Aldo Compagnoni

Postdoc
Martin Luther University Halle-Wittenberg
German Centre for Integrative Biodiversity Research (iDiv) Halle-Jena-Leipzig
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Github: https://github.com/AldoCompagnoni

EDUCATION

2013	Ph.D. in Plant Ecology, Department of Wildland Resources and the Ecology Center, Utah State University. Dissertation: "Climate change and plant demography in the Sagebrush steppe".
2008	M.S. in Forest Ecology, College of Forest Resources, University of Washington. Thesis: "Controls on plant species invasions during early secondary succession: the roles of plant origin and community properties".
2004	B.A. in Forestry and Environmental sciences (5 years degree, 110/110 *cum laude*), University of Torino, Italy, Torino. Thesis: "Successional dynamics and conservation of biodiversity in the rangelands of the Stura di Demonte valley".

PROFESSIONAL APPOINTMENTS

2022	Independent postdoc, Martin Luther University Halle-Wittenberg
2017	Postdoc, Martin Luther University Halle-Wittenberg; Helmholtz-Centre for Environmental Research – UFZ
2013	Postdoc, Rice University

FELLOWSHIPS

2022-2024	DFG (German science foundation) independent researcher grant (€263.496)
2008-2012	Quinney competitive fellowship ($80000)
2006-2007	College of Forest Resources Fellowship – 2 year Tuition waiver and 3 quarters of Research Assistantship (University of Washington)
2006-2008	Fulbright scholarship ($16000).

GRANTS

2023-2025	DFG (German science foundation) "Quantifying and Reducing Uncertainty in Plant Demographic models" (€186.687)

PUBLICATIONS

Compagnoni, A., S. Evers, and T. Knight. 2023. Spatial replication can best advance our understanding of population responses to climate. Ecography. https://doi.org/10.1111/ecog.06833.

Evers, S. M., T. M. Knight, and **A. Compagnoni**. 2023. The inclusion of immediate and lagged climate responses amplifies the effect of climate autocorrelation on long-term growth rate of populations. Journal of Ecology 111:1985–1996. https://doi.org/10.1111/1365-2745.14155.

Gascoigne, S. J. L., S. Rolph, D. Sankey, N. Nidadavolu, A. S. Stell Pičman, C. M. Hernández, M. E. R. Philpott, A. Salam, C. Bernard, E. Fenollosa, Y. J. Lee, J. McLean, S. Hetti Achchige Perera, O. G. Spacey, M. Kajin, A. C. Vinton, C. R. Archer, J. H. Burns, D. L. Buss, H. Caswell, J. P. Che-Castaldo, D. Z. Childs, P. Capdevila, A. Compagnoni, E. Crone, T. H. G. Ezard, D. Hodgson, T. M. Knight, O. R. Jones, E. Jongejans, J. McDonald, B. Tenhumberg, C. C. Thomas, A. J. Tyre, S. Ramula, I. Stott, R. L. Tremblay, P. Wilson, J. W. Vaupel, and R. Salguero-Gómez. 2023. A standard protocol to report discrete stage-structured demographic information. Methods in Ecology and Evolution 14:2065–2083. https://doi.org/10.1111/2041-210X.14164.

Wisnoski, N. I., R. Andrade, M. C. N. Castorani, C. P. Catano, **A. Compagnoni**, T. Lamy, N. K. Lany, L. Marazzi, S. Record, A. C. Smith, C. M. Swan, J. D. Tonkin, N. M. Voelker, P. L. Zarnetske, and E. R. Sokol. 2023. Diversity–stability relationships across organism groups and ecosystem types become decoupled across spatial scales. Ecology 104:e4136. https://doi.org/10.1002/ecy.4136.

Ohse, B., **A. Compagnoni**, C. E. Farrior, S. M. McMahon, R. Salguero-Gómez, N. Rüger, and T. M. Knight. 2023. Demographic synthesis for global tree species conservation. Trends in Ecology & Evolution.

Miller T. E. X. and **A. Compagnoni**. 2022. Two-sex demography, sexual niche differentiation, and the formation of range limits over an environmental gradient. *American Naturalist*. https://doi.org/10.1086/719668.

