Scott A. Chamberlain

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SKILLS

- Python: 8 years experience. Maintaining a few Python packages on PyPi. Flask. Async.
- R: 17 years experience, research projects and packages. Created over 100 R packages.
- Ruby: 7 years experience. Maintaining 3 Ruby packages on Rubygems. Created many REST APIs with Sinatra.
- Javascript: a few years experience, particularly Vue.js
- HTML/CSS: Proficiency; using HTML and customizing CSS for websites.
- Dabbled in: C++, Go
- Databases/etc: Experience includes SQL/SQL-like (BigQuery, Redshift, MySQL, MariaDB, SQLite, PostgreSQL), document databases (MongoDB, CouchDB), key-value stores (Redis).
- Cloud platform experience: AWS, DigitalOcean, Heroku, Google Cloud Platform
- Cloud data tools: Prefect, Dagster, Xplenty/Integrate.io, Sentry
- Programming skills: OO principles, testing, version control, CI

EDUCATION

2012 **Ph.D.**, Ecology & Evolutionary Biology, Rice University
2009 **M.A.**, Ecology & Evolutionary Biology, Rice University
2003 **B.S.**, Biological Sciences, California State University, Chico

POSITIONS

Nov 2022 – Aug 2023 **Deck, Senior Data Engineer**

Deck tells Democratic campaigns who to reach and how to win.

- Manage data orchestration tooling, using Python, deployed on Prefect.
- Write R code to scrape/collect data from many sources to go into our data warehouse.

August 2021 – Nov 2022 **OurResearch, Principal Software Engineer and Product Owner**

OurResearch is a non-profit that builds tools to make scholarly research more open, connected, and reusable.

- Principal Software Engineer and Product Owner of Unsub (unsub.org) - a web application to help university librarians evaluate research journal access and costs.
- Unsub frontend is Javascript's Vue.js framework, while the backend is Python's Flask framework.
- Develop Unsub alone, including: front- (Vue.js) and back-end (Python Flask) work, database (Redshift), ETL work (Xplenty, Heroku scheduled scripts, Zapier, Bash scripts), sales, demos, account management (Hubspot, Intercom), privacy policy development together with a lawyer.

June 2014 – July 2021 **rOpenSci, Co-Founder and Software Engineer**

rOpenSci is a non-profit developer collective whose mission is to facilitate reproducible research.

- Along with rest of leadership team, deciding on vision and focal areas
- Maintained dozens of R packages to help researchers do more reproducible research.
- Built and maintained APIs using Ruby for two widely used sources of data for biologists. Proficiency in APIs in Python.

- Developed the infrastructure for software review, served as an editor and reviewer for R packages submitted to rOpenSci.
- Authored hundreds of technical blog posts on the rOpenSci blog and my personal blog (https://recology.info/). Compiled and distributed the rOpenSci newsletter (https://ropensci.org/news/) for 6 years. Co-authored a book on HTTP testing in R.
- Managed the rOpenSci community discussion forum (Discourse, a self-hosted open-source application) for 5 years. Managing upgrades and server maintenance, as well as managing users.

June 2016 – Jan 2021 Open Knowledge Maps, Backend Volunteer Contributor
Open Knowledge Maps (openknowledgemaps.org) is a visual interface to the world's scientific knowledge.

- Worked with a team using agile processes to maintain integration with many 3rd party APIs

May 2012 – April 2014 Postdoctoral Scholar, Simon Fraser University
Department of Biological Sciences. Mentor: Dr. Elizabeth Elle

- Built and curated a large SQL database (millions of rows) containing data from a network of dozens of researchers in CANPOLIN (Canadian Pollination Initiative).
- Synthesized data from CANPOLIN to answer questions about pollinator communities, leading to three peer-reviewed papers.

