

Oliver C. Stringham

Research Analyst

Rutgers University

oliverstringham@gmail.com

<https://oliverstringham.com>

he/his/him

EMPLOYMENT

June 2022 –	Research Analyst. Rutgers Climate and Energy Institute, Rutgers University, New Jersey, United States
Jan. 2019 – June 2022	Postdoctoral Research Associate. The University of Adelaide, South Australia, Australia.

EDUCATION

Sept. 2014 – Dec. 2018	PhD in Ecology and Evolution Rutgers University, New Jersey, United States
Sept. 2010 – May 2014	BS in Environmental Science; BS in Ecology, Evolution, and Natural Resources; Certificate in Environmental Geomatics Rutgers University, New Jersey, United States

EXPERTISE

Domains: Wildlife Trade, Biological Conservation, Biological Invasions

Data Analysis: Bioinformatics, Machine learning, Regression, Geospatial Analyses, Data Visualizations

Programming languages: R, python, command line, javascript, HTML, SQL

Software: tidyverse, tidymodels, pandas, scikit-learn, sf, geopandas, obitools, seqkit, bbmap, cutadapt, vsearch, BLAST+, MinKNOW, Oxford Nanopore Technologies related software

PUBLICATIONS

PEER-REVIEWED JOURNAL ARTICLES

Underline denotes my co-supervised graduate students as first author

28. Vastano A.R., Allen M.C., Kisurin A., Malone K., **Stringham O.C.**, Lockwood J.L. (in preparation) Early detection and eradication evaluation of Chinese pond mussel in North America using environmental DNA.

27. **Stringham O.C.**, Maher, J., Moncayo, S., Toomes, A., Hill, K.G.W., Mitchell, L., Ross, J.V., Shepherd, C.R., Cassey, P. (submitted) The pet trade of native species outside of their natural distributions in Australia.
26. Hughes A., Marshall B., Alamshah A. Cardoso P., Cassey P., Chekunov S., Eskew E., Fukushima C.S., García-Díaz P., Gore M., Lockwood J.L., Rhyne A., Sinclair J., Strine C., **Stringham O.C.**, Tlusty M., Valdez J., Watters F. (in review) The magnitude of legal wildlife trade and implications for species survival. [Preprint](#)
25. Chekunov S., **Stringham O.C.**, Prowse, T., Cassey, P. (2024) Scale of unregulated international trade in Australian reptiles and amphibians. *Conservation Biology*. <https://doi.org/10.1111/cobi.14355>
24. Vastano A.R., Allen M.C., Penca C., **Stringham O.C.**, Domingue M.J., Lockwood J.L. (2024) Can environmental DNA be used within pest insect agricultural biosecurity? Detecting khapra beetle within stored rice. *Environmental DNA*. <https://doi.org/10.1002/edn3.585>
23. Cardoso P., Fukushima C.S., Maxhelaku A., Poczai P., Porto M., Puksas A., Reino L., Saar I., **Stringham O.C.**, Toomes A., Vargas T., Veríssimo D. (2024) Reform wildlife trade in the European Union. *Science*. <https://doi.org/10.1126/science.ado1142>
22. Allen M. C., Lockwood J. L., Kwait R., Vastano A. R., Peterson D. L., Tkacenko L. A., Kisurin A., **Stringham O.C.**, Angle J., Jaffe, B. (2023). Using surface environmental DNA to assess arthropod biodiversity within a forested ecosystem. *Environmental DNA*. [Open Access Text](#)
21. Hill K.G.W., **Stringham O.C.**, Moncayo S., Toomes A., Tyler J.J., Cassey P., Delean S. (2023) Who's a pretty bird? Predicting the traded abundance of bird species in Australian online pet trade. *Biological Invasions*. <https://doi.org/10.1007/s10530-023-03221-1>
20. Maher J., **Stringham O.C.**, Moncayo S., Wood L., Lassaline C.R., Virtue J., Cassey P. (2023) Weed wide web: characterising illegal online trade of invasive plants in Australia. *Neobiota*. [Open Access Text](#)
19. Toomes A., Moncayo S., **Stringham O.C.**, Lassaline C.R., Wood L., Millington M., Drake C., Jense C., Allen A., Hill K.G.W., García-Díaz P., Mitchell L., Cassey P. (2023) A snapshot of online wildlife trade: Australian e-commerce trade of native and non-native pets. *Biological Conservation*. [Open Access Text](#)

