

Matthew Richard Helmus

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Department of Biology
Center for Biodiversity
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<http://iecolab.org>

EDUCATION

- 2008 PhD Zoology, University of Wisconsin Madison
2001 BS Biology and Sociology, University of Central Arkansas

ACADEMIC POSITIONS

- 2016- Assistant Professor, Department of Biology, Temple University, Philadelphia
2012-2016 Postdoctoral Fellow, Amsterdam Global Change Institute, Vrije Universiteit
2010-2011 Postdoctoral Fellow, Department of Ecology and Evolution, University of Chicago
2009-2010 Postdoctoral Fellow, Xishuangbanna Tropical Botanical Garden (XTBG), China
2002-2008 Graduate Student, Department of Zoology, University of Wisconsin, Madison

TEACHING EXPERIENCE

- 2018- *Global Change Science Analytics with R*, Temple University (designed course, instructor, 2 semesters)
2017- *Principles of Ecology*, Temple University (instructor, 3 semesters)
2009 *Advanced Field Ecology and Conservation*, XTBG (co-instructor, 5 weeks)
2005-2006 *Ecology and Evolution*, University of Wisconsin (TA, lecturer, 2 semesters)
2003-2008 *Introduction to Biology II*, University of Wisconsin (TA, 4 semesters)
2002 *Introduction to Biology I*, University of Wisconsin (TA, 1 semester)
2002 *Principles of Biology II*, University of Central Arkansas (TA, 1 semester)

PUBLICATIONS

[Google Scholar](#): Cited >4000 times, h-index = 20, 8 papers with >100 citations

40. Helmus, M.R. 2019. Book Review: Phylogenetic Diversity Applications and Challenges in Biodiversity Science. *Quarterly Review of Biology*. 94(3):308-309.
39. Helmus, M.R. & J.E. Behm. 2019. Island Biogeography Revisited. In: *Earth Systems and Environmental Sciences*. Elsevier. **Book Chapter**
38. Rapacciolo, G., C.H. Graham, J. Marin, J.E. Behm, G.C. Costa, S.B. Hedges, **M.R. Helmus**, V.C. Radeloff, B.E. Young & T.M. Brooks. 2019. Species diversity as a surrogate for conservation of phylogenetic and functional diversity in terrestrial vertebrates across the Americas. *Nature Ecology & Evolution*. 3:53–61.
37. Behm, J.E., G. van Buurt, B.M. DiMarco, J. Eilers, C.G. Irian, K.E. Langhans, K. McGrath, T.J. Tran & **M.R. Helmus**. 2019. First records of the mourning gecko (*Lepidodactylus lugubris* Duméril and Bibron, 1836), common house gecko (*Hemidactylus frenatus* Schlegel, 1836), and Tokay gecko (*Gecko gecko* Linnaeus, 1758) on the island of Curaçao, Dutch Antilles, and remarks on their distributions in the Caribbean region. *BioInvasion Records*. 8(1):34-44.

