



Alex Dornburg

Research Curator of Ichthyology, North Carolina Museum of Natural Sciences

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POSITIONS

2015—current Research Curator of Ichthyology, North Carolina Museum of Natural Sciences, Raleigh, NC.

2017—current Adjunct Assistant Professor, Department of Molecular Biomedical Sciences, North Carolina State University College of Veterinary Medicine, Raleigh, NC.

2014—2015 Postdoctoral Research Associate, Yale University, New Haven, CT. Advisor: Dr. Thomas J. Near

EDUCATION

2008—2014 Ph.D. Ecology and Evolutionary Biology, Yale University, New Haven, CT. Advisor: Dr. Thomas J. Near

2008—2010 M.S. Ecology and Evolutionary Biology, Yale University, New Haven, CT. Advisor: Dr. Thomas J. Near

2005—2008 B.S. Zoology, Washington State University, Pullman, WA. Advisor: Dr. Michael Alfaro

PEER REVIEWED PUBLICATIONS

48. 2018. Near, T.J., MacGuigan, D., Parker, C.E., Jones, C., Struthers, C., Dornburg, A. Phylogenetic analysis of Antarctic notothenioids illuminates the utility of RADseq for resolving Cenozoic adaptive radiations. *Molecular Phylogenetics and Evolution* 129: 268—279

47. 2018. Dornburg, A., Lamb, A.D., Warren, D., Watkins-Colwell, G., Lewbart, G., Flowers, J. Are geckos paratenic hosts for Caribbean Island Acanthocephalans? Evidence from *Gonatodes antillensis* and a review of squamate reptiles acting as transport hosts. *Peabody Bulletin of Natural History* (*accepted*)

46. 2018. Dornburg, A., Zhou, S., Townsend, J.P. Optimal rates for phylogenetic inference and experimental design in the era of genome-scale datasets. *Systematic Biology*. *Advanced access*

45. 2018. Iglesias, T.L.*, Dornburg, A.*, Warren, D.L., Wainwright, P.C., Schmitz, L., Economo, E.P. Eyes-Wide Shut: the impact of dim-light vision on neural investment in marine teleosts. *Journal of Evolutionary Biology* 31: 1082—1092 (*co-first authors)

44. 2018. Dornburg, A., Warren, D., Zapfe, K., Morris, R., Lamb, A., Hogue, G., Lukas, L., Wang, R. Testing ontogenetic patterns of sexual size dimorphism against expectations of the expensive tissue hypothesis, an intra-specific example using Oyster Toadfish (*Opsanus tau*). *Ecology and Evolution* 8 (7):3609—3616

43. 2017. Dornburg, A., Lamb, A., Federman, S., Jones, C., Near, T.J. Cradles and Museums of Antarctic Biodiversity. *Nature Ecology and Evolution*. DOI: 10.1038/s41559-017-0239-y
Press: North Carolina Public Radio, The-Scientist, NPR, SciTechDaily

42. 2017. Dornburg, A., Townsend, J.P., Wang, Z. Maximizing power in phylogenetics and phylogenomics: a perspective illuminated by fungal big data. In J.P. Townsend & Z. Wang (Eds.). *Fungal phylogenetics and phylogenomics* (pp. 1—47). *Advances in Genetics* volume 100. Cambridge, MA: Academic Press

41. 2017. Lamb, A.J., Watkins-Colwell, G.C., Moore, J.A., Iglesias, T., Warren, D.L., Brandley, M.C., Dornburg, A. Endolymphatic sac use and reproductive activity in the Lesser Antilles endemic gecko *Gonatodes antillensis* (Gekkota: Spaeodactylidae). *Bulletin of the Peabody Museum of Natural History* 58(1):17—29

40. 2017. Chakrabarty, P., Faircloth, B.C., Ludt, W.B., McMahan, C.D., Near, T.J., Dornburg, A., Albert, J.S., Arroyave, J., Stiassny, M.J., Sorenson, L., Alfaro, M.E. Phylogenomic Systematics of Ostariophysan fishes: Ultraconserved Elements Support the Surprising Non-monophyly of Characiformes. *Systematic Biology* 66(6): 881—895

39. 2017. Dornburg, A., Townsend, J.P., Spriggs, E., Eytan, R.I., Moore, J.A., Wainwright, P.C., Lemmon, A.R., Moriarty Lemmon, E., Near, T.J. Phylogenetic

GRANTS & AWARDS

2018—2021 NSF IOS 1755330,1755242
Collaborative Research: Understanding
the molecular diversification of self rec-
ognition through ray-finned fish innate
immune receptor families \$673,889
Role: PI with Co-PI Jeff Yoder

2018—2020 IMLS MA-30-18-0275-18
Casting a wider net: Harnessing marine
fish collections to empower training
and science participation \$184,310
Role: PI

2016 TRICEM Seed Grant: Linking fish
models to human health through the
sequences of living fossils \$20,000
Role: PI with Co-PI Jeff Yoder

2015 Yale G.G. Simpson Prize for best
paper in Geology and Biology \$3,000

2014 John Spangler Nicholas Prize
in Ecology and Evolutionary Biology
\$1,000

2013 Yale Graduate Student Assembly
conference travel award \$400

2012 European Congress of Ichthyol-
ogy best student talk €200

2011 National Science Foundation
Dissertation Improvement Grant
\$14,950

2010 Lee Pierce Foundation Award for
Research in Ecology and Evolutionary
Biology. \$2,500

2008 Project DeepFin Student Ex-
change Travel Award \$3,000.

2007 Undergraduate Biological and
Mathematical Sciences Semester Fel-
lowship \$2,000

2007 Undergraduate Biological and
Mathematical Sciences Summer Fellow-
ship \$3,000

2007 Center for Integrative Biotech-
nology Summer Fellowship \$2,500.

2007 Undergraduate Zoology Scholar-
ship \$1,000.

informativeness facilitates resolution of the sister lineage to percomorpha with
an anchored hybrid enrichment dataset. *Molecular Phylogenetics and Evolution*
110: 27—38

