon sampling within the group, with just 1 – 8 procellariiform taxa included [17-19]. Correct trees are more likely to be produced when extensive taxon sampling and large amounts of data are employed in tandem, a combination that has not been used for the Procellariiformes.

Nevertheless, previous work has produced a number of phylogenetic questions that will be addressed using our phylogeny. For example, are the four traditional families of Procellariiformes monophyletic, as indicated by most morphological studies, or are the Hydrobatidae or Procellariidae paraphyletic [10, 11, 17, 19, 20, 21]? Moreover, are the Diomedeidae (albatrosses) [7, 11, 19, 20], the Oceanitinae (a subfamily of storm-petrels) [10, 17], or the Pelecanoididae (diving-petrels) [21] sister to the remainder of the order? These questions have significant implications for the study of character evolution in the Procellariiformes. For example, the evolution of body size in the group changes considerably if the Oceanitinae (<100 g) or the Diomedeidae (2-10 kg) are sister to the rest of the Procellariiformes.

Conservation. – Delimitation of species boundaries and basal conservation units in the Procellariiformes has long been a challenge. Indeed, species limits have been undergoing rapid recent change in this order, and many continue to be controversial. Knowledge of basal conservation units is of particular importance in the group because a high percentage of species is of conservation concern: more than 50 species of Procellariiformes are listed as Vulnerable, Endangered, or Critically Endangered by the IUCN Red List [22]. Genomic-scale data at the intraspecific level will assist conservation through providing a preliminary assessment of genetic divergence, gene flow, and possible cryptic speciation. Chief among current issues are questions of species boundaries in petrels of the genus *Pterodroma*, in the prions (*Pachyptila* spp.), in the albatrosses (Diomedeidae), and in certain groups of small tropical shearwaters, especially in the *Puffinus puffinus, P. lherminieri*, and *P. assimilis* groups, which have either not been addressed with genetic data or have been addressed only with relatively small amounts of data (typically 400-1150 bp of mitochondrial sequence). We will also be able to provide a preliminary genetic perspective on the taxonomic status of many other taxa of extremely low or unknown population numbers [23], including *Fregetta grallaria titan* (500 pairs) and *F. g. segethi* (a few hundred pairs), *Pelagadroma marina albiclunis* (<100 pairs), *Oceanodroma leucorhoa socorroensis* and *O. l. cheimomnestes* (5000 pairs combined), and the recently described *Pterodroma cervicalis occulta* (population size unknown). Preliminary data gathered in this study will serve as a foundation for collaborations, some already developed, to further assess taxa identified as possible conservation priorities.

Sampling and Fieldwork. – We plan to sample all extant, currently recognized species of Procellariiformes, as well as species that recently became extinct due to anthropogenic influences and are only known from museum specimens or subfossil bones. Two individuals will be sampled for each monotypic species, and one individual for each subspecies for each polytypic species. This sampling scheme will more than double the number of individuals and taxa included in any previous molecular study of the Procellariiformes, will allow examination of lost diversity, and will provide the first intraspecific genetic data for most species. We will also sample two species of outgroup taxa in each of the Sphenisciformes, Ciconiiformes, and Gaviiformes, which include the sister group to Procellariiformes as well as more distant taxa [17-19].

Global authorities differ somewhat in number of extant species and subspecies recognized, but the differences in total number of taxa are slight. We use the Howard and Moore checklist [1] as a baseline for extant species and subspecies, with a few recently described taxa added from other sources, recognizing 121 species of Procellariiformes, of which 83 are monotypic and 38 are polytypic (resulting in 193 total taxa; Table 1). The majority of these taxa (88 species and 111 total taxa) are represented by available fresh tissue or blood samples; the rest will be sampled from museum skins or bones or sourced from collaborators. Our group has demonstrated great proficiency in working with DNA from museum specimens, and has successfully sequenced DNA from many subfossil seabird bones [24-26].

Table 1. Number of species and total taxa (species + subspecies) by family/subfamily, and availability of genetic material:

family/subfamily	species	total taxa	availability of tissue or blood samples	
			species	total taxa
Oceanitinae	9	21	5 / 9	8 / 21
Hydrobatinae	15	22	10 / 15	12 / 22
Diomedeidae	12	24	9 / 12	12 / 24
Procellariidae	81	118	62 / 81	73 / 118
Pelecanoididae	4	9	3 / 4	6 / 9
all Procellariiformes	121	193	88 / 121	111 / 193

We have obtained preliminary approval from the NMNH, the American Museum of Natural History, and the Burke Museum (Univ. Washington) to sample the majority of tissues and museum specimens required for this project. Also, co-PI Bretagnolle has conducted extensive fieldwork and amassed a collection of ~4,000 procellariiform blood samples. Beyond this, we propose a field trip to visit key areas in the southwestern Pacific where uncertainties in petrel taxonomy persist. We will travel to Philip, Norfolk, and Lord Howe Islands, Australia, and to Fiji. The Australian islands hold many petrel species for which few museum samples are available, and to our knowledge no genetic samples have been collected. A dark form of *Fregetta grallaria* breeds on Lord Howe, the only such population in the world. On Philip and Norfolk Islands, four species of *Pterodroma* breed, including a potentially distinct form of the poorly known *P. cervicalis*. Four species of *Puffinus* also breed there, including a potentially endemic form of *P. assimilis* and a potentially undescribed shearwater species. On Fiji, there exists an undescribed form of *Pseudobulweria rostrata* and a potentially distinct form of *Pterodroma brevipes*. In total we will collect samples from 11 taxa representing four genera and two families. Where possible we will collect fresh specimens for deposition to the USNM

collections, and take tissue samples in DNA preservation buffer and RNAlater. For taxa that are especially vulnerable to extinction, we will collect blood samples in DNA preservation buffer and RNAlater, collect key morphometric data and take photographs of identifying features. Dr. Bretagnolle has strong working relationships with authorities on these islands and has obtained collecting permits in the past. He will be responsible for obtaining field permits.

METHODS

Overall approach. – We will utilize capture enrichment strategies to obtain extensive mitochondrial and nuclear genome datasets from procellariiform seabirds. Sequencing full genomes from a large number of species is still prohibitively expensive, and therefore, it has become standard in the field to selectively target specific regions [27]. This approach is also particularly well-suited to degraded DNA from museum specimens and subfossil bones [28]. To obtain sequences from across the nuclear genome, we will target approximately 5,000 ultra-conserved element (UCE) loci and the more variable flanking regions [29], which are informative from deep to more shallow taxonomic levels [30-34]. We will also target the mitochondrial genome, using a custom bait set designed from available genome sequences (see below), which is informative at lower taxonomic levels, and likely to be obtained from museum specimens and subfossil bones [35, 36].

Labwork. – For tissue samples, DNA will be extracted and sent to the company RAPiD Genomics for library preparation and capture. Mitochondrial sequences are routinely acquired as by-capture during this process [37]. Following stringent protocols to prevent contamination [38], DNA will be extracted from museum specimens and subfossil bone samples, and then individually barcoded Illumina sequencing libraries will be constructed following standard protocols [39]. Capture-enrichment will be conducted using the 5K UCE capture kit and a custom mitochondrial genome kit (available from MYcroArray) designed from available mtDNA genome sequences from databases and tissue samples. Nuclear and mtDNA captures will be conducted separately due to copy number differences.

Data Analysis. After conducting quality control, we will perform a combination of *de novo* and reference guided assembly to construct contig sequences [19, 34, 40]. These contigs will be mapped back to their associated UCE locus using the PHYLUCE software [41]. A similar approach will be implemented to assemble full mitochondrial genomes. Sequences will be aligned using MAFFT [42] and appropriate substitution models determined using PartitionFinder [43]. We will examine datasets with differing levels of missing data to investigate the impact of this on subsequent phylogenetic inference. We will estimate phylogenies using multiple approaches, including maximum likelihood [44] and Bayesian inference [45] on the concatenated data matrix, as well as using coalescent species trees [46]. For a reduced set of loci, we will build a fossil calibrated time tree in BEAST [47]. Hypothesis testing will be conducted using phylogenetic generalized least squares and through a model testing approach in R [48, 49].

BUDGET. The total budget for this project is $55,000, and we will provide matching funds of $12,000. Therefore, **we request $43,000 in support**. Completion of the project will require $8,750 in salary for a technician to conduct DNA extraction for all samples, as well as library preparation and UCE and mtDNA genome capture-enrichment for degraded samples (museum specimens and subfossil bones). A total of $14,250 is required for lab supplies, including purchase of capture enrichment kits. These samples will be sequenced on one lane of the Illumina HiSeq at a cost of $3500. For tissue samples, library preparation, capture-enrichment,

and sequencing will be conducted by RAPiD Genomics at a cost of $18,500. Field costs include $6,000 for flights to Australia, $2,000 for flights to the islands, $750 for accommodation for 15 days, and $1250 for travel to field sites, collecting supplies, and shipping.

