

CRAIG E. NELSON

Professor Emeritus of Biology, Indiana University (at I.U. since 1966; Emeritus since 2004)
& Faculty Development Consultant

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Biology Department Page for CEN: <http://www.bio.indiana.edu/facultyresearch/faculty/Nelson.html>

Other profiles: https://www.researchgate.net/profile/Craig_Nelson8/?ev=hdr_xprf &
<http://iub.academia.edu/CraigNelson>

NOTE: Please email me if you need a copy of one of my articles for personal scholarship or teaching and cannot easily obtain it (lists below).

Degrees:

- Ph.D. & M.A. Zoology. ('66, '64) University of Texas (Woodrow Wilson National Fellowship; National Science Foundation Pre-doctoral Fellowships, 4 years)
- B.A. With Honors, Zoology ('62) University of Kansas (National Merit Scholarship, Summerfield Scholar)

Appointments at Indiana University:

- 1966-71 Assistant Professor, Department of Biology (initially Zoology)
- 1971-87 Associate Professor, Department of Biology & School of Public and Environmental Affairs
- 1971-77 Director of Environmental Studies, School of Public and Environmental Affairs
- 1987-04 Professor, Department of Biology
- 2004-Present Emeritus Professor, Department of Biology

Administration: Dr. Nelson directed the Graduate Programs in Zoology (1981-83) and in Ecology, Evolution and Organismal Biology (1984-87). He earlier was the first Director (1971-77) of Environmental Programs in IU's then new School of Public and Environmental Affairs. Its interdisciplinary environmental programs (B.A. to Ph.D.) now rank among the best worldwide.

Awards & Honors:

- *Tenured and twice promoted at IU with teaching specified as the area of excellence.*
- Outstanding Teaching Award, Indiana University Student Alumni Council, 1981
- Indiana University-Lilly Foundation Postdoctoral Teaching Fellowship, 1981- 1982
- Amoco Foundation Award "In Recognition of Distinguished Teaching," I. U., 1983
- Outstanding Faculty Award, Indiana University Student Alumni Council, I. U., 1987
- Faculty Colloquium on Excellence in Teaching "In Recognition of Distinguished Teaching," I. U., 1989
- Chancellor's Lecture on Great Teaching, Vanderbilt University, 1991
- President's Honor for Teaching, Northwestern University, 1994
- Sigma Xi National Lecturer, 1993-95 [for Scholarship on Teaching]
- Scholarship of Teaching and Learning Presentation Award, I. U., 1999
- *Carnegie Scholar* for 2000-2001, Carnegie Foundation for the Advancement of Teaching
- *Outstanding Research and Doctoral Universities Professor Of The Year, 2000*, Carnegie Foundation for the Advancement of Teaching & Council for the Advancement and Support of Education (CASE)
- *President's Medal for Excellence*, Indiana University, 2001 ["The highest honor bestowed by Indiana University"]
- P. A. Mack Award for Distinguished Service to Teaching, Indiana University, 2003.
- Leadership or Lifetime Contribution Award (for "Vision"), International Society for the Scholarship of Teaching and Learning, 2009

BIOLOGICAL RESEARCH:

A summary of Dr. Nelson's biological research begins on page 6

FACULTY DEVELOPMENT CONSULTANT

Dr. Nelson has given invited presentations and workshops on topics in teaching and learning at national meetings and individual institutions in 37 states and 8 countries on topics including: • *Fostering Critical Thinking and Mature Valuing Across the Curriculum*, • *Scholarship of Teaching that That Really Matters: Three Pedagogical Changes That Can Make a Real Difference in Achievement, Equity and Retention ANY College or University Classroom*, • *Alternative Approaches to the Scholarship of Teaching and Learning* and • *Effective strategies for teaching evolution and other controversial issues*. For many years he has been a featured presenter (and occasional keynote speaker) at the International Lilly Conferences on College Teaching. He presented some 40 three-day Chautauqua Short Courses for college science faculty in a program sponsored by the National Science Foundation.

