# RICHARD J. NEVLE

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## EDUCATION:

Ph.D., 1995 Geological & Environmental Sciences, Stanford University, Stanford, CA
B.A., 1987 Geology, Amherst College, Amherst, MA, *Magna Cum Laude*

## TEACHING AND ACADEMIC HONORS:

- Walter J. Gores Award, Stanford University, 2018
- Excellence in Teaching, School of Earth, Energy, and Environmental Sciences, Stanford University, 2017
- Outstanding Teacher Award, presented by the University of California San Diego, 2001 and 2002
- Chevron Fellow, (Stanford University), 1991-1992
- Outstanding Mention, Geological Society of America Committee on Research Grants, 1991
- National Science Foundation Graduate Fellow (Stanford University), 1989-1992
- Pond Prize for best undergraduate thesis in Geology (Amherst College), 1987

## UNIVERSITY SERVICE:

- Sustainability Design Team, Education Lead, Stanford University (2018-2019)
- Long-Range Planning Committee, Education Area Steering Group, Sustainability White Paper Lead Author, Stanford University (2017)
- Evaluation Committee, Notation in Science Communication, Program for Writing and Rhetoric, Stanford University (2016-Present)
- Title IX Hearing Panelist, Stanford University (2016-Present)
- Writing and Rhetoric Requirement Governance Board, Stanford University (2015 - Present)
- Teaching Task Force, Co-Lead, School of Earth, Energy, and Environmental Sciences (2015-2016)
- Pre-Major Advisor/Newcomer Guide (2012-Present)
- Students for Sustainable Stanford Advisory Board (2015-Present)

## TEACHING:

**Current Teaching:** EARTHSYS 10: Introduction to Earth Systems; EARTHSYS 149/249: Wild Writing; EARTHSYS 198/298: Seminar on Philosophy, Politics, and the Environment; EARTH 193: Natural Perspectives: Geology, Environment, and Art; EARTHSYS 210 A, B: Earth Systems Senior Capstone and Reflection; EARTHSYS 210P: Earth Systems Capstone Project; EARTHSYS 297: Directed Individual Study in Earth Systems. (Also contribute to BIO 105A/B: Ecology and Natural History of Jasper Ridge Biological Preserve.)

**Past Teaching** (Stanford University): EARTHSCI 1: Research in the Earth and Environmental Sciences; EARTHSCI 100: Research Preparation for Undergraduates; EARTHSYS 16SI:

Environmental Justice in the Bay Area; EARTHSYS 24: Quick Capture and Questions; EARTHSCI 180: Introduction to Earth and Environmental Sciences Research Design; GES 191: Geological & Environmental Sciences Field Trips; EARTHSYS 260: Earth Systems Internship; EARTHSYS/CEE 163E/263E: International Climate Negotiations; EARTHSYS/CEE 163F/263F: Groundwork for COP 21. EARTHSYS 290: Earth Systems Masters Seminar.

**INVITED TALKS**

- 2019—*Drawing Inspiration in the Range of Light,* Annual Meeting of the Ecological Society of America, Louisville, KY
- 2018, 2019—*Using the nature journal to record observations and inspire questions,* University of Utah, Environmental Humanities Writing Seminar
- 2017—*Cultivating a Practice of Natural History,* Bellarmine College Preparatory, San Jose, CA
- 2014—*How Do We Know Human Activities Are Causing Global Warming?,* Los Altos High School, Los Altos, CA
- 2015—*How Do We Know Human Activities Are Causing Global Warming?,* Fremont High School, Fremont, CA
- 2013—*Detecting Human Fingerprints on Earth's Climate System*, Rotary Club of Santa Clara, Santa Clara, CA
- 2012— *Ecological-Hydrological Effects of Reduced Biomass Burning in the Neotropics after A.D. 1500*, Annual Meeting of the Geological Society of America, Minneapolis, MN
- 2011—*Neotropical human-landscape interactions, fire, and atmospheric $CO_2$ during European conquest*, Department of Geography, University of California, Berkeley
- 2011—*Neotropical human-landscape interactions, fire, and atmospheric $CO_2$ during European conquest,* Peninsula Geological Society, Palo Alto, CA
- 2010—*Neotropical human-landscape interactions, fire, and atmospheric $CO_2$ during European conquest*, United States Geological Survey, Menlo Park, CA

At Stanford University

- 2016, 2017, 2018—*The Geological History of Jasper Ridge Biological Preserve*, Jasper Ridge Biological Preserve Continuing Education Series
- 2015, 2016, 2017, 2018, 2019—*Ice, Mud, and Thermometers: How Records of Past Climate Change Help Us Understand Modern Global Warming,* Stanford University Admit Weekend Master Classes
- 2017, 2018, 2019—*Geology and Natural History of Yosemite National Park*, Presentation to Freshman Dorms

## WORK EXPERIENCE:

2014-present **Deputy Director**, **Earth Systems Program,** *School of Earth, Energy, and Environmental Sciences, Stanford University* Stanford, CA.
In collaboration with the Director and Associate Director, maintain the vitality of Earth Systems Program as a dynamic and rigorous academic program of study for students seeking knowledge and skills vital to social-interdisciplinary environmental problem solving. Through roles as advisor, teacher, and mentor, guide students in all aspects of their education in Earth Systems, from pre-major advising to post-graduation career guidance.