MATCHING FUNDS. Chesser and James will provide matching funds totaling $12,000 from discretionary research funds to support the initial phase of the project. The funds will cover UCE and mtDNA data acquisition from selected species of Procellariiformes for which high-quality genomic tissues are available, and generation of a phylogenetic backbone on which to build our species and subspecies-level analyses. Additional funding may be obtained through grants (i.e., Welch has a proposal for graduate student support pending at Durham University).

SCIENTIFIC IMPACT AND PHYLOGENETIC NOVELTY.

Our study will:

- be the first to use UCEs, previously used to resolve skeleton phylogenies (e.g., Faircloth et al. 2012, McCormack et al 2013), to comprehensively sequence a major clade at the species and subspecies-level
- more than double the number of individuals and taxa included in any previous molecular study of the Procellariiformes, and provide the first intraspecific genetic data for most species
- apply UCEs at the subspecies level to address taxonomic issues of importance to conservation management
- examine lost diversity by incorporating recently extinct species using ancient DNA
- provide the foundation for study of diversification patterns and the evolution of morphological, ecological, and behavioral traits within the Procellariiformes (e.g., body size, wing morphology, ecological niche, foraging behavior, extinction risk)
- represent the major step in our group's larger goal to produce a UCE-based phylogeny for all species in the water bird clade, which will provide a phylogenomic context for studying the ecological and evolutionary history of all modern birds in a very broad niche, that of oceanic predators
- enable us to compare patterns and rates of diversification with those of other major groups, such as clades of marine mammals and terrestrial birds

BROADER SOCIAL IMPACT. A very practical societal benefit of our work is that it will better delineate species limits in procellariform seabirds. This will be useful for setting conservation priorities for threatened and endangered birds on a national and international level. Also, we will use the research as a platform to improve public appreciation of ocean life. Our previous seabird research was widely disseminated via newspapers, journals, and blogs, and is featured in NMNH's Ocean Portal. We will continue to take advantage of the excellent opportunities for dissemination offered by the Smithsonian.

It is perhaps relevant that the project will create a strong international collaboration (USA, UK, France), support the early career of a new assistant professor (lecturer in UK parlance), and create a collaboration between Smithsonian and NMNH Affiliated Agency (USGS) scientists.

EXPECTED PUBLICATIONS. We will publish a series of papers on phylogenomics, evolutionary dynamics, and taxonomy and conservation of procellariform seabirds.

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EDUCATION

Ph.D. (Dec. 1995)	Louisiana State University, Baton Rouge, Louisiana Major: Zoology (Dr. J. V. Remsen, Jr., research advisor) Dissertation: "Biogeographic, ecological, and evolutionary aspects of South American austral migration, with special reference to the family Tyrannidae"
B.A. (June 1982)	Georgia State University, Atlanta, Georgia

ACADEMIC POSITIONS

Aug. 2005 - present	Research Zoologist, U.S. Geological Survey Patuxent Wildlife Research Center, Laurel, Maryland
Nov. 2018 - present	Research Associate, Department of Vertebrate Zoology National Museum of Natural History Smithsonian Institution, Washington
Aug. 2005 - present	Research Associate, Center for Conservation and Evolutionary Genetics, National Zoological Park Smithsonian Institution, Washington
Aug. 2005 - Nov. 2018	Curator of Birds and Adjunct Scientist, Dept. of Vertebrate Zoology USGS Biological Survey Unit, National Museum of Natural History Smithsonian Institution, Washington
Nov. 2000 - Aug. 2005	Director (Curator-in-Charge) and Research Leader Australian National Wildlife Collection CSIRO Sustainable Ecosystems, Canberra
Feb. 1999 - Oct. 2000	Curatorial Associate Department of Ornithology American Museum of Natural History, New York
Jan. 2000 - May 2000	Adjunct Professor Department of Earth and Environmental Sciences Columbia University, New York

Oct. 1997 - Feb. 1999	Postdoctoral Fellow, Research Training Group in the Analysis of Biological Diversification Department of Ecology and Evolutionary Biology University of Arizona, Tucson
Oct. 1995 - Sept. 1997	Chapman Postdoctoral Fellow Department of Ornithology American Museum of Natural History, New York
Jan. 1996 - May 1996	Adjunct Professor Department of Biology City University of New York

FIELD EXPERIENCE

Field experience has included inventories of the avifauna in South American, Australian, and southeast Asian rainforest and other habitats, collection and preparation of bird specimens, bird censusing, determination of the effects of forest burning regimes on an endangered species, and monitoring of nest parasitism and predation rates in fragmented forest. Highlights include the following:

May-July 2016-2017	Ornithologist, sound recording and territory mapping of grassland birds, Manassas Battlefield National Park, Virginia (USGS)
May 2015-2019	Ornithologist, shorebird cannon-netting, banding, and genetic sample collection, Delaware Bay, Cape May, New Jersey (USGS)
Jan.-Feb. 2010	Ornithologist and co-leader, field expedition to Chile (USGS-NMNH/University of Wyoming)
March 2007	Ornithologist, field expedition to Belize (National Zoological Park/ USGS-National Museum of Natural History)
Jan. - Feb. 2007	Ornithologist and co-leader, field expedition to Peru (USGS-NMNH/Louisiana State University Museum of Natural Science)
Sept. - Oct. 2004	Ornithologist and leader, field expedition to the Kimberley, Western Australia (Australian National Wildlife Collection)
May - June 2004	Ornithologist and leader, field expedition to southwestern Western Australia (Australian National Wildlife Collection)
October 2002	Ornithologist and leader, field expedition to Arnhem Land and Victoria River District, Northern Territory, Australia (Australian National Wildlife Collection)
April - May 2002	Ornithologist and leader, field expedition to the Pilbara, Western Australia (Australian National Wildlife Collection)
Oct. - Nov. 2001	Ornithologist and leader, field expedition to Cape York Peninsula, Queensland, Australia (Australian National Wildlife Collection)
March - April 1999	Ornithologist, field expedition to Vietnam (American Museum of Natural History)
March 1998	Ornithologist, field expedition to Argentina (University of Arizona/ University of Nevada Las Vegas)
Nov. - Dec. 1996	Ornithologist and leader, field expedition to Chile (American Museum of Natural History)
Jan. - Feb. 1996	Ornithologist and leader, field expedition to Argentina (American Museum of Natural History)
May - June 1992	Ornithologist, field expedition to Texas and Arizona (Louisiana State University Museum of Natural Science)
March - May 1992	Ornithologist, Natural Heritage Program, State of Louisiana

July - Sept. 1990 Ornithologist, field expedition to Bolivia (Louisiana State University Museum of Natural Science)

TEACHING AND EDUCATIONAL EXPERIENCE

As professor (graduate-level courses)

2000, Spring Semester — Ornithology
Columbia University

1996, Spring Semester — Zoology and Phylogeny of Chordata (Birds)
City University of New York

As teaching assistant (undergraduate laboratories and recitation periods)

1993 - 1995 — Ornithology, Intro. Zoology, and Intro. Biology
Louisiana State University

Sponsorship/mentorship of students and postdoctoral researchers

Undergrads:
Shaina Lu, Swarthmore College, Swarthmore, Pennsylvania
Smithsonian Natural History Research Experiences Program (2014)
Adam Martin, Oregon State University, Corvallis, Oregon
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Smithsonian Undergraduate Research Training Program (2008)
Katherine Faust, Louisiana State University, Baton Rouge, Louisiana
Smithsonian Undergraduate Research Training Program (2006)
Imogen Malpas, Charles Sturt University, Albury, Australia
CSIRO Undergraduate Research Training Program (2004)

Grad students:
Paige Byerly, University of Louisiana-Lafayette
USGS NSF GRIP Intern, National Museum of Natural History and National Zoological Park (2018)
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Visiting Graduate Student, National Museum of Natural History (2014)
Laura M. Bergner, University of Otago, Dunedin, New Zealand
Visiting Research Fellow, National Zoological Park (2013-2014)
Mikey Tabak, University of Wyoming, Laramie
Visiting Graduate Student, National Zoological Park (2010)
Nicolás Dávila, Universidad de los Andes, Bogotá, Colombia
Visiting Graduate Student, National Museum of Natural History (2009)
Elinete Batista Rodrigues, Universidade Federal do Pará, Belém, Brazil
Visiting Graduate Student, National Museum of Natural History (2007)
Cecilia Kopuchian, Universidad de Buenos Aires, Argentina
Visiting Graduate Student, National Museum of Natural History (2007)