TEACHING:

Dr. Nelson's tenure and promotions cited excellence in teaching, an unusual accomplishment at a research university. He received several IU and nationally competitive teaching awards (above). He taught: introductory biology; graduate and undergraduate evolution and ecology; an Intensive Freshman Seminar (Biology, Critical thinking and Real Life) and several interdisciplinary and honors courses (e.g. Environmental Science and Policy, Ideas and Human Experience, the History of Everything Except Civilization), and part of a three course liberal-arts cluster (Knowing, Knowledge and Their Limits: Literature, Psychology, and Biology). He regularly taught a graduate biology course on "Alternative Approaches to Teaching College Biology." Dr. Nelson was one of IU's teachers featured in the videotapes, *Making Larger Classes Work: Experiences of Indiana University Faculty* and *What to Expect in the College Classroom*.

SCHOLARSHIP OF TEACHING AND LEARNING: OVERVIEW

Dr. Nelson's Scholarship of Teaching and Learning focuses on the scholarships of synthesis and application (per Boyer and Rice). When he began working in this area, it was clear that the empirical and theoretical base for much improved college teaching was well already in hand. The major effort needed was in developing ways to apply this base in the classroom. He has worked to develop such applications and to help other faculty understand the empirical and theoretical base, the most feasible ways to apply it, and the importance of doing both. He has published more than 50 articles and chapters addressing topics including critical thinking and mature valuing, diversity, active learning, teaching evolution and SOTL.

Dr. Nelson was part of the small committee that founded the prestigious *Scholarship of Teaching and Learning Program* at IU (See <http://citl.indiana.edu/programs/sotl/index.php> and articles in the SOTL special issue of the Journal of Excellence in College Teaching, vol. 14, citations below). In 2003, this program won the prestigious *Hesburgh Award* for outstanding faculty development (newsinfo.iu.edu/news/page/normal/777.html). He chaired (2004-05) the founding committee for the *International Society for the Scholarship of Teaching and Learning* (<http://www.issotl.org/>) and became its first president. He is currently on the editorial boards or panels of *The Journal of the Scholarship of Teaching and Learning* (<https://www.iupui.edu/~josotl/>), *Teaching & Learning Inquiry* (<http://www.issotl.org/TLI.html>) and *College Teaching* (<http://www.tandfonline.com/toc/vcol20/current#>). He earlier served on editorial boards for other leading journals on the scholarship of teaching and learning including *The Journal of Cooperation and Collaboration in College Teaching*, *The Journal for Excellence In College Teaching* (<http://celt.muohio.edu/ject/>), *The International Journal for the Scholarship of Teaching & Learning* (<http://www.georgiasouthern.edu/ijstl/>) and *MountainRise* (<http://mountainrise.wcu.edu/>) and now frequently reviews manuscripts for these and other publications. He has also served on teaching grant review panels for NSF, NEH and FIPSE.

He has been a *Carnegie Scholar* (Carnegie Academy for the Scholarship of Teaching) since 2001. He was named *Outstanding Research And Doctoral University Professor Of The Year 2000* by the Carnegie Foundation for the Advancement of Teaching and the Council for the Advancement and Support of Education (CASE) and received the *Lifetime Contribution Award* (for "Vision") from the International Society for the Scholarship of Teaching and Learning in 2009.