Levin, S. C., S. Evers, T. Potter, M. P. Guerrero, D. Z. Childs, **A. Compagnoni**, T. M. Knight, and R. Salguero-Gómez. 2022. Rpadrino: An R package to access and use PADRINO , an open access database of Integral Projection Models. *Methods in Ecology and Evolution*. https://doi.org/10.1111/2041-210X.13910.

Compagnoni, A., S. Levin, D. Z. Childs, S. Harpole, M. Paniw, G. Römer, J. H. Burns, J. Che-Castaldo, N. Rüger, G. Kunstler, J. M. Bennett, C. R. Archer, O. R. Jones, R. Salguero-Gómez, T. M. Knight. 2021. Herbaceous perennial plants with short generation time have stronger responses to climate anomalies than those with longer generation time. *Nature Communications*. https://doi.org/10.1038/s41467-021-21977-9.

Compagnoni, A., E. Pardini, T. M. Knight. 2021. Increasing temperature threatens an already endangered coastal dune plant. *Ecosphere*. https://doi.org/10.1002/ecs2.3454.

Evers, S. M., T. M. Knight, D. W. Inouye, T. E. X. Miller, R. Salguero-Gómez, A. M. Iler, **A. Compagnoni**. 2021. Lagged and dormant season climate better predict plant vital rates than climate during the growing season. *Global Change Biology*. https://doi.org/10.1111/gcb.15519.

Maria Paniw, T. James, C. R. Archer, G. Römer, S. Levin, **A. Compagnoni**, J. Che-Castaldo, J. M. Bennett, A. Mooney, D. Z. Childs, A. Ozgul, O. R. Jones, J. H. Burns, A. Beckerman, A. Patwary, N. Sanchez-Gassen, T. M. Knight, R. Salguero-Gómez. 2021. Global analysis reveals complex demographic responses of mammals to climate change. *Journal of Animal Ecology*. https://doi.org/10.1101/2019.12.16.878348.

Levin, S. C., D. Z. Childs, **A. Compagnoni**, S. Evers, T. M. Knight, and R. Salguero-Gómez. 2021. ipmr: Flexible implementation of Integral Projection Models in R. Methods in Ecology and Evolution 12:1826–1834. https://doi.org/10.1111/2041-210X.13683.

Lemmer, J., M. Andrzejak, **A. Compagnoni**, T. M. Knight, and L. Korell. 2021. Climate change and grassland management interactively influence the population dynamics of Bromus erectus (Poaceae). Basic and Applied Ecology 56:226–238. https://doi.org/10.1016/j.baae.2021.06.012.

Villellas, J., J. Ehrlén, E. E. Crone, A. M. Csergő, M. B. Garcia, A. Laine, D. A. Roach, R. Salguero-Gómez, G. M. Wardle, D. Z. Childs, B. D. Elderd, A. Finn, S. Munné-Bosch, B. Bachelot, J. Bódis, A. Bucharova, C. M. Caruso, J. A. Catford, M. Coghill, **A. Compagnoni**, R. P. Duncan, J. M. Dwyer, A. Ferguson, L. H. Fraser, E. Griffoul, R. Groenteman, L. N. Hamre, A. Helm, R. Kelly, L. Laanisto, M. Lonati, Z. Münzbergová, P. Nuche, S. L. Olsen, A. Oprea, M. Pärtel, W. K. Petry, S. Ramula, P. U. Rasmussen, S. R. Enri, A. Roeder, C. Roscher, C. Schultz, O. Skarpaas, A. L. Smith, A. J. M. Tack, J. P. Töpper, P. A. Vesk, G. E. Vose, E. Wandrag, A. Wingler, and Y. M. Buckley. 2021. Phenotypic plasticity masks range-wide genetic differentiation for vegetative but not reproductive traits in a short-lived plant. Ecology Letters 24:2378–2393. https://doi.org/10.1111/ele.13858.

Lamy, T., N. I. Wisnoski, R. Andrade, M. C. N. Castorani, **A. Compagnoni**, N. Lany, L. Marazzi, S. Record, C. M. Swan, J. D. Tonkin, N. Voelker, S. Wang, P. L. Zarnetske, and E. R. Sokol. 2021. The dual nature of metacommunity variability. Oikos. https://doi.org/10.1111/oik.08517.