Postdocs:
Peter A. Hosner (Ph.D., University of Kansas, Lawrence)

Smithsonian Postdoctoral Research Fellow (primary advisor, 2017 - 2018)
Frank Hailer (Ph.D., Uppsala University, Uppsala, Sweden)
Smithsonian Postdoctoral Research Fellow (co-advisor, 2007 - 2010)
Sarah A. Sonsthagen (Ph.D., University of Alaska, Fairbanks)
Smithsonian Postdoctoral Research Fellow (co-advisor, 2006 - 2008)

Director, undergraduate honors thesis

2008 Camilo Sanín Riaño, Universidad de los Andes, Bogotá, Colombia
"Paraphyly of the Bar-winged Cinclodes (*Cinclodes fuscus*): Implications for Taxonomy and Biogeography"

External reviewer, master's thesis

2009 Lincoln Silva Carneiro, Universidade Federal do Pará, Belém, Brazil
"Systematic revision of the Spotted Antpitta *Hylopezus macularius* (Grallaridae), with description of a cryptic new species from Brazilian Amazonia"

2019 Thamara Salvagni, Universidade Federal do Rio Grande do Sul, Brazil
"Phylogenetic relationships of shearwaters *Puffinus* (*sensu lato*) and *Calonectris* (Aves: Procellariiformes) based on osteological characters"

Community education and public relations

2015 - 2018 Nature's Best Photography International Awards, Smithsonian Institution: Reviewed and edited the scientific content of captions for this public exhibit at the National Museum of Natural History.

2014 State of the Birds 2014: Prepared and presented, with Smithsonian colleagues, a display of specimens of extinct, declining, and threatened bird species for the press conference launching the State of the Birds 2014 report, issued by USGS, USF&WS, NPS, Environment Canada, and numerous NGOs, universities, and other government agencies.

2013 Congressional Night 2013: Contributed data and publications to the Affiliated Agencies (USGS, NOAA) vertebrate zoology display at Congressional Night at the Smithsonian, an open house on science and research for members of Congress, their professional staff, and their families. Congressional Night 2013 was attended by 1800 Congressional staff, including 20 members of Congress and their families.

2010 Smithsonian Board of Regents: Gave a presentation to the Smithsonian Board of Regents on the biology and extinction of the Passenger Pigeon, as part of the celebration of the 100th anniversary of the National Museum of Natural History.

2009 White House OSTP: Gave a presentation to the White House Office of Science and Technology Policy (OSTP) on the importance of the bird collection at the National Museum of Natural History, and particularly specimens from the USGS Biological Survey Unit, for natural resource management. This was part of an OSTP follow-up visit to the Museum of Natural History, in response to the report of the Inter-Agency Working Group on Scientific Collections.

2009	Gave presentation to USGS delegation from the Chinese Academy of Sciences on the NMNH bird collection and its use for scientific research and natural resource management
2005 - 2006	Ivory-billed Woodpecker Exhibit: Developed, with Claudia Angle and the Smithsonian Office of Exhibits, an Ivory-billed Woodpecker "In the News" display at the National Museum of Natural History. This exhibition used specimens, images, text, and artifacts to present the reported rediscovery of the Ivory-billed Woodpecker in 2004 and to compare this species to the very similar Pileated Woodpecker.
2001 - 2005	Australian Broadcasting Corporation: Provided numerous interviews to Australian Broadcasting Corporation, commercial radio stations, and print media regarding Australian wildlife and conservation issues.
2002 - 2003	ANWC Travelling Wildlife Display: Developed the ANWC Travelling Wildlife Display, a specimen-based touring exhibition designed to convey the role of natural history collections in scientific research, education, and conservation. This exhibition travelled to 12 Australian capital cities and regional centers during its year-long tour.
2002	Teacher's Resource Guide: Co-authored the teacher's resource guide *A Window on Our Wildlife*, developed with the ANWC Travelling Wildlife Display. The 24-page guide supplied background information for teachers and primary and secondary students and provided activities related to Australia's wildlife, and was nominated for a Museums Australia Publication Design Award.
2002	Online Video: Taped educational video segments on the Australian National Wildlife Collection for the Endeavor Beyond Online internet broadband channel.
2000 - 2001	Mossman Natural Science Centre: Worked with Douglas Shire Council (Queensland, Australia) to develop plans for the Mossman Natural Science Centre, a science educational initiative near the Queensland Wet Tropics World Heritage Area.
1994	Television: Taped educational video segments on bird song, nesting, and eggs for Baton Rouge, Louisiana, Fox television affiliate (WGMB-44).

AWARDS AND GRANTS

2017	Research Grant for "All Birds: A Time-scaled Avian Tree from Integrated Phylogenomic and Fossil Data", National Science Foundation (lead senior investigator of a subaward, [redacted] total award)
2015	Research Grant for "Comprehensive Revision of the Subspecific Taxonomy of North American Birds: A Pilot Project", American Ornithologists' Union/USGS Patuxent Wildlife Research Center [redacted] on behalf of AOU Committee on Classification and Nomenclature)
2012	Research Grant for "Systematics of a Pantropical Diversification: the Suboscine Passerine Birds", National Science Foundation (lead senior investigator of a subaward, [redacted] total award)
2012	Smithsonian Grand Challenges Grant for "Biodiversity, Genomics, and Human Ecology of California's Channel Islands", Smithsonian Institution (co-PI, [redacted] total award)
2010	Smithsonian Grand Challenges Grant for Channel Islands Bio-cultural Diversity Working Group, Smithsonian Institution (co-[redacted] total award)

2009 Research Grant for "The Functional Ecology of an Adaptive Radiation: Stable Isotopes, Niches, Phylogenies and Kidneys", National Science Foundation (research collaborator, [redacted] total award)

2009 Elected to "Fellow" status, American Ornithologists' Union, AOU annual meeting, Philadelphia, Pennsylvania

2006 Research Grant for "A Study of Comparative Variation in Amazonian Antbirds" Smithsonian Institution Walcott Endowment (PI, [redacted] award)

2006 Whitley Book Award (Best Book in the Category "Conservation Resource") for *CSIRO List of Australian Vertebrates: A reference with conservation status* Royal Zoological Society of New South Wales

2005 Research Grant for "Systematics and Coevolution of Australian Phabine Pigeons and their Wing/Body Lice", Australian Biological Resources Study (PI, Au[redacted] award)

2004 Integrated Environmental Program Grant, "Gene Flow in Fragmented Landscapes" New South Wales (Australia) Environmental Trust (PI, Au[redacted]0 of Au[redacted] [redacted] total award)

2004 Research Grant for "Systematics, Movements, and Conservation of Australian Waterbirds", Hermon Slade Foundation (PI, [redacted] award)

2004 Summer Student Scholarship Research Grant Norman Wettenhall Foundation ([redacted] award)

2003 Research Grant for "Waterbird Genetics and Movement Patterns" Vincent Fairfax Family Foundation ([redacted] award)

2003 Research Grant in Mammalian/Avian Genetics and Conservation Equity Trustees/Albert George Youngman Estate (PI, [redacted] award)

2003 Research Grant in Ciconiiform Biology and Conservation The Waterbird Society (PI, [redacted] award)

2002 Internal Venture Capital Fund Grant for Research on Genetics and Habitat Fragmentation, CSIRO Sustainable Ecosystems (PI, [redacted] award)

2002 Research Collaboration Grant for "Early Bird: A Collaborative Project to Resolve the Deep Nodes of Avian Phylogeny", National Science Foundation (foreign collaborator, [redacted] total award)

2002 Exhibition Touring Grant, ANWC Travelling Wildlife Display Visions of Australia (PI, [redacted])

2000 Elected to "Elective Member" status, American Ornithologists' Union, AOU annual meeting, St. John's, Newfoundland

1998 Faculty/Research Small Grant for "Diversification in the Neotropics: Phylogenetics and Evolution of the Furnariidae", University of Arizona [redacted])

1997 - 1999 Postdoctoral Fellowship, Research Training Group in the Analysis of Biological Diversification, National Science Foundation/University of Arizona ([redacted] plus [redacted] year salary)

1995 - 1997 Chapman Postdoctoral Fellowship for "Evolution and Diversification of the Synallaxinae: A Phylogenetic Perspective", American Museum of Natural History [redacted]/year salary)

1996 Nominated for Distinguished Dissertation Award for 1995 Council of Graduate Schools, Washington, DC

1996 Outstanding Dissertation Award in Science and Engineering for 1995 Louisiana State University

1995 Outstanding Graduate Student Award Louisiana State University Museum of Natural Science

1994 A.O.U. Council Award for Outstanding Student Paper

North American Ornithological Congress, Missoula, Montana

1994	Department of Zoology and Physiology Travel Award Louisiana State University
1993	Alexander Wetmore Award American Ornithologists' Union ([redacted]
1993	Grant-in-Aid of Research National Sigma Xi[redacted]
1993	Marcia Brady Tucker Travel Award American Ornithologists' Union
1993, 1990	Collection Study Grants American Museum of Natural History[redacted]
1993	Graduate Student Research Grant Georgia Ornithological Society
1992, 1991	Frank M. Chapman Memorial Fund Grants American Museum of Natural History[redacted]
1991	Charles M. Fugler Fellowship Award for Tropical Research LSU Museum of Natural Science ([redacted]
1990	J. William Eley Research Grant LSU Museum of Natural Science ([redacted]
1989 - 1993	Board of Regents Doctoral Fellowship Louisiana State University ([redacted] salary)

PATRONYMIC HONOR

Myrsidea chesseri	Johnson, K. P. and R. D. Price. 2006. Five new species of *Myrsidea* Waterston (Phthiraptera: Menoponidae) from bristlebills and greenbuls (Passeriformes: Pycnonotidae) in Ghana. *Zootaxa* (1177): 27-37.