SCHOLARSHIP OF TEACHING AND LEARNING: PUBLICATIONS

Note: Please email me (nelson1@indiana.edu) if you need a copy of one of my articles for personal research or teaching and cannot easily obtain it. Links for some copies are at <http://iub.academia.edu/CraigNelson>

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TITLES ARE GROUPED BY THESE TOPICS (and are in reverse chronological order within topic)

1. How We Resist Change: Dysfunctional Illusions Of Rigor
2. Fostering Critical Thinking & Mature Valuing Across The Curriculum
3. Achievement, Retention & Equity (Diversity)
4. Active Learning
5. Teaching Evolution And The Nature Of Science, While Fostering Critical Thinking And Respecting Religion
6. Environmental Education
7. The Scholarship Of Teaching And Learning (Sotl): Programs & Genres
8. Preparing Future Faculty For Teaching
9. Quick Summaries Of Key Ideas

1. HOW WE RESIST CHANGE: DYSFUNCTIONAL ILLUSIONS OF RIGOR

Nelson, C. E. 2010. Dysfunctional illusions of rigor. *Tomorrow's Professor e-Mail Newsletter*. [Stanford (Univeristy) Center for Teaching and Learning]. Postings 1058 & 1059. [Excerpted version of Nelson, 2009]. <http://cgi.stanford.edu/~dept-ctl/cgi-bin/tomprof/postings.php> (Enter 1058 & 1059 into search box at top of page.) ✓

Nelson, C. E. 2009. Dysfunctional illusions of rigor: Lessons from the scholarship of teaching and learning. In Linda B. Nilson & Judith E. Miller, Editors. *To Improve the Academy: Resources for Faculty, Instructional, and Organizational Development*. 28 [for 2010]:177-192. San Francisco: Jossey-Bass. [Published 10/2009]

2. FOSTERING CRITICAL THINKING & MATURE VALUING ACROSS THE CURRICULUM

Nelson, C. E. 2011. Foreword: Playing with plays, critically. p. xiv-xvii for Burgoyne, Suzanne, & Patricia Downey. 2011. *Thinking Through Script Analysis*. Newburyport, MA: Focus Publishing/R. Pullins Co.

Ingram, E. L. & C. E. Nelson. 2009. Applications of intellectual development theory to science and engineering education. Pp 1-30 in G. F. Ollington (Ed.), *Teachers and Teaching: Strategies, Innovations and Problem Solving*. Nova Science Publishers.

Nelson, C. E. 1999. On the persistence of unicorns: The tradeoff between content and critical thinking revisited. In B. A. Pescosolido & R. Aminzade, Editors. *The Social Worlds of Higher Education: Handbook for Teaching in a New Century*. Pp. 168-184. Thousand Oaks, CA: Pine Forge Press.

Nelson, C. E. 1989. Skewered on the unicorn's horn: The illusion of a tragic tradeoff between content and critical thinking in the teaching of science. In L. Crowe, Editor. *Enhancing Critical Thinking in The Sciences*. (pp.17-27). Washington, DC: Society for College Science Teachers (National Science Teachers Association).

3. ACHIEVEMENT, RETENTION & EQUITY (DIVERSITY)

Nelson, C. E. 1996. Student diversity requires different approaches to college teaching, even in math and science. *American Behavioral Scientist* 40:165-175. [Ideas apply across the curriculum.]

Nelson, C. E. 1994. Every course differently: An outline. Pp 94-100 in J. Lanier & W. Sibley, Editors. *Role of Faculty from Science Disciplines in the Undergraduate Education of Science and Mathematics Teachers*. National Science Foundation, Publication 93-108.

Nelson, C. E., et al. 1994. Valuing diversity in the educational process. Pp 71-74 in J. Lanier & W. Sibley, Editors. *Role of Faculty from Science Disciplines in the Undergraduate Education of Science and Mathematics Teachers*. National Science Foundation, Publication 93-108.

4. ACTIVE LEARNING

Nelson, C. E. 2010. Want brighter, harder working students? Change pedagogies! Some examples, mainly from biology. In Barbara Millis, Editor. *Cooperative Learning in Higher Education: Across the Disciplines, Across the Academy*. Chapter 8. Pp. 119-140. Sterling, VA: Stylus Press.

Nelson, C. E. 2009. The "Red Pen" Worksheet. *Quick Start Series*. Center for Excellence in Learning & Teaching. Humboldt State University. 2 pp. [Edited excerpt from Nelson 2010.]