Record, S., Voelker, N., P. Zarnetske, N. Wisnoski, J. Tonkin, C. Swan, L. Marazzi, N. Lany, T. Lamy, **A. Compagnoni**, M. C. N. Castorani, R. Andrade, E. R. Sokol. 2021. Novel insights to be gained from applying metacommunity theory to long-term biodiversity data. *Frontiers in Ecology and Evolution*. https://doi.org/10.3389/fevo.2020.612794.

Bernard, C., **A. Compagnoni**, R. Salguero-Gómez. 2020. Testing Finch's hypothesis: the role of organismal modularity on the escape from actuarial senescence. *Functional ecology*. https://doi.org/10.1111/1365-2435.13486.

Compagnoni, A., A. J. Bibian, B. M. Ochocki, K. Zhu, S. Levin, T. E. X. Miller. 2020. popler: An r package for extraction and synthesis of population time series from the long-term ecological research (LTER) network. *Methods in Ecology and Evolution*. doi: 10.1111/2041-210X.13319. R package officially accetted at rOpenSci.

Iler, A. M., **A. Compagnoni**, D. W. Inouye, J. L. Williams, P. J. CaraDonna, A. Anderson, T. E.X. Miller. 2019. Reproductive losses due to climate change-induced earlier flowering are not the primary threat to plant population viability in a perennial herb. *Journal of Ecology*. doi: 10.1111/1365-2745.13146.

Compagnoni, A., K. Steigman, and T. E. X. Miller. 2017. Can't live with them, can't live without them? Balancing mating and competition in two-sex populations. *Proceedings of the Royal Society of London B* 284:20171999.

Wagner, N. K., B. M. Ochocki, **A. Compagnoni**, K. M. Crawford, and T. E. X. Miller. 2017. Genetic mixture of multiple source populations accelerates invasive range expansion. *Journal of Animal Ecology* 86:21-34.

Compagnoni, A., A. J. Bibian, B. Ochocki, H. S. Rogers, E. L. Schultz, M. E. Sneck, B. D. Elderd, A. Iler, D. W. Inouye, H. Jacquemyn, and T. E. X. Miller. 2016. The effect of demographic correlations on the stochastic population dynamics of perennial plants. *Ecological Monographs* 86:480–494.

Adler, P. B., R. Salguero-Gomez, **A. Compagnoni**, J. Hsu, J. Ray-Mukherjee, C. Mbeau-Ache, and M. Franco. 2014. Functional traits explain variation in plant life history strategies. *Proceedings of the National Academy of Sciences* 111:740–745.

Compagnoni, A., and P. B. Adler. 2014. Warming, soil moisture, and loss of snow increase *Bromus tectorum*'s population growth rate. *Elementa*. doi: 10.12952/journal.elementa.000020

Compangoni, A., and P. B. Adler. 2014. Warming, competition, and *Bromus tectorum* population growth across an elevation gradient. *Ecosphere* 5. doi: 10.1890/ES14-00047.1.

Compagnoni, A., and C. B. Halpern. 2009. Properties of native plant communities do not determine exotic success during early forest succession. *Ecography* 32:449-458.

Publications submitted* (online as pre-prints)*:

Gascoigne, S. J. L., A. Rosen, K. Sanghvi, , U. K. Steiner, G. Bocedi, and I. Sepil. 2023b. Current perspectives and future directions in animal life history evolution. preprint, Preprints. https://doi.org/10.22541/au.169644643.31608268/v1.

Compagnoni, A., T. Knight, D. Childs, R. Salguero-Gomez. Antecedent effect models as an exploratory tool to link climate drivers to plant population dynamics. https://doi.org/10.1101/2022.03.11.484031.

Bachelot B., **A. Compagnoni**, P. F. P. Brandão-Dias, S. K. Carter, M. L. Donald, J. C. Fowler, D. Gorczynski, C. G.B. Grupstra, Z. R. Neale, L. Zhang, J. A. Rudgers, K. Zhu and T. E. X. Miller. Sensitivity to climate variability in North American plant and animal populations.

Publications in preparation* (draft available upon request)*:

Compagnoni, A., B. Ohse, S. M. McMahon, T. M. Knight, N. Rüger. Generation time in trees: a simulation method.

Compagnoni, A., S. Levin, D. Z. Childs, S. Harpole, M. Paniw, G. Römer, J. H. Burns, J. Che-Castaldo, N. Rüger, G. Kunstler, J. M Bennett, C. R. Archer, O. R. Jones, R. Salguero-Gómez, T. M. Knight. A systematic literature review shows opportunities to study the effect of climate on plant population dynamics.

