

# Christian Che-Castaldo

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## EDUCATION

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| 2014 | Ph.D. in Behavior, Ecology, Evolution, and Systematics Program<br>University of Maryland, Advisor: William F. Fagan |
| 1997 | B.A. <i>cum laude</i> in Public Policy and Environmental Studies<br>The College of William and Mary                 |

## PROFESSIONAL APPOINTMENTS

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|-------------|---|
| 2018 –      | Research Scientist<br>Mount St. Helens Institute, Amboy, WA                                     |
| 2015 – 2018 | Postdoctoral Associate<br>Dept. of Ecology & Evolution, Stony Brook University, Stony Brook, NY |
| 2014 – 2015 | Postdoctoral Research Associate<br>Dept. of Biology, University of Maryland, College Park, MD   |
| 2004 – 2005 | Research Fellow<br>Dept. of Entomology, University of Maryland, College Park, MD                |
| 1998 – 2003 | Consultant<br>Law Economic Consulting Group, Washington, DC                                     |
| 1997 – 1998 | Associate Economist<br>Triangle Economic Research Group, Durham, NC                             |

## PUBLICATIONS

### Peer-reviewed Journal Articles

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| 2020 | Schrimpf, M. B., <b>C. Che-Castaldo</b> , and H. J. Lynch, 2020. Regional breeding bird assessment of the antarctic peninsula. <i>Polar Biology</i> <b>43</b> :111–122.  |
| 2019 | <b>Che-Castaldo, C.</b> , C. M. Crisafulli, J. G. Bishop, E. F. Zipkin, and W. F. Fagan, 2019. Disentangling herbivore impacts in primary succession by refocusing the plant stress and vigor hypotheses on phenology. <i>Ecological Monographs</i> . <b>89</b> :e01389. |
| 2019 | DiRenzo, G. V., <b>Che-Castaldo, C.</b> , S. P. Saunders, E. H. C. Grant, and E. F. Zipkin, 2019. Disease-structured n-mixture models: A practical guide to model disease dynamics using count data. <i>Ecology and Evolution</i> <b>9</b> :899–909.                     |

- 2018 Humphries, G. R. W., **Che-Castaldo, C.**, P. J. Bull, G. Lipstein, A. Ravia, B. Carrión, T. Bolton, A. Ganguly, and H. J. Lynch, 2018. Predicting the future is hard and other lessons from a population time series data science competition. *Ecological Informatics* **48**:1–11.
- 2018 Che-Castaldo\*, J., **Che-Castaldo\*, C.**, and M. Neel, 2018. Predictability of demographic rates based on phylogeny and biological similarity. *Conservation Biology* **32**:1290–1300. (\* Both authors contributed equally)
- 2018 DiRenzo, G. V., E. H. C. Grant, A. V. Longo, **C. Che-Castaldo**, K. R. Zamudio, and K. R. Lips, 2018. Imperfect pathogen detection from non-invasive skin swabs biases disease inference. *Methods in Ecology & Evolution* **9**:380–389.
- 2017 **Che-Castaldo, C.**, S. Jenouvrier, C. Youngflesh, K. T. Shoemaker, G. Humphries, P. McDowall, L. Landrum, M. M. Holland, Y. Li, R. Ji, and H. J. Lynch, 2017. Pan-Antarctic analysis aggregating spatial estimates of Adélie penguin abundance reveals robust dynamics despite stochastic noise. *Nature Communications* **8**:832.
- 2017 Humphries, G., R. Naveen, M. Schwaller, **C. Che-Castaldo**, P. McDowall, M. Schrimpf, and H. Lynch, 2017. Mapping Application for Penguin Populations and Projected Dynamics (MAPPPD): data and tools for dynamic management and decision support. *Polar Record* **53**:160–166.
- 2017 DiRenzo, G. V., **C. Che-Castaldo**, A. Rugenski, R. Brenes, M. R. Whiles, C. M. Pringle, S. S. Kilham, and K. R. Lips, 2017. Disassembly of a tadpole community by a multi-host fungal pathogen with limited evidence of recovery. *Ecological Applications* **27**:309–320.
- 2015 **Che-Castaldo, C.**, C. M. Crisafulli, J. G. Bishop, and W. F. Fagan, 2015. What causes female bias in the secondary sex ratios of the dioecious woody shrub *Salix sitchensis* colonizing a primary successional landscape? *American Journal of Botany* **102**:1309–1322.
- 2007 Alyokhin, A., G. Dively, M. Patterson, **C. Castaldo**, D. Rogers, M. Mahoney, and J. Wollam, 2007. Resistance and cross-resistance to imidacloprid and thiamethoxam in the Colorado potato beetle *Leptinotarsa decemlineata*. *Pest Management Science* **63**:32–41.
- 1998 Fernandez-Cornejo, J. and **C. Castaldo**, 1998. The diffusion of IPM techniques among fruit growers in the USA. *Journal of Production Agriculture* **11**:497–506.