Ingram, E. L. & C. E. Nelson. 2006. Using Discussions of Multiple Choice Questions to Help Students Identify Misconceptions and Reconstruct Their Understanding. *American Biology Teacher* 68(5):275-279.

Nelson, C. E. 1997. Tools for tampering with teaching's taboos. In W. E. Campbell & K. A. Smith, Editors. Chapter 4 (pp. 51-77). *New Paradigms for College Teaching*, Interaction Book Co.

Nelson, C. E. 1994. [Comments on teaching, with classroom videos and student comments] In: *Making Large Classes: Experiences of Indiana University Faculty*. Videotape. [Produced at IU and was distributed by: Instructional Support Services, Dean of Faculties Office, Indiana University].

Nelson, C. E. 1994. Critical thinking and collaborative learning. Chapter 5 (pp. 45-58) In K. Bosworth & S. Hamilton, Eds., *Collaborative Learning and College Teaching*. Jossey-Bass.

5. TEACHING EVOLUTION AND THE NATURE OF SCIENCE

While Fostering Critical Thinking and Respecting Religion

Nelson, C. E. 2012. Why Don't Undergraduates Really 'Get' Evolution? What Can Faculty Do? Chapter 14 (pp 311-347) in K. S. Rosengren, E. M. Evans, S. Brem, & G. Sinatra (Editors.) *Evolution challenges: Integrating research and practice in teaching and learning about evolution*. Oxford University Press.

Nelson, C. E. 2009. Intelligent design should not be taught in science classes. Pp. 159-165 in D. Haugen & S. Musser, Eds., *Education*. Opposing Viewpoints Series, Gale Cengage Learning. [Edited reprint of 2005 Design isn't...]

Nelson, C. E. 2008. Teaching evolution (and all of biology) more effectively: Strategies for engagement, critical reasoning, and confronting misconceptions. *Integrative and Comparative Biology* 48: 213-225.; doi: 10.1093/icb/icn027 PDF: <http://icb.oxfordjournals.org/cgi/reprint/icn027?ijkey=511NnATDSefTz1V&keytype=ref> √

Nelson, C. E. 2007. Teaching evolution effectively: A central dilemma and alternative strategies. *McGill Journal of Educ* 42(2):265-283 PDF <http://mje.mcgill.ca/article/view/2223/1693> √ [Entire issue is on Evolution Education]

Ingram, E. L. & C. E. Nelson. 2006. Relationship between achievement and students' acceptance of evolution or creation in an upper-level evolution course. *Journal of Research in Science Teaching* 43:7-24.

Nelson, C. E. 2006. Nelson's response to Black. *BioScience* 56:286. [Comment on how to teach evolution so as to reach college students who initially reject it.] See also: Nelson 2005. How Can We Help ...

Nelson, C. E. 2005. How Can We Help Students Really Understand Evolution? *BioScience* 55:923. See also: Nelson 2006. Nelson's response...

Nickels, M. K. & C. E. Nelson. 2005. Beware of nuts and bolts: Putting evolution back into the teaching of classification. *American Biology Teacher* 67:289-295.

Nelson, C. E. 2005. Design isn't science: Why biology classes shouldn't teach intelligent design. [Invited column.] *Fort Wayne Journal Gazette* Perspective page, Sunday Aug. 28, 2005 <http://www.indiana.edu/~ensiweb/craig.id.html>

Alters, B. J. & C. E. Nelson. 2002. Teaching evolution in higher education. *Evolution* 56:1891-1901.

Nelson, C. E. 2002. Creationism. In M. Pagel (Ed.), *Oxford Encyclopedia of Evolution*. Pp. 214-217. Oxford University Press.

Nelson, C. E. & M. K. Nickels. 2001. Using humans as a central example in teaching undergraduate biology labs. *Tested Studies for Laboratory Teaching* 22:332-365. Association for Biology Laboratory Education.