2011-2014 **Undergraduate Program Director**, *School of Earth, Energy, and Environmental Sciences, Stanford University*, Stanford, CA.
Lead school-wide efforts to improve undergraduate course offerings and increase undergraduate engagement in the Earth sciences. Worked with faculty to revise curricula and courses and facilitate interaction between departments and programs. Promoted and coordinated undergraduate research in the School. Represented the School at university-wide events concerning undergraduate programs, taught courses (Earthsci 1, Earthsci 100, and Earthsci 193), and advised students within the earth and environmental sciences.

2004-2011 **Lecturer**. *Santa Clara University*, Santa Clara, CA.
Designed and taught lecture- and lab-based introductory earth science courses to undergraduates.

2005-2011 **Visiting Scholar**. *Stanford University*, Stanford, CA.
Investigated interactions among pre-industrial human activities, climate, and biomass burning using paleoenvironmental proxy data.

1997-2011 **Teacher and Coach**. *Bellarmine College Preparatory*, San José, CA.
Taught courses in geology, calculus, and physics. Designed and taught curriculum for college-level introductory geology course for $11^{th}$- and $12^{th}$-grade students. Taught six-week summer courses in mathematics and inquiry-based science to elementary and middle-school students. Mentored new teachers. As an assistant cross country coach, help to train, motivate, and inspire high school student-athletes to perform at their optimal level in cross country competition.

2007 **Consultant**. *Salas O'Brien Engineers Inc.*, San José, CA.
Conducted scientific literature review to evaluate the feasibility of producing carbon-negative, renewable energy by a biomass gasification process that incorporates production of a carbon-sequestering bio-char soil amendment. Analyzed potential of process to provide environmental benefits via agricultural application of bio-char, including atmospheric carbon sequestration, soil quality improvement, and other ecosystem services.

2000-2001 **Consultant**. *Classroom Connect*, Brisbane, CA.
Designed and produced web-based instructional unit that enables students to explore atmospheric science from an earth-systems perspective. Researched, developed, and wrote educational content for company's Classroom Today and Quest Channel web sites (online resources for teachers and students).

1999 **Instructor**. *Bay Area Schools for Excellence in Education Summer Institute*, Cupertino, CA. Designed and taught inquiry-based geology course to help elementary school teachers enrich earth science background.

1997 **Instructor**. *Keck Research Symposium in Geology*, Amherst, MA.
Part of three-person team responsible for supervising ten undergraduates on geological research projects involving fieldwork and synchrotron microXANES analysis of minerals for determination of $Fe^{3+}/Fe^{2+}$. Guided and supported

students in all aspects of research including project formulation, collection and analysis of data, and interpretation and presentation of results.

1994-1997 **Senior Researcher**. *Now What Software*, San Francisco, CA.
Designed and produced content for digital atlas on environmental change, Earthscapes In Time. Wrote educational earth science content to enhance company's series of multimedia atlases. Managed content experts, production and research assistants, writers, and teachers to create content for software products and teachers' guides.

1988-1994 **Research Assistant**. *Stanford University*, Stanford, CA.
Conducted field and analytical study of a fossilized hydrothermal system located in the remote arctic wilderness of East Greenland. Assisted with all aspects of organization and logistics of two expeditions, including fund-raising through writing successful grant proposals. Presented results at major scientific meetings and in publications.

1987-1994 **Teaching Assistant**. *Stanford University*, Stanford, CA and *Amherst College*, Amherst, MA.
Taught laboratory sections for undergraduate introductory geology courses, motivated and encouraged students, prepared lectures and demonstrations, led field trips, graded assignments.

1988-2000 **Tutor**. Helped high school and college students strengthen skills in writing, science, and mathematics.

1991 **Exploration Geologist**. *Platinova Resources, Ltd.*, Toronto, Canada.
Part of two-man team responsible for planning and implementing precious metal prospecting program in remote region of East Greenland.