36. Jesse, W.A.M., J.E. Behm, **M.R. Helmus** & J. Ellers. 2018. Human land use promotes the abundance and diversity of exotic species on Caribbean islands. **Global Change Biology**. 24(10):4784-4796.
35. **Helmus, M.R.** & J.E. Behm. 2018. Anthropocene Island Biogeography. In: *Encyclopedia of the Anthropocene*. (eds. D. DellaSala, M. Goldstein). Elsevier. Pp. 37-43 **Book Chapter**
34. Behm, J.E., B.R. Waite, S.T. Hsieh, **M.R. Helmus**. 2018. Benefits and limitations of three-dimensional printing technology for ecological research. **BMC Ecology**. 18(32):1-13.
33. Marin, J., G. Rapacciuolo, G.C. Costa, C.H. Graham, T.M. Brooks, B.E. Young, V.C. Radeloff, J.E. Behm, **M.R. Helmus**, S.B. Hedges. 2018. Evolutionary time drives global tetrapod diversity. **Proceedings of the Royal Society B**. 285:1-8.
32. Behm, J.E., C.F. Behm, G.M. Behm, M.C. Behm, S.P. Behm and **M.R. Helmus**. 2018. Hemidactylus turcicus (Mediterranean Gecko) Geographic Update. **Herpetological Review**. 49(1): 73. *Natural History Note*
31. Rapacciuolo, G., J. Marin, G.C. Costa, **M.R. Helmus**, J.E. Behm, T.M. Brooks, S.B. Hedges, V.C. Radeloff, B.E. Young, & C.H. Graham. 2017. The signature of human pressure history on the biogeography of body mass in tetrapods. **Global Ecology and Biogeography**. 26:1022-1034.
30. Tucker C.M., M.W. Cadotte, S.B. Carvalho, J. Davies, S. Ferrier, S.A. Fritz, R. Grenyer, **M.R. Helmus**, L.S. Jin, A.O. Mooers, S. Pavoine, O. Purschke, D.W. Redding, D.F. Rosauer, M. Winter & F. Mazel. 2017. A guide to phylogenetic metrics for conservation, community ecology and macroecology. **Biology Letters**. 92:698-715.
29. **Helmus, M.R.**, J.E. Behm, W.A.M. Jesse, J.J. Kolbe, J. Ellers & J.B. Losos. 2017. Exotics exhibit more evolutionary history than natives: A comparison of the ecology and evolution of exotic and native anole lizards. In: *Invasion Genetics: The Baker and Stebbins Legacy*. (eds. S.C.H. Barrett, R.I. Colautti, K.M. Dlugosch, L.H. Rieseberg) John Wiley & Sons, Ltd, pp. 122-138. **Book chapter**
28. Behm, J.E., and **M.R. Helmus** 2016. Microhyla butleri (Tubercled Pygmy frog) predation. **Herpetological Review**. 47(4): 643-644. *Natural History Note*
27. Mazel, F., Tucker C.M., M.W. Cadotte, S.B. Carvalho, J. Davies, S.A. Fritz, R. Grenyer, **M.R. Helmus**, A.O. Mooers, S. Pavoine, O. Purschke, D.F. Rosauer & M. Winter. 2016. The forest, the trees, and the phylo-diversity jungle. **bioRxiv**.
26. Nelson, E.J., **M.R. Helmus**, J. Cavender-Bares, S. Polasky, J.R. Lasky, A.E. Zanne, W.D. Pearse, N.J.B. Kraft, D.A. Miteva, W.F. Fagan. 2016. Commercial plant production and consumption still follow the latitudinal gradient in species diversity despite economic globalization. **PLOS ONE**. 11(10): e0163002
25. Yguel B., H. Jactel, I.S. Pearse, D. Moen, M. Winter, J. Hortal, **M.R. Helmus**, I. Kühn, S. Pavoine, O. Purschke, E. Weiher, C. Violle, W. Ozinga, M. Brändle, I. Bartish, A. Prinzing. 2016. The evolutionary legacy of diversification predicts ecosystem function. **The American Naturalist**. 188:398-410
24. Behm, J.E., and M.R. Helmus. 2016. *Microhyla butleri* (Tubercled Pygmy frog) predation. **Herpetological Review**, 47(4): 643-644. (*Natural History Note*)
23. Pearse, W.D., M.W. Cadotte, J. Cavender-Bares, A.R. Ives, C.M. Tucker, S.C. Walker & **M.R. Helmus**. 2015. pez: Phylogenetics for the Environmental Sciences. **Bioinformatics**. 31:2888-2890
22. Vermaat, J.E., J. Ellers & **M.R. Helmus**. 2015. The role of biodiversity in the provision of ecosystem services. In: *Ecosystem Services: From Concept to Practice*. (eds. J.A. Bouma, P.J.H. van Beukering) Cambridge University Press. pp 25-39. **Book chapter**
21. **Helmus, M.R.**, D.L. Mahler & J.B. Losos. 2014. Island biogeography of the Anthropocene. **Nature**. 513:543-546.