Nelson, C. E. 2000. Effective strategies for teaching evolution and other controversial subjects. Pp 19- 50 In J. W. Skehan and C. E. Nelson, eds, *The Creation Controversy and the Science Classroom*. National Science Teachers Association.

J. W. Skehan and C. E. Nelson, eds, 2000. *The Creation Controversy and the Science Classroom*. National Science Teachers Association.

Nelson, C. E., M. K. Nickels & J. Beard. 1998. The nature of science as a foundation for teaching science: Evolution as a case study. Chapter 20 (pp. 315-328) in: W. F. McComas, Ed. *The Nature of Science in Science Education*. Kluwer Academic Publ.

Nickels, M. K., C. E. Nelson & J. Beard. 1996. Better biology teaching by emphasizing evolution and the nature of science. *American Biology Teacher* 58: 332-336. <http://www.indiana.edu/~ensiweb/abt.mcj.html>

Nelson, C. E. 1992. Some empirical questions about teaching evolution. Pp 157-158. In R.G. Good et al., Editors. *Proceedings of the 1992 Evolution Education Research Conference*. Louisiana State University.

Nelson, C. E. 1986. Creation, evolution, or both? A multiple model approach. Chapter 9 (pp. 128-159) in R. W. Hanson, Editor. *Science and creation: geological, theological, and educational perspectives*. Macmillan.

Dr. Nelson cosponsors the **Evolution and Nature of Science ENSI Web-site**, which provides teacher-tested lessons and other resources for high-school and college teachers. <http://www.indiana.edu/~ensiweb/> This site grew out of our NSF funded institutes for high-school biology teachers, institutes which directly trained over 1000 teachers between 1989 and 1998. [ENSIWEB is linked to from many other notable sites, including the NABT, NSTA, PBS Evolution, NCSE, Understanding Science and Understanding Evolution, and NESCent sites]

6. ENVIRONMENTAL EDUCATION

Nelson, C. E. 2010. Effective Education for Environmental Literacy. Chapter 9, p. 117-129 in H. L. Reynolds, E. Brondizio, D. Karpa-Wilson, B. L. Gross, & J. Meta Robinson. Editors. *Teaching Environmental Literacy in Higher Education: Across Campus and Across the Curriculum*. Bloomington, IN: Indiana University Press.

Nelson, C. E. 1985. Panel discussion (Nelson's remarks). Pp 200-201 & Participant discussion (including some comments by CEN) Pp. 202-209. In H. O. Halverson, D. Pramer & M. Rogul, Editors. *Engineered organisms in the environment: Scientific issues*. American Society for Microbiology.

Nelson, C. E. 1974. Environmental Studies Programmes, Indiana University. In *Environmental Education at Post Secondary Level* (2 vols.), pp. 97-110. Centre for Educational Research and Innovation (CERI), Organization for Economic Cooperation and Development (OECD), Paris

[Nelson, C. E. 1974. Environmental Studies Program (at Indiana University). In A. L. Pratt, Editor *Selected Environmental Education Programs in North American Higher Education*, , pp. 79-88. National Association for Environmental Education (Reprint of preceding article)]

7. THE SCHOLARSHIP OF TEACHING AND LEARNING (SOTL): PROGRAMS & GENRES

Nelson, C. E. 2014. An Idealized Model for Designing, Presenting and Analyzing SOTL Projects. *National Teaching and Learning Forum* 23(3):1-5

Nelson, C. E. 2011. Suggested Resources for Scholarly Teaching and for the Scholarship of Teaching and Learning. *Journal of Microbiology and Biology Education*. 12(1):72-78 <http://jmbe.asm.org/index.php/jmbe/article/view/300> ✓

Nelson, C. E. & J. M. Robinson. 2006. The Scholarship of Teaching and Learning and Change in Higher Education. In L. Hunt, A. Bromage & B. Tomkinson. Editors. *Realities of Educational Change: Interventions to Promote Learning and Teaching in Higher Education*. Ch.7 (pp 78-90). London: Routledge.