1987 **Field Assistant**. *University of Oregon*, Corvallis.
Assisted team of geologists with field research in the Nazca region of coastal Peru. Study focused on characterizing the faunal assemblages preserved within Cenozoic marine sediments to reconstruct paleoclimatic conditions. Duties included sample collection, fossil identification, measuring stratigraphic sections, core logging, and translating for non-Spanish speaking members of research team.

1986 **Intern**. *Lunar and Planetary Science Institute*, Houston, TX.
Conducted petrological analysis of phosphate minerals in two shergottite meteorites to evaluate evidence for metasomatism and assess the potential role of this process in resetting the meteorites' radiometric ages.

1985-1987 **Resident Counselor**. *Amherst College*, Amherst, MA.
Selected as one of three resident assistants to 120 undergraduates in college dormitory. Helped first year students make the transition to college life. Mediated in resolving difficult interpersonal situations. Counseled students struggling with personal issues. Administered $1500 budget to coordinate intellectual and social activities.

## PROFESSIONAL DEVELOPMENT:

2000 *Understanding Teaching I Short Course* - Research for Better Teaching, Inc.

## TECHNICAL EXPERIENCE:

- Synchrotron microXANES analysis of minerals for determination of $Fe^{3+}/Fe^{2+}$.
- Oxygen isotope analysis of silicate minerals, by conventional and laser fluorination techniques.
- Radiometric dating of minerals using the $^{40}Ar/^{39}Ar$ method, by conventional and laser-heating techniques.
- Electron microprobe and scanning electron microscope analysis of minerals.
- Mineral separation by magnetic and gravimetric methods.
- Preparation of sediment samples for carbon and nitrogen isotope analysis.
- Proficiency with Macintosh-, and Windows-based computer operating systems and software.

## OTHER

- 1987, Amherst College Men's Varsity Crew, Captain. Selected as Most Valuable Player, 1987.

## PUBLICATIONS:

### Published, peer-reviewed articles

Nevle, R.J., *in press,* Drawing Inspiration in the Range of Light. Journal of Natural History Education and Experience.

Chay, F., Black, H., Nevle, R., 2018, Quick capture and questions: A curriculum for introducing natural history through field journaling. Journal of Natural History Education and Experience, v. 12: pp. 5-14

Nevle, R.J., Bird, D.K., Ruddiman, W. F., and Dull, R., 2011, Neotropical human-landscape interactions, fire, and atmospheric $CO_2$ during European conquest. The Holocene, v. 21, pp. 853-864.

Dull, R., Nevle, R.J., Woods, W.I., Denevan, W.M. and Bird, D.K., 2010, The Columbian Encounter and the Little Ice Age: Abrupt Land Use Change, Fire, and Greenhouse Forcing. Annals of the Association of American Geographers, v. 100, pp. 755-771.

Nevle, R. J. and Bird, D. K., 2008, Effects of syn-pandemic fire suppression and reforestation in the tropical Americas on atmospheric $CO_2$ during European conquest. Palaeogeography, Palaeoclimatology, Palaeoecology, v. 264, pp. 25-38.

Bird, D. K., Arnason, J. G., Brandriss, M. E., Nevle, R. J., Radford, G., Bernstein, S. Gannicott, R. A., Kelemen, P. B., 1995, A gold-bearing horizon in the Kap Edvard Holm Complex, East Greenland. Economic Geology and the Bulletin of the Society for Economic Geologists, v. 90, no. 5, pp. 1288-1300.

Brandriss, M. E., Nevle, R. J., Bird, D. K., and O'Neil, J. R., 1995, Imprint of meteoric water on the stable isotope compositions of igneous and secondary minerals in the Kap Edvard Holm Complex, East Greenland. Contributions to Mineralogy and Petrology, v. 121, no. 1, pp. 74-86.

Nevle, R. J., Brandriss, M. E., Bird, D. K., O'Neil, J. R., and McWilliams, M. O., 1994, Tertiary plutons monitor climate change in East Greenland. Geology, v. 22, pp. 775-778.

## Case Studies

Krebs, M., Lips, K., McIntosh, T., Nevle, R., Sturner, P., 2015, Stopping wildlife disease from becoming a crisis: a collaborative leadership success story. SESYNC Case Study for Teaching Socio-Environmental Synthesis. https://www.sesync.org/stopping-a-wildlife-disease-from-becoming-a-crisis-a-collaborative-leadership-success-story-2016-5.

## Abstracts

Nevle, R. J., 2019, Drawing inspiration in the Range of Light. Ecological Society of America Abstracts (in press).

Nevle, R. J., Watson Nelson, T., Klemperer, S. L., Harris, J.M., 2012, Collaboration and Community Building in Summer Undergraduate Research Programs in the School of Earth Sciences at Stanford University. Eos Trans. AGU Fall Meet. Suppl., ED43C-0736.