AWARDS AND HONORS

2020 Marie Skłodowska-Curie actions seal of excellence.

2012 ESA student travel award from the U.S. Department of Defense's Strategic Environmental Research and Development Program (SERDP). $500.

2012 "Climate warming effects on cheatgrass (*Bromus tectorum*): do maternal effects matter?" Utah State University graduate student senate. $824.

2011 "Will climate change exacerbate cheatgrass (*Bromus tectorum*) invasion?".Utah State University Ecology Center. $2800.

2011 Plant population ecology section student travel award. Plant Population Ecology Section of the Ecological Society of America. Austin, Texas. $200.

2011 Selected attendees for the 3rd Stanford Workshop in Biodemography, Stanford, USA.

2010 "Will climate change exacerbate cheatgrass (*Bromus tectorum*) invasion?".Utah State University Ecology Center. $4000.

INVITED TALKS

Compagnoni, A. and P.B. Adler. 2012. "Climate change and cheatgrass (*Bromus tectorum*) invasion in the American Intermountain West". Max Planck Institute for Demographic Research, Rostock, Germany.

Compagnoni A. 2013. "Climate Change and Plant Demography in the Sagebrush Steppe". Rice University, Department of Ecology and Evolutionary Biology, Texas, Houston.

ORGANIZED SIMPOSIA

"Forecasting the Effect of Extreme Climatic Events on Population Dynamics: A Forthcoming Research Agenda". Ecological Society of America, New Orleans, LA, USA.

CONFERENCE PRESENTATIONS

Compagnoni A., S. Levin, D. Z. Childs, S. Harpole, M. Paniw, G. Römer, J. H. Burns, J. Che-Castaldo, N. Rüger, G. Kunstler, J. M. Bennett, C. R. Archer, O. R. Jones, R. Salguero-Gómez, T. M. Knight. 2020. "Will the old outlive the storm? Generation time correlates with the response of herbaceous perennials to climate in temperate habitats.". British Ecological Society (Online meeting).

Compagnoni A., E. Pardini, T. M. Knight. 2019. "Temperature increase is an extinction threat for an endangered dune plant". British Ecological Society, Belfast, UK.

Compagnoni A., Andrew J. Bibian, Brad M. Ochocki, Kai Zhu and Tom E. X. Miller. 2019. "Can population time-series data be combined into a single data structure? Insights from developing the Popler database." Ecological Society of America, Louisville, KY, USA.

Compagnoni A., R. Salguero-Gomez, D. Childs, B. Teller, P. Barks, M. Paniw, T. Knight. 2018. “Forecasting the response of plant populations to climate change: The role of species life history.”. Ecological Society of America, New Orleans, LA, USA.

Compagnoni A., R. Salguero-Gomez, D. Childs, B. Teller, P. Barks, M. Paniw, T. Knight. 2018. “Understanding the effect of climate on plant population dynamics: the moving window approach”. Evolutionary demography society, Domaine Saint Joseph at Sainte-Foy Les Lyon, Lyon, France.

Compagnoni A., T.E.X. Miller, and A. J. Bibian. 2016. “The effect of climatic variability on population dynamics: Negative, neutral, or positive?”. Evolutionary demography society, University of Virginia.

Compagnoni A., T.E.X. Miller, and A. J. Bibian. 2016. “The effect of climatic variability on population dynamics: Negative, neutral, or positive?”. Ecological Society of America, Fort Lauderdale, Florida.

Compagnoni A., T.E.X. Miller, and K. Steigman. 2015. “Quantifying positive and negative interactions between the sexes”. Ecological Society of America, Baltimore, Maryland.

Compagnoni A., et al. 2014. “The effect of spatio-temporal heterogeneity on the dynamics of plant populations”. Ecological Society of America, Sacramento, California.

Compagnoni, A. and P.B. Adler. 2013. "Do the indirect effects of climate change decrease with species abundance?". Ecological Society of America, Minneapolis, Minnesota.

Compagnoni, A. and P.B. Adler. 2012. "Warming and reduced snow cover improve cheatgrass (*Bromus tectorum*) performance in the Intermountain West". Ecological Society of America, Portland, Oregon.

Compagnoni, A. and P.B. Adler. 2011. "Climate warming and cheatgrass (*Bromus tectorum*) invasion in the Intermountain West". Ecological Society of America, Austin, Texas.