Nelson, C. E. 2006. Celebration and Reflection. [Invited Essay on SoTL] *MountainRise* 3(1): <http://mountainrise.wcu.edu/index.php/MtnRise/article/view/84/52>

Nelson, C. E. 2004. Doing It: Selected Examples of Several of the Different Genres of SOTL. *Journal on Excellence in College Teaching*. 14 (2-3): 85-94. http://mypage.iu.edu/~nelson1/00_Genres.pdf

Robinson, J. R. & C. E. Nelson. 2004. Institutionalizing and diversifying a vision of the scholarship of teaching and learning. *J. Excellence College Teaching* 14: 95-118. **See also:** Thompson, S. B. 2004. From two box lunches to buffets: Fulfilling the promise of the scholarship of teaching and learning. *J. Excellence College Teaching* 14: 85-94. *These two articles summarize the genesis and development of the SOTL program at Indiana Univ. in Bloomington.*

Nelson, C. E. 2004. The research-teaching-research cycle: One biologist's experience. In M. L. Andrews & W. A. Becker, Editors. *The Scholarship of Teaching and Learning in Higher Education: Contributions of Research Universities*. Chapter 6 (pp.128-141). Bloomington, IN: Indiana University Press.

[Nelson, C. E. 2003. A Faculty Member's Overview of SOTL at Indiana University ("some lessons I draw from our experience so far in developing a SOTL program.") Handout for *Campus Colloquium on the Scholarship of Teaching and Learning: Collaborating for Change*. Washington D.C. www.softlilstu.edu/downloads/pdf/sotl@IUB.pdf]

Thompson, Samuel B., Craig E. Nelson & Rita C. Naremore. 2001 (with later refinements). *Tutorial on the Scholarship of Teaching and Learning (SOTL)*.

Nelson, C. E. 2000. How Could I Do Scholarship Of Teaching & Learning?: Selected Examples of Several of the Different Genres of SOTL. 3 pp. On CD accompanying: P. Hutchings, Editor. *Opening Lines: Approaches to the Scholarship of Teaching and Learning*. Carnegie Foundation for the Advancement of Teaching. [Nelson, 2004, above is an expanded version]

8. PREPARING FUTURE FACULTY FOR TEACHING

Nelson, C. E. 2008. The Right Start: Reflections on a Departmentally Based Graduate Course on Teaching. *Essays on Teaching Excellence* 11, (7), 1-4. Professional and Organizational Development Network in Higher Education (POD). <http://www.podnetwork.org/publications/teachingexcellence/07-08/V19,%20N4%20Nelson.pdf>

Nelson, C. E. 1987. Biology program encourages more thoughtful teaching techniques. *Campus Report* (IU-B) 11(8):4-5 Available from ERIC, summarized in *Resources in Education*, Jan. 1988.

9. QUICK SUMMARIES OF KEY IDEAS

Nelson, C. E. 2001. What Is The Most Difficult Step We Must Take To Become Great Teachers? *National Teaching and Learning Forum* 10(4):10-11.

Nelson, C. E. 2001. What Might Help A Pretty Good Teacher Become A Great Teacher? *National Teaching and Learning Forum* 10(3):5-7

Nelson, C. E. 2001. Why Should You Publish Your Best Teaching Ideas? *National Teaching and Learning Forum* 10(2):10-11.

Nelson, C. E. 2000. What Is The First Step We Should Take To Become Great Teachers? *NTLF* 10(1):7-8.

Nelson, C. E. 2000. Must Faculty Teach in Ways That Make Them Easily Dispensable? *National Teaching and Learning Forum* 9(6):4-5.

Nelson, C. E. 2000. How Can Students Who Are Reasonably Bright And Who Are Trying Hard To Do The Work Still Flunk? *National Teaching & Learning Forum* 9(5):7-8.