Nevle, R. J., Bird, D.K., Ruddiman, W. F., Dull, R., and Stinchcomb, G.E., 2011, Ecological-Hydrological Effects of Reduced Biomass Burning in the Neotropics after A.D. 1500. Geological Society of America; Abstracts with Programs, v. 43, p. 399.

Nevle, R. J., and Bird, D. K., 2008, Effects of Syn-pandemic Fire Reduction and Reforestation in the Tropical Americas on Atmospheric Carbon Dioxide During European Conquest, Eos Trans. AGU Fall Meet. Suppl., U31A-0004.

Nevle, R. J., and Bird, D. K., 2007, Synchrony of Pandemics, Fire Reduction, and Reforestation in the Tropical Americas With Atmospheric Carbon Dioxide Changes During European Conquest, Eos Trans. AGU Fall Meet. Suppl., B11D-0767.

Nevle, R. J., and Bird, D. K., 2006, Syn-pandemic Fire Suppression in the Tropical Americas During European Conquest, Eos Trans. AGU Fall Meet. Suppl., B53D-0375.

Nevle, R. J., and Bird, D. K., 2005, Effects of syn-pandemic reforestation on atmospheric carbon dioxide from 1500 to 1700 A.D., Eos Trans. AGU Fall Meet. Suppl., PP51B-0589.

Crowley, P., Dyar, M. D., Nevle, R. J., 1998, Ferric Iron in Rock Forming Minerals. Eleventh Keck Research Symposium in Geology Proceedings, pp. 19-23.

Dyar, M. D., Crowley, P. D., Nevle, R. J., Delaney, J. S., Morrison, H. R., Chervasia, M. B., Brown, Z. M., Monders, A. G., Harrington, D. F., Stamski, R. E., Guetschow, H. A., Gutmann, E. D., Sutton, S. R., 1997, Coordination Effect on Fe Pre-edge SmX Spectra of Garnet, Eos Trans. AGU Fall Meet. Suppl., V22B-08.

Nevle, R. J., Brandriss, M. E., Bird, D. K., McWilliams, M. O., and O'Neil, J. R., 1993, $^{40}Ar/^{39}Ar$ age constraints on plutonism, uplift, and hydrothermal alteration in the Kap Edvard Holm Complex, East Greenland. Geological Society of America; Abstracts with Programs, v. 25, p. A477-A478.

Nevle, R. J., and Bird, D. K., 1992, Enhancement of porosity in gabbros by dike intrusion, in Kharaka, Y. K., and Maest, A. S. (eds.), Proceedings of the 7th International Symposium on Water-Rock Interaction, p. 1533-1536.

Nevle, R. J., Bird, D. K., and O'Neil, J. R., 1992, Hydrothermal aquifers formed by mafic dikes in the Kap Edvard Holm Complex, East Greenland, in Brooks, C. K., Hoch, E., and Brantsen, A. K. (eds.), Kangerdlugssuaq Studies; Processes at a Rifted Continental Margin III; Proceedings of a meeting held on May 25, 1992 in the Geological Institute, University of Copenhagen, p. 81-84.

Bird, D. K., Radford, G., Bernstein, S., Gannicott, R. A., Arnason, J. G., Brandriss, M. E., and Nevle, R. J., 1991, Strata-bound gold and platinum mineralization in layered gabbros of the Kap Edvard Holm Complex, East Greenland. Geological Society of America; Abstracts with Programs, v. 23, p. 413.

Nevle, R. J., and Bird D. K., 1990, The effect of dikes on hydrothermal alteration of layered gabbros of the Kap Edvard Holm Complex, East Greenland. Geological Society of America; Abstracts with Programs, v. 22, p. A213.

Nevle, R. J., 1987, Phosphates in Shergotty and EETA79001: geochemistry and petrogenesis. Lunar and Planetary Science XVIII, pp. 714-715. d

## Opinion

Nevle, R. J., and Levoy, D., and Stromberg, J. 19 June 2017, Air Quality board has to stop the district staff's sneaky bid to allow more pollution. San Jose Mercury News. Op-ed.

Nevle, R. J., Levoy, D., 17 Nov. 2014. Oil trains in San Jose: Phillips 66 refinery expansion could imperil downtown. San Jose Mercury News. Op-ed.

**Ph.D. Dissertation**: Hydrothermal Processes in Gabbros During Continental Breakup, The Kap Edvard Holm Complex, East Greenland. 1995. Stanford University. Advisor: Dennis K. Bird

**Undergraduate Honors Thesis**: Phosphates in Shergotty and EETA79001: Geochemistry and Petrogenesis. 1987. Amherst College. Advisors: Gerald Brophy and Gordon McKay (NASA-JSC).