38. 2016. Dornburg, A., Tamagnon, J., Townsend, J.P. PhyInformR: Phylogenetic
experimental design and phylogenomic data exploration. *BMC Evolutionary*
Biology 16 (1): 262

37. 2016. Dornburg, A., Forrestel, E., Moore, J.A., Iglesias, T.L., Jones, A., Rao,
L., Warren, D.L. Fish at night: what we don't know. Assessing sampling biases
across studies of diel activity patterns in marine ray-finned fishes (Actinoptery-
gii). *Bulletin of Marine Science* 93 (2): 611—639

36. 2016. Dornburg, A., Smith, C., Federman, S., Moore, J.A., Warren, D.L.,
Iglesias, T., Brandley, M.C., Watkins-Colwell, G.J., Lamb, A.D., Jones, A. Dis-
entangling the influence of urbanization and invasion on endemic reptiles in
tropical biodiversity hotspots: A case study of *Phyllodactylus martini* along an
urban gradient in Curaçao. *Peabody Bulletin of Natural History* 57: 147—164

35. 2016. Dornburg, A., Federman, S., Eytan, R.I., Near, T.J. Cryptic species
diversity in Sub-Antarctic islands: a case study of *Lepidonotothen*. *Molecular*
Phylogenetics and Evolution 104: 32—43

34. 2016. Collins, S., Dornburg, A., Flores, J., Dombrowski, D., Lewbart, G. A
comparison of blood gases, biochemistry, and hematology to ecomorphology in
a health assessment of pinfish (*Lagodon rhomboides*). *PeerJ*: e2262

33. 2016. Federman, S., Dornburg, A., Daly, D.C., Downie, A., Yoder, A.D., Sar-
gis, E.J., Perry, G. H., Donoghue, M.J., Richard, A. F., Baden, A. L. Implications
of lemuriform extinctions for the Malagasy flora. *Proceedings of Natural Acad-*
emy of Sciences 113: 5041—5046

Press: weather.com, smithsonianmag.com, iflscience.com, newscientist.com ,Huff-
ington Post, phys.org, futurify.org, theconversation.com

32. 2016. Ahmad Sah, H. H., G.J. Watkins-Colwell, A. Dornburg, D.S. McLeod,
L. Grismer, A. M. Bauer, R. J. A. Wahab and T. U. Grafe. The Amphibians,
Reptiles and Fishes of the 2012 Bukit Pagon Expedition, Brunei Darussalam.
Peabody Bulletin of Natural History 57: 97—114

31. 2015. Dornburg, A., Eytan, R.I., Federman, S., Pennington, J., Stewart, A.L.,
Jones, C.D., Near, T.J. Molecular data supports two species of *Cryodraco*. *Polar*
Biology 39: 1369—1379

30. 2015. Federman, S., Dornburg, A., Downie, A., Richard, A., Daly, D.,
Donoghue, M.J.. The biogeographic origin of a radiation of trees in Madagas-
car: Implications for the assembly of a tropical forest biome. *BMC Evolutionary*
Biology 15:216

29. 2015. Prum, R.* , Berv, J.* , Dornburg, A., Field, D.J., Townsend, J.P., Moriarty
Lemmon, E., Lemmon, A.R. A comprehensive phylogeny of birds (Aves) using
targeted next-generation DNA sequencing. *Nature* 526: 569—573 *Co-lead
authors.

Press: scientificamerican.com, sci-news.com, pandasthumb.org, birdwatchingda-
ily.com, allaboutbirds.org, iflscience.com, hngn.com, nhregister.com, birdchannel.
com, sciencedaily.com, NPR

28. 2015. Near, T., Dornburg, A., Harrington, R., Oliveira, C., Pietsch, T.W.,
Thacker, C.E., Satoh, T.P., Katayama, E., Wainwright, P.C., Eastman, J.T., Beau-
lieu, J.M. Identification of the notothenioid sister lineage illuminates the biogeo-

GRANTS & AWARDS

2007 Second Place WSU Library Excellence Award \$750

2007 First Place Undergraduate Research Poster at Competition \$400

2007 First Place Wiley Exposition Graduate Student Poster Competition \$850

2006 Undergraduate Biological and Mathematical Sciences Semester Fellowship \$2,000

2006 Undergraduate Zoology Scholarship. \$1,000

2006 Undergraduate Biological and Mathematical Sciences Summer Fellowship \$3,000

2006 Center for Integrative Biotechnology Summer Fellowship \$2,500

2006 Third Place Undergraduate Research Poster at Competition \$200

EXTERNAL SERVICE

Associate Editor
Molecular Phylogenetics and Evolution

Manuscript Reviewer (since 2010)
Systematic Biology
Molecular Biology and Evolution
Evolution
Molecular Ecology
Molecular Ecology Resources
Functional Ecology
BMC Evolutionary Biology
Integrative and Comparative Biology
Molecular Phylogenetics and Evolution
American Naturalist
Journal of Herpetology
Zoologica Scripta
Ecology Letters
Coral Reefs
Journal of Evolutionary Zoology Part B;
Molecular and Developmental Biology
Gene
Journal of Biogeography
PlosOne
Hydrobiologica
Zoologica
Scientific Reports

graphic history of an Antarctic adaptive radiation. BMC Evolutionary Biology 15:109 *Highly accessed Press: BMC blogs network*

27. 2015. Eytan, R.I., Evans, B.R., Dornburg, A., Lemmon, A.R., Moriarty Lemmon, E., Wainwright, P.C., and Near, T.J. Are 100 enough? Inferring acanthomorph teleost phylogeny using anchored hybrid enrichment. BMC evolutionary biology 1:113 *Highly accessed*

26. 2015. Iglesias, T.L., Dornburg, A., Brandley, M.C., Warren, D.L. Life in the unthinking depths: energetic constraints on encephalization in marine fishes. Journal of Evolutionary Biology 28: 1080—1090