18. **Stringham O.C.**, Maher, J., Lassaline, C., Wood, L., Moncayo, S., Toomes, A., Heinrich, S., Chekunov S., Hill, K.G.W., Decary-Hetu, D., Mitchell, L., Ross, J.V., Cassey, P. (2023) The dark web trades wildlife, but mostly as drugs. *People and Nature*. [Open Access Text](#)
17. Watters, F., **Stringham, O.C.**, Shepherd, C.R., Cassey, P. (2022) The U.S. market for imported wildlife not listed in the CITES multilateral treaty. *Conservation Biology*. [Open Access Text](#)
16. Toomes, A., García-Díaz, P., **Stringham O.C.**, Ross, J.V., Mitchell, L., Cassey, P. (2022) Drivers of the live pet trade: the role of species traits, socioeconomic attributes and regulatory systems. *Journal of Applied Ecology*. <https://doi.org/10.1111/1365-2664.14138>
15. Fukushima, C.S., Tricorache, P., Toomes, A., **Stringham, O.C.**, Rivera-Téllez, E., Ripple, W.J., Peters, G., Orenstein, R.I., Morcatty, T.Q., Longhorn, S.J., Lee, C., Kumschick, S., de Freitas, M.A., Duffy, R.V., Davies, A., Cheung, H., Cheyne, S.M., Bouhuys, J., Barreiros, J.P., Amponsah-Mensah, K., Cardoso, P. (2021) Challenges and perspectives on tackling illegal or unsustainable wildlife trade. *Biological Conservation*. [Open Access Text](#)
14. Cardoso, P., Amponsah-Mensah, K., Barreiros, J.P., Bouhuys, J., Cheung, H., Davies, A., Kumschick, S., Longhorn, S.J., Martínez-Munoz, C.A., Morcatty, T.Q., Peters, G., Ripple, W.J., Rivera-Téllez, E., **Stringham, O.C.**, Toomes, A., Tricorache, P., Fukushima, C.S. (2021) Scientists' warning to humanity on illegal or unsustainable wildlife trade. *Biological Conservation*. [Open Access Text](#)
13. **Stringham O.C.**, Moncayo, S., Thomas, E., Heinrich, S., Toomes, A., Maher, J., Hill, K.G.W., Mitchell, L., Ross, J.V., Shepherd, C.R., Cassey, P. (2021) Dataset of seized wildlife and their intended uses. *Data in Brief*. [Open Access Text](#)
12. **Stringham O.C.**, García-Díaz, P., Toomes, A., Ross, J.V., Mitchell, L., Cassey, P. (2021) Reptile smuggling is predicted by trends in the legal exotic pet trade. *Conservation Letters*. [Open Access Text](#)
11. **Stringham O.C.**, Moncayo, S., Hill, K.G.W., Toomes, A., Ross, J.V., Mitchell, L., Cassey, P. (2021) Text classification to streamline online wildlife trade analyses. *PLOS ONE*. [Open Access Text](#)
10. Heinrich, S., Toomes, A., Shepherd, C.R., **Stringham, O.C.**, Swan, M., Cassey, P. (2021) Strengthening protection of endemic wildlife threatened by the international pet trade: the case of the Australian shingleback lizard. *Animal Conservation*. [PDF](#)

9. Sinclair, J., **Stringham, O.C.**, Udell, B., Mandrak, N., Leung, B., Romagosa, C.M., Lockwood J.L. (2021). The international vertebrate pet trade network: data synthesis and a case study of US imports of pet amphibians, birds, fishes, mammals and reptiles. *BioScience*. [Open Access Text](#)
8. **Stringham, O.C.** & Lockwood, J.L. (2021). Managing propagule pressure to prevent invasive species establishments: Propagule size, number, and risk–release curve. *Ecological Applications*. [PDF](#)
7. **Stringham O.C.**, Toomes, A., Kanishka, A., Heinrich, S., Ross, J.V., Mitchell, L., Cassey, P. (2020). A guide to using the internet to study the wildlife trade. *Conservation Biology*. [PDF](#)
6. Toomes, A., **Stringham, O.C.**, Ross, J.V., Mitchell, L., Cassey, P. (2020). Australia’s wish list of exotic pets: biosecurity and conservation implications of desired exotic pet species. *NeoBiota*. [Open Access Text](#)
5. Lockwood, J.L., Welbourne, D., Romagosa, C., Cassey, P., Mandrak, N., Strecker, A., Leung, B., **Stringham, O.C.**, Udell, B., Episcopio-Sturgeon, D., Tlusty, M., Sinclair, J., Springborn, M., Pienaar, E., Rhyne, A. (2019). When Pets Become Pests: The Role of the Exotic Pet Trade in Producing Invasive Vertebrate Animals. *Frontiers in Ecology and the Environment*. [PDF](#)
4. **Stringham, O.C.** & Lockwood, J.L. (2018). Pet problems: Biological and economic factors that influence the release of alien reptiles and amphibians by pet owners. *Journal of Applied Ecology*. [PDF](#)
3. Maslo, B., **Stringham, O. C.**, Bevan, A. J., Brumbaugh, A. Sanders, C. Hall, M. & Fefferman, N. H. (2017). High annual survival in infected wildlife populations may veil a persistent extinction risk from disease. *Ecosphere*. [PDF](#)
2. Robinson, O. J., Lockwood, J. L., **Stringham, O. C.**, & Fefferman, N. H. (2015). A novel tool for making policy recommendations based on PVA: helping theory become practice. *Conservation Letters*. [PDF](#)
1. **Stringham, O. C.**, & Robinson, O. J. (2015). A modeling methodology to evaluate the efficacy of predator exclosures versus predator control. *Animal Conservation*. [PDF](#)