Nelson, C. E. 1994. Continuous Assessment. Pg. 24 In: E. Bender et al. (Eds.) *Quick Hits, Successful Strategies By Award Winning Teachers*. Indiana University Press.

BIOLOGICAL RESEARCH:

Dr. Nelson's biological research has been in evolution and ecology. His first six scientific publications were based on undergraduate research. Initially his emphasis was on the systematics and evolution of amphibians and reptiles, especially in Latin America where he has done extensive fieldwork. Most recently his group focused on patterns of environmental sex-determination in reptiles. Research questions included: *Do tadpoles die for their siblings? Do amphibians feed or exploit ponds? When, from a male frog's viewpoint, is stealing a mate preferable to persuasion? Why should an orchid scare its pollinators? And: Why should hot eggs become females in turtles?*

Biological Publications (Selected from 60+):

Freedberg, S., T.J. Grieves, M.A. Ewert, G.E. Demas, N. Beecher and C.E. Nelson. 2008. Incubation Environment Affects Immune System Development in a Turtle with Environmental Sex Determination. *J. Herpetology*. 42:536-541. <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2839242/> Free full text.

Freedberg, S., R.M. Bowden, M.A. Ewert, D.R. Sengelaub & C.E. Nelson. 2006. Long-term sex reversal by oestradiol in amniotes with heteromorphic sex chromosomes. *Biology Letters*. Online. Doi:10.1098/rsbl.206.0454 4pp. <http://www.ncbi.nlm.nih.gov/pubmed/17148408> Free full text.

Freedberg, S., M.A. Ewert, B.J. Ridenhour, M. Neiman, C.E. Nelson. 2005. Nesting fidelity and molecular evidence for natal homing in the freshwater turtle, *Graptemys kohni*. *Proceedings of the Royal Society B: Biological Sciences* 272:1345-1350. <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1560332/> Free full text

Ewert, M.A., Lang, J.W., & Nelson, C.E. 2005. Geographic variation in the pattern of temperature-dependent sex determination in the American snapping turtle (*Chelydra serpentina*). *Journal of Zoology* London 265:81-95.

Freedberg, S., A.L. Stumpf, M.A. Ewert, & C.E. Nelson. 2004. Developmental environment has long-lasting effects on behavioural performance in two turtles with environmental sex determination. *Evolutionary Ecology Research* 6:739-747.

Ewert, M.A., Etchberger, C.R., & Nelson, C.E. 2004. Turtle sex determining modes and TSD Patterns, and some TSD pattern correlates. Chapter 3 (pp 21-32). In: Valenzuela, N. and V. Lance, Eds. *Temperature Dependent Sex Determination in Vertebrates*. Smithsonian Books. Washington D.C.

Ewert, M.A. & C.E. Nelson. 2003. Metabolic heating of embryos and sex determination in the American Alligator, *Alligator mississippiensis*. *Journal of Thermal Biology* 28:159-165.

Bowden, R.M., M.A. Ewert, S. Freedberg & C.E. Nelson. 2002. Maternally derived yolk hormones vary in follicles of the painted turtle, *Chrysemys picta*. *J Exp Zool*. 293(1):67-72. <http://www.ncbi.nlm.nih.gov/pubmed/12115920> Abstract only.

Bowden, R.M., M.A. Ewert and C.E. Nelson. 2002. Hormone levels in yolk decline throughout development in the