25. 2015. Dornburg, A., Friedman, M., Near, T.J. Phylogenetic analysis of molecular and morphological data highlights uncertainty in the relationships of fossil and living species of Elopomorpha (Actinopterygii: Teleostei). Molecular Phylogenetics and Evolution 89:205—218

24. 2014. Dornburg, A., Moore, J., Beaulieu, J.M., Eytan, R.I., Near, T.J. The impact of shifts in marine biodiversity hotspots on patterns of range evolution: evidence from the Holocentridae (squirrelfishes and soldierfishes). Evolution 69:146—161

23. 2014. Near, T.J. Dornburg, A., Friedman, M. Phylogenetic relationships and timing of diversification in gonorynchiform fishes inferred using nuclear gene DNA sequences (Teleostei: Ostariophysi). Molecular Phylogenetics and Evolution 80:297—307

22. 2014. Dornburg, A., Townsend, J.P., Near, T.J. Phylogenetic informativeness approaches reconcile ray-finned fish divergence times. BMC Evolutionary Biology. 14 (1): 169. *Highly accessed*

21. 2014. Price, S.A., Schmitz, L., Oufiero, C.E., Eytan, R.I., Dornburg, A., Smith, W.L., Friedman, M., Near, T.J., Wainwright, P.C. Two waves of niche-filling straddling the K-Pg boundary formed the modern reef fish fauna. Proceedings of the Royal Society B 281: 2014321

20. 2014. Moore, J. and Dornburg, A. Ingestion of fossil seashells, stones, and small mammal bones by gravid gopher tortoises (*Gopherus polyphemus*) in South Florida. Peabody Bulletin of Natural History 55: 55—63

19. 2013. Near, T.J., Dornburg, A., Tokita, M., Suzuki, D., Brandley, M.C., Friedman, M. Boom and bust: ancient and recent diversification in bichirs and roplefish (Polypteridae: Actinopterygii), a relictual lineage of ray-finned fishes. Evolution 68: 1014—1026

18. 2013. Friedman, M., Keck, B.P., Dornburg, A., Eytan, R.I., Martin, C.H., Hulsey, C.D., Wainwright P.C., T.J. Near. Molecular and fossil evidence place the origin of cichlid fishes long after Gondwanan rifting. Proceedings of the Royal Society B 280:20131733

17. 2013. Near, T.J., Dornburg, A., Eytan, R.I., Keck, B.P., Smith, W.L., Kuhn, K.L., Moore, J.A., Price, S.A., Burbrink, F.T., Friedman, M., Wainwright, P.M. Phylogeny and tempo of diversification in the superradiation of spiny-rayed fishes. Proceedings of the National Academy Sciences 110: 12738—12743. *Press: livescience.com, sciencedaily.com*

16. 2013. Reynolds, R.G., Niemiller, M.L., Hedges, S.B., Dornburg, A., Revell, L.J. Molecular phylogeny and historical biogeography of West Indian boid snakes (*Chilabothrus*). Molecular Phylogenetics and Evolution 68: 461—470

International Journal of Marine Science
and Ocean Technology
Annals of Marine Biology
Bulletin of Marine Science

Grant Review Panels
National Science Foundation:
Systematics and Biodiversity

INTERNAL SERVICE

2017 Advancing the mission of the
museum task force

2015—current Chair Institutional
Animal Care and Use Committee
(IACUC), North Carolina Museum of
Natural Sciences, Raleigh, NC

2015—current Head of IACUC Task
Force, North Carolina Museum of
Natural Sciences, Raleigh, NC

OUTREACH

2018 Coordinated the design and
deployment of special exhibit on noc-
turnal and deep sea fishes as part of a
Star Wars themed event. The “Descend-
ing to the Dark Side” exhibit involved
participation by 12 students, interns,
staff, and post doctoral volunteers, five
interactive tables that included an inter-
active LED based game, several interac-
tive games, and video presentations. An
estimated 1000 people interacted with
this exhibit

2018 Worked with local high school
students and Dr. Jeff Yoder (NCSU) to
develop and present a teen science café
on the evolution of genetic diversity in
immune receptors in humans

2018 Coordinated the design and
deployment of special exhibit on the
diversity of reproductive strategies
observed across aquatic vertebrates as
part of a Mardi Gras event. “Stranger
Flings” exhibit involved participation by
14 students, interns, staff, and post doc-
toral volunteers, four interactive tables
that included an interactive LED based
game, and visual presentations. Over
800 people interacted with this exhibit