## White Papers

- 2019 Humphries, G. R. W., R. Naveen, **C. Che-Castaldo**, and H. J. Lynch, 2019. The Mapping Application for Penguin Populations and Projected Dynamics (MAPPPD) database: A tool for helping stakeholders monitor penguin population trends in Antarctica. Submission to CCAMLR Working Group on Ecosystem Monitoring and Management, Oceanites, Washington, DC, USA.

**FUNDING**

2011	National Science Foundation, REU Supplemental	\$7,000
2011	Goldhaber Travel Award	\$500
2010	College of Life Science Travel Award	\$300
2010	National Science Foundation, REU Supplemental	\$7,000
2009	National Science Foundation, REU Supplemental	\$12,000
2007	National Science Foundation, GRFP	Honorable Mention
2005	Darwin Graduate Scholarship	\$20,000

**CONFERENCE ACTIVITY****Invited Talks**

2017	The attack dynamics and successional consequences of stem-borer herbivory on sitka willow at Mount St. Helens, Department of Ecology & Evolution Spring Colloquium, Stony Brook University, Stony Brook, NY
2016	Hierarchical Bayesian modeling of continental-scale Adélie penguin occupancy and abundance, Conservation Science Department Seminar Series, Lincoln Park Zoo, Chicago, IL
2012	Mount St. Helens: lessons From 31 Years of Post-Eruption Ecological Research, Ecological Society of America Fieldtrip, Portland, OR
2010	Mount St. Helens 30th Anniversary Science Pulse, Pacific Northwest Research Station, US Forest Service, Randle, WA

**Oral Presentations**

2018	<b>Che-Castaldo, C.</b> , H. J. Lynch, C. Youngflesh, M. R. Schwaller. Range-wide Adélie penguin abundance from 30 years of Landsat satellite imagery. SCAR Open Science Conference, Davos, Switzerland
2017	Bishop, J. G. W. F. Fagan, <b>C. Che-Castaldo</b> , and C. M. Crisafulli. Plant-herbivore interactions impact community dynamics in primary succession at Mount St. Helens. Ecological Society of America, Portland, OR
2016	<b>Che-Castaldo, C.</b> , H. J. Lynch, S. Jenouvrier, M. R. Schwaller. Hierarchical Bayesian modeling of continental-scale Adélie penguin occupancy and abundance. SCAR Open Science Conference, Kuala Lumpur, Malaysia
2016	Che-Castaldo, J. P., M. C. Neel, and <b>C. Che-Castaldo</b> . Comparative demographic analysis to inform endangered species management. Demography Beyond the Population Symposium, Sheffield, UK
2015	<b>Che-Castaldo, C.</b> , C. M. Crisafulli, J. G. Bishop, and W. F. Fagan. What causes female bias in the secondary sex-ratios of the dioecious woody shrub <i>Salix sitchensis</i> colonizing a primary successional landscape? Ecological Society of America, Baltimore, MD