PROFESSIONAL SOCIETIES

American Ornithologists' Union (Fellow)
Pacific Seabird Group
Wilson Ornithological Society

Service to Professional Societies and Journals

2018 – present	Associate Editor/Consultant for Taxonomy and Nomenclature, *The Auk: Ornithological Advances* and *The Condor: Ornithological Applications*
2017 – present	Member, Working Group on Avian Nomenclature (WGAN), International Ornithologists' Union
2008 - present	Chair, Committee on Classification and Nomenclature, North and Middle America, American Ornithologists' Union
2007 - present	Member, Editorial Board, *Bulletin of the British Ornithologists' Club*
2007 - 2014	Editor, Aves (New World), *Zootaxa*
2006 - present	Member, Committee on Classification and Nomenclature, North and Middle America, American Ornithologists' Union
2006 - 2015	Member, Archives Committee, American Ornithologists' Union
2006 - 2008	Member, Committee on Nomination of Fellows and Elective Members, American Ornithologists' Union
1993 - 1997	Editor, Neotropical Section, *Recent Ornithological Literature,*

American Ornithologists' Union

REVIEWS

Reviewer of grant proposals for: National Science Foundation
Australian Research Council
National Geographic Society
Wildlife Conservation Society

Reviewer or editor of scientific papers for numerous professional journals

Promotion/Tenure reviews for: Dr. Christopher Witt, University of New Mexico (2017)
Dr. Pamela Rasmussen, Michigan State University (2018)

PAPERS PRESENTED AT SCIENTIFIC MEETINGS (* = presenting author)

2019 Toward a complete phylogeny of the Procellariiformes. American Ornithological Society annual meeting, Anchorage, Alaska.

2019 *Toward a complete phylogeny of the Procellariiformes. Pacific Seabird Group annual meeting, Kauai, Hawaii.

2019 Genome-wide data reveal the deep evolutionary history of oceanic seabirds (Procellariiformes). Invited talk at symposium "Museum Specimens and Other Archives in Seabird Research" at Pacific Seabird Group annual meeting, Kauai, Hawaii.

2018 *OpenWings: Collaborative construction of a fossil-calibrated species-level bird phylogeny. 27th International Ornithological Congress, Vancouver, Canada.

2018 A comprehensive phylogeny of suboscine birds and the origins of Neotropical avian megadiversity. 27th International Ornithological Congress, Vancouver, Canada.

2018 Genome-wide data reveal the deep evolutionary history of oceanic seabirds (Procellariiformes). Evolution in the 21st Century, Milner Centre Inaugural Conference, University of Bath, UK.

2018 *The influence of anthropogenic noise on community structure, habitat occupancy, and behavior of grassland birds at Manassas National Battlefield Park. Spotlight Event on National Park Resources in the National Capital Region, Shepherdstown, West Virginia.

2018 Ecological and biogeographical drivers of diversification in New World suboscine birds (Aves: Tyranni). American Ornithological Society annual meeting, Tucson, Arizona.

2018 OpenWings: Collaborative construction of a fossil-calibrated species-level bird phylogeny. American Ornithological Society annual meeting, Tucson, Arizona.

2017 *A genomic perspective on the phylogeny of the Procellariiformes. American Ornithological Society annual meeting, East Lansing, MI.

2017 A comprehensive species-level phylogeny of suboscine birds using genomic markers. Society for the Study of Evolution annual meeting, Portland, OR.

2017 *A UCE perspective on the phylogeny of seabirds (Procellariiformes). BioGenomics 2017 – Global Biodiversity Genomics Conference, Washington, DC.

2016 *A UCE-based genus-level phylogeny of suboscine birds. North American Ornithological Congress, Washington, DC.

2015 *Molecular systematics of swifts of the genus *Chaetura*. American Ornithologists' Union annual meeting, Norman, Oklahoma.

2015 *Southern Hemisphere migrations: status and opportunities. Workshop for S.I. Move: An Earth Observatory for Movement Ecology, Front Royal, Virginia.

2015 Patterns of genetic variation in the Australian Grey Fantail complex: *Rhipidura albiscapa* and *Rhipidura phasiana*. American Naturalist/Systematic Biology/Evolution joint meeting, Guarujá, Brazil.

2014 *Antbirds from the Amazon to the Andes: how much diversity are we overlooking? Invited talk at symposium "Biodiversity and the Classification Crisis" at American Ornithologists' Union/Cooper Ornithological Society/Canadian Society of Ornithologists joint meeting, Estes Park, Colorado.

2013 *Phylogeography of the Amazonian antwren *Myrmotherula brachyura*, with comparisons to co-distributed understory antwrens. American Ornithologists' Union annual meeting, Chicago, Illinois.

2013 Phenotype-environment correlations in *Cinclodes* ovenbirds: Linking morphology to isotopic niche. Society for Integrative and Comparative Biology annual meeting, San Francisco, California.

2012 *The evolution of nesting in the ovenbirds and woodcreepers, family Furnariidae. North American Ornithological Congress, Vancouver, Canada.

2012 Exploring phenotype-environment correlations in South American *Cinclodes* ovenbirds. North American Ornithological Congress, Vancouver, Canada.

2012 Patterns of genetic differentiation in *Myrmotherula brachyura* (Pygmy Antwren). Gilbert Ichthyological Society annual meeting, Blue River, Oregon.

2011 *Extraordinary genetic and vocal diversity in the *Grallaria rufula* complex. American Ornithologists' Union annual meeting, Jacksonville, Florida.

2010 *Avian evolution in the high Andes: phylogeny and phylogeography. Invited talk at symposium on avian phylogeography in the Neotropics, XXVII Brazilian Zoological Congress, Belém, Brazil.

2010 Splendid but overall steady diversification of avian lineages in the Amazon Basin over the past 5 million years. 25th International Ornithological Congress, São Paulo, Brazil.

2010 Long-term isolation of a highly mobile seabird on the Galapagos. First World Seabird Conference, Victoria, Canada.

2009 *Phylogeography of *Cinclodes fuscus*, an ovenbird of the Andes and Patagonia. American Ornithologists' Union annual meeting, Philadelphia, Pennsylvania.

2009 Influence of life history on gene flow across and within oceans in two species of tropical seabirds. American Naturalist/Systematic Biology/Evolution joint meeting, Moscow, Idaho.

2009 Paraphyly of the Bar-winged Cinclodes (*Cinclodes fuscus*): implications for taxonomy and biogeography. American Naturalist/Systematic Biology/Evolution joint meeting, Moscow, Idaho.

2008 *Toward a complete phylogeny of the Furnariidae. American Ornithologists' Union annual meeting, Portland, Oregon.

2008 Patterns of gene flow in tropical seabirds: comparative data from Magnificent Frigatebirds and Brown Boobies. American Ornithologists' Union annual meeting, Portland, Oregon.

2008 Mitochondrial DNA and phenotypic variation among populations of Magnificent Frigatebirds and Brown Boobies. Waterbird Society annual meeting, South Padre Island, Texas.

2007 *Comparative phylogeography in three species of Amazonian *Myrmotherula* antwrens. American Ornithologists' Union annual meeting, Laramie, Wyoming.

2007 *Avian evolution in the Andean-Patagonian region: the contribution of molecular studies. Invited talk at symposium on speciation in the Neotropics, VIII Neotropical Ornithology Congress, Maturín, Venezuela.

2006 *Historical diversification of an Amazonian antwren, *Myrmotherula longipennis*.

American Naturalist/Systematic Biology/Evolution joint meeting, Stony Brook, New York.