15. 2013. Santini, F, Sorenson, L., Marcroft, T. Dornburg, A., Alfaro, M.E. A multilocus phylogeny of boxfishes (Aracanidae, Ostraciidae; Tetraodontiformes). *Molecular Phylogenetics and Evolution* 66: 153—160
14. 2012. Near, T.J., Eytan, R.I., Dornburg, A., Kuhn, K.L., Moore, J.A., Wainwright, P., Friedman, M., Davis, M., Smith, L. Resolution of ray-finned fish phylogeny and timing of diversification. *Proceedings of the National Academy Sciences* 109: 13698—13703
Press: phys.org
13. 2012. Dornburg, A., Moore, J.A., Webster, R., Warren, D.L., Brandley, M.C., Iglesias, T.L., Wainwright, P.C., and T.J. Near. Molecular phylogenetics of squirrelfishes and soldierfishes (Teleostei:Beryciformes: Holocentridae): reconciling more than 100 years of taxonomic confusion. *Molecular Phylogenetics and Evolution* 65: 727—738
12. 2012. Near, T.J., Dornburg, A., Kuhn, K.L., Eastman, J.T., Pennington, J.N., Patarnello, T., Zane, L., Fernandez, D.A., Jones, C.D. Ancient climate change, antifreeze, and the evolutionary diversification of Antarctic fishes. *Proceedings of the National Academy Sciences* 109:3434—3439.
Press: sciencecodex.com, dailymail.co.uk
11. 2011. Dornburg, A., Brandley, M.C., McGowen, M., Near, T.J. Rate Heterogeneity, Uncorrelated Relaxed-Clock Models, and Patterns of Molecular Evolution in Cetaceans. *Molecular Biology and Evolution* 29: 721—736
10. 2011. Dornburg, A., Colosi, J.G., Maser, C., Reese, A.T., Watkins-Colwell, G.J. A survey of the Yale Peabody Museum collection of Egyptian mammals collected during the construction of the Aswan high dam: with an emphasis on material from the Yale University prehistoric expedition to Nubia (YUPEN) 1962-1965. *Peabody Bulletin of Natural History* 52:255—272
9. 2011. Dornburg, A., Sidlauskas, B., Sorenson, L., Santini, F., Near, T.J., Alfaro, M.E. The influence of an innovative locomotor strategy on the phenotypic diversification of triggerfishes (Family: Balistidae). *Evolution* 65:1912—1926
8. 2011. Dornburg, A., Warren, D.L., Iglesias, T.L., Brandley, M.C. Natural history observations of the ichthyological and herpetological fauna on the Island of Curaçao, Netherlands Antilles. *Peabody Bulletin of Natural History* 52:181—186
7. 2011. Dornburg, A., Beaulieu, J.M., Oliver, J.C., Near, T.J. Integrating fossil preservation biases in the selection of calibrations for molecular divergence time estimation. *Systematic Biology* 60: 519—527
6. 2010. Watkins-Colwell, G.J., Dornburg, A., Hawlena, D., Moore, J. The Amphibians and Reptiles of the Yale University Prehistoric Expedition to Nubia (YUPEN) 1962-1965. *Bulletin of the Peabody Museum of Natural History* (51):179—197
5. 2010. Weaver, R.E., Dornburg, A. New and noteworthy country records of Amphibians and Reptiles from Southeastern Washington State. *Herpetological Review*. 41(1):115—116
4. 2009. Alfaro, M. E., Santini, F., Brock, C., Alamillo, H., Dornburg, A., Rabosky, D.L., Carnevale, G., Harmon, L.J. Nine exceptional radiations plus high turnover explain species diversity in jawed vertebrates. *Proceedings of the National Academy Sciences* (106):13410—3414

OUTREACH (Cont'd)

2018 Working with local high school students to develop and present a Teen Science Cafe that focuses on the importance of evolution for 21st century societal challenges

2017 Designed and deployed special exhibit on the role of sharks in marine ecology and human health as part of "superhero night". Exhibit involved participation by 12 interns, students, and volunteers, a SCUBA based program, three interactive tables, and audio visual displays. Over 500 people interacted with this exhibit. Exhibited was again used during Final Friday event on the film Jaws, with over 150 people estimated to have interacted with content

2017 Appeared on WRAL news to highlight odd marine biodiversity and collections during a Halloween themed broadcast

2017 Appeared on WRAL news to highlight the science of sharks as part of a superhero night promotion

2017 Appeared on WUNC public radio for 20 minute interview discussing the importance of evolutionary biology for understanding emerging threats to humanity including biotic responses to climate change and rapid evolution in pathogens

2017 Led a 30 minute discussion at the Weatherspoon Art Museum (UNC Greensboro) following a screening of "Chasing Coral" on climate change and the future of coral reef ecosystems. Attendance exceeded 150 people

2015—current Lead tours of the research and collections facility to highlight the role of museums in facilitating science globally and the ongoing research efforts of the NC Museum of Natural Sciences. Tours are given for school groups ranging from middle school to college levels. An average of two tours are given per month

2015—current Lead stream walks of the NC Museum of Natural Sciences

Press: *LA times*

3. 2009. Dornburg, A., Moore, J., Watkins-Colwell, G.J. Distribution of freshwater fishes in Connecticut based on museum voucher specimens. *Bulletin of the Peabody Museum of Natural History* (50):347—379

2. 2009. Dornburg, A., Weaver, R.E. First Report of Scavenging by the Northern Pacific Rattlesnake (*Crotalus oreganus*). *Northwestern Naturalist* (90) 55—57

1. 2008. Dornburg, A. Santini, F., Alfaro, M.E. The influence of model-averaging on clade posteriors: an example using the triggerfishes (Family: Balistidae). *Systematic Biology* 57(6):905—919

MANUSCRIPTS SUBMITTED FOR REVIEW

5. Daane, J.M., Dornburg, A., Smits, P., MacGuigan, D.J., Hawkins, M.B., Near, T.J., Detrich, H.W., Harris, M.P. Historical contingency shapes adaptive radiation in Antarctic fishes. Submitted to *Science*. Bioarchive: <http://biorxiv.org/cgi/content/short/478842v1>

4. Dornburg, A., Fr  d  rich, B., Zapfe, K.L., Federman, S., Field, D.J., Curatolo, T., Santini, F. Collapsing hotspots, extinction, and recovery: the evolutionary history of herbivorous reef fishes. Submitted to *Nature Communications Biology*.

3. Near, T.J., Ghezelayagh, A., Ojeda, F.P., Dornburg, A. Recent diversification in an ancient lineage of Notothenioid fishes. Submitted to *Polar Biology*.

2. Parker, C.E., Dornburg, A., Dom  nguez-Dom  nguez, O., Pillar, K.R. Evidence of Bias? Assessing phylogenetic information to reveal uncertainty in historical data: an example using goodeines (Teleostei: Cyprinodontiformes: Goodeidae). Submitted to *Molecular Phylogenetics and Evolution* (in revision).

1. Dornburg, A. Zapfe, K., Santini, F., Alfaro, M., Flores, J., Williams, R., Adachi, H., Morris, R. Disparity, Ontogeny, and Marine Nurseries. A case study of triggerfishes (Tetraodontiformes: Balistidae). Submitted to the *Journal of Evolutionary Biology* (in revision).

NON PEER REVIEWED MANUSCRIPTS

14. 2017. Dornburg, A., Townsend J.P. Extinguishing Outbreaks. *North Carolina Naturalist*. 25 (2): 11.