- red-eared slider turtle (*Trachemys scripta elegans*). *General and Comparative Endocrinology* 129:171-177. <http://www.ncbi.nlm.nih.gov/pubmed/12460601> Link: Abstract only
- Etchberger, C.R., M.A. Ewert, J.B. Phillips & C.E. Nelson. 2002. Carbon dioxide influences environmental sex determination in two species of turtles. *Amphibia-Reptilia* 23 (2): 169-175
- Freedberg, S., M.A. Ewert & C.E. Nelson. 2002. Environmental effects on fitness and consequences for sex allocation in a reptile with environmental sex determination. *Evolutionary Ecology Research* 3:953-967.
- Bowden RM, Ewert MA, Lipar JL, Nelson CE. 2001. Concentrations of steroid hormones in layers and biopsies of chelonian egg yolks. *Gen Comp Endocrinol.* (1):95-103. <http://www.ncbi.nlm.nih.gov/pubmed/11161774> Abstract only.
- Clark, P.J., M.A. Ewert & C.E. Nelson. 2001. Physical apertures as constraints on egg size and shape in the common musk turtle (*Sternotherus odoratus*). *Journal of Functional Ecology* 15:70-77.
- Klukowski, M. & C.E. Nelson. 2001. Ectoparasite loads in free-ranging northern fence lizards, *Sceloporus undulatus hyacinthinus*: Effects of testosterone and sex. *Behavioral Ecology & Sociobiology* 49:289-295.
- Bowden, R.M, M.A. Ewert, J.L.Lipar & C.E. Nelson. 2001. Concentrations of steroid hormones in layers and biopsies of chelonian egg yolks. *General and Comparative Endocrinology.* 121:95-103.
- Bowden, R.M., Ewert, M.A., & Nelson, C.E. 2000. Environmental sex determination in a reptile varies seasonally and with yolk hormones. *Proceedings Royal Society London. B* 267:1454-1459 <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1690737/?tool=pubmed> Abstract & Link to Free Full Text
- Klukowski, M. & C.E. Nelson. 1998. The challenge hypothesis and seasonal changes in aggression and steroids in male northern fence lizards, *Sceloporus undulatus hyacinthinus*. *Hormones and Behavior* 33:197-204. <http://www.ncbi.nlm.nih.gov/pubmed/9698502> Abstract only.
- Klukowski, M., N.M. Jenkinson & C.E. Nelson. 1998. Effects of testosterone on locomotory performance and growth in field active northern fence lizards, *Sceloporus undulatus hyacinthinus*. *Physiological Zoology* 71: 506-514 <http://www.ncbi.nlm.nih.gov/pubmed/9754527> Abstract only
- Ewert, M.A., D.R. Jackson & C.E. Nelson. 1994. Patterns of Temperature-Dependent Sex Determination in Turtles. *Journal of Experimental Zoology* 270:3-15.
- Viets, G.E., A. Tousignant, M.A. Ewert, C.E. Nelson & D. Crews. 1993. Temperature dependent sex-determination in the leopard gecko, *Eublepharis macularius*. *Journal of Experimental Zoology* 265:679-689. <http://www.ncbi.nlm.nih.gov/pubmed/8487018> Link: Abstract only
- Viets, B.E., M.A. Ewert, L.G. Talent & C.E. Nelson. 1994. Sex-Determining Mechanisms in Squamate Reptiles. *Journal of Experimental Zoology* 270:45-46.
- Etchberger, C.R., M.A. Ewert, J.B. Phillips, C.E. Nelson & H.D. Prange. 1993. Environmental and clutch influence embryonic pigmentation in a turtle (*Trachemys scripta elegans*). *Journal of Zoology, London.* 230:529-539.
- Etchberger, C.R., M.A. Ewert, J.B. Phillips, H.D. Prange & C.E. Nelson. 1992. Physiological responses to carbon dioxide in embryonic red-eared slider turtles, *Trachemys scripta*. *Journal Experimental Zoology* 264:1-10.
- Etchberger, C.R., J.P. Phillips, M.A. Ewert, C.E. Nelson & H.D. Prange. 1991. The effects of oxygen concentration and clutch on sex-determination and physiology in red-eared slider turtles (*Trachemys scripta*). *Journal of Experimental Zoology* 258:394-403.
- Ewert, M.A. & C.E. Nelson. 1991. Sex Determination In Turtles: Diverse Patterns And Some Possible Adaptive Values. *Copeia* 1991: 50-69.
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