COMMUNITY

- Organized the Portland R User Group for 5 years (2015-2019)
- Co-created, and organized for two years (2017-2018), a US pacific northwest regional R conference – CascadiaRConf

TEACHING

- Software Carpentry instructor: co-taught two 2-day workshops (in 2013 and 2016)

PUBLICATIONS

- **Chamberlain, S.** (2022). Lessons Learned from Reevaluating Big Deals with Unsub. *Serials Review*, 48(3–4), 234–237. https://doi.org/10.1080/00987913.2022.2132090
- Guzman, L. M., **Chamberlain, S. A.**, & Elle, E. (2021). Network robustness and structure depend on the phenological characteristics of plants and pollinators. *Ecology and Evolution*, 11(19), 13321–13334. Portico. https://doi.org/10.1002/ece3.8055
- Mitchell, N., **Chamberlain SA**, & Whitney, K. D. (2021). Proximity to crop relatives determines some patterns of natural selection in a wild sunflower. *Evolutionary Applications*. https://doi.org/10.1111/eva.13201
- Norman, K. E. A., **Chamberlain, S.**, & Boettiger, C. (2020). taxadb: A high-performance local taxonomic database interface. *Methods in Ecology and Evolution*, 11(9), 1153–1159. https://doi.org/10.1111/2041-210x.13440
- Guzman, L. M., **Chamberlain SA**, & Elle, E. (2020). Phenology and Robustness in plant-pollinator networks. *BioRxiv Preprint*. https://doi.org/10.1101/2020.10.30.362616
- Conde, D. A., Staerk, J., Colchero, F., **Chamberlain SA**, *et al*. 2019. Data gaps and opportunities for comparative and conservation biology. *PNAS*, 116(19), 9658–9664. https://doi.org/10.1073/pnas.1816367116

- Ram, K., Boettiger, C., **Chamberlain SA**, *et al*. 2019. A Community of Practice Around Peer Review for Long-Term Research Software Sustainability. *Computing in Science & Engineering*, 21(2), 59–65. https://doi.org/10.1109/MCSE.2018.2882753
- D Pearse, W., & **Chamberlain SA** 2018. Suppdata: Downloading Supplementary Data from Published Manuscripts. *Journal of Open Source Software*, 3(25), 721. https://doi.org/10.21105/joss.00721
- Foster ZSL, **Chamberlain SA** and Grünwald NJ. 2018. taxa: An R package implementing data standards and methods for taxonomic data. *F1000Research*, 7:272 https://doi.org/10.12688/f1000research.14013.2
- **Chamberlain SA**, C. Boettiger. 2017. R Python, and Ruby clients for GBIF species occurrence data. *PeerJ Preprints*. https://peerj.com/preprints/3304v1/
- Winslow, L. A., **Chamberlain SA**, *et al*. (2016). sbtools: A package connecting R to cloud-based data for collaborative online research. *The R Journal*, 8(1), 387-398. https://doi.org/10.1371/journal.pone.0127781
- Boettiger C, **Chamberlain SA**, *et al*. RNeXML: A Package for Reading and Writing Richly Annotated Phylogenetic, Character, and Trait Data in R. *Methods in Ecology & Evolution*, 7, 352-357. https://doi.org/10.1111/2041-210X.12469
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- Guo H, **Chamberlain SA**, Elhaik E, Jalli I, Lynes A-R, et al. 2015. Geographic Variation in Plant Community Structure of Salt Marshes: Species, Functional and Phylogenetic Perspectives. *PLoS ONE* 10(5): e0127781. https://doi.org/10.1371/journal.pone.0127781
- Mair, P, and **Chamberlain SA.** 2014g. Web Technologies Task View. *The R Journal* 6(1): 178-181. https://journal.r-project.org/archive/2014-1/
- Revell, L., **Chamberlain SA.** 2014f. Rphylip: An R interface for PHYLIP. *Methods in Ecology & Evolution*. https://doi.org/10.1111/2041-210X.12233
- **Chamberlain SA**, et al. 2014e. Traits and phylogenetic history contribute to network structure across Canadian plant-pollinator communities. *Oecologia*. https://doi.org/10.1007/s00442-014-3035-2
- **Chamberlain SA**, et al. 2014d. Phylogenetic tree shape and the structure of mutualistic networks. *Journal of Ecology*. https://doi.org/10.1111/1365-2745.12293
- **Chamberlain SA**, J.A. Rudgers, and J.L. Bronstein. 2014c. How context-dependent are species interactions. *Ecology Letters*. https://doi.org/10.1111/ele.12279
- Barraquand F, Ezard TH, Jørgensen PS, Zimmerman N, **Chamberlain SA** et al. 2014b. Lack of quantitative training among early-career ecologists: a survey of the problem and potential solutions. *PeerJ* 2:e285 https://doi.org/10.7717/peerj.285
- Vamosi, J.; **Chamberlain SA**, Garcha, N.; Moray, C.; Mooers, A. 2014a. Pollinators visit related plant species across 29 plant-pollinator networks. *Ecology & Evolution*. https://doi.org/10.1002/ece3.1051
- **Chamberlain SA**, Szöcs E. 2013. taxize: taxonomic search and retrieval in R. *F1000Research*, 2:191 https://doi.org/10.12688/f1000research.2-191.v2
- **Chamberlain SA**, J.A. Rudgers, & K.D. Whitney. 2013. Proximity to agriculture alters abundance and community composition of wild sunflower mutualists and antagonists. *Ecosphere*. https://doi.org/10.1890/ES13-00026.1