13. 2016. Dornburg, A. Ghosts of Madagascar. *North Carolina Naturalist*. 25 (1): 8

12. 2016. Dornburg, A. How many species? *North Carolina Naturalist*. 24 (2): 8

11. 2016. Eberle, M and Dornburg, A. Straight Outta Collections: A swordfish bill. *North Carolina Naturalist*. 24(2): 11

10. 2016. Dornburg, A. Defining species has a big impact on research. *Charlotte News and Observer: Science*. Monday February 1st

9. 2015. Dornburg, A. Disentangling a rainforests roots. *Charlotte News and Observer: Science* October 17th

8. 2010. Watkins-Colwell, G.J. and Dornburg, A. Rattlers, peepers, and snappers. *Herpetological Review* . 41(1):126—127

7. 2007. Dornburg, A. and Weaver, R.E. *Pseudacris pacifica*. *Herpetological Review*: 38 (3):349—350

6. 2007. Weaver, R.E and Dornburg, A. *Charina bottae*. *Herpetological Review*: 38 (3): 354

OUTREACH (Cont'd)

Prairie Ridge Ecostation to demonstrate the surprising diversity in the urban landscape and the interconnectivity of aquatic animals with the urbanizing landscape.

2015—2018 Assist unit members under my supervision in coordinating the building of a citizen science web portal “CitSciScribe” that enables citizens to transcribe archived museum records and engage in multimedia presentations of the importance of natural history collections and spatial data: <http://citsciscribe.org/>

2015 Participant NSF funded IDigBio Broadening Diversity Workshop. Designed and led shadowing activity for students interested in marine research, participated in all day Q&A sessions, led tour of the fish research collection

2015 Public lecture: at NC Museum of Natural Sciences WRAL Theater: “How the Pacific shaped the American West”

2015 Public lecture at the NC Museum of Natural Science Daily Planet Theater “How to eat underwater: lessons from fish”

2015 Assisted in surveying fish with volunteers at the Haw River State Park Bioblitz, NC

2009—2013 Volunteer in assisting in running Connecticut State-wide Envirothon workshops for high school students

2009—2013 Volunteered in ichthyological and herpetological surveys of Connecticut's Biological diversity during seasonal Bio-blitz events. Events included taking high school students on a NOAA trawl based fishing boat to sample fishes of Long Island Sound

2012 Restructured and led Connecticut state-wide Envirothon fish workshop for high school students

5. 2007. Weaver, R.E. and Dornburg, A. *Hypsiglena torquata*. Herpetological Review: 38 (3): 355

4. 2007. Dornburg, A., Brock, C.D., Weaver, R.E. *Pseudacris pacifica*. Herpetological Review: 38(1): 99

3. 2007. Weaver, R.E. and Dornburg, A. *Bufo boreas*. Herpetological Review: 38(1): 96

2. 2007. Dornburg, A. and Weaver, R.E. *Chrysemys picta*. Herpetological Review: 37(4): 491

1. 2007. Dornburg, A. and Vander Ploeg, S.E. *Hypsiglena torquata*. Herpetological Review: 37(4): 498

TEACHING EXPERIENCE

2017 Lecture: Embracing extinction: macroevolutionary perspectives in conservation biology. For Conservation Health (VMC 991) North Carolina State University College of Veterinary Medicine (Spring Semester)

2014 Lecture: What the fossil record can tell us about the history of life on Earth, for Evolutionary Biology (EEB 225/525) Yale University (Spring semester)

2014 Graduate Teaching Assistant: Comparative Anatomy (EEB 290), Yale University (Spring semester)

2014 Graduate Teaching Assistant: Teaching laboratory session of Comparative Anatomy (EEB 290L), Yale University (Spring semester)

2013 Graduate Teaching Assistant: Teaching recitation session of Conservation Biology (EEB 115/FES 315), Yale University (Fall semester)

2012 Graduate Teaching Assistant: Teaching laboratory portion of Ichthyology (EEB 365/565), Yale University (Fall semester)

2012 Graduate Teaching Assistant: Ichthyology (EEB 360/560), Yale University (Fall semester)

2012 Lecture: The Evolution of Form and Function for Ichthyology (EEB 360/560), Yale University (Fall semester)

2011 Graduate Teaching Assistant: Teaching laboratory portion of Diversity of Life (EEB 123), Yale University (Spring semester)

2011 Lecture: The Diversity of Fishes, for Diversity of Life (EEB 123) Yale University (Spring semester)

2010 Graduate Teaching Assistant: Ichthyology (EEB 360/560), Yale University (Fall semester)

2010 Graduate Teaching Assistant: Teaching laboratory portion of Ichthyology (EEB 365/565), Yale University (Fall semester)

2010 Lecture: Form and Function in fishes for Ichthyology (EEB 360/560), Yale University (Fall semester)

2010 Graduate Teaching Assistant: Teaching laboratory portion of Diversity

2012 Participated in beach cleanup events at Silver Sands State Park with Save the Sound foundation

2011 Led volunteers to tag horseshoe crabs for project Limulus

2008 Led native reptile and amphibians workshop: Washington State University Earth Day, April 22.

2007—2008 Secretary of Washington State University Roots and Shoots program participated in numerous environmental clean up and outreach events, including organizing the Universities first Earth Day event, lecture by Jane Goodall, and Peace Day events

2005 Volunteer: 12 hours per week, Live Animal Center Academy of Natural Sciences, Philadelphia, PA

INTERNATIONAL FIELDWORK

2018 October 12—27, Okinawa Institute of Science and Technology (OIST), Onna-san, Okinawa, Japan.
Conducted SCUBA based collections of coral reef fishes and CT scanning of coral reef fish brain anatomy in collaboration with Dr. Evan Economo (OIST) and Dr. Dan Warren and Dr. Teresa Iglesias (Australian National University). Additionally sampled reef fish and mudskipper immune tissues for collaborations with Dr. Jeff Yoder (NC State University) and Dr. Matthew Harris (Harvard University)