2006 Phylogeography of the Musk Duck. 24th International Ornithological Congress, Hamburg, Germany,

2005 Early Bird: a collaborative project to resolve the deep nodes of avian phylogeny. Wilson Ornithological Society/Association of Field Ornithologists joint meeting, Beltsville, Maryland.

2004 *Continent-scale genetic variation and movement patterns in Australian waterbirds. American Ornithologists' Union annual meeting, Quebec, Canada.

2004 Early Bird: Preliminary assessment of patterns of relationships and molecular evolution among the major lineages of birds. American Ornithologists' Union annual meeting, Quebec, Canada.

2003 *Evolution and biogeography of the buttonquail (family Turnicidae). Australasian Ornithological Conference, Canberra, Australia.

2003 *Biogeography and ecology of austral migrant flycatchers. Invited talk at NSF-sponsored austral migration symposium, VII Neotropical Ornithology Congress, Puyehue, Chile.

2003 *Systematics of the Australian parrot genus *Platycercus* (the rosellas). American Ornithologists' Union annual meeting, Champaign-Urbana, Illinois.

2003 Early Bird: a collaborative project to resolve the deep nodes of avian phylogeny. American Ornithologists' Union annual meeting, Champaign-Urbana, Illinois.

2002 *Phylogeny and biogeography of the button-quail (family Turnicidae). North American Ornithological Congress, New Orleans, Louisiana.

2002 *Further molecular perspectives on the systematics of the parrot genus *Platycercus.* 23rd International Ornithological Congress, Beijing, China.

2001 *Continent-wide phylogeography of a morphologically variable Australian scrub-wren. Australian Ornithology Conference, Bathurst, New South Wales.

2001 *Systematics and phylogeography of the currawongs, butcherbirds, and Australian magpie. Australian Ornithology Conference, Bathurst, New South Wales.

2001 *Phylogeography of a morphologically variable Australian scrub-wren. American Ornithologists' Union annual meeting, Seattle, Washington.

1999 *Phylogenetics of suboscine birds: Old World meets New. American Ornithologists' Union annual meeting, Ithaca, New York.

1998 *Systematics of suboscine birds: a nuclear and mitochondrial perspective. American Naturalist/Systematic Biology/Evolution joint meeting, Vancouver, Canada.

1997 *Phylogenetic relationships and the evolution of migration in the avian genus *Muscisaxicola.* American Naturalist/Systematic Biology/Evolution joint meeting, Boulder, Colorado.

1996 *Molecular phylogenetic perspectives on the monophyly and relationships of suboscine birds. American Ornithologists' Union annual meeting, Boise, Idaho.

1994 *Patterns of seasonal distribution of austral migrant passerines in Bolivia. North American Ornithological Congress, Missoula, Montana.

1993 *Modes of speciation in birds: a test of Lynch's (1989) method. American Ornithologists' Union annual meeting, Fairbanks, Alaska.

1992 *An overview of austral migration in South America. Wilson Ornithological Society annual meeting, Kissimmee, Florida.

1991 *Aspects of long-distance migration in the Chaco. Invited talk at Neotropical migration symposium, IV Congreso Ornitologia Neotropical, Quito, Ecuador.

1991 *Diets of ant-following birds at a site in northern Bolivia. American Ornithologists' Union annual meeting, Montreal, Canada.

PUBLICATIONS

Journal Articles and Other Peer-Reviewed Publications

70. Kimball, R. T., C. H. Oliveros, N. Wang, F. K. Barker, D. J. Field, D. T. Ksepka, **R. T. Chesser**, R. G. Moyle, R. T. Brumfield, B. C. Faircloth, B. T. Smith, and E. L. Braun. A phylogenomic supertree of birds. *Diversity* 11 (7): 109. doi: 10.3390/d11070109
69. **Chesser, R. T.**, K. J. Burns, C. Cicero, J. L. Dunn, A. W. Kratter, I. J. Lovette, P. C. Rasmussen, J. V. Remsen, Jr., D. F. Stotz, and K. Winker. 2019. Sixtieth supplement to the American Ornithological Society's *Check-list of North American Birds*. *Auk: Ornithological Advances* 136 (3): ukz042, pp. 1-23. doi: 10.1093/auk/ukz042
68. Oliveros, C. H., D. J. Field, D. T. Ksepka, A. Aleixo, M. J. Anderson, P. Alström, F. K. Barker, B. W. Benz, E. L. Braun, M. J. Braun, G. A. Bravo, R. T. Brumfield, **R. T. Chesser**, et al. [19 additional authors]. 2019. Earth history and the passerine superradiation. *Proceedings of the National Academy of Sciences of the USA* 116: 7916-7925.
67. Torres, L., A. J. Welch, C. Zanchetta, **R. T. Chesser**, M. Manno, C. Donnadieu, V. Bretagnolle, and E. Pante. 2019. Evidence for a duplicated mitochondrial region in Audubon's shearwater based on MinION sequencing. *Mitochondrial DNA, Part A* 30: 256-263. doi: 10.1080/24701394.2018.1484116.
66. **Chesser, R. T.**, H. Vaseghi, P. A. Hosner, L. M. Bergner, N. Cortes-Rodriguez, A. J. Welch, and C. T. Collins. 2018. Molecular systematics of swifts of the genus *Chaetura*. *Molecular Phylogenetics and Evolution* 128: 162-171.
65. **Chesser, R. T.**, K. J. Burns, C. Cicero, J. L. Dunn, A. W. Kratter, I. J. Lovette, P. C. Rasmussen, J. V. Remsen, Jr., D. F. Stotz, B. M. Winger, and K. Winker. 2018. Fifty-ninth supplement to the American Ornithological Society's *Check-list of North American Birds*. *Auk: Ornithological Advances* 135: 788-803.
64. Drovetski, S. V., M. O'Mahoney, E. J. Ransome, K. O. Matterson, H. C. Lim, **R. T. Chesser**, and G. R. Graves. 2018. Spatial organization of the gastrointestinal microbiota in urban Canada geese. *Scientific Reports* 8: 3713, pp. 1-10.
63. **Chesser, R. T.**, K. J. Burns, C. Cicero, J. L. Dunn, A. W. Kratter, I. J. Lovette, P. C. Rasmussen, J. V. Remsen, Jr., J. D. Rising, D. F. Stotz, and K. Winker. 2017. Fifty-eighth supplement to the American Ornithological Society's *Check-list of North American Birds*. *Auk: Ornithological Advances* 134: 751-773.
62. Sweet, A. D., **R. T. Chesser**, and K. P. Johnson. 2017. Comparative cophylogenetics of Australian phabine pigeons and doves (Aves: Columbidae) and their feather lice (Insecta: Phthiraptera). *International Journal of Parasitology* 47: 347-356.
61. Rader, J. A., S. Newsome, P. Sabat, **R. T. Chesser**, M. E. Dillon, and C. Martínez del Rio. 2017. Isotopic niches support the resource breadth hypothesis. *Journal of Animal Ecology* 86: 405-413.
60. **Chesser, R. T.**, K. J. Burns, C. Cicero, J. L. Dunn, A. W. Kratter, I. J. Lovette, P. C. Rasmussen, J. V. Remsen, Jr., J. D. Rising, D. F. Stotz, and K. Winker. 2016. Fifty-seventh supplement to the American Ornithologists' Union *Check-list of North American Birds*. *Auk: Ornithological Advances* 133: 544-560.
59. Sonsthagen, S. A., R. E. Wilson, **R. T. Chesser**, J.-M. Pons, P.-A. Crochet, A. Driskell, and C. Dove. 2016. Recurrent hybridization and recent origin obscure phylogenetic relationships within the 'white-headed' gull (*Larus* sp.) complex. *Molecular Phylogenetics and Evolution* 103: 41-54.