20. Vasseur D.A., Fox J.W., Gonzalez A., Adrian R., Beisner B.E., **Helmus M.R.**, Johnson C., Kratina P., Kremer C., de Mazancourt C., Miller E., Nelson W.A., Paterson M., Rusak J.A., Shurin J.B. & Steiner C.F. 2014. Synchronous dynamics of zooplankton competitors prevail in temperate lake ecosystems. *Proceedings of the Royal Society B*, 281, 20140633.
19. Pearse, W.D., A. Purvis, J. Cavender-Bares & **M.R. Helmus**. 2014. Metrics and models of community phylogenetics. In: *Modern Phylogenetic Comparative Methods and their Application in Evolutionary Biology - Concepts and Practice* (ed. L.Z. Garamszegi). Springer. pp 451-464. **Book chapter**.
18. Blanchet, S., **M.R. Helmus**, B. Sébastien & G. Gael. 2014. Biogeographic vs. local drivers of phylogenetic and taxonomic diversity patterns in stream fish communities. *Freshwater Biology*, 59:450-462.
17. **Helmus, M.R.**, N. Mercado Silva, & M.J. Vander Zanden. 2013. Subsidies to predators, apparent competition and the phylogenetic structure of prey communities. *Oecologia*. 173:997-1007
16. Kua, C.S., J. Ruan, **M.R. Helmus**, D. Zhang, J. Yu & C.H. Cannon. 2012. Reference-free comparative genomics of 174 plastids. *PLOS ONE*. 7:e48995
15. **Helmus, M.R.** & Ives A.R. Phylogenetic diversity area curves. 2012. *Ecology*. 93:S31-S43.
14. Eklöf, A., **M.R. Helmus**, M. Moore & S. Allesina. 2012. Relevance of evolutionary history for food web structure. *Proceedings of the Royal Society B*. 279:1588-1596.
13. Ives, A.R. & **M.R. Helmus**. 2011. Generalized linear mixed models for phylogenetic analyses of community structure. *Ecological Monographs*. 81:511-525.
12. Scheiner, S.M., A. Chiarucci, G.A. Fox, **M.R. Helmus**, D.J. McGlenn & M.R. Willig. 2011. The underpinnings of the relationship between space, time, and species richness. *Ecological Monographs*. 81:195-213.
11. **Helmus, M.R.**, W. Keller, M.J. Paterson, N.D. Yan, C.H. Cannon & J.A. Rusak. 2010. Communities contain closely related species during ecosystem disturbance. *Ecology Letters*. 13:162-174.
10. Ives, A.R. & **M.R. Helmus**. 2010. Phylogenetic metrics of community similarity. *The American Naturalist*. 176:E128-E142.
9. Kembel, S.W., P.D. Cowan, **M.R. Helmus**, W.K. Cornwell, H. Morlon, D.D. Ackerly, S.P. Blomberg & C.O. Webb. 2010. Picante: R tools for integrating phylogenies and ecology. *Bioinformatics*. 26:1463-1464.
8. **Helmus, M.R.**, L. Allen, O. Dominguez-Dominguez, E. Díaz Pardo, P. Gesundheit, J. Lyons & N. Mercado Silva. 2009. Threatened fishes of the world: *Allotoca goslinei* Smith and Miller, 1987 (Goodeidae). *Environmental Biology of Fishes*. 84:197-198.
7. Mercado Silva, N., **M.R. Helmus** & M.J. Vander Zanden. 2009. Food web structure of an impacted semi-desertic river in Mexico's central plateau. *River Research and Applications*. 25:1090-1108.
6. Ahrenstorff, T.D., G.G. Sass & **M.R. Helmus**. 2009. The influence of littoral zone coarse woody habitat on the home range size, spatial distribution and feeding ecology of largemouth bass (*Micropterus salmoides*). *Hydrobiologia*. 623:223-233.
5. **Helmus, M.R.** & G.G. Sass. 2008. The rapid effects of a whole-lake reduction of coarse woody debris on fish and benthic macroinvertebrates. *Freshwater Biology*. 53:1423-1433.
4. **Helmus, M.R.**, K. Savage, M.W. Diebel, J.T. Maxted & A.R. Ives. 2007. Separating the determinants of phylogenetic community structure. *Ecology Letters*. 10:917-925.

3. Newton, R.J., S.E. Jones, **M.R. Helmus** & K.D. McMahon. 2007. Phylogenetic ecology of the freshwater aql lineage. *Applied and Environmental Microbiology*. 73:7169-7176.
2. **Helmus, M.R.**, T.J. Bland, C.K. Williams & A.R. Ives. 2007. Phylogenetic measures of biodiversity. *The American Naturalist*. 169:E68-E83.
1. **Helmus, M.R.** & D.E. Dussourd. 2005. Glues or poisons: which triggers vein cutting by monarch caterpillars? *Chemoecology*. 15:45-49.