2018 January 6 — February 1, Survey of several Antarctic Islands aboard the Cabo de Hornos (Chile). Conducted fisheries survey with Dr. Patricio Espina (Valparaiso University, Chile) and Dr. Chris Jones (NOAA). Collected samples for quantifying immune gene diversity with Dr. Jeff Yoder (NC State), assessing the role of feeding ecology in notothenioid adaptive radiation with Dr. Thomas Near (Yale University), hematological health assessments with Dr. Greg Lewbart (NC State), and quantifying the diversification dynamics of Antarctic euryhirudineans with Dr. Ana Philips

of Life (EEB 123), Yale University (Spring semester)

2010 Lecture: Patterns of Diversification in Early Animals, for Diversity of Life (EEB 123), Yale University (Spring semester)

2009 Graduate Teaching Assistant: Teaching recitation session of Introduction to Ecology and Evolutionary Biology (EEB 122), Yale University (Fall

INTERNS AND TRAINEES

Interns

- Abigail Burrus Salem College (2016)
- Willa Brooks, Emory U. (2015—)
- Joseph Flores, UNC (2015—16)
- Tim Curtis UNCW '15 (2017—)
- Katerina Zapfe, NCSU (2016—)
- April Lamb, NCSU (2015—)
- Rita Chen, NCSU (2017)

Volunteers

- Richard Morris, Ph.D. (2016 —)
- Rachel Webster, Ph.D. (2015)
- Leela R. Rao, M.E.M. (2015)
- Connor Neagle NCUS (2018)

INTERN AND TRAINEE AWARDS

2017. Katerina Zapfe NSF GRFP

The reef fish spectrum: a quantitative study of crypsis, ontogenetic shifts, and effects of turbidity on color in reef fishes

2016. April D. Lamb NSF GRFP

Patterns of morphological and ecological disparity of reef fishes

2016. Willa R. Brooks, Lerner Gray Fund for Marine Research \$1000

Physiological Adaptations of Invasion: A comparison of brain morphology between invasive and native lionfish populations

2016. April D. Lamb NC State OUR grant \$1000

Decoding diversification: Examining patterns of morphological and ecological disparity of reef fishes

2016. April D Lamb Harkema Scholarship \$500

Used to fund fieldwork in Curaçao

2015. April D. Lamb, Women Divers Hall of Fame Training Grant \$2000

2015. April D. Lamb Beneath the Sea Don Reynolds Scholarship \$1000

STAFF SUPERVISED

- Gabriela Hogue - Collection Manager NCMNS (2015—)
- Lindsay Roupe - Research Technician (2015—)
- Zion Creech - Collections Technician (2018—)
- Katerina Zapfe - Research Technician (2018—)
- Laura Lukas - Collections Technician (2016—2018)
- Leela Rao - Collections Technician (2016—2017)

PRESENTATIONS

2018. Iglesias, T.L., Dornburg, A., Warren, D.L., Wainwright, P.C., Schmitz, L. Economo, E.P. How Nocturnality shaped neural investment in marine teleosts. Poster: Joint meeting of the Society for the Study of Evolution (SSE), the

INTERNATIONAL FIELDWORK (Cont'd)

(Smithsonian)

2016 February 21 — March 16, Okinawa Institute of Science and Technology (OIST), Onna-san, Okinawa, Japan. Led SCUBA based collections of coral reef fishes and CT scanning of coral reef fish brain anatomy in collaboration with Dr. Evan Economo (OIST) and Dr. Dan Warren and Dr. Teresa Iglesias (Australian National University)

2013 August 12 — 29, University of Guam Marine Laboratory, Guam, United States. Led SCUBA based collections of coral reef fishes for quantifying community-wide food web dynamics in collaboration with Dr. David Post and Dr. Thomas Near (Yale University), Dr. Jon Moore (Florida Atlantic University), Dr. Dan Warren and Dr. Teresa Iglesias (Australian National University), and Dr. Peter Wainwright (University of California, Davis). Funding provided by the Lee Pierce foundation and National Science Foundation

2011 September 7 — 27, CARMABI, Curacao, Lesser Antilles. Conducted SCUBA based collections of coral reef fishes for quantifying community-wide food web dynamics in collaboration with Dr. David Post and Dr. Thomas Near (Yale University), Dr. Jon Moore (Florida Atlantic University), Dr. Dan Warren and Dr. Teresa Iglesias (Australian National University), and Dr. Peter Wainwright (University of California, Davis). Funding provided by the Lee Pierce foundation and National Science Foundation. Additional collections of geckos were conducted for ongoing investigations of how the introduction of non-native geckos has altered community patterns of resource usage

2010 August 11 — 25, CARMABI, Curacao, Lesser Antilles. Conducted SCUBA based collections of coral reef fishes in the family Holocentridae for phylogenetic and morpho-

Society of Systematic Biologists (SSB), and the American Society of Naturalists (ASN); Aug 19—22, Montpellier, France.

2018. Townsend, J.P., Su, Z., Dornburg, A. Optimal rates for phylogenetic inference and experimental design in the era of genome-scale datasets. Symposium: Meeting of the Society for Molecular Biology and Evolution; Jul 8—12, Yokohama, Japan.

2018. Wcisel, D., Yoder, J., Roupe-Abrams, L., Dornburg, A. Understanding the molecular diversification of self recognition through ray-finned fish innate immune receptor families. Poster: Meeting of the Society for Molecular Biology and Evolution; Jul 8—12, Yokohama, Japan.

2018. Near, T.J., MacGuigan, D., Parker, C.E., Jones, C., Struthers, C., Dornburg, A. The utility of restriction site associated DNA sequencing (RADseq) for resolving Cenozoic adaptive radiations: a case study of Antarctic notothenioid fishes. Lecture: Joint Meeting of Ichthyologists and Herpetologists, July 8—15 Rochester, NY.

2018. Parker, C., Dornburg, A., MacGuigan, D., Benavides, E., Near, T.J., Phylogenomic species delimitation and the reduction of species diversity in Antarctic plunderfishes (Notothenioidei: Artedidraconidae). Lecture: Joint Meeting of Ichthyologists and Herpetologists, July 8—15 Rochester, NY.