- **Chamberlain SA** 2013. Consuming Article-Level Metrics: Observations and Lessons from Comparing Aggregator Provider Data. *Information Standards Quarterly*. http://doi.org/10.3789/isqv25no2.2013.02
- **Chamberlain SA**, S.M. Hovick, … *et al* ... K.D. Whitney. 2012. Does phylogeny matter? Assessing the impact of phylogenetic information in ecological meta-analysis. *Ecology Letters* 15(6):627-636. https://doi.org/10.1111/j.1461-0248.2012.01776.x
- **Chamberlain SA**, & J.A. Rudgers. 2012. How do plants balance multiple mutualists? Correlations among traits for attracting protective bodyguards and pollinators in cotton (*Gossypium*). *Evolutionary Ecology* 26:65-77. https://doi.org/10.1007/s10682-011-9497-3
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- **Chamberlain SA**, J.K. Kilpatrick, & J.N. Holland. 2010. Do extrafloral nectar resources, abundances, and body sizes contribute to the structure of ant-plant mutualistic networks? *Oecologia* 164:741-750. https://doi.org/10.1007/s00442-010-1673-6
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- **Chamberlain SA**, & J.N. Holland. 2009. Quantitative synthesis of context-dependency in ant-plant protection mutualisms. *Ecology* 90(9):2384-2392. https://doi.org/10.1890/08-1490.1
- Holland, J.N., **Chamberlain SA**, A.M. Waguespack, and A.S. Kinyo. 2009. Effects of pollen load and donor diversity on variation in seed and fruit size in a columnar cactus, *Pachycereus schottii* (Cactaceae). *International Journal of Plant Sciences* 170:467-475. https://doi.org/10.1086/597266
- **Chamberlain SA** & J.N. Holland. 2009. Body size predicts degree in ant-plant mutualistic networks. *Functional Ecology* 23:196-202. https://doi.org/10.1111/j.1365-2435.2008.01472.x
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- **Chamberlain SA** & R.A. Schlising. 2008. Role of honeybees (Hymenoptera: Apidae) in the pollination biology of a California native plant, *Triteleia laxa* (Asparagales: Themidaceae). *Environmental Entomology* 37(3):808-816. https://doi.org/10.1093/ee/37.3.808
- Holland, J.N. & **Chamberlain SA.** 2007. Ecological and evolutionary mechanisms for low seed:ovule ratios: need for a pluralistic approach? *Ecology* 88(3):706-715. https://doi.org/10.1890/06-1283
- Schlising, R.A. & **Chamberlain SA**. 2006. Biology of the geophytic lily, *Triteleia laxa* (Themidaceae), in grasslands of the Northern Sacramento Valley. *Madroño* 53(4):321-341. https://doi.org/10.3120/0024-9637(2006)53[321:BOTGLT]2.0.CO;2

SELECTED ORAL PRESENTATIONS

Slides for talks available at https://scotttalks.info/

- **2019** HTTP Requests for Users & Package Developers. useR, Toulouse, France.
- **2018** Phylogeny Based Biodiversity Data Queries. Biodiversity Information Standards (TDWG), Dunedin, New Zealand.