COMPETITIVE RESEARCH FUNDS

extramural

2019	(\$75,000)	<i>Pennsylvania Department of Agriculture: Integrated approach to understand spotted lanternfly population dynamics (CoPIs: Jocelyn Behm, Benjamin Seibold)</i>
2018-2019	(\$42,000)	<i>Pennsylvania Department of Agriculture: Spotted Lanternfly modeling and economics (CoPIs: Jocelyn Behm, Benjamin Seibold)</i>
2014-2018	(\$640,000)	<i>Dutch NSF: Caribbean Research Program (CoPIs: Jocelyn Behm, Jacintha Ellers)</i>
2012-2014	(160,000)	<i>Amsterdam Global Change Institute: Postdoctoral Fellowship</i>
2010-2011	(120,000)	<i>USA NSF: Postdoctoral Research Fellowship in Biological Informatics</i>
2009	(44,000)	<i>China NSF: International Young Researchers Research Grant</i>
2009	(15,000)	<i>Chinese Academy of Sciences: Postdoctoral Research Fellowship</i>
2008	(5,000)	<i>Google / National Evolutionary Synthesis Center: Summer Fellowship</i>
2005-2006	(25,000)	<i>University of California / MEX NSF: Research Grant</i>
2001	(600)	<i>Sigma Xi: Research Grant</i>

intramural

2013	(6,500)	<i>Amsterdam Global Change Institute: Business Outreach Grant</i>
2007	(1,750)	<i>University of Wisconsin Madison Zoology: Research Grant</i>
2006	(1,500)	<i>UW Madison Zoology: Research Grant</i>
2004	(550)	<i>UW Madison Latin American, Caribbean & Iberian Studies</i>
2003	(1,400)	<i>UW Madison Department of Zoology: Research Grant</i>
2003	(950)	<i>UW Madison Latin American, Caribbean & Iberian Studies</i>
2003	(650)	<i>UW Madison Center for Limnology: Research Grant</i>
2002	(1,000)	<i>University of Central Arkansas Biology: Research Grant</i>
2001	(2,000)	<i>UCA Honors College: Tropical Herpetology Education Grant</i>
2000	(5,000)	<i>UCA Honors College: Semester at Sea Education Grant</i>

AWARDS

- 2019 NEON Data Education Fellow. Selected as a fellow of the 2019 Faculty Mentoring Network by the National Ecological Observatory Network and Quantitative Undergraduate Biology Education and Synthesis
- 2009 Invited Speaker. Ecology and Evolutionary Biology Early Career Scientists Symposium. University of Michigan, Ann Arbor, MI, U.S.A.
- 2007 Outstanding Oral Presentation. Honorable Mention Murray F. Buell Award Ecological Society of America 92nd annual conference, San Jose, CA, U.S.A.

- 2006 Outstanding Oral Presentation. Pioneering Studies of Young Scientists on Chemical Pollution and Environmental Changes Symposium Center for Marine Environmental Studies, Ehime University, Japan.
- 2001 Outstanding Student Award. The highest student honor for excellence in academics and service to the University of Central Arkansas.

PRESS

On the spotted lanternfly invasion

Seitchik, Madison. 2018 Temple Is Researching Invasive Species. [The Temple News](#)

On Anthropocene island biogeography

- Quenqua, Douglas. 2014. Overseas Trade Alters a Lizard's Stocks. [The New York Times](#)

- Singer, Emily. Lizard Stowaways Revise Principle of Ecology. 2014 [Quanta Magazine](#)

- Young, Ed. The New Islands. 2014 [National Geographic](#)

- Interview [Nature Podcast](#)

WORKSHOP PARTICIPATION

2018 *ARGON – Augmenting research grounded on NEON*. Ecology Center. Utah State University. Will Pearse

2017 *Characterizing landscape genomics and reconstructing pathways to plant ecological specialization and speciation*. USGS Powell Center. Fort Collins, CO. Elisabeth Bui, David Smith, Martin Goldhaber

2013-2017 *Macroevolution of ecosystem services of trees*. SESYNC Annapolis, MY. Jeannine Cavender-Bares & Stephen Polasky

2015 *Phylogenetics and biodiversity*, Society for Molecular Biology satellite meeting, Temple University, Philadelphia PA, U.S.A. Blair Hedges (organizer)

2013-2014 *Synthesizing phylogenetic measures for ecology and conservation*. iDiv Leipzig, Germany. Marc W Cadotte & Dan F Rosauer.