- 2015 | Che-Castaldo, J., **C. Che-Castaldo**, and M. C. Neel. Testing the use of surrogate demographic information for endangered species management. Ecological Society of America, Baltimore, MD
- 2012 | **Che-Castaldo, C.**, C. M. Crisafulli, J. G. Bishop, and W. F. Fagan. Secondary sexual dimorphism in willow across a resource gradient: is gender important in primary succession? Ecological Society of America, Portland, OR
- 2010 | **Che-Castaldo, C.**, E. H. C. Grant, C. M. Crisafulli, J. G. Bishop, and W. F. Fagan. Using occupancy models to investigate large-scale stem-boring insect herbivory dynamics in a primary successional landscape. Ecological Society of America, Pittsburgh, PA
- 2005 | **Che-Castaldo, C.** and G. Dively. Colorado potato beetle and neonicotinoid resistance management. Entomological Society of America, Harrisburg, PA

### Poster Presentations

- 2013 | **Che-Castaldo, C.**, C. M. Crisafulli, J. G. Bishop, and W. F. Fagan. Using multi-season occupancy models to investigate insect herbivory dynamics in a primary successional landscape. Gordon Research Conference: Plant-herbivore interactions, Ventura Beach, CA
- 2008 | **Che-Castaldo, C.**, T. Hinds, and J. G. Bishop. Local maladaptation in the aphid *Macrosiphum albifrons* to its host plant *Lupinus lepidus* var. *lobbii* in a primary successional landscape. Ecological Society of America, Milwaukee, WI
- 2006 | **Che-Castaldo, C.** and G. Dively. Integrating fitness costs due to insecticide resistance using matrix population models. Ecological Society of America, Memphis, TN

### TEACHING EXPERIENCE

#### Graduate-level Courses

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|-------------|--|-------------|
| 2015 – 2019 | Bayesian Modeling for Socio-Environmental Data, Instructor<br>National Socio-Environmental Synthesis Center, Annapolis, MD | 5 courses   |
| 2009 – 2013 | Theoretical Ecology, Lab Instructor<br>University of Maryland, College Park, MD  | 2 semesters |

#### Undergraduate-level Courses

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|-------------|---|-------------|
| 2005 – 2013 | Organismal Biology, Graduate Teaching Assistant<br>University of Maryland, College Park, MD     | 4 semesters |
| 2006        | Principles of Genetics, Graduate Teaching Assistant<br>University of Maryland, College Park, MD | 1 semester  |

**Mentoring**

2005 – 2013	Mentored 15 undergraduate or volunteer research assistants University of Maryland, College Park, MD Washington State University, Vancouver WA
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**PROFESSIONAL SERVICES****Peer Review**

Journals	Oikos, Journal of Applied Ecology, Ecosphere, Scientific Reports, Diversity & Distributions, Nature Communications, Ecological Monographs
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**External Review**

Books	Hobbs, N. T. and M. B. Hooten, 2015. Bayesian models: a statistical primer for ecologists. Princeton University Press, Princeton, NJ
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**Departmental Service**

2013	Graduate student representative on faculty search committee Department of Biology, University of Maryland, College Park, MD
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**PROFESSIONAL MEMBERSHIPS**

2006 – 2015	Ecological Society of America
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**COMMUNITY OUTREACH**

2012 – 2013	Gave informal research presentations on Mount St. Helens Institute public tours
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**ADDITIONAL TRAINING**

2018	Ecological Forecasting Summer Course Boston University, Boston, MA
2014	Bayesian Modeling for Ecological and Social Scientists Short Course National Socio-Environmental, Synthesis Center, Annapolis, MD
2011	Modeling Patterns and Dynamics of Species Occurrence Workshop USGS Patuxent Wildlife Research Center, Laurel, MD
2010	Bayesian Population Analysis using WinBUGS Workshop USGS Patuxent Wildlife Research Center, Laurel, MD
2010	LI-6400XT Portable Photosynthesis Training Course LI-COR Biosciences, Lincoln, NE
2008	Introduction to Bayesian Linear Models for Ecologists Using WinBUGS Smithsonian National Zoo, Washington, DC

**RELEVANT COURSEWORK**

Biostatistics I and II

Applied Multivariate Statistics

Calculus I, II, and III

Linear Algebra

Differential Equations

Theoretical Ecology

Insect Ecology

Insect Diversity and Classification