2018. Santini, F. Zapfe, K., Frederich, B., Dornburg, A. A macroevolutionary look at the history of herbivorous fishes in coral reefs (lecture): Meeting for the Society of Integrative and Comparative Biology, January 3—7, San Francisco, CA.

2017. Wiesel, D., Dornburg, A., Fisk, M., Yoder, J. Linking fish models to human health through the sequences of living fossils. TriCEM research showcase. Sept. 9, Raleigh, NC.

2017. Burrus, A. Dornburg, A. Federman, S. Lineage turnover and carbon storage in Madagascar. Lecture: Joint meeting of the Society for the Study of Evolution (SSE), the Society of Systematic Biologists (SSB), and the American Society of Naturalists (ASN); June 23—27, Portland, OR.

2017. Lamb, A. Near, T.J., Federman, S. Jones, C. Dornburg, A. Cradles and Museums of Antarctic Biodiversity. Poster: Meeting for the Society of Integrative and Comparative Biology, January 3—7, New Orleans LA.

2016. Alex Dornburg. Life on ice: the story of Antarctic fishes. Invited Lecture. Yale Peabody Museum 150 Year Anniversary Verrill Medal Symposium. 5 November, New Haven CT.

2016. Alex Dornburg. Adaptive radiation on ice, the evolutionary history of Antarctica's fishes. Invited Lecture. North Carolina State University College of Veterinary Medicine. 4 April, Raleigh, NC.

2016. Alex Dornburg, Jon A. Moore, Teresa Iglesias, Beth Forrestel, Andrew Jones, Leela Rao, Dan Warren. Welcome to the dark side: Nocturnality, bias, and the evolution of ray finned fishes. Invited Lecture. North Carolina State University Department of Applied Ecology. 18 February, Raleigh, NC.

2015. Alex Dornburg, Jon A. Moore, Teresa Iglesias, Beth Forrestel, Andrew Jones, Leela Rao, Dan Warren. Descending to the dark side: the role of nocturnality in the evolution of ray finned fishes. Symposium: 1st Bulletin of Marine Science Fish at Night Conference. 16—20 Nov., Miami, FL.

metric investigations into the tempo of diversification in collaboration with Dr. Thomas Near (Yale University) and Dr. Jon Moore (Florida Atlantic University). Additional collections of geckos were conducted to investigate how the introduction of non-native geckos has altered community patterns of resource usage in collaboration with Dr. Matthew Brandley (University of Sydney)

2009 July 14 — 30,
CARMABI, Curacao, Lesser Antilles. Conducted SCUBA based collections of coral reef fishes for DNA sequence analysis to resolve deep level relationships within acanthomorph fishes in collaboration with Dr. Thomas Near (Yale University), Dr. Peter Wainwright (University of California, Davis), and Dr. Leo Smith (Field Museum of Natural History)

DOMESTIC FIELDWORK

2018 Conducted numerous boat electroshock based collections with the North Carolina Wildlife Resources Commission to collect samples for NSF funded work on the evolution innate immune receptors in ray-finned fishes and assist in Striped Bass tagging for an ongoing angler mark recapture program

2017 Conducted numerous boat electroshock based collections with the North Carolina Wildlife Resources Commission to assess health of gar and bowfin populations through blood parameter assessment and collect samples for ongoing work on the evolution innate immune receptors in ray-finned fishes

2017 Conducted collections of benthic marine fishes along the North Carolina coastline to increase temperate taxon representation in ongoing teleost brain scanning efforts with Dr. Evan Economo and Dr. Teresia Iglesias (Okinawa Institute of Science and Technology)

2016 Continued collections (both boat and shore based) of oyster toad-

2014. Alex Dornburg. From cryptic species to adaptive radiation: Patterns of biodiversity in Antarctic fishes; Dec. 17, Raleigh Museum of Natural Sciences, NC. Invited lecture.

2014. Alex Dornburg. A fisheye perspective on the future of phylogenetics. Keynote: Yale Department of Ecology and Evolutionary Biology Annual Retreat; October 17, Orange, CT.

2014. Tony Su, Francesc Lopez-Giraldez, Alex Dornburg, and Jeffrey Townsend. PhyDesign: The impact of molecular evolutionary models on profiles of phylogenetic informativeness. Lecture: Joint meeting of the Society for the Study of Evolution (SSE), the Society of Systematic Biologists (SSB), and the American Society of Naturalists (ASN); June 20—24, Raleigh, NC.

2013. Jon A. Moore and Alex Dornburg. Ingestion of fossil seashells, stones, and small mammal bones by gravid gopher tortoises (*Gopherus polyphemus*) in South Florida. Lecture: 35th Annual Gopher Tortoise Council meeting, Oct 11-12, Ponte Vedra Beach, FL.

2013. Alex Dornburg, Ron Eytan, Elizabeth Spriggs, Thomas J. Near. Sister to Percomorpha? Symposium: 9th Indo-Pacific fish conference, June 24—28, Okinawa, Japan.

2013. Ron Eytan, Alex Dornburg, Thomas J. Near. Cryptic speciation in a clade of near-shore Caribbean reef fishes. Lecture: Meeting of the international biogeography society, January 9—13, Miami, FL.

2013. Alex Dornburg, Jon Moore, Jeremy Beaulieu, Thomas J. Near. Asymmetric responses to shifting biodiversity hotspots: evidence from squirrelfishes and soldierfishes. Lecture: Meeting of the international biogeography society, January 9—13, Miami, FL.

2012. Alex Dornburg, Jon Moore, Jeremy Beaulieu, Thomas J. Near. Asymmetric responses to shifting biodiversity hotspots: evidence from squirrelfishes and soldierfishes. Symposium: 14th European Congress of Ichthyology, July 3—8, Liege, Belgium.
Best student talk awarded.

2011. Alex Dornburg, Jeffrey Townsend, Thomas J. Near. Signal, Noise, and Primate Molecular Divergence Time Estimates. Lecture: Meeting for the Society of Integrative and Comparative Biology, January 3—7, Salt Lake City, UT.