2013 *Species communities harboring the outcome of plant diversification*. iDiv Leipzig, Germany. Andreas Prinzing.

2012 *Community assembly workshop*. Swiss National Science Foundation Swiss Federal Institute of Aquatic Science and Technology (EAWAG). Blake Matthews.

2011 *Plankton dynamics working group*. Canadian Institute for Ecology and Evolution. Jeremy Fox, Jonathan Shurin, & Beatrix Beisner.

2009-2011 *Linking phylogenetic history, plant traits, and ecological processes at multiple scales*. NCEAS. Jeannine Cavender-Bares.

2008 *Evolutionary and ecological sorting in space*. NCEAS. Mark Urban & Mathew Leibold.

RESEARCH PRESENTATIONS

invited

- 2019 USDA, Center for Plant Health Science and Technology Raleigh, NC, U.S.A.
- 2017 Ecological Society of America, Organized Oral Session, Portland OR, U.S.A.
- 2016 Academy of Natural Sciences, Philadelphia PA, U.S.A.
- 2015 Imperial College London, Department of Life Sciences, U.K.
- 2015 Villanova University, Department of Biology, Villanova PA, U.S.A.
- 2015 Utah State University, Department of Biology, Logan UT, U.S.A.
- 2015 Georgetown University, Department of Biology, Washington DC, U.S.A.
- 2015 University of Oklahoma, Department of Biology, Norman OK, U.S.A.
- 2015 Temple University, Department of Biology, Philadelphia PA, U.S.A.
- 2014 Ursinus College, Biology Department, Collegeville PA, U.S.A.
- 2014 Purdue University, Biology Department, West Bend IN, U.S.A.
- 2012 University of Amsterdam, Theoretical Ecology, The Netherlands.
- 2011 University of California, Ecology and Evolution, Davis, U.S.A.
- 2011 Netherlands Institute of Ecology, Wageningen, Netherlands.
- 2011 The Field Museum, Chicago, IL U.S.A.
- 2010 Kellogg Biological Station, Hickory Corners, MI U.S.A.
- 2009 University of Michigan, Ecology and Evolutionary Biology, Ann Arbor, U.S.A.
- 2007 Instituto de Ecología, Xalapa, Ver. México.
- 2007 University of California, Ecology Evolution and Marine Biology, Santa Barbara, U.S.A.
- 2007 Ehime University, Center for Marine Environmental Studies, Matsuyama Japan.

submitted

- 2012 Center for interdisciplinary research in biology (CIRB) – Collège de France, Paris
- 2011 Ecological Society of America annual conference, Austin, TX U.S.A.
- 2010 The American Genetics Association. Conservation genomics conference, Hilo, HI USA.
- 2009 Association for Tropical Biology & Conservation conference, Chiang Mai Thailand.
- 2007 Ecological Society of America annual conference, San Jose, CA U.S.A.
- 2006 Ecological Society of America international conference, Mérida, Yuc. México
- 2005 Ecological Society of America annual conference, Montréal, QC Canada.
- 2004 Ecological Society of America annual conference, Portland, OR U.S.A.
- 2003 Ecological Society of America annual conference, Savannah, GA U.S.A.
- 2001 Entomological Society of America annual conference, San Diego, CA U.S.A.

SUPPLEMENTAL EDUCATION

- 2014 Data Science Specialization MOOC through Johns Hopkins
- 2011 Next Generation Sequencing Vienna Graduate School of Population Genetics
- 2009 Ecological Genomics Centro Residenziale Universitario di Bertinoro, Italy
- 2002 Mathematics in Biology University of Tennessee, Knoxville TN
- 2001 Tropical Herpetology Maderas Rainforest Conservation, Costa Rica/Nicaragua
- 2000 Semester at Sea University of Pittsburgh, 10 counties around the world

PROFESSIONAL AFFILIATIONS

- 2006- Member, Ecological Society of America
- 2009 Member, Association for Tropical Biology and Conservation
- 2001 Member, Entomological Society of America