REPORTS

Underline denotes my co-supervised graduate students

6. **Stringham O.C.**, Maher J., Lassaline C.R., Wood L., Toomes A., Moncayo S., Hill K.G.W., Mitchell L., Ross J.V., Cassey P. (2022). Building an Online Surveillance System to Monitor Wildlife Trade for Environmental Biosecurity (Understanding and Intervening in Illegal Trade in Non-Native Species and Biosecurity Surveillance of e-Commerce for Illegal Trade in Declared Plants). [PDF](#).
5. **Stringham, O.C.**, Chekunov, S., Toomes, A., Cassey, P., Heinrich, S. (2021). Response to the Australian Department of Agriculture, Water and the Environment on their 'Proposed amendments to the Appendices of CITES for Australian Native Reptiles'. [PDF](#)
4. [Hill, K.](#), Cassey P. **Stringham, O.C.**, Toomes, A. (2020). Response to the Australian Department of Agriculture, Water and the Environment on their 'Import risk review for psittacine birds from all countries'. [PDF](#)
3. Cassey, P., Wittmann, T., Toomes, A., **Stringham, O.C.** (2020). Illegal Wildlife Trade: A Threat To Environmental Biosecurity, Biodiversity, Human Health and Wellbeing. Center for Invasive Species Solutions & University of Adelaide, Australia. [PDF](#)
2. Boicourt, K., Pirani R., Johnson, M., Svendsen, E., Campbell, L. (2016) Connecting with Our Waterways: Public Access and Its Stewardship in the New York – New Jersey Harbor Estuary. New York – New Jersey Harbor & Estuary Program, Hudson River Foundation. New York, NY. [**Stringham, O.C.** as GIS Specialist]. [PDF](#)
1. Van Abs, D.J., **Stringham, O.C.**, Gao, Y., Evans, T. (2014). Effects of Land Development on Water Resources of the Pinelands Region. Prepared for New Jersey Future. Rutgers, The State University of New Jersey. New Brunswick, NJ. [PDF](#)

TEACHING

2018 Ornithology & Lab. Instructor (1 semester), Rutgers University

GUEST LECTURING

2018 Plant Ecology, Guest Lecturer, Rutgers University

2017 – 2018 Ornithology. Guest Lecturer (2 lectures), Rutgers University

2017 Seminar in Invasion Ecology. Guest Lecturer, Rutgers University

2014 Evolution, Disease, and Medicine. Guest Lecturer, Rutgers University

TEACHING ASSISTANTSHIPS

2018 Plant Ecology, Teaching Assistant (1 semester), Rutgers University

2017 – 2018	Ornithology. Teaching Assistant (2 semesters), Rutgers University
2016	Concepts in Biology Lab. Teaching Assistant (1 semester), Rutgers University
2015 – 2017	General Biology. Teaching Assistant (6 semesters), Rutgers University