Compagnoni, A. and P.B. Adler. 2011. "Climate change and cheatgrass (*Bromus tectorum*) invasion in the Sagebrush ecosystems of Northern Utah". Intermountain Graduate Research Symposium, Logan, Utah.

TEACHING EXPERIENCE

Utah State University

Wildland Ecosystem	(Instructor, Undergraduate 2011)
Wildland Ecosystem	(TA, Undergraduate 2009, 2010)

Martin Luther University Halle-Wittenberg

Spatial ecology course	(Two-day invited lecture, 2017-2020; 2022)

University of Oxford

Stage-based demographic models in ecology, evolution and conservation biology (Co-instructor, January 2019)

Advising

Graduate advisee: Sanne Evers (Ph.D., iDiv, Fall 2019-), Neeraja Venkataraman (Ph.D., iDiv, Fall 2019-), Connor Bernard (Ph.D., University of Oxford, Fall 2019-),
Saneesh Cherapurath Soman (Ph.D., iDiv, Spring 2021-).
Undergraduate advisee: Rachel Ann Hodge (Centennial Fellowship, 2013-2015); Emily Begnel (senior thesis, 2015). Nakian Kim (spring 2017); Olga Kuehn (winter 2018).
SEEDS mentor at the ESA meeting 2015 and 2019.
Graduate employee: Mayra Guerrero Pena, Sanne Evers (Fall 2018)

SERVICE

Associate editor for *Methods in Ecology and Evolution* (handled 17 articles as of April 2023).

Reviewed 33 articles and one book chapter. Articles reviewed for: *Nature Ecology and Evolution*, *Ecology Letters* (4), *Philosophical Transactions of the Royal Society B*, *Journal of Ecology* (9), *Proceedings of the Royal Society B*, *Ecology* (2), *Journal of Animal Ecology* (3), *Functional ecology*, *Ecosphere* (3), *Ecological modelling*, *Restoration ecology*, *Fire ecology* (2), *Journal of Arid Environments*, *Biological invasions*, *International Journal of Wildland Fire*, *Western North American Naturalist*, *Population ecology*, *Forests.*

Reviewed grant proposals for the United States of America's National Science Foundation (NSF), and for the United Kingdom Naturel Environment Research Council (NERC).

Secretary-Treasurer for the Plant Population Ecology Section, Ecological Society of America (2014-2015).

Other
Utah State University Ecology Center Student Committee (Chair 2011-2012, Member 2009-2011).
Xi Sigma Pi Forestry Honour Society (Vice president, 2007-2008).
International Forestry Students Association (Western Europe representative 2003-2004).

ADDITIONAL TRAINING

Workshops:
2011 3rd Stanford Workshop in Biodemography, Stanford, USA.
2011 Sensitivity Analysis, Ecological Society of America, Austin, Texas.
2012 Python for Ecology, Ecological Society of America, Portland, Oregon.
2012 Demography In a Continuous World: New Advances In Integral Projection Models (IPMs), Ecological Society of America, Portland, Oregon.
2013 Software Carpentry for Ecologists. Ecological Society of America, Minneapolis, Minnesota.
2014 A Hands-on Primer for Working with Big Data in R: Introduction to Common Formats & Efficient Data Visualization
2015 Individual Stochasticity: How to Model, Measure, and Interpret It
COMPADRE: The Era of Comparative Plant Demography
A Hands-on Tutorial in Empirical Dynamic Modeling and Convergent Cross-Mapping

OUTREACH

Invited high school lectures on general science (Torino, Italy, 2014-2015).

SKILLS

Solid R programming skills, experience with SQL, Matlab, and C++.

NONACADEMIC WORK

2005 –2006	Project consultant and field botanist (consulting firms Geostudio and Ecoloabel, Torino, Italy) Field botanist for the EU founded Interreg-III research project "*Creating a network among the Monviso massif regional natural parks*".

LANGUAGES

Italian (native), English (fluent).

PROFESSIONAL MEMBERSHIP

Ecological Society of America
Italian Association of Certified Professional Foresters and Agronomists

REFERENCES

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Biosciences department, program in ecology and evolutionary biology
Rice University
6100 Main St, MS-170
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Peter B. Adler
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College of Natural Resources, Wildland Resources
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