58. **Chesser, R. T.** 2016. A replacement name for *Asthenes wyatti perijanus* Phelps 1977. *Zootaxa* 4067: 599-599.
57. Aplin, K. P., S. G. Rhind, J. ten Have, and **R. T. Chesser**. 2015. Taxonomic revision of *Phascogale tapoatafa* (Meyer, 1793) (Dasyuridae; Marsupialia), including descriptions of two new subspecies and confirmation of *P. pirata* Thomas, 1904 as a 'Top End' endemic. *Zootaxa* 4055: 1-73.
56. **Chesser, R. T.**, R. C. Banks, K. J. Burns, C. Cicero, J. L. Dunn, A. W. Kratter, I. J. Lovette, A. Navarro-Siguënza, P. C. Rasmussen, J. V. Remsen, Jr., J. D. Rising, D. F. Stotz, and K. Winker. 2015. Fifty-sixth supplement to the American Ornithologists' Union *Check-list of North American Birds*. *Auk: Ornithological Advances* 132: 748-764.
55. **Chesser, R. T.** 2015. A further note on the scientific name of Bullocks' Oriole. *Zootaxa* 3956: 444-444.
54. Rader, J. A., M. E. Dillon, **R. T. Chesser**, P. Sabat, and C. Martínez del Rio. 2015. Morphological divergence in a continental adaptive radiation: South American ovenbirds of the genus *Cinclodes*. *Auk: Ornithological Advances* 132: 180-190.
53. **Chesser, R. T.**, R. C. Banks, C. Cicero, J. L. Dunn, A. W. Kratter, I. J. Lovette, A. Navarro-Siguënza, P. C. Rasmussen, J. V. Remsen, Jr., J. D. Rising, D. F. Stotz, and K. Winker. 2014. Fifty-fifth supplement to the American Ornithologists' Union *Check-list of North American Birds*. *Auk: Ornithological Advances* 131: CSi-CSxv.
52. Rick, T. C., T. S. Sillett, C. K. Ghalambor, C. A. Hofman, K. Ralls, R. S. Anderson, C. Boser, T. Braje, D. Cayan, **R. T. Chesser**, et al. 2014. From the Pleistocene to the Anthropocene: 20,000 years of ecological change and the future of biodiversity on California's Channel Islands. *BioScience* 64: 680-692.
51. **Chesser, R. T.** 2013. On the correct name of *Icterus bullockii* (Passeriformes: Icteridae). *Zootaxa* 3718: 295-296.
50. **Chesser, R. T.**, R. C. Banks, F. K. Barker, C. Cicero, J. L. Dunn, A. W. Kratter, I. J. Lovette, P. C. Rasmussen, J. V. Remsen, Jr., J. D. Rising, D. F. Stotz, and K. Winker. 2013. Fifty-fourth supplement to the American Ornithologists' Union *Check-list of North American Birds*. *Auk* 130: 558-571.
49. Sonsthagen, S. A., **R. T. Chesser**, D. A. Bell, and C. Dove. 2012. Hybridization among Arctic white-headed gulls (*Larus* spp.) obscures the genetic legacy of the Pleistocene. *Ecology and Evolution* 2: 1278-1295.
48. **Chesser, R. T.**, R. C. Banks, F. K. Barker, C. Cicero, J. L. Dunn, A. W. Kratter, I. J. Lovette, P. C. Rasmussen, J. V. Remsen, Jr., J. D. Rising, D. F. Stotz, and K. Winker. 2012. Fifty-third supplement to the American Ornithologists' Union *Check-list of North American Birds*. *Auk* 129: 573-588.
47. Bravo, G. A., **R. T. Chesser**, and R. T. Brumfield. 2012. *Isleria*, a new genus of antwren (Aves: Passeriformes: Thamnophilidae). *Zootaxa* 3195: 61-67.
46. Aplin, K. P., H. Suzuki, A. A. Chinen, **R. T. Chesser**, J. ten Have, S. C. Donnellan, et al. 2011. Multiple geographic origins of commensalism and complex dispersal history of black rats. *PLoS One*: 6: e26357, pp. 1-20.
45. Derryberry, E. P., S. Claramunt, G. Derryberry, **R. T. Chesser**, J. Cracraft, A. Aleixo, J. Pérez-Emán, J. V. Remsen, Jr., and R. T. Brumfield. 2011. Lineage diversification and morphological evolution in a large-scale continental radiation: the Neotropical ovenbirds and woodcreepers (Aves: Furnariidae). *Evolution* 65: 2973-2986.
44. **Chesser, R. T.**, R. C. Banks, F. K. Barker, C. Cicero, J. L. Dunn, A. W. Kratter, I. J. Lovette, P. C. Rasmussen, J. V. Remsen, Jr., J. D. Rising, D. F. Stotz, and K. Winker. 2011. Fifty-second supplement to the American Ornithologists' Union *Check-list of North American Birds*. *Auk* 128: 600-613.

43. Cadena, D. C., N. Gutiérrez-Pinto, N. Dávila, and **R. T. Chesser**. 2011. No population genetic structure in a widespread marsh specialist songbird from the Neotropics. *Molecular Phylogenetics and Evolution* 58: 540-545.
42. Hailer, F., E. A. Schreiber, J. M. Miller, I. I. Levin, P. G. Parker, **R. T. Chesser**, and R. C. Fleischer. 2011. Long-term isolation of a highly mobile seabird on the Galapagos. *Proceedings of the Royal Society of London, Series B – Biological Sciences* 278: 817-825.
41. Yeung, C. K. L., P.-W. Tsai, **R. T. Chesser**, R.-C. Lin, C.-T. Yao, X. H. Tien, and S.-H. Li. 2011. Testing founder effect speciation: divergence population genetics of the spoonbills *Platalea regia* and *P. minor*. *Molecular Biology and Evolution* 28: 473-482.
40. **Chesser, R. T.**, C. K. L. Yeung, C.-T. Yao, X.-H. Tian, and S.-H. Li. 2010. Molecular phylogeny of the spoonbills (Aves: Threskiornithidae) based on mitochondrial DNA. *Zootaxa* 2603: 53-60.
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Isler, M. L., **R. T. Chesser**, M. B. Robbins, A. M. Cuervo, C. D. Cadena, and P. A. Hosner. Species limits in antpittas (Aves: Passeriformes: Grallariidae): an evaluation of the *Grallaria rufula* (Rufous Antpitta) complex based on vocalizations, including descriptions of seven new taxa. *Auk*

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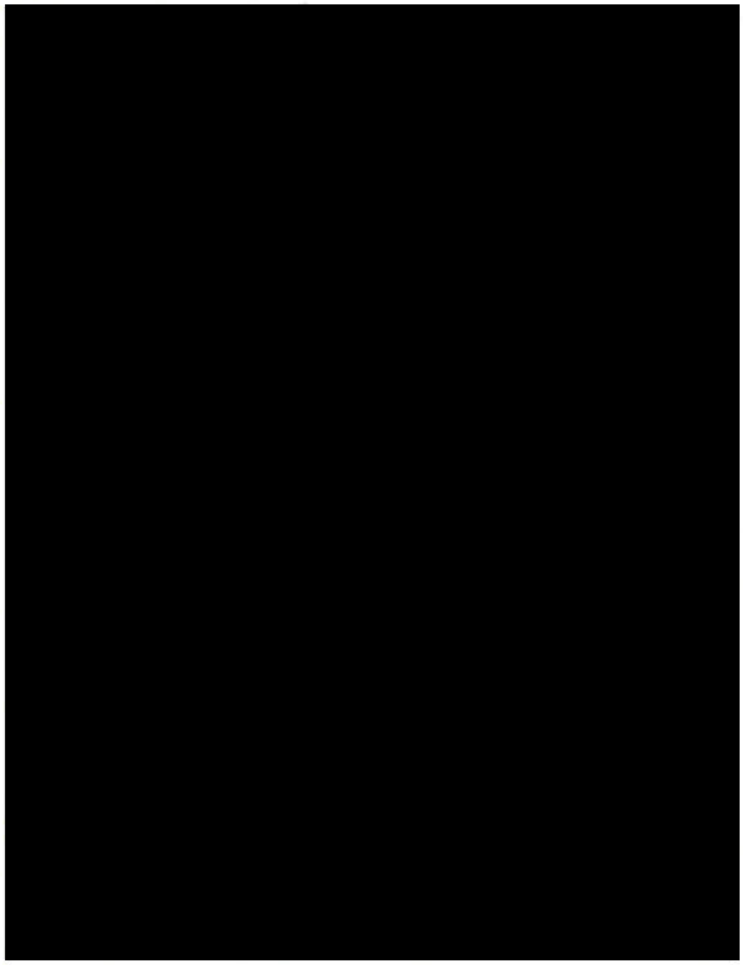

[EXTERNAL] FWS Permit 56444D

Chesser, Terry <CHESSERT@si.edu>

Thu 4/30/2020 4:02 PM

To: Cate, Emily B <emily_cate@fws.gov>
Cc: James, Helen <JAMESH@si.edu>

6 attachments (2 MB)

Further information FWS Permit 56444D.docx; NHM loan invoice.pdf; YIO_Invoice_T18-0009.pdf; YIO email.pdf; ZMUC loan invoice.pdf; Page 1 from 3-200-37 RTC.pdf;

Dear Emily,

Thank you for your message. I've attached answers to your questions, the first page of 3-2200-37 with Section B completed, and other pertinent documents. Please let me know if you require further information.

Thank you,
Terry Chesser

From: Cate, Emily B <emily_cate@fws.gov>
Sent: Monday, March 16, 2020 10:41 AM
To: Chesser, Terry <CHESSERT@si.edu>
Cc: James, Helen <JAMESH@si.edu>
Subject: FWS Permit 56444D

Dear Dr. Chesser,

I have your application dated 08/30/2019, received 09/27/2019. I apologize for the delay in processing your application.