PRESENTATIONS

Conference presentations

2022	“The pet trade of native species outside of their natural distributions in Australia” Stringham OC , Moncayo S, Hill, KGW, Toomes A, Mitchell L, Ross J, Cassey P. Australian Biosecurity Symposium. Gold Coast, Australia.
2021	“Reptile smuggling into Australia is predicted by trends in the legal exotic pet trade” Stringham OC , Toomes A, Mitchell L, Ross J, Cassey P. Australasian Vertebrate Pest Conference (AVPC). Melbourne, Australia (Virtual).
2020	“Monitoring internet sales of wildlife to detect illegal trade” Stringham OC , Toomes A, Mitchell L, Ross J, Cassey P. Australasian Environmental Law Enforcement and Regulators neTwork (AELERT) and the International Network for Environmental Compliance and Enforcement (INECE) Conference, Adelaide, Australia.
2018	“Incorporating propagule pressure into invasion risk assessment” Stringham OC & Lockwood JL. North American Congress for Conservation Biology. Toronto, Canada.
2017	“Predicting long-term dynamics of Indiana bat populations infected with white-nose syndrome” Maslo B, Stringham OC , Bevan A, Brumbaugh A, Sanders C, Hall M, Fefferman N. Ecological Society of America. Portland, OR, USA.
2017	“Pet problems: Factors that influence releases of exotic pet reptiles and amphibians” Stringham OC & Lockwood JL. Ecological Society of America. Portland, OR, USA.

Invited talks

2023	“How the Internet can be used for wildlife trade research and inform biosecurity/conservation practitioners”. Princeton University, United States.
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- 2022 “Internet Surveillance of Wildlife Trade”. **Stringham OC** & Cassey P. Presentation for Belgium Wildlife Inspectors, a workshop held by the Invasive Alien Species National Scientific Secretariat of Belgium. Brussels, Belgium (Virtual).
- 2021 “Internet Surveillance of Wildlife Trade: Understanding and intervening in illegal trade in non-native species”. **Stringham OC** & Cassey P. Presentation for the Environment and Invasives Committee (EIC): (i) Terrestrial Vertebrate, (ii) Terrestrial Invertebrate, and (iii) Freshwater Vertebrate and Invertebrate Working Groups. Australia. (Virtual).
- 2020 “The wildlife trade in relation to ecotourism”. **Stringham OC** & Cassey P. Perspectives in science-based ecotourism: mini conference. The University of Adelaide, Adelaide, SA, Australia.
- 2020 “Invasion Science and Wildlife Ecology Introduction” **Stringham OC**, Cassey P, Toomes A, Maher JA. Australian Institute for Machine Learning. Adelaide, Australia.
- 2019 “The wildlife trade as a driver of biodiversity loss and source of invasive species”. **Stringham OC** & Cassey P. Perspectives in science-based ecotourism: mini conference. The University of Adelaide, Adelaide, SA, Australia.
- 2019 “Understanding the processes leading up to establishment of non-native species”. **Stringham OC**. Australian Research Council (ARC) Centre of Excellence for Mathematical and Statistical Frontiers (ACEMS) Seminar. The University of Adelaide, Adelaide, SA, Australia.
- 2018 “Preventing biological invasions by understanding the processes leading to establishment”. **Stringham OC**. PhD Defense Seminar for Rutgers Department of Ecology, Evolution, and Natural Resources. Rutgers University, New Brunswick, NJ, USA.
- 2017 “Get your herps here! Dynamics of reptile and amphibian exotic pet trade and what that means for invasive species management” **Stringham OC** & Lockwood JL. Rutgers Ecology Graduate Student Association Seminar. Rutgers University, New Brunswick, NJ, USA.
- 2017 “Exploration of the spatial and temporal dynamics of the reptile and amphibian pet trade” **Stringham OC**. 7th Annual Rutgers GIS Day. Rutgers University, New Brunswick, NJ, USA.
- 2016 “Factors associated with non-native introductions of pet reptiles and amphibians” **Stringham OC** & Lockwood JL. Rutgers Ecology Graduate Student Association Seminar. Rutgers University, New Brunswick, NJ, USA.

2014 “Determining the efficacy of predator exclosures vs. predator control: a modeling case study of the red fox and piping plover in New Jersey”
Stringham OC, Robinson OJ & Lockwood JL. G.H. Cook Undergraduate Honors Thesis Presentation. Rutgers University, New Brunswick, NJ, USA.

Informal presentations

2024 “Bioinformatics for Minion Sequencer”. **Stringham OC**. Weekly workshop series given to Lockwood Lab. Rutgers University, United States.

2022 “For loops in R”. **Stringham OC**. Invasion Science & Wildlife Ecology Lab. The University of Adelaide, Adelaide, SA, Australia.

2021 “Scientific Writing Workshops”. **Stringham OC**. Invasion Science & Wildlife Ecology Lab. The University of Adelaide, Adelaide, SA, Australia.

2021 “Coding GIS in R”. **Stringham OC**. Invasion Science & Wildlife Ecology Lab. The University of Adelaide, Adelaide, SA, Australia.