SERVICE

external

2018- Editorial Review Board: *Journal of Biogeography*

internal

2017- Biology Department Graduate Student Committee

2017- Environmental Science Program Committee

2018- Development of new course: *Global Change Analytics with R*

PhD committee member for:

2019- Amanda Wilson

2018- Caryn Babaian

2019- Molly Schools

2018- Diana Paola Lopez

2019- Chris Carnivale

2017-18 Carlos Gomez

2019- Mark Walker

2017- Steven Auscavitch

2019- J.J. Smith

2017-18 Mariana Bonfim

OUTREACH

2017- *Governance:* Participant of the Governor’s Invasive Species Council of Pennsylvania (PISC) with purpose to develop action plans and advise on policy.

2018 *Cross-disciplinarity:* Climate, Sustainability and the Arts working group member and presenter at the 2018 Festival at Temple University

2013-2014 *Sustainability:* worked with the Roggebot Estate in the Netherlands to devise strategies for biodiversity-friendly economic development of their landscape

2013 *Business:* participated in a workshop to promote collaborative ties between the Dutch business community and the Amsterdam Global Change Institute

2010-2011 *International Relations:* developed and co-taught an English as a Second Language night course focused on scientific terminology to XTBG Chinese staff

2002-2008 *Science Promotion:* mentor for Ways of Knowing Biology, an organization that promoted biology to the undergraduate freshman of underrepresented groups

2003-2005 *Public Relations:* presenter at lake association meetings where I described how research at the University of Wisconsin LTER Field Station benefits their lakes

2003-2004 *Science Promotion:* volunteer for Science is Fun with Bassam Shakhashiri, an interactive program that promoted science to elementary school children

2002 *Science Promotion:* exhibitor at the Arkansas Museum of Discovery, coordinated hands-on exhibit for children

PEER REVIEWER

[Publons](#): in the 98th percentile compared to other ecology reviewers.

-Nature

-Molecular Ecology

-PNAS

-PROC B

-US NSF

-Oikos

-Ecology Letters

-Oecologia

-Nature Communications

-Hydrobiologia

-The American Naturalist

-Global Change Biology

-Ecology

-Journal of Ecology

-Evolution

-Environmental Biology of Fishes

-Ecological Monographs

-Journal of Biogeography

- Diversity and Distributions
- PLOS ONE
- Ecography
- Perspectives in Plant Ecology, Evolution and Systematics
- Methods in Ecology and Evolution
- Journal of Vegetation Science
- Functional Ecology
- Trends in Ecology and Evolution
- Global Ecology and Geography

- Ecology and Evolution
- Biological Reviews
- Systematic Biology
- Ecological Informatics
- BioScience
- The Quarterly Review of Biology
- Pest Management Science
- Israel Science Foundation
- Czech Science Foundation

MENTORSHIP

Total 34 Mentored: 2 PhD, 4 Master

At Temple University

PhD Advisor:

2017- Nick Huron

Bachelor Advisor:

2019- Adam Gasiewski
2019- Jeff Stuart
2019- Renee Johnson (co-advisor)
2019- Cat Olson
2019- Ben Gress
2018- Victoria Ramirez (co-advisor)
2018 Alex Greenwood
2018- Evan Zangakis
2017- Alexa Gordon
2017- Hannah Assour (co-advisor)
2018 Ryan Thompson
2017-2018 Thomas Thompson
2016 Nikhil Patel
2016 Aquila Choi
2016 Isabel Liston
2016-2017 Brenna Waite (co-advisor)

Bachelor Drexel University Co-Op

Advisor:

2018 Henry Williams
2018 Briana DiMarco (co-advisor)

Outside of Temple University

PhD VU Amsterdam

2015- Wendy Jesse (co-advisor)

Master VU Amsterdam

2013-2014 Ben Hearn
2012-2014 Wendy Jesse
2013 Martin Ruijter
2012-2013 Rebecca Reurslag

Bachelor VU Amsterdam

2013 Elisabeth Barmiento

Bachelor University of Chicago

2011 Don Ho
2011 Alaina Valenzuela

Bachelor University of Wisconsin

2007-2008 Lauren Allen
2007 Kristina Savage
2007 Tom Bland
2006-2007 Tyler Ahrenstorff
2005 Lindsay Focht
2004 Sara Green
2003 Adrienne Tandberg