Please provide the following so that I may continue to process your application:

- Please complete section B on the first page of the application in its entirety (page attached to this email)
- How will the samples be packaged? What may be easiest is if per species, you provide the total quantity of the samples (mL, number, grams, etc.), the total number of containers that the samples are going to be in, and the amount of the total samples that are going to be in each container. Please ensure that this is answered for each species.
- Please elaborate on how the specimens were obtained. Per your application, the samples are being housed at museum; however, please clarify how they were obtained and provide any documentation demonstrating this.
- Do you have any MOU's or agreements with the museums? If so, please provide documentation.
- Finally, please clarify if the museums are donating or selling you the samples.

Please let me know if you have any questions or concerns.

In accordance with 50 CFR 13.11(e), if the requested information is not received by this office by **April 30, 2020**, your 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 refer to permit number 56444D in your correspondence.

Respectfully,
Emily

Emily Cate | Permits Biologist
U.S. Fish and Wildlife Service | International Affairs
Division of Management Authority | Branch of Permits
5725 Leesburg Pike, MS:IA
Falls Church, VA 22041-3803

Further Information for FWS Permit 56444D

- Please complete section B on the first page of the application in its entirety (page attached to this email).

Please see the attached form with Section B completed.

- How will the samples be packaged? What may be easiest is if per species, you provide the total quantity of the samples (mL, number, grams, etc.), the total number of containers that the samples are going to be in, and the amount of the total samples that are going to be in each container. Please ensure that this is answered for each species.

All samples will be packaged in microcentrifuge tubes, inside a microtube storage box and a sealed storage bag, padded and enclosed within a polystyrene or cardboard box. Eight of these samples (all except the two samples of *Diomedea amsterdamensis*) will be sent together as one shipment; the two samples of *Diomedea amsterdamensis* will be sent as a separate shipment (two total containers).

This table contains approximate quantities for each sample of each species:

Species	Form	Quantity	Packaging
Oceanodroma castro	DNA	<500µL TE buffer	Microcentrifuge tube
Oceanodroma castro	DNA	<500µL TE buffer	Microcentrifuge tube
Oceanodroma castro	Tissue	~1mL 100% EtOH; <1g tissue	Microcentrifuge tube
Diomedea amsterdamensis	DNA	<500µL TE buffer	Microcentrifuge tube
Diomedea amsterdamensis	DNA	<500µL TE buffer	Microcentrifuge tube
Pseudobulweria macgillivrayi	Tissue	~1mL 100% EtOH; <1g tissue	Microcentrifuge tube
Pterodroma aterrima	Tissue	~1mL 100% EtOH; <1g tissue	Microcentrifuge tube
Pterodroma madeira	Blood	~1mL 100% EtOH; <500µL blood	Microcentrifuge tube
Pterodroma madeira	Blood	~1mL 100% EtOH; <500µL blood	Microcentrifuge tube
Pterodroma cahow	Tissue	~1mL 100% EtOH; <1g tissue	Microcentrifuge tube

- Please elaborate on how the specimens were obtained. Per your application, the samples are being housed at museum; however, please clarify how they were obtained and provide any documentation demonstrating this.

Most of these samples come from the collections of national museums and national research organizations, specifically The Natural History Museum (Britain), the Natural History Museum of Denmark, and the Centre National de la Recherche Scientifique (France), and were collected by personnel of these institutions as part of their normal research and collection activities in the national interest. We have attached invoices from the two museums, covering the sample of *Pterodroma cahow* and one sample of *Oceanodroma castro*; the four samples from the Centre National de la Recherche Scientifique (*Pseudobulweria macgillivrayi*, *Pterodroma aterrima*, and two *Pterodroma madeira*) were provided by our collaborator Vincent Bretagnolle and were not accompanied by paperwork. Two samples of *Oceanodroma castro* were collected by staff of the private non-profit Yamashina Institute of Ornithology (Japan) and we have attached the paperwork for these samples, as well as an email confirming their legality. The two samples of *Diomedea amsterdamensis* were obtained from a collaborator at the University of Lethbridge (Canada) – she has copies of the permits but these are at her university, which is not currently accessible due to the covid-19 situation.

- Do you have any MOU's or agreements with the museums? If so, please provide documentation.

We do not have MOUs with the other museums. Our museum typically operates on a transaction-by-transaction basis; each loan is handled independently. Broad MOUs with other museums are generally necessary only when dealing with special circumstances (e.g., when there are severe country restrictions), which typically don't apply to museums or other institutions in countries such as England, Denmark, or Japan. We have attached transaction documents for the loan of these samples to our collaborator Andreanna Welch (Durham, UK) from The Natural History Museum (UK), the Zoological Museum (Denmark), and the Yamashina Institute (Japan), as detailed above. Note that these loan documents pertain to multiple samples, most of which are not part of our application.

- Finally, please clarify if the museums are donating or selling you the samples.

All samples have been donated to us.

SHIPMENT INVOICE

1) Ship to: Andreanna Welch
Company Name: School of Biological and Biomedical Sciences
Street Av.: South Road
Town/Area Code: Durham
State/Country: UK
Contact Name: Andreanna Welch
Tel No/e-mail: 0191 334 1251

2) Air waybill No: 81 5433 8706
Carrier: DHL
No. of Pieces: **1**
Total Weight: 4.23 Kg
Dimensions cms: 35cm x 35cm x 35cm

3) Customs Code No: 97050000

4) Full Description of Goods:
Preserved zoological museum specimens (**NOT RESTRICTED- packed in accordance to special provision A180**). For scientific study only – Non-infectious, non-toxic, non-hazardous, non-CITES. No commercial value.

5) Total value for Customs: £10

6) Name & Address of Sender:
Life Science Department, Natural History Museum, London. SW7 5BD. UK

7) Reason for Export: For scientific study only

8) Declaration:
I declare that the above information is true and correct to the best of my knowledge.
For and on behalf of the above named company.

Name (in print): Jackie Mackenzie-Dodds

Signature:

Position in Company: Molecular Collections Manager

Invoice

15129

Please Return This Form With The Specimen(s)

To:

School of Biological and Biomedical Sciences
University of Durham
South Road
Durham
DH1 3LE
United Kingdom

Loan no.	**ZOO 2016-714 AV**
Loan type	Outgoing Research
Date for return	
Value for insurance	£
Method of despatch	Courier
Despatched by	J. Mackenzie-Dodds
Date of despatch	09-Jun-2016
Authorised by	T. Howard
Total specimens sent	9

Item	No. Spec.	Description of Specimens
1	1 of 9	**Pterodroma cahow** **BMNH** **tissue** Country: Bermuda Coll Date: 08/06/1998 **Condition: Good** **Liver Tissue in 100% Ethanol**
2	1 of 9	**Pseudobulweria becki** **BMNH 2008** **tissue** Country: Papua New Guinea Coll Date: 04/08/2007 **Condition: Good** **Muscle Tissue in 100% Ethanol**
3	1 of 9	**Phoebetria palpebrata** **BMNH** **tissue** Country: South Georgia Coll Date: 16/11/1958 Coll: L. Tickell **Condition: Good** **Breast Muscle Tissue in 100% Ethanol**
4	1 of 9	**Macronectes halli** **BMNH 2002.20.1** **tissue** Country: South Georgia **Condition: Good** **Liver Tissue in 100% Ethanol**
5	1 of 9	**Diomedea melanophrys melanophrys** **BMNH 2009** **tissue** Country: Falkland Islands Locality: Challenger Stn. 317. , Falkland Islands. South Atlantic. **Condition: Good** **Liver Tissue in 100% Ethanol**
6	1 of 9	**Oceanites oceanicus (Kuhl, 1820)** **BMNH** **tissue** Coll Date: 23/09/1994 Coll: S. Morrison **Condition: Good** **Muscle Tissue in 100& Ethanol**
7	1 of 9	**Garrodia nereis** **BMNH** **tissue** Country: Falkland Islands Coll Date: 18/10/2000 Coll: R. Pitaluga **Condition: Good** **Liver Tissue in 100% Ethanol**
8	1 of 9	**Oceanodroma monorhis** **BMNH** **tissue** Country: Russian Federation Locality: Verhovsky Island, Russian Far East. Lat: 45 25 0 N; **Condition: Good** **Liver Tissue in 100& Ethanol**

9 | 1 of 9 | **Daption capense (Linnaeus, 1758)**
BMNH **Tissue**
Country: South Georgia Coll Date: 24/02/1976
Condition: Good
Daption capense Liver Tissue in 100% Ethanol

Total Number of Specimens Sent: 9

These specimens are to be returned by the date specified and when returned are to be carefully packed and insured for the value specified.