2021 “Data wrangling in R with tidyverse”. **Stringham OC**. Invasion Science & Wildlife Ecology Lab. The University of Adelaide, Adelaide, SA, Australia.

2020 “Plotting in R using ggplot2”. **Stringham OC**. Invasion Science & Wildlife Ecology Lab. The University of Adelaide, Adelaide, SA, Australia.

2019 “Creating a website for academia”. **Stringham OC**. Invasion Science & Wildlife Ecology Lab. The University of Adelaide, Adelaide, SA, Australia.

GRANTS

2023 Rutgers-New Brunswick Chancellor’s Challenge Grant. *Rutgers Climate and Energy Institute* (Contributor). Prof Julie Lockwood - Primary Investigator. (\$2.54 million)

2020 Australian Research Council Discovery Grant. *Drivers of the Live Pet Trade in Australian Reptiles*. (Contributor). A/Prof Phillip Cassey - Chief Investigator. (\$420,851)

2018 Teaching Assistant/Graduate Assistant Professional Development Grant. Rutgers University. (\$752)

2017 Teaching Assistant/Graduate Assistant Professional Development Grant. Rutgers University. (\$925)

2017 Conference Travel Award. Rutgers University. (\$150)

SUPERVISING/MENTORING

PhD Candidates

- 2020 – Freyja Watters, PhD Candidate, The University of Adelaide, Co-supervisor.
Topic: The unregulated trade of wildlife: exploring the dynamics of the wildlife trade of species not recognized by CITES
- 2020 – Jacob Maher, PhD Candidate, The University of Adelaide. Co-supervisor.
Topic: The ornamental plant trade in Australia: conservation and biosecurity implications.
- 2020 – 2023 Katherine Hill, PhD Candidate, The University of Adelaide. Co-supervisor.
Topic: The trade of native Australian parrots as pets.
- 2019 – 2022 Adam Toomes, PhD Candidate, The University of Adelaide. Co-advisor.
Topic: The biosecurity risks of the Australian illegal pet trade.

Honours/Undergraduates

- 2021 Charlie Lassaline, Honours Student, The University of Adelaide.
Co-advisor. Topic: The online trade of invertebrates as pets in Australia.
- 2020 Jade Birmingham, Honours Student, The University of Adelaide.
Co-advisor. Topic: Survivorship during international plane travel of exotic pet species: implications for animal welfare.
- 2019 Abilash Sivadasan, Honours Student, The University of Adelaide.
Co-advisor. Topic: Does illegal smuggling of wildlife scale to measures of population density in Australia?
- 2017 – 2018 Katharine Mattaliano, Undergraduate Research, Rutgers University.
Topic: Domestic breeding of exotic pets: a risk for biological invasions.
- 2017 – 2018 Jacqueline Cavaliere, Undergraduate Research, Rutgers University.
Topic: Legal frameworks for releases of exotic pets in the USA.
- 2016 – 2017 Jacey Corrente, Undergraduate Research, Rutgers University.
Topic: The secondary market of exotic pet reptiles and amphibians: why do people relinquish their exotic pets?
- 2015 Elizabeth Newton, Undergraduate Senior Thesis, Rutgers University.
Topic: Sustainable harvest model of black bears in New Jersey: maintaining the cultural carrying capacity.

SERVICE

Peer reviewer	<i>Frontiers in Ecology and the Environment, Conservation Letters, Conservation Biology, Biological Conservation, Conservation Science and Practice, Global Ecology and Conservation, Ecography, Global Ecology and Biogeography, Communications Biology, Biological Invasions, Journal for Nature Conservation, Management of Biological Invasions, Animals, Urban Naturalist</i>
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WORKING GROUPS

2019	Illegal Wildlife Trade Workshop & Working Group. Environmental Biosecurity Office, Canberra, Australia.
2017 – 2018	National Socio-Environmental Synthesis Center (SESYNC) Participant. Project: “Linking Trade, Biology, and Pet Owner Decisions to the Risk of Vertebrate Invasions in the US”

PROFESSIONAL DEVELOPMENT

2021	Leadership Development Training. Environment Institute, The University of Adelaide, Australia
2017	COMPASS: Science Communication Training. Rutgers University
2016	AAAS: Communicating Science Workshop. Rutgers University

OTHER PROFESSIONAL POSITIONS

2015	Research Assistant, Endangered & Nongame Species Program, New Jersey Department of Fish & Wildlife
2015	GIS Research Assistant, Harbor & Estuary Program, Hudson River Foundation
2014 – 2015	Research Assistant, Rutgers University, Department of Human Ecology