- **2018** Harnessing the Power of Open Data on the Web. Joint Statistical Meeting, Vancouver, Canada.
- **2018** taxonomic data methods for R & Python. Bioinformatics Open Source Conference (BOSC), Portland, OR.
- **2018** Biodiversity and Taxonomy Software Tools in R. Digital Data in Biodiversity Research Conference, Berkeley, CA.
- **2018** Open Science / Research w/ R featuring rOpenSci. Talk to the Centers for Disease Control and Prevention (CDC) R user group.
- **2017** The Taxonomic and Biodiversity Software Stack in R. Biodiversity Information Standards (TDWG) meeting, Ottawa, Canada.
- **2017** Cultivating Community around software and data. Ecological Society of America conference, Portland, OR.
- **2017** Two talks: "Open science and R" and "Open science, R & rOpenSci". Open Source Systems in the Public Sector Symposium. Stockholm, Sweden.
- **2016** Software & best practices to facilitate open science. Philosophy and History of Open Science symposium, Helsinki, Finland.
- **2015** Thinking programmatically. Keynote at Crossref Annual Meeting, Boston, MA.
- **2014** Building tools and community for open and reproducible research. Seminar at Simon Fraser University Statistics Department, Vancouver, BC, Canada.
- **2014** Cultivating open and reproducible science. Seminar at University of Georgia Odum School of Ecology, Athens, GA.
- **2013** Article-level impact for web native scholarship. Simon Fraser University Library, Vancouver, BC, Canada.
- **2012** Variation in species interaction outcomes. Seminar at University of Calgary Biological Sciences Department, Calgary, Alberta, Canada.

VOLUNTEER AND PROFESSIONAL SERVICE

- DataONE - Community Education and Engagement Working Group, 2012-2014
- British Ecological Society (BES) Digital Strategy Working Group, 2012-2014
- Board Member, Friends of Bidwell Park Board of Directors, Chico, California, 2004-2005

PEER REVIEW SERVICE

- Subject editor for Biodiversity Data Journal for 6 years
- Grant proposal review: Chan Zuckerberg Initiative, 2x
- Journal article peer review (~55): African Journal of Agricultural Research, Agricultural & Forest Entomology (2), The American Naturalist, Annals of Botany (2), Biodiversity Data Journal, Biological Invasions, Ecography (4), Ecological Complexity, Ecological Entomology, Ecological Complexity, Ecology (3), Ecology Letters, Ecology and Evolution, Environmental Management, Evolutionary Ecology, Florida Entomologist (2), Journal of Avian Biology, Journal of Ecology (4), Journal of Tropical Ecology, Methods in Ecology and Evolution (7), New Phytologist, Oecologia, Oikos (3), Plant Ecology, PLOS One (2), Population Ecology (2), Proceedings of the Royal Society B, The R Journal (2), Scientific Data (3), PeerJ, F1000Research

REFERENCES

- Max Wood, Deck, Founder, maxwell.a.wood@gmail.com
- Louis Eisenberg, Deck, Head of Engineering, tarheel@gmail.com
- Dr. Carl Boettiger, rOpenSci, University of California, Berkeley, cboettig@berkeley.edu

- Dr. Elizabeth Elle, Biology Department, Simon Fraser University, eelle@sfu.ca
- Dr. Jennifer Rudgers, Biology Department, University of New Mexico, jrudgers@unm.edu