Yamashina Institute for Ornithology

115 Konoyama, Abiko, Chiba 270-1145, Japan
Tel (+81)-4-7182-1101 Fax (+81)-4-7182-1106
http://www.yamashina.or.jp

INVOICE

Invoice no. : T18-0009
Date: 25 Mar. 2019

To: Department of Biosciences
Durham University
South Road
Durham, DH1 3LE
UK

Attn: Dr. Andreanna Welch

Initiated by: Shigeki Asai
Collection manager: Sayaka Kobayashi

The materials listed below contained in 1 package are sent as an sample loan.

List of materials

Accession No.:

Phoebastria nigripes	2017-0190, 2017-0869
Oceanodroma castro	2006-0220, 2016-1998
Oceanodroma matsudairae	1999-0221, 2005-0015
Pterodroma longirostris	2010-0352, 2016-0401

Total no. of DNA sample (8)

Received the above (X) in good condition.
( ) except as noted.

(✓) This copy is retained by Yamashina Institute.
( ) Retain this copy for your record.
(✓) Please sign and return this copy to Yamashina Institute immediately on receipt of the consignment

Signature Andreanna Welch

Date 01 May 2019

Re: Procellariiform phylogenetics

Shigeki Asai <asai@yamashina.or.jp>
Thu 09/04/2020 08:38

To: LEVY, MAX A. <max.levy@durham.ac.uk>
Cc: WELCH, ANDREANNA J. <a.j.welch@durham.ac.uk>

Dear Max,

I have checked documents to answer your question.
There are not any certification about two DNA samples of Oceanodroma castro (2016-1998, 2006-0220). According to our records, these samples were collected as a carcass by our institute's researchers, respectively. In Japan, it is legal to collect a wildlife carcass and keep it except for a species designated as a cultural property. Therefore, our private records wrote in Japanese are merely kept for these samples and no official record has left.
Such records will be most probably useless.

Two samples of Puffinus can be provided under the judge. For both samples, we will choose to send DNA solution because a tissue sample in ethanol will be difficult to transport by air and to get through customs.

Thank you for your understanding.

Sincerely,

Shigeki Asai
Yamashina Institute for Ornithology
Konoyama 115, Abiko,
Chiba 270-1145, JAPAN
TEL: +81-4-7182-1101
FAX: +81-4-7182-1106
E-mail: asai@yamashina.or.jp

> 2020/04/09 0:08、LEVY, MAX A. <max.levy@durham.ac.uk> のメール:
>
> Dear Shigeki,
>
> Thank you for your help. I would not wish you to risk your health, so please only if it is safe for you to check this question for us.
>
> I am also wondering if it is possible without going to your institute to check what type of preparation (skin, tissue etc) is available for these two specimens in your collection:
> *Puffinus lherminieri* (2003-0104)
> *Puffinus assimilis*/*bryani* (1997-0227)
>
> If this is also not possible for you without going to your institute we could have more time in future to talk about it, so it is no problem.
>
> Best wishes,
> Max
>
> ---
>
> **From:** Shigeki Asai <asai@yamashina.or.jp>
> **Sent:** 08 April 2020 00:47
> **To:** LEVY, MAX A. <max.levy@durham.ac.uk>

ZOOLOGICAL MUSEUM
University of Copenhagen

Universitetsparken 15
DK-2100 Copenhagen, DENMARK
Tel: (+45) 45 35 32 10 32
Fax: (+45) 3532 1010
e-mail: jtbkristensen@snm.ku.dk

To:
Andreanna Welch
Department of Biosciences
Biological Science Laboratories
South Road
Durham
DH1 3LE
UK

8. oktober 2019

Ref#: 081019#8668

Arranged by Jan Bolding Kristensen of the Vertebrate Department.
The specimens have been sent as a Loan

List of specimens

Ornithological Section

Tissue-samples of the following bird-species:

Hydrobates pelagicus
Oceanodroma castro
Oceanites gracilis
Procellaria parkinsoni
Procellaria westlandica

Samples are preserved in DMSO.
Details in the attached document.

I acknowledge the receipt of the above-mentioned specimens, and in case of loan I undertake to return them before: 8. april 2020

Date: 18 October 2019 **Signature:** Andreanna Welch

Please SIGN and RETURN this copy promptly

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

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		1 b. Doing business as (DBA)	
National Museum of Natural History, Smithsonian Institution			
2. Tax identification no.		**3. Description of business, agency, Tribe, or institution**	
53-0206027		public natural history museum	
4.a. Principal officer Last name	**4.b. Principal officer First Name**	**4.c. Principal officer Middle name/initial**	**4.d. Suffix**
Johnson	Kirk	R.	
5. Principal officer title	**6. Primary contact name**		
Director	Chris Milensky (Collections Manager)		
7.a. Business telephone number	**7.b. Alternate telephone number**	**7.c. Business fax number**	**7.d. Business e-mail address**
202-633-0794	n/a	n/a	milenskyc@si.edu

Section C: All applicants complete address information

1.a. Physical address (Street address; Apartment #, Suite #, or Room #; no P.O. Boxes)				
1.b. City	**1.c. State**	**1 d. Zip code/Postal code**	**1 e. County/Province**	**1.f. Country**
2.a. Mailing address (include if different than physical address; include name of contact person if applicable)				
2.b. City	**2.c. State**	**2 d. Zip code/Postal code**	**2 e. County/Province**	**2.f.Country**

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 he other ***applicable parts in subchapter B of Chapter I of Title 50***, and I certify that the information submitted in this applica ion 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)

Please continue to next page

Re: [EXTERNAL] Re: FWS Permit 56444D - Principal Officer

Cate, Emily B <emily_cate@fws.gov>
Wed 8/26/2020 10:23 AM

To: Chesser, Terry <CHESSERT@si.edu>
Cc: Milensky, Christopher <MilenskyC@si.edu>

Good morning Dr. Chesser,

Thank you for your inquiry, we appreciate your continued responses. We are still accepting mail at the address listed in my signature (repeated below for your convenience).

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

Best,
Emily

From: Chesser, Terry <CHESSERT@si.edu>
Sent: Wednesday, August 26, 2020 9:45 AM
To: Cate, Emily B <emily_cate@fws.gov>
Cc: Milensky, Christopher <MilenskyC@si.edu>
Subject: [EXTERNAL] Re: FWS Permit 56444D - Principal Officer

Good morning Emily,

Thank you for your message. As luck would have it, our principal officer was out of town for several weeks but he has now returned and signed page 1. We are planning to FedEx the page to you. Is the address in your email signature the best one to use or are you using a different address due to covid?

Thank you,
Terry

From: Cate, Emily B <emily_cate@fws.gov>
Sent: Thursday, July 23, 2020 1:45 PM
To: Chesser, Terry <CHESSERT@si.edu>
Cc: Milensky, Christopher <MilenskyC@si.edu>
Subject: FWS Permit 56444D - Principal Officer

Good afternoon Dr. Chesser,

I apologize again for the delay in processing your permit application. I submitted your application for publication in the Federal Register, but I now recognize that the principal officer changed from when you first submitted the application. Please mail a copy of page 1 signed by the principal officer (original signature required) to our office and include a cover letter indicating that this is for pending permit application number 56444D. I will keep your submission in the queue for FR publication, but will need to remove it if we do not receive the signature before we format the document for the publication. We are certainly extending the date from which we must receive this by, please see below for details.

Thank you for your time and please let me know if you have any questions or concerns.

In accordance with 50 CFR 13.11(e), if the requested information is not received by this office by **September 6, 2020**, your 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 refer to permit number 56444D in your correspondence.

Sincerely,
Emily

Emily Cate | Permits Biologist
U.S. Fish and Wildlife Service | International Affairs
Division of Management Authority | Branch of Permits
5275 Leesburg Pike, MS:IA
Falls Church, VA 22041-3803

Form 3-200-37

OMB Control No. 1018-0093
Expires 08/31/2020

RCVD SEP 03 2020

Department of Interior
U.S. Fish and Wildlife Service

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Johnson	Kirk	R.	
5. Principal officer title	6. Primary contact name		
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202-633-0794	n/a	n/a	milenskyc@si.edu

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2.b. City	2.c. State	2.d. Zip code/Postal code	2.e. County/Province	2.f.Country

Section D: All applicants MUST complete

1. Payment: Enclose 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 $[illegible]. Federal, State, and local government agencies, and those acting on behalf of such agencies, are exempt from the processing fee – *attach documentation verifying 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.

SIGN HERE

Kirk Johnson — 8/20/20

Signature of applicant/Principal Officer for permit (No photocopied or stamped signatures) Date of signature (mm/dd/yyyy)

Please continue to next page