2010. Alex Dornburg, Jeffrey Townsend, Thomas J. Near. Signal and Noise in Molecular Divergence Time Estimates. Symposium: Joint meeting of the Society for the Study of Evolution (SSE), the Society of Systematic Biologists (SSB), and the American Society of Naturalists (ASN); June 25—29, Portland, OR.

2009. Alex Dornburg, Brian Sidluaskas, Francesco Santini, Laurie Sorenson, Michael E. Alfaro. The Effect of a Novel Locomotor Type on Subsequent Patterns of Morphological and Mechanical Evolution in Triggerfishes. Lecture: Joint meeting of the Society for the Study of Evolution (SSE), the Society of Systematic Biologists (SSB), and the American Society of Naturalists (ASN); June 12—16, Moscow, ID.

2009. Alex Dornburg, Brian Sidluaskas, Francesco Santini, Laurie Sorenson, Michael E. Alfaro. Patterns of Morphological and Mechanical Evolution in Triggerfishes. Lecture: Meeting for the Society of Integrative and Comparative Biology, January 3—7, Boston, MA.

DOMESTIC FIELDWORK (Cont'd)

fish along the North Carolina Atlantic Coastline. Conducted numerous boat electroshock based surveys with the North Carolina Wildlife Resources Commission. Sampling efforts involved conducting surveys of sportfish and catfish to assess the impact of hand crank electro-fishing regulations and subsampling Long-Nose Gar for genetic analyses as part of an ongoing collaboration with Dr. Thomas Near at Yale University

2015 Conducted and led numerous collections (both boat and shore based) of oyster toadfish and pinfish along the North Carolina Atlantic Coastline. Sampling efforts involved both research staff under my supervision and undergraduate and graduate volunteers. Samples collected were used for collaborations with the Dr. Greg Lewbart at the NC State Veterinary School and Dr. Ron Eytan at Texas A&M University at Galveston

2015 Conducted numerous boat electroshock based surveys with the North Carolina Wildlife Resources Commission to aid with sportfish sampling to assess angler impacts. Subsampled Long-Nose Gar for genetic study

Summer 2008—Summer 2014
Ongoing scuba based collections of Long Island Sound and Rhode Island to augment tissue samples in the Yale Peabody Museum

Summer 2008—Summer 2014
Assisted on numerous NOAA trawls of Long Island Sound based out of Milford CT, with researchers and student groups

Summer 2007—Summer 2008
Assisted Graduate student Robert Weaver in Reptile and Amphibian surveys across Eastern Washington State

2008. Alex Dornburg, Francesco Santini, Michael E. Alfaro. Model Averaging and Phylogenetic Inference. Invited Lecture: August 6. University of California Los Angeles.

2008. Alex Dornburg, Francesco Santini, Laurie Sorenson, Michael E. Alfaro. The Evolutionary History of the Triggerfishes (family Balistidae) with a comparative study of fin morphology and mechanics. Lecture: Meeting for the Society of Integrative and Comparative Biology, January 3—6, San Antonio, TX.

2008. Michael E. Alfaro, Chad D. Brock, Barbara Banbury, Alex Dornburg, Francesco Santini. Testing Macroevolutionary Hypotheses in Fishes: Examples from the Acanthomorpha. Symposium: Meeting for the Society of Integrative and Comparative Biology, January 3—6, San Antonio, TX.

2007. Alex Dornburg, Francesco Santini, Michael E. Alfaro. The Influence of Model Averaging on Clade Posteriors: An Example using the Triggerfishes (Family Balistidae). Lecture: Joint Meeting of Ichthyologists and Herpetologists, July 11—17 Saint Louis, MI.

2007. Alex Dornburg, Francesco Santini, Michael E. Alfaro. Model-Averaged Phylogenetic Inference of the Triggerfishes (Family: Balistidae). Poster: Wiley Exposition Graduate Student Poster Competition, Washington State University; March, Pullman, WA.
First place awarded.

2007. Alex Dornburg, Francesco Santini, Michael E. Alfaro. Model-Averaged Phylogenetic Inference of the Triggerfishes (Family: Balistidae). Poster: Meeting for the Society of Integrative and Comparative Biology, January 4—7, Phoenix, AZ.

2006. Alex Dornburg, Barbara L. Banbury, Michael E. Alfaro. Patterns of Genome Size Evolution Within the Tetraodontiformes. Poster: Center for Integrative Biotechnology Retreat; September 22, Moscow, ID.

2006. Alex Dornburg, Devin Drown, Michael E. Alfaro. The Effects of Model Averaging on Inference of Tetraodontiform Fish Phylogeny. Poster: Joint meeting of the Society for the Study of Evolution (SSE), the Society of Systematic Biologists (SSB), and the American Society of Naturalists (ASN); June 23—27, Stony Brook, NY.

2006. Alex Dornburg and Michael E. Alfaro. Opening Pandora's Boxfish: A Molecular vs. Morphological Analysis of the Interrelationships of Tetraodontiform Fishes. Poster: Undergraduate Research Poster Competition, Washington State University; April, Pullman, WA.
Third place awarded.

CERTIFICATIONS

PADI OPEN WATER SCUBA
PADI ADVANCED SCUBA
RESCUE DIVER
NITROX DIVER
DRY SUIT DIVER
NIGHT DIVER
AAUS SCIENTIFIC DIVER
CPR/FIRST AID

REFERENCES

Dr. Thomas J. Near, Professor of Ecology and Evolutionary Biology, Yale University, New Haven, CT 06520 USA, Phone: (203) 432-3002 email: thomas.near@yale.edu (doctoral mentor and co-author)

Dr. Michael E. Alfaro, Professor of Ecology and Evolutionary Biology, University of California, Los Angeles, CA 90095, Phone: (310) 794-5019 email: michaelalfaro@ucla.edu (doctoral committee member and co-author)

Dr. Jeffrey Townsend, Professor of Computational Biology and Bioinformatics, Yale University, New Haven, CT 06520, Phone: (203) 737-7042 email: Jeffrey.townsend@yale.edu (doctoral committee member and co-author)