

## REFERENCES

---

This is the bibliography of *The California Nitrogen Assessment: Challenges and Solutions for People, Agriculture, and the Environment* (all chapters). Additional information about the California Nitrogen Assessment (CNA) and appendices for other chapters are available at the Agricultural Sustainability

Institute website: [asi.ucdavis.edu/nitrogen](http://asi.ucdavis.edu/nitrogen)

- Aber, J. D., McDowell, W., Nadelhoffer, K., Magill, A., Berntson, G., Kamakea, M., McNulty, S. G., Currie, W., Rustad, L., and Fernandez, I. 1998. Nitrogen saturation in northern forest ecosystems. *BioScience* 39: 378–386.
- Abshahi, A., Hills, F. J., and Broadbent, F. E. 1984. Nitrogen utilization by wheat from residual sugarbeet fertilizer and soil incorporated sugarbeet tops. *Agronomy Journal* 76:954–958.
- Abt Associates Inc. 2000. *Out of Sight: The Science and Economics of Visibility Impairment*. Report prepared for Clean Air Task Force, Boston, MA.
- Adamkiewicz, G., Ebel, S., Syring, M., Slater, J., Speizer, F. E., Schwartz, J., Suh, H., and Gold, D. R. 2004. Association between air pollution exposure and exhaled nitric oxide in an elderly population. *Thorax* 59:204–209. doi:10.1136/thorax.2003.006445.
- Adams, L. S., Kuehl, S., and Leary, M. 2009. *California 2008 Statewide Waste Characterization Study*. California Integrated Waste Management Board, Sacramento, 172pp.
- Adar, S. D., Adamkiewicz, G., Gold, D. R., Schwartz, J., Coull, B. A., and Suh, H. 2007. Ambient and microenvironmental particles and exhaled nitric oxide before and after a group bus trip. *Environmental Health Perspectives* 115:507–512. doi:10.1289/ehp.9386.
- Addiscott, T. M. 1996. Fertilizers and nitrate leaching. *Issues in Environmental Science and Technology* 5: 1–26.
- Adler, P. R., Del Grosso, S. J., and Parton, W. J. 2007. Life-cycle assessment of net greenhouse-gas flux for bioenergy cropping systems. *Ecological Applications* 17: 675–691.
- Adviento-Borbe, M. A., Pittelkow, C. M., Anders, M., van Kessel, C., Hill, J. E., McClung, A. M., Six, J., and Linquist, B. A. 2013. Optimal fertilizer nitrogen rates and yield-scaled global warming potential in drill seeded rice. *Journal of Environment Quality* 42:1623–1634. doi:10.2134/jeq2013.05.0167.
- Aggarwal, R. 2010. *Final report of ASU Workshop Course SOS 594: Future Scenarios for Agriculture and Water in Central Arizona*. School of Sustainability, Arizona State University.
- Ahearn, D., Sheibley, R., Dahlgren, R., and Keller, K. 2004. Temporal dynamics of stream water chemistry in the last free-flowing river draining the western Sierra Nevada. *California Journal of Hydrology* 295:47–63. doi:10.1016/j.jhydrol.2004.02.016.
- Ahn, Y.-H. 2006. Sustainable nitrogen elimination biotechnologies: a review. *Process Biochemistry* 41:1709–1721. doi:10.1016/j.procbio.2006.03.033.
- AIC (Agricultural Issues Center). 2006. Agriculture's role in the economy. Chapter 5 in *The Measure of California Agriculture*. UC Agricultural Issues Center, Davis, CA.
- AIC. 2009. *The Measure of California Agriculture*. UC Agricultural Issues Center, Davis, CA.
- AIC. 2011. *Project on Climate Change and Agriculture in Yolo County (Preliminary)*. UC Agricultural Issues Center, Davis, CA.
- AIC. 2012a. *Estimating California's Agricultural Exports*, University of California Agricultural Issues Center. Accessed June 6, 2015. <http://aic.ucdavis.edu/pub/exports.html>.
- AIC. 2012b. *The Measure of California Agriculture: Highlights*. UC Agricultural Issues Center, Davis, CA.
- Aillery, M., Gollehon, N., Johansson, R., Kaplan, J., Key, N., and Ribaud, M. 2005. *Managing Manure to Improve Air and Water Quality*, Economic Research Service Economic Research Report 9. United States Department of Agriculture.
- Akinbami, L. J., Lynch, C. D., Parker, J. D., and Woodruff, T. J. 2010. The association between childhood asthma prevalence and monitored air pollutants in metropolitan areas, United States, 2001–2004. *Environmental Research* 110:294–301. doi:10.1016/j.envres.2010.01.001.

- Akiyama, H., Yan, X., and Yagi, K. 2010. Evaluation of effectiveness of enhanced-efficiency fertilizers as mitigation options for N<sub>2</sub>O and NO emissions from agricultural soils: meta-analysis. *Global Change Biology* 16:1837–1846.
- Alcamo, J. and Bennett, E. M. 2003. *Ecosystems and Human Well-being: A Framework for Assessment*. Island Press, Washington, DC.
- Alcamo, J. and Henrichs, T. 2008. Towards guidelines for environmental scenario analysis, in Alcamo, J. (Ed.): *Environmental Futures: The Practice of Environmental Scenario Analysis*. Elsevier, Amsterdam, pp.13–35.
- Alderman, H. 1986. *The Effect of Food Price and Income Changes on the Acquisition of Food by Low-Income Households*. International Food Policy Research Institute, Washington, DC.
- Alexander, R. B. and Smith, R. A. 1990. *County-Level Estimates of Nitrogen and Phosphorus Fertilizer Use in the United States, 1945 to 1985*, Open-File Report, USGS Numbered Series No. 90-130. USGS, Reston, VA.
- Alexis, N. E., Lay, J. C., Hazucha, M., Harris, B., Hernandez, M. L., Bromberg, P. A., Kehrl, H. et al. 2010. Low-level ozone exposure induces airways inflammation and modifies cell surface phenotypes in healthy humans. *Inhalation Toxicology* 22:593–600. doi:10.3109/08958371003596587.
- Allen, E. B., Temple, P. J., Bytnerowicz, A., Arbaugh, M. J., Sirulnik, A. G., and Rao, L. E. 2007. Patterns of understory diversity in mixed coniferous forests of southern California impacted by air pollution. *Scientific World Journal* 7 (Suppl 1):247–263. doi:10.1100/tsw.2007.72.
- Alston, J. M., Andersen, M. A., James, J. S., and Pardey, P. G. 2010. *Persistence Pays: U.S. Agricultural Productivity Growth and the Benefits from Public R&D Spending*. Springer, New York.
- Altshuler, S. L., Arcado, T. D., and Lawson, D. R. 1995. Weekday v. weekend ambient ozone concentrations: discussion and hypotheses with focus on Northern California. *Journal of the Air and Waste Management Association* 45: 967–972.
- Andersen, Z. J., Wahlin, P., Raaschou-Nielsen, O., Scheike, T., and Loft, S. 2007. Ambient particle source apportionment and daily hospital admissions among children and elderly in Copenhagen. *Journal of Exposure Science and Environmental Epidemiology* 17:625–636. doi:10.1038/sj.jes.7500546.
- Anderson, K. 1987. On why agriculture declines with economic growth. *Agricultural Economics* 1:195–207. doi:10.1016/0169-5150(87)90001-6.
- Anderson, K. 2005. *Tending the Wild: Native American Knowledge and the Management of California's Natural Resources*. University of California Press, Oakland.
- Anderson, T. L., Charlson, R. J., Schwartz, S. E., Knutti, R., Boucher, O., Rodhe, H., and Heintzenberg, J. 2003. Climate forcing by aerosols: a hazy picture. *Science* 300:1103–1104.
- Anjana, S. U. and Iqbal, M. 2007. Nitrate accumulation in plants, factors affecting the process, and human health implications: a review. *Agronomy for Sustainable Development* 27:45–57. doi:10.1051/agro:2006021.
- Anning, D. W., Paul, A. P., McKinney, T. S., Huntington, J. M., Bexfield, L. M., and Thiros, S. A. 2012. *Predicted Nitrate and Arsenic Concentrations in Basin-Fill Aquifers of the Southwestern United States (No. 2012-5065)*, Scientific Investigations Report. USGS, Reston, VA.
- Antikainen, R., Lemola, R., Nousiainen, J. I., Sokka, L., Esala, M., Huhtanen, P., and Rekolainen, S. 2005. Stocks and flows of nitrogen and phosphorus in the Finnish food production and consumption system. *Agriculture, Ecosystems & Environment* 107:287–305. doi:10.1016/j.agee.2004.10.025.

- API (American Petroleum Institute). 2013. *State Gasoline Tax Reports: Motor Fuel Taxes*. Accessed June 6, 2015. <http://www.api.org/oil-and-natural-gas-overview/industry-economics/fuel-taxes>.
- Arbuckle, T. E., Sherman, G. J., Corey, P. N., Walters, D., and Lo, B. 1988. Water nitrates and CNS birth defects: a population-based case-control study. *Archives of Environmental Health* 43:162–167. doi:10.1080/00039896.1988.9935846.
- ARC (Alliance of Religions and Conservation). 1986. *The Assisi Declarations*. ARC, Kelston Park, Bath, UK.
- Arjal, R. D., Prato, J. D., and Peterson, M. L. 1978. Response of corn to fertilizer, plant population, and planting date. *California Agriculture* 32(3): 14–15.
- Arneth, A., Harrison, S. P., Zaehle, S., Tsigaridis, K., Menon, S., Bartlein, P. J., Feichter, J. et al. 2010. Terrestrial biogeochemical feedbacks in the climate system. *Nature Geoscience* 3:525–532. doi:10.1038/ngeo905.
- Arriaza, M., Cañas-Ortega, J. F., Cañas-Madueño, J. A., and Ruiz-Aviles, P. 2004. Assessing the visual quality of rural landscapes. *Landscape and Urban Planning* 69:115–125. doi:10.1016/j.landurbplan.2003.10.029.
- Arsenault, N., Tyedmers, P., and Fredeen, A. 2009. Comparing the environmental impacts of pasture-based and confinement-based dairy systems in Nova Scotia (Canada) using life cycle assessment. *International Journal of Agricultural Sustainability* 7:19–41. doi:10.3763/ijas.2009.0356.
- ASAE (American Society of Agricultural Engineers). 2005. *Manure Production and Characteristics*, Standard D384.2. ASAE, St. Joseph, MI.
- Asano, T., Burton, F., Leverenz, H., Tsuchihashi, R., and Tchobanoglous, G. 2007. *Water Reuse: Issues, Technologies, and Applications*, 1st ed. McGraw-Hill Education, New York.
- Aschebrook-Kilfoy, B., Heltshe, S. L., Nuckols, J. R., Sabra, M. M., Shuldiner, A. R., Mitchell, B. D., Airola, M., Holford, T. R., Zhang, Y., and Ward, M. H. 2012. Modeled nitrate levels in well water supplies and prevalence of abnormal thyroid conditions among the Old Order Amish in Pennsylvania. *Environmental Health* 11:6. doi:10.1186/1476-069X-11-6.
- Aschengrau, A., Zierler, S., and Cohen, A. 1989. Quality of community drinking water and the occurrence of spontaneous abortion. *Archives of Environmental Health* 44:283–290. doi:10.1080/00039896.1989.9935895.
- Aschengrau, A., Zierler, S., and Cohen, A. 1993. Quality of community drinking water and the occurrence of late adverse pregnancy outcomes. *Archives of Environmental Health* 48:105–113. doi:10.1080/00039896.1993.9938403.
- Ash, N., Blanco, H., Brown, C., Garcia, K., Tomich, T., Vira, B., Zurek, M. et al. 2010. *Ecosystems and Human Well-Being: A Manual for Assessment Practitioners*. Island Press, Washington, DC.
- Avery, A. A. 1999. Infantile methemoglobinemia: reexamining the role of drinking water nitrates. *Environmental Health Perspectives* 107:583–586.
- Avery, A. A. and L'hirondel, J.-L. 2003. Nitrate and methemoglobinemia. *Environmental Health Perspectives* 111:A142–A144.
- Baccarelli, A., Martinelli, I., Zanobetti, A., Grillo, P., Hou, L. F., Bertazzi, P. A., Mannucci, P. M., and Schwartz, J. 2008. Exposure to particulate air pollution and risk of deep vein thrombosis. *Archives of Internal Medicine* 168:920–927. doi:10.1001/archinte.168.9.920.

- Baerenklau, K. A., Nergis, N., and Schwabe, K. A. 2008. Effects of nutrient restrictions on confined animal facilities: insights from a structural-dynamic model. *Canadian Journal of Agricultural Economics* 56:219–241.
- Baerenklau, K. A. and Wang, J. 2015. Model-based regulation of nonpoint source emissions, in Dinar, A. and Schwabe, K. A. (Eds): *The Handbook of Water Economics*. Edward Elgar, Cheltenham, UK, pp.313–327
- Baghott, K. G. and Puri, Y. P. 1979. Response of durum and bread wheats to nitrogen fertilizer. *California Agriculture* 33:21–22.
- Baghurst, P. A., McMichael, A. J., Slavotinek, A. H., Baghurst, K. I., Boyle, P., and Walker, A. M. 1991. A case-control study of diet and cancer of the pancreas. *American Journal of Epidemiology* 134:167–179.
- Baisre, J. A. 2006. Assessment of nitrogen flows into the Cuban landscape, in Martinelli, L. A. and Howarth, R. W. (Eds): *Nitrogen Cycling in the Americas: Natural and Anthropogenic Influences and Controls*. Springer Netherlands, Heidelberg, pp.91–108.
- Baker, L. A., Hope, D., Xu, Y., Edmonds, J., and Lauver, L. 2001. Nitrogen balance for the Central Arizona–Phoenix (CAP) ecosystem. *Ecosystems* 4:582–602. doi:10.1007/s10021-001-0031-2.
- Balazs, C. L. and Ray, I. 2009. Just water? Environmental justice and drinking water quality in California’s Central Valley. Paper presented at *The 137st APHA Annual Meeting and Exposition*, November 7–11, Philadelphia, PA.
- Ban-Weiss, G. A., Mclaughlin, J. P., Harley, R. A., Lunden, M. M., Kirchstetter, T. W., Kean, A. J., Strawa, A. W., Stevenson, E. D., and Kendall, G. R. 2008. Long-term changes in emissions of nitrogen oxides and particulate matter from on-road gasoline and diesel vehicles. *Atmospheric Environment* 42:220–232.
- Barbone, F., Austin, H., and Partridge, E. E. 1993. Diet and endometrial cancer: a case-control study. *American Journal of Epidemiology* 137:393–403.
- Barbour, M. G., Pavlik, B., Drysdale, F., and Lindstrom, S. 1993. *California’s Changing Landscapes: Diversity and Conservation of California Vegetation*. California Native Plant Society, Sacramento.
- Barnett, A. G., Williams, G. M., Schwartz, J., Neller, A., Best, T., Petroeshevsky, A., and Simpson, R. 2005. Air pollution and child respiratory health: a case-crossover study in Australia and New Zealand. *American Journal of Respiratory and Critical Care Medicine* 171:1272–1278.
- Barnett, T. P., Pierce, D. W., Hidalgo, H. G., Bonfils, C., Santer, B. D., Das, T., Bala, G. et al. 2008. Human-induced changes in the hydrology of the Western United States. *Science* 319:1080–1083. doi:10.1126/science.1152538.
- Barreiro, T. J. and Perillo, I. 2004. An approach to interpreting spirometry. *American Family Physician* 69:1107–1114.
- Barton, L. and Schipper, L. A. 2001. Regulation of nitrous oxide emissions from soils irrigated with dairy farm effluent. *Journal of Environment Quality* 30:1881. doi:10.2134/jeq2001.1881.
- Battye, W., Aneja, V. P., and Roelle, P. A. 2003. Evaluation and improvement of ammonia emissions inventories. *Atmospheric Environment* 37:3873–3883. doi:10.1016/S1352-2310(03)00343-1.
- Baum, M. M., Kiyomiya, E. S., Kumar, S., Lappas, A. M., Kapinus, V. A., and Lord, H. C. 2001. Multicomponent remote sensing of vehicle exhaust by dispersive absorption spectroscopy. 2. Direct on-road ammonia measurements. *Environmental Science & Technology* 35:3735–3741. doi:10.1021/es002046y.
- Baumol, W. J. and Oates, W. E. 1988. *The Theory of Environmental Policy*, 2nd ed. Cambridge University Press, Cambridge

- BAWSCA (Bay Area Water Supply and Conservation Agency). 2012. *Hetch Hetchy Water System*. Available at: <http://bawasca.org/water-supply/hetch-hetchy-water-system/>.
- Bayer-Oglesby, L., Grize, L., Gassner, M., Takken-Sahli, K., Sennhauser, F. H., Neu, U., Schindler, C., and Braun-Fahrländer, C. 2005. Decline of ambient air pollution levels and improved respiratory health in Swiss children. *Environmental Health Perspectives* 113:1632–1637. doi:10.1289/ehp.8159.
- Beaulac, M. N. and Reckhow, K. H. 1982. An examination of land use–nutrient export relationships. *JAWRA Journal of the American Water Resources Association* 18:1013–1024. doi:10.1111/j.1752-1688.1982.tb00109.x.
- Belanger, K., Gent, J. F., Triche, E. W., Bracken, M. B., and Leaderer, B. P. 2006. Association of indoor nitrogen dioxide exposure with respiratory symptoms in children with asthma. *American Journal of Respiratory and Critical Care Medicine* 173:297–303. doi:10.1164/rccm.200408-1123OC.
- Belitz, K., Dubrovsky, N. M., Burow, K. R., Jurgens, B., and Johnson, T. 2003. *Framework for a Ground-Water Quality Monitoring and Assessment Program for California*, Water Resources Investigation Report 03-4166. US Geological Survey, Sacramento, CA.
- Bell, M. L., Peng, R. D., and Dominici, F. 2006. The exposure-response curve for ozone and risk of mortality and the adequacy of current ozone regulations. *Environmental Health Perspectives* 114:532–536. doi:10.1289/ehp.8816.
- Benbrook, C., Zhao, X., Yáñez, J., Davies, N., and Andrews, P. K. 2008. *New Evidence Confirms the Nutritional Superiority of Plant-Based Organic Foods*, Critical Issue Report March 2008. The Organic Center, Foster, RI.
- Bender, J., Hertstein, U., and Black, C. R. 1999. Growth and yield responses of spring wheat to increasing carbon dioxide, ozone and physiological stresses: a statistical analysis of “ESPACE-wheat” results. *European Journal of Agronomy* 10:185–195.
- Bendixen, W. E., Hanson, B. R., Hartz, T. K., and Larson, K. D. 1998. *Evaluation of Controlled Release Fertilizers and Fertigation in Strawberries and Vegetables*, FREP Contract # 95-0418. Fertilizer Research and Education Program (FREP), Sacramento, CA.
- Benjamin, M. T. 2000. Estimating ammonia emissions in California. *Workshop on Fine Particle Emission Inventories*, September 28, Des Plaines, IL.
- Bennett, E., Carpenter, S., Pingali, P., and Zurek, M. 2005. Summary: comparing alternate futures of ecosystem services and human well-being, in *Ecosystems and Human Well-Being: Scenarios*. Island Press, Washington, DC, pp.2–17.
- Benton, J., Fuhrer, J., Gimeno, B. S., Skärby, L., Palmer-Brown, D., Ball, G., Roadknight, C., and Mills, G. 2000. An international cooperative programme indicates the widespread occurrence of ozone injury on crops. *Agriculture, Ecosystems & Environment* 78:19–30. doi:10.1016/S0167-8809(99)00107-3.
- Berg, G. M., Glibert, P. M., Jorgensen, N. O. G., Balode, M., and Purina, I. 2001. Variability in inorganic and organic nitrogen uptake associated with riverine nutrient input in the Gulf of Riga, Baltic Sea. *Estuaries* 24:176–186.
- Bernhardt, E. S., Band, L. E., Walsh, C. J., and Berke, P. E. 2008. Understanding, managing, and minimizing urban impacts on surface water nitrogen loading. *Annals of the New York Academy of Sciences* 1134:61–96. doi:10.1196/annals.1439.014.
- Berretta, M., Lleshi, A., Fisichella, R., Berretta, S., Basile, F., Li Volti, G., Bolognese, A. et al. 2012. The role of nutrition in the development of esophageal cancer: what do we know? *Frontiers in Bioscience (Elite Edition)* 4:351–357.

- Berry, W. 1985. *Enriching the Earth, in: Collected Poems: 1957–1982*. North Point Press, San Francisco, CA.
- Berry, W. 1977. *The Unsettling of America*. Sierra Club Books, San Francisco, CA.
- Bhattacharya, D. K., Brondizio, E. S., Spierenburg, M., Ghosh, A., Traverse, M., de Castro, F., Morsello, C., and Siqueira, A. D. 2005. Cultural services, in Chopra, K., Leemans, R., Kumar, P., and Simons, H. (Eds): *Ecosystems and Human Well-Being: Policy Responses, Vol. 3: Findings of the Responses Working Group of the Millennium Ecosystem Assessment*. Island Press, Washington, DC, pp.401–422.
- Bickerstaff, K. 2004. Risk perception research: socio-cultural perspectives on the public experience of air pollution. *Environment International* 30:827–840. doi:10.1016/j.envint.2003.12.001.
- Birch, M. B. L., Gramig, B. M., Moomaw, W. R., Doering, O. C., and Reeling, C. J. 2011. Why metrics matter: evaluating policy choices for reactive nitrogen in the Chesapeake Bay Watershed. *Environmental Science & Technology* 45:168–174.
- Bird, J. A., Horwath, W. R., Eagle, A. J., and van Kessel, C. 2001. Immobilization of fertilizer nitrogen in rice. *Soil Science Society of America Journal* 65:1143. doi:10.2136/sssaj2001.6541143x.
- Bishop, G. A., Peddle, A. M., Stedman, D. H., and Zhan, T. 2010. On-road emission measurements of reactive nitrogen compounds from three California cities. *Environmental Science & Technology* 44:3616–3620. doi:10.1021/es903722p.
- Bishop, R. 1994. A local agency's approach to solving the difficult problem of nitrate in the groundwater. *Journal of Soil and Water Conservation* 49:82–84.
- Bleken, M. A. and Bakken, L. R. 1997. The nitrogen cost of food production: Norwegian society. *Ambio* 26:134–142.
- Blengini, G. A. and Busto, M. 2009. The life cycle of rice: LCA of alternative agri-food chain management systems in Vercelli (Italy). *Journal of Environmental Management* 90:1512–1522.
- Boardman, A. E., Greenberg, D., Vining, A., and Weimer, D. 1996. *Cost-Benefit Analysis: Concepts and Practice*. Prentice-Hall, Upper Saddle River, NJ.
- Bobbink, R., Hicks, K., Galloway, J. N., Spranger, T., Alkemade, R., Ashmore, M., Bustamante, M. et al. 2010. Global assessment of nitrogen deposition effects on terrestrial plant diversity: a synthesis. *Ecological Applications* 20:30–59.
- Bobbink, R., Hornung, M., and Roelofs, J. G. M. 1998. The effects of air-borne nitrogen pollutants on species diversity in natural and semi-natural European vegetation. *Journal of Ecology* 86:717–738. doi:10.1046/j.1365-2745.1998.8650717.x.
- BOE (California State Board of Equalization). 2011. *Annual Report 2010–2011*. Accessed June 7, 2015. <http://www.boe.ca.gov/annual/2010-11/appendix.html#stat>.
- Boehm, A. B., Ashbolt, N. J., Colford, J. M., Dunbar, J. E., Fleming, L. E., Gold, M. A., Hansel, J. A. et al. 2009. A sea change ahead for recreational water quality criteria. *Journal of Water and Health* 7:9–20.
- Boehm, A. B. and Paytan, A. 2010. *Understanding Submarine Groundwater Discharge and Its Influence on Coastal Water Quality along the California Coast*. California Sea Grant College Program, UC San Diego.
- Boeing, H., Frentzel-Beyme, R., Berger, M., Berndt, V., Göres, W., Körner, M., Lohmeier, R. et al. 1991. Case-control study on stomach cancer in Germany. *International Journal of Cancer* 47:858–864. doi:10.1002/ijc.2910470612.
- Boezen, H. M., van der Zee, S. C., Postma, D. S., Vonk, J. M., Gerritsen, J., Hoek, G., Brunekreef, B., Rijcken, B., and Schouten, J. P. 1999. Effects of ambient air pollution on upper and lower respiratory

- symptoms and peak expiratory flow in children. *Lancet* 353:874–878. doi:10.1016/s0140-6736(98)06311-9.
- Bograd, S. J., Castro, C. G., Lorenzo, E. D., Palacios, D. M., Bailey, H., Gilly, W., and Chavez, F. P. 2008. Oxygen declines and the shoaling of the hypoxic boundary in the California current. *Geophysical Research Letters* 35:L12811. doi:10.1029/2008GL034185.
- Böhlke, J. K. and Denver, J. M. 1995. Combined use of groundwater dating, chemical, and isotopic analyses to resolve the history and fate of nitrate contamination in two agricultural watersheds, Atlantic Coastal Plain, Maryland. *Water Resources Research* 31:2319–2339. doi:10.1029/95WR01584.
- Booker, F., Muntifering, R., McGrath, M., Burkey, K., Decoteau, D., Fiscus, E., Manning, W., Krupa, S., Chappelka, A., and Grantz, D. 2009. The ozone component of global change: potential effects on agricultural and horticultural plant yield, product quality and interactions with invasive species. *Journal of Integrative Plant Biology* 51:337–351.
- Bormann, F. H., Likens, G. E., and Melillo, J. M. 1977. Nitrogen budget for an aggrading northern hardwood forest ecosystem. *Science* 196:981–983. doi:10.1126/science.196.4293.981.
- Borsa, A. A., Agnew, D. C., and Cayan, D. R. 2014. Ongoing drought-induced uplift in the western United States. *Science* 345:1587–1590. doi:10.1126/science.1260279.
- Borzsonyi, M., Pinter, A., Surjan, A., and Csik, M. 1976. The transplacental effect of carcinogenic N nitroso compounds formed in vivo from Carbendazym in Swiss mice. *Magyar Onkologia* 20:163–171. (In Hungarian)
- Bosch, D., Cook, Z., and Fuglie, K. 1995. Voluntary versus mandatory agricultural policies to protect water quality: adoption of nitrogen testing in Nebraska. *Review of Agricultural Economics* 17:13–24.
- Bosch, H. M., Rosenfield, A. B., Huston, R., Shipman, H. R., and Woodward, F. L. 1950. Methemoglobinemia and minnesota well supplies. *Journal (American Water Works Association)* 42:161–170.
- Bourn, D. and Prescott, J. 2002. A comparison of the nutritional value, sensory qualities, and food safety of organically and conventionally produced foods. *Critical Reviews in Food Science and Nutrition* 42:1–34.
- Bouwman, A. F., Boumans, L. J. M., and Batjes, N. H. 2002a. Emissions of N<sub>2</sub>O and NO from fertilized fields: summary of available measurement data. *Global Biogeochemical Cycles* 16:6-1–6-13.
- Bouwman, A. F., Boumans, L. J. M., and Batjes, N. H. 2002b. Modeling global annual N<sub>2</sub>O and NO emissions from fertilized fields. *Global Biogeochemical Cycles* 16:28-1–28-9
- Bowman, W. D., Cleveland, C. C., Halada, fπ., Hreško, J., and Baron, J. S. 2008. Negative impact of nitrogen deposition on soil buffering capacity. *Nature Geoscience* 1:767–770.
- Boyer, C., Brorsen, W., Solie, J., and Raun, W. 2010. Profitability of conventional vs. variable rate nitrogen application in wheat production. Paper presented at *The Southern Agricultural Economics Association Annual Meeting*, February 7–9, Orlando, FL.
- Boyer, E. W., Goodale, C. L., Jaworski, N. A., and Howarth, R. W. 2002. Anthropogenic nitrogen sources and relationships to riverine nitrogen export in the northeastern U.S.A., in Boyer, E. W. and Howarth, R. W. (Eds): *The Nitrogen Cycle at Regional to Global Scales*. Springer Netherlands, Heidelberg, pp.137–169.
- Boyle, D. B., King, A., Kourakos, G., Lockhart, K., Mayzelle, M. M., Fogg, G. E., and Harter, T. 2012. *Groundwater Nitrate Occurrence. Technical Report 4 in Addressing Nitrate in California's Drinking Water with a Focus on Tulare Lake Basin and Salinas Valley Groundwater*. Report for the State Water



- Resources Control Board Report to the Legislature. Center for Watershed Sciences, University of California, Davis.
- Bradley, M. J. and Jones, B. M. 2002. Reducing global NO<sub>x</sub> emissions: developing advanced energy and transportation technologies. *AMBIO: A Journal of the Human Environment* 31:141–149. doi:10.1579/0044-7447-31.2.141.
- Bradshaw, T. K. and Muller, B. 1998. Impacts of rapid urban growth on farmland conversion: application of new regional land use policy models and geographical information systems. *Rural sociology* 63:1–25.
- Brady, J. 1999. “Land is itself a sacred, living being”: native American sacred site protection on federal public lands amidst the shadows of Bear Lodge. *American Indian Law Review* 24:153–186. doi:10.2307/20070625.
- Brambilla, G. 1985. Genotoxic effects of drug/nitrite interaction products: evidence for the need of risk assessment. *Pharmacological Research Communications* 17:307–321. doi:10.1016/0031-6989(85)90011-6.
- Brandt, S. J., Perez, L., Lurmann, F., and McConnell, R. 2012. Costs of childhood asthma due to traffic-related pollution in two California communities. *European Respiratory Journal* 40:363–370.
- Bratton, S. 2004. Thinking like a mackerel: Rachel Carson’s Under the Sea-Wind as a source for a trans-ecotonal sea ethic. *Ethics & the Environment* 9:1–22. doi:10.1353/een.2004.0002.
- Brauer, M., Gehring, U., Brunekreef, B., de Jongste, J. C., Gerritsen, J., Rovers, M., Wichmann, H. E., Wijga, A., and Heinrich, J. 2006. Traffic-related air pollution and otitis media. *Environmental Health Perspectives* 114:1414–1418. doi:10.1289/ehp.9089.
- Brauer, M., Hoek, G., Smit, H. A., de Jongste, J. C., Gerritsen, J., Postma, D. S., Kerkhof, M., and Brunekreef, B. 2007. Air pollution and development of asthma, allergy and infections in a birth cohort. *European Respiratory Journal* 29:879–888. doi:10.1183/09031936.00083406.
- Brauer, M., Hoek, G., Vliet, P. V., Meliefste, K., Fischer, P. H., Wijga, A., Koopman, L. P. et al. 2002. Air pollution from traffic and the development of respiratory infections and asthmatic and allergic symptoms in children. *American Journal of Respiratory and Critical Care Medicine* 166:1092–1098. doi:10.1164/rccm.200108-007OC.
- Brender, J. D., Olive, J. M., Felkner, M., Suarez, L., Marckwardt, W., and Hendricks, K. A. 2004. Dietary nitrites and nitrates, nitrosatable drugs, and neural tube defects. *Epidemiology* 15:330–336.
- Breschini, S. J. and Hartz, T. K. 2002. Presidedress soil nitrate testing reduces nitrogen fertilizer use and nitrate leaching hazard in lettuce production. *HortScience* 37:1061–1064.
- Brewer, R. L., Gordan, R. J., and Shephard, L. S. 1983. Chemistry of mist and fog from the Los Angeles urban area. *Atmospheric Environment* 17:2267–2270
- Bricker, S. B., Clement, C. G., Pirhalla, D. E., Orlando, S. P., and Farrow, D. R. G. 1999. *National Estuarine Eutrophication Assessment. Effects of Nutrient Enrichment in the Nation’s Estuaries*. NOAA—NOS Special Projects Office, Silver Spring, MD.
- Bricker, S. B., Longstaff, B., Dennison, W., Jones, A., Boicourt, K., Wicks, C., and Woerner, J. 2007. *Effects of Nutrient Enrichment in the Nation’s Estuaries: A Decade of Change*, National Estuarine Eutrophication Assessment Update (No. 26), NOAA Coastal Ocean Program Decision Analysis Series, NOS Special Projects Office, Silver Spring, MD
- Broadbent, F. E. and Carlton, A. B. 1978. Field trials with isotopically labeled nitrogen fertilizer. *Nitrogen in the Environment* 1:1–41.

- Broadbent, F. E. and Rauschkolb, R. S. 1977. Nitrogen fertilization and water pollution. *California Agriculture* 32:24–25.
- Broadbent, F. E., Tyler, K. B., and May, D. M. 1980. Tomatoes make efficient use of applied nitrogen. *California Agriculture* 34:24–25.
- Brody, J. G., Aschengrau, A., McKelvey, W., Swartz, C. H., Kennedy, T., and Rudel, R. A. 2006. Breast cancer risk and drinking water contaminated by wastewater: a case control study. *Environmental Health* 5:28. doi:10.1186/1476-069X-5-28.
- Brook, R. D. 2007. Is air pollution a cause of cardiovascular disease? Updated review and controversies. *Reviews on Environmental Health* 22:115–137.
- Brook, R. D. 2008. Cardiovascular effects of air pollution. *Clinical Science* 115:175–187. doi:10.1042/cs20070444.
- Brook, R. D. and Rajagopalan, S. 2010. Particulate matter air pollution and atherosclerosis. *Current Atherosclerosis Reports* 12:291–300. doi:10.1007/s11883-010-0122-7.
- Brook, R. D., Rajagopalan, S., Pope, C. A., Brook, J. R., Bhatnagar, A., Diez-Roux, A. V., Holguin, F. et al. 2010. Particulate matter air pollution and cardiovascular disease: an update to the scientific statement from the American heart association. *Circulation* 121:2331–2378. doi:10.1161/CIR.0b013e3181d8bec1.
- Browne, B. A. and Guldan, N. M. 2005. Understanding long-term baseflow water quality trends using a synoptic survey of the ground water–surface water interface, Central Wisconsin. *Journal of Environment Quality* 34:825. doi:10.2134/jeq2004.0134.
- Brown, T. 2010. Phytoplankton community composition: the rise of the flagellates. *IEP Newsletter* 22:20.
- Bruning-Fann, C. S. and Kaneene, J. B. 1993. The effects of nitrate, nitrite and N-nitroso compounds on human health: a review. *Veterinary and Human Toxicology* 35:521–538.
- Brunke, H., Howitt, R. E., and Sumner, D. A. 2004. *Future Food Production and Consumption in California under Alternative Scenarios, California Water Plan Update 2005, Vol. 4: Reference Guide*. UC Agricultural Issues Center, Davis, CA.
- Brunke, H. and Sumner, D. A. 2002. *Assessing the role of NAFTA in California Agriculture: A Review of Trends and Economic Relationships*, UC Agricultural Issues Center, Davis, CA
- Bryan, N. S., Alexander, D. D., Coughlin, J. R., Milkowski, A. L., and Boffetta, P. 2012. Ingested nitrate and nitrite and stomach cancer risk: an updated review. *Food and Chemical Toxicology* 50:3646–3665. doi:10.1016/j.fct.2012.07.062.
- Bukowski, J., Somers, G., and Bryanton, J. 2001. Agricultural contamination of groundwater as a possible risk factor for growth restriction or prematurity. *Journal of Occupational and Environmental Medicine* 43:377–383.
- Bull, K., Hoft, R., and Sutton, M. A. 2011. Coordinating European nitrogen policies between international conventions and intergovernmental organizations, in Sutton, M. A., Howard, C. M., Erisman, J. W., Billen, G., Bleeker, A., Grennfelt, P., Van Grinsven, H. J. M., and Grizzetti, B. (Eds): *The European Nitrogen Assessment: Sources, Effects and Policy Perspectives*, Cambridge University Press, Cambridge, pp.570–584
- Burgan, O., Smargiassi, A., Perron, S., and Kosatsky, T. 2010. Cardiovascular effects of sub-daily levels of ambient fine particles: a systematic review. *Environmental Health: A Global Access Science Source* 9:26. doi:10.1186/1476-069x-9-26.
- Burger, M., Jackson, L. E., Lundquist, E. J., Louie, D. T., Miller, R. L., Rolston, D. E., and Scow, K. M. 2005. Microbial responses and nitrous oxide emissions during wetting and drying of organically and

- conventionally managed soil under tomatoes. *Biology and Fertility of Soils* 42:109–118.  
doi:10.1007/s00374-005-0007-z.
- Burnett, R. T., Stieb, D., Brook, J. R., Cakmak, S., Dales, R., Raizenne, M., Vincent, R., and Dann, T. 2004. Associations between short-term changes in nitrogen dioxide and mortality in Canadian cities. *Archives of Environmental Health* 59:228–236.
- Burns, D. A., Lynch, J. A., Cosby, B. J., Fenn, M. E., and Baron, J. S. 2011. *National Acid Precipitation Assessment Program Report to Congress 2011: An Integrated Assessment*. National Science and Technology Council, Washington, DC.
- Burow, K. R., Dubrovsky, N. M., and Shelton, J. L. 2007. Temporal trends in concentrations of DBCP and nitrate in groundwater in the eastern San Joaquin Valley, California, USA. *Hydrogeology Journal* 15:991–1007. doi:10.1007/s10040-006-0148-7.
- Burow, K. R., Jurgens, B. C., Belitz, K., and Dubrovsky, N. M. 2012. Assessment of regional change in nitrate concentrations in groundwater in the Central Valley, California, USA, 1950s–2000s. *Environmental Earth Sciences* 69:2609–2621. doi:10.1007/s12665-012-2082-4.
- Burow, K. R., Jurgens, B., Kauffman, L. J., Phillips, S. P., Dalgish, B. A., and Shelton, J. L. 2008a. *Simulations of Ground-Water Flow and Particle Pathline Analysis in the Zone of Contribution of a Public-Supply Well in Modesto, Eastern San Joaquin Valley, California*, Scientific Investigations Report No. 2008–5035. US Geological Survey, Sacramento, CA.
- Burow, K. R., Shelton, J. L., and Dubrovsky, N. M. 2008b. Regional nitrate and pesticide trends in ground water in the eastern San Joaquin Valley, California. *Journal of Environmental Quality* 37:S249–263. doi:10.2134/jeq2007.0061.
- Business Forecasting Center. 2010. *Employment Impacts of California Salmon Fishery Closures in 2008 and 2009*. Business Forecasting Center, Stockton, CA.
- Butler, A. R. and Feelisch, M. 2008. Therapeutic uses of inorganic nitrite and nitrate from the past to the future. *Circulation* 117: 2151–2159. doi:10.1161/CIRCULATIONAHA.107.753814.
- Butterbach-Bahl, K., Nemitz, E., and Zaehle, S. 2011. Nitrogen as a threat to the European greenhouse balance. Chapter 19 in *The European Nitrogen Assessment: Sources, Effects and Policy Perspectives*. Cambridge University Press, Cambridge.
- Bytnerowicz, A., Temple, P. J., and Taylor, O. C. 1986. Effects of simulated acid fog on leaf acidification and injury development of pinto beans. *Canadian Journal of Botany* 64:918–922
- CA DOF (California Department of Finance). 2005. *E-6 County Population Estimates and Components of Change—July 1, 1990–2000*. Accessed June 6, 2015. <http://www.dof.ca.gov/research/demographic/reports/estimates/e-6/1990-2000/>.
- CA DOF. 2011. *E-2. California County Population Estimates and Components of Change by Year—July 1, 2000–2010*. Accessed June 6, 2015. <http://www.dof.ca.gov/research/demographic/reports/estimates/e-2/2000-10/>.
- CA DOF. 2013. *Historical County and City Estimates: Reports and Research Papers*. Accessed June 6, 2015. <http://www.dof.ca.gov/research/demographic/reports/view.php#objjCollapsiblePanelEstimatesAnchor>.
- CA DOF. 2014. *E-6. Population Estimates and Components of Change by County—July 1, 2010–2014*. Accessed June 6, 2015. <http://www.dof.ca.gov/research/demographic/reports/estimates/e-6/view.php>.
- CA DWR (California Department of Water Resources). 2003. *California's Groundwater: Bulletin 118 – Update 2003*. CA DWR, Sacramento, CA

- CA DWR. 2005. *California Water Plan Update 2005: Selected Water Prices in California*. CA DWR, Sacramento, CA.
- CA DWR. 2008. *Managing An Uncertain Future: Climate Change Adaptation Strategies for California's Water*. CA DWR, Sacramento, CA.
- CA DWR. 2014a. *California Water Plan Update 2013, Volume 1: The Strategic Plan*. CA DWR, Sacramento, CA
- CA DWR. 2014b. *California Water Plan Update 2013 Investing in Innovation & Infrastructure, Vol. 1: Highlights*. CA DWR, Sacramento, CA.
- CADWR. 2015. *Groundwater*, California Department of Water Resources. Accessed July 26, 2015. <http://www.water.ca.gov/groundwater/>.
- CA EPA Water Resources Control Board. 2015. *Web Data Downloads and Reports from California Water Resources Control Board*. Available at: [http://www.waterboards.ca.gov/water\\_issues/programs/gama/report\\_depot.shtml](http://www.waterboards.ca.gov/water_issues/programs/gama/report_depot.shtml).
- California Attorney General's Office. 2009. *Climate Change, the California Environmental Quality Act, and General Plan Updates: Straightforward Answers to Some Frequently Asked Questions*. California Attorney General's Office, Sacramento, CA
- California Climate Change Center. 2012. *The Third Climate Change Assessment. California Climate Change Portal*. Accessed June 6, 2015. [http://www.climatechange.ca.gov/climate\\_action\\_team/reports/third\\_assessment/index.html](http://www.climatechange.ca.gov/climate_action_team/reports/third_assessment/index.html).
- California Natural Resources Agency. 2009. *2009 California Climate Adaptation Strategy: A Report to the Governor of the State of California in Response to Executive Order S-13-2008*. California Natural Resources Agency, Sacramento
- California Rural Policy Task Force. 2003. *California Agriculture: Feeding the Future*. Governor's Office of Planning and Research, Sacramento, CA.
- CalTrans (California Department of Transportation). 2009. *2008 California Motor Vehicle Stock, Travel and Fuel Forecast*. California Department of Transportation, Sacramento.
- Calvo, E., Sanz, M. J., and Martin, C. 2007. Ozone sensitivity differences in five tomato cultivars: visible injury and effects on biomass and fruits. *Water Air and Soil Pollution* 186:167–181.
- Campbell, S. J., Wanek, R., and Coulston, J. W. 2007. *Ozone Injury in West Coast Forests: 6 Years of Monitoring*. USDA Forest Service, Washington, DC.
- Canada, H. E., Harter, T., Honeycutt, K., Jessoe, K., Jenkins, M. W., and Lund, J. R. 2012. *Regulatory and Funding Options for Nitrate Groundwater Contamination: Technical Report 8 in Addressing Nitrate in California's Drinking Water with a Focus on Tulare Lake Basin and Salinas Valley Groundwater*. Report for the State Water Resources Control Board Report to the Legislature, Center for Watershed Sciences, University of California, Davis.
- Canfield, D. E., Glazer, A. N., and Falkowski, P. G. 2010. The evolution and future of Earth's nitrogen cycle. *Science* 330:192–196.
- Cantrill, J. G. 1998. The environmental self and a sense of place: communication foundations for regional ecosystem management. *Journal of Applied Communication Research* 26:301–318. doi:10.1080/00909889809365509.
- CAPCOA (California Air Pollution Control Officers Association). 2012. *California's Progress Towards Clean Air*. CAPCOA, Sacramento, CA.

- Caraco, N. F. and Cole, J. J. 2001. Human influence on nitrogen export: a comparison of mesic and xeric catchments. *Marine & Freshwater Research* 52:119–125.
- CARB (California Air Resources Board). 1999. *The 1999 California Almanac Of Emissions And Air Quality*, CARB, Sacramento, CA.
- CARB. 2004. *Report to the Legislature: Gas-Fired Power Plant NOx Emission Controls and Related Environmental Impacts*. California Air Resources Board, Stationary Source Division, Sacramento.
- CARB. 2006. *Emission Reduction Plan for Ports and Goods Movement in California*. CARB, Sacramento, CA.
- CARB. 2008. *Climate Change Scoping Plan: A Framework for Change*. CARB, Sacramento, CA.
- CARB. 2009a. *CEPAM: 2009 Almanac—Population and Vehicle Trends Tool*. Accessed June 7, 2015. [http://www.arb.ca.gov/app/emsinv/trends/ems\\_trends.php](http://www.arb.ca.gov/app/emsinv/trends/ems_trends.php).
- CARB. 2009b. *California Climate Adaptation Strategy*. A Report to the Governor of the State of California in Response to Executive Order S-13-2008. CARB, Sacramento, CA
- CARB. 2009c. *California's 1990–2004 Greenhouse Gas Emissions Inventory and 1990 Emissions Level: Technical Support Document*. CARB, Sacramento, CA.
- CARB. 2010a. *Almanac of Emissions and Air Quality: 2009 Edition*. CARB, Sacramento, CA.
- CARB. 2010b. *California greenhouse gas inventory for 2000–2008*. CARB, Sacramento, CA.
- CARB. 2011. *Area Designations Maps / State and National*. California Environmental Protection Agency. Available at: <http://www.arb.ca.gov/desig/adm/adm.htm>.
- CARB. 2012. *California Ambient Air Quality Standards (CAAQS)*. Available at: <http://www.arb.ca.gov/research/aaqs/caaqs/caaqs.htm>.
- CARB. 2013. *Almanac of Emissions and Air Quality: 2013 Edition*. Accessed July 29, 2015. <http://www.arb.ca.gov/aqd/almanac/almanac13/toc13.htm>.
- CARB. 2014a. *Assembly Bill 32: California Global Warming Solutions Act. Assembly Bill 32 Overview*. Accessed June 6, 2015. <http://www.arb.ca.gov/cc/ab32/ab32.htm>.
- CARB. 2014b. *California Greenhouse Gas Emission Inventory Program*. Accessed March 21, 2013. <http://www.arb.ca.gov/cc/inventory/inventory.htm>.
- CARB. 2015a. *Mobile Source Emissions Inventory (MSEI)*. Available at: <http://www.arb.ca.gov/msei/msei.htm>.
- CARB. 2015b. *Truck and Bus Regulation 2014*. California Environmental Protection Agency. Available at: <http://www.arb.ca.gov/regact/2014/truckbus14/truckbus14.htm>.
- CARB. n.d. *Emissions Inventory Data (CEPAM)*. Accessed June 12, 2012. <http://www.arb.ca.gov/ei/emissiondata.htm>.
- Carey, A. E., Lyons, W. B., Bonzongo, J.-C., and Lehrter, J. C. 2001. Nitrogen budget in the Upper Mississippi River watershed. *Environmental & Engineering Geoscience* 7:251–265. doi:10.2113/gseegeosci.7.3.251.
- Carlsson-Kanyama, A. 1998. Climate change and dietary choices: how can emissions of greenhouse gases from food consumption be reduced? *Food Policy* 23: 277–293.
- Carman, H. F. 1979. The demand for nitrogen, phosphorous and potash fertilizer nutrients in the Western United States. *Western Journal of Agricultural Economics* 4:23–31.
- Carpentier, C. L., Bosch, D. J., and Batie, S. 1998. Using spatial information to reduce costs of controlling agricultural nonpoint source pollution. *Agricultural and Resource Economics Review* 27:72–84.

- Carriker, G. L. 1995. Factor-input demand subject to economic and environmental risk: nitrogen fertilizer in Kansas dryland corn production. *Review of Agricultural Economics* 17:77–89. doi:10.2307/1349657.
- Carson, R. 1941. *Under the Sea-Wind: A Naturalist's Picture of Ocean Life*. Simon and Schuster, New York.
- Carson, R. 1962. *Silent Spring*. Houghton Mifflin Harcourt, Boston, MA.
- CA SWRCB (California State Water Resources Control Board). 1997. *Wastewater User Charge Survey Report F. Y. 1996–1997*. CA SWRCB, Sacramento.
- CA SWRCB. 2008. *Wastewater User Charge Survey Report F. Y. 2007–2008*. CA SWRCB, Sacramento.
- CA SWRCB. 2011. *Support for the Sanitary Sewer Overflow Program. California Integrated Water Quality System Project*. Accessed June 7, 2015. [http://www.waterboards.ca.gov/ciwqs/chc\\_sso.shtml](http://www.waterboards.ca.gov/ciwqs/chc_sso.shtml).
- CA SWRCB. 2015. *GeoTracker*. Available at: <http://geotracker.waterboards.ca.gov/>.
- CASA (California Association of Sanitary Agencies). 2009. *California Biosolids Trends for 2009*. CASA, Sacramento, CA.
- Cassel, T., Ashbaugh, L., Flocchini, R., and Meyer, D. 2005. Ammonia emission factors for open-lot dairies: direct measurements and estimation by nitrogen intake. *Journal of the Air & Waste Management Association* 55:826–833. doi:10.1080/10473289.2005.10464660.
- Cassman, K. G., Dobermann, A., and Walters, D. T. 2002. Agroecosystems, nitrogen-use efficiency, and nitrogen management. *AMBIO: A Journal of the Human Environment* 31:132–140.
- Castillo, A. R. 2009. Whole-farm nutrient balances are an important tool for California dairy farms. *California Agriculture* 63:149–151. doi:10.3733/ca.v063n03p149.
- Castro, M. S., Driscoll, C. T., Jordan, T. E., Reay, W. G., and Boynton, W. R. 2003. Sources of nitrogen to estuaries in the United States. *Estuaries* 26:803–814. doi:10.1007/BF02711991.
- Cavagnaro, T., Jackson, L., and Scow, K. 2006. *Climate Change: Challenges and solutions for California agricultural landscapes*. California Climate Change Center White Paper.
- Cayan, D. R., Das, T., Pierce, D. W., Barnett, T. P., Tyree, M., and Gershunov, A. 2010. Future dryness in the southwest US and the hydrology of the early 21st century drought. *Proceedings of the National Academy of Sciences of the United States of America* 107:21271–21276. doi:10.1073/pnas.0912391107.
- CCTP (Climate Change Technology Program). 2006. *Strategic Plan*. Department of Energy, Washington, DC.
- CDC (California Department of Conservation). 2012. *Recent Water-related Response Activities*. Accessed July 10, 2015. <http://www.cdc.gov/nceh/hsb/hab/>
- CDC (Center for Disease Control and Prevention). 2008. *Behavioral Risk Factor Surveillance System Survey Data*. US Department of Health and Human Services, Atlanta, GA.
- CDC and US Department of Health and Human Services. 2009. *Behavioral Risk factor Surveillance System Survey Data*. National Center for Chronic Disease Prevention and Health Promotion, Behavioral Surveillance Branch, Atlanta, GA.
- CDC LRP (California Department of Conservation Division of Land Resource Protection). 2007. *Important Farmland Data Availability*. Available at: [http://redirect.conservation.ca.gov/DLRP/fmmp/product\\_page.asp](http://redirect.conservation.ca.gov/DLRP/fmmp/product_page.asp).
- CDFa (California Department of Food and Agriculture). 2009. *Fertilizer Tonnage Report by Year*. CDFa, Sacramento, CA.
- CDFa. 2010. *California Agricultural Highlights*. CDFa, Sacramento, CA.
- CDFa. 2012. *California Agricultural Statistics Review 2012–2013*. CDFa, Sacramento, CA.

- C DFA. 2013. *California Dairy Statistics 2012*. California Department of Food and Agriculture, Dairy Marketing Branch, Sacramento.
- CDPH (California Department of Public Health). 2013. *Blue-Green Algae (Cyanobacteria) Blooms*. Accessed July 10, 2015.  
<https://www.cdph.ca.gov/HealthInfo/environhealth/water/Pages/Bluegreenalgae.aspx>.
- CEC (California Energy Commission). 2015. *Electric Generation Capacity & Energy. California Energy Almanac*. Accessed July 26, 2015.  
[http://energyalmanac.ca.gov/electricity/electric\\_generation\\_capacity.html](http://energyalmanac.ca.gov/electricity/electric_generation_capacity.html).
- Cedergren, M. I., Selbing, A. J., Löfman, O., and Källen, B. A. J. 2002. Chlorination byproducts and nitrate in drinkingwater and risk for congenital cardiac defects. *Environmental Research* 89:124–130.  
 doi:10.1006/enrs.2001.4362.
- CENR (Committee on Environment and Natural Resources). 2010. *Scientific Assessment of Hypoxia in U.S. Coastal Waters. Interagency Working Group on Harmful Algal Blooms, Hypoxia, and Human Health of the Joint Subcommittee on Ocean Science and Technology*. CENR, Washington, DC.
- Chan, F., Barth, J. A., Lubchenko, J., Kirincich, A., Weeks, H., Peterson, W. T., and Menge, B. A. 2008. Emergence of anoxia in the California current large marine ecosystem. *Science* 15:920–920.  
 doi:10.1126/science.1149016.
- Chang, A. C., Adriano, D. C., and Pratt, P. F. 1973. Waste accumulation on a selected dairy corral and its effect on the nitrate and salt of the underlying soil strata. *Journal of Environment Quality* 2:233.  
 doi:10.2134/jeq1973.00472425000200020013x.
- Chang, C. C., Tsai, S. S., Ho, S. C., and Yang, C. Y. 2005. Air pollution and hospital admissions for cardiovascular disease in Taipei, Taiwan. *Environmental Research* 98:114–119.  
 doi:10.1016/j.envres.2004.07.005.
- Charbonneau, R. and Kondolf, G. M. 1993. Land use change in California, USA: nonpoint source water quality impacts. *Environmental Management* 17:453–460. doi:10.1007/BF02394661.
- Chase, L. E. 2011. Maintaining milk yield while lowering dietary protein content. *WCDS Advances in Dairy Technology* 23:153–164.
- Chauhan, A. J. and Johnston, S. L. 2003. Air pollution and infection in respiratory illness. *British Medical Bulletin* 68:95–112. doi:10.1093/bmb/ldg022.
- Chen, Y., Yang, Q., Krewski, D., Shi, Y., Burnett, R. T., and McGrail, K. 2004. Influence of relatively low level of particulate air pollution on hospitalization for COPD in elderly people. *Inhalation Toxicology* 16:21–25. doi:10.1080/08958370490258129.
- Chiu, H. F., Tsai, S. S., Wu, T. N., and Yang, C. Y. 2010. Colon cancer and content of nitrates and magnesium in drinking water. *Magnesium Research* 23:81–89. doi:10.1684/mrh.2010.0203.
- Chow, J. C., Watson, J. G., Ashbaugh, L. L., and Magliano, K. L. 2003. Similarities and differences in PM10 chemical source profiles for geological dust from the San Joaquin Valley, California. *Atmospheric Environment* 37:1317–1340.
- Christensen, L., Bianchi, M., Peacock, W., and Hirschfeld, D. 1994. Effect of nitrogen fertilizer timing and rate on inorganic nitrogen status, fruit composition, and yield of grapevines. *American Journal of Enology and Viticulture* 45:377–387.
- Chum, H., Faaij, J., Moreira, J., Berndes, G., Dhamija, P., Dong, H., and Gabrielle, A. 2011. *Bioenergy: IPCC Special Report on Renewable Energy Sources and Climate Change Mitigation*. Cambridge University Press, Cambridge, UK/New York.

- Chung, J.-C., Chou, S.-S., and Hwang, D.-F. 2004. Changes in nitrate and nitrite content of four vegetables during storage at refrigerated and ambient temperatures. *Food Additives & Contaminants* 21:317–322. doi:10.1080/02652030410001668763.
- CIWMB (California Integrated Waste Management Board). 2005. *2004 Statewide Waste Characterization Study*. California Department of Resources Recycling and Recovery, Sacramento.
- Claassen, R. 2004. Have conservation compliance incentives reduced soil erosion? *Amber Waves*. United States Department of Agriculture, Economic Research Service.
- Clarisse, L., Clerbaux, C., Dentener, F., Hurtmans, D., and Coheur, P. F. 2009. Global ammonia distribution derived from infrared satellite observations. *Nature Geoscience* 2:479–483. doi:10.1038/ngeo551.
- Clarisse, L., Shephard, M. W., Dentener, F., Hurtmans, D., Cady-Pereira, K., Karagulian, F., Van Damme, M., Clerbaux, C., and Coheur, P. F. 2010. Satellite monitoring of ammonia: a case study of the San Joaquin Valley. *Journal of Geophysical Research: Atmospheres* 115:D13302. doi:10.1029/2009JD013291.
- CLBL (Center for Land-Based Learning). 2015. *Center for Land-Based Learning*. Available at: <http://landbasedlearning.org/>.
- Climate Action Reserve. 2011. *Rice Cultivation Project Protocol*. Climate Action Reserve. Accessed June 7, 2015. <http://www.climateactionreserve.org/how/protocols/rice-cultivation/>.
- Climate Action Reserve. 2012. *Nitrogen Management Project Protocol*. Climate Action Reserve. Accessed June 7, 2015. <http://www.climateactionreserve.org/how/protocols/nitrogen-management/>.
- Cloern, J. E. and Oremland, R. S. 1983. Chemistry and microbiology of a sewage spill in south San Francisco Bay. *Estuaries* 6:399–406.
- Cockcroft, D. W. and Davis, B. E. 2006. Mechanisms of airway hyperresponsiveness. *Journal of Allergy and Clinical Immunology* 118:551–559. doi:10.1016/j.jaci.2006.07.012.
- Colford, J. M., Wade, T. J., Schiff, K. C., Wright, C. C., Griffith, J. F., Sandhu, S. K., Burns, S. et al. 2007. Water quality indicators and the risk of illness at beaches with nonpoint sources of fecal contamination. *Epidemiology* 18:27–35. doi:10.1097/01.ede.0000249425.32990.b9.
- Collias, E. E. 1985. *Nationwide Review of Oxygen Depletion and Eutrophication in Estuarine and Coastal Waters: Pacific Region*, Report to US Department of Commerce, NOAA, National Ocean Service. Rockville, MD.
- Colorado State University. 2012. *Agriculture and Land Use National Greenhouse Gas Inventory Software*. Accessed June 7, 2015. <http://www.nrel.colostate.edu/projects/ALUsoftware/index.html>.
- Committee of Experts on Dairy Manure Management. 2005a. *Managing Dairy Manure in the Central Valley of California*. University of California, Agriculture and Natural Resources, Oakland
- Committee of Experts on Dairy Manure Management. 2005b. *Managing Dairy Manure in the Central Valley of California: Distribution*. University of California, Agriculture and Natural Resources, Oakland
- Compton, J. E., Harrison, J. A., Dennis, R. L., Greaver, T. L., Hill, B. H., Jordan, S. J., Walker, H., and Campbell, H. V. 2011. Ecosystem services altered by human changes in the nitrogen cycle: a new perspective for US decision making. *Ecology Letters* 14:804–815. doi:10.1111/j.1461-0248.2011.01631.x.
- Copeland, C. 2012. *Clean Water Act and Pollutant Total Maximum Daily Loads (TMDLs)*, CRS Report for Congress No. R42752. Congressional Research Service, Washington, DC.
- Corbett, J. J., Fischbeck, P. S., and Pandis, S. N. 1999. Global nitrogen and sulfur inventories for oceangoing ships. *Journal of Geophysical Research* 104:3457–3470. doi:10.1029/1998JD100040.



- Correia, M., Barroso, A., Barroso, M. F., Soares, D., Oliveira, M. B. P. P., and Delerue-Matos, C. 2010. Contribution of different vegetable types to exogenous nitrate and nitrite exposure. *Food Chemistry* 120:960–966. doi:10.1016/j.foodchem.2009.11.030.
- Coss, A., Cantor, K. P., Reif, J. S., Lynch, C. F., and Ward, M. H. 2004. Pancreatic cancer and drinking water and dietary sources of nitrate and nitrite. *American Journal of Epidemiology* 159:693–701.
- Cox, P., Delao, A., Komorniczak, A., and Weller, R. 2009. California almanac of emissions and air quality. California Air Resources Board, Sacramento, CA.
- Craun, G. F., Greathouse, D. G., and Gunderson, D. H. 1981. Methaemoglobin levels in young children consuming high nitrate well water in the United States. *International Journal of Epidemiology* 10:309–317.
- Crews, T. E. and Peoples, M. B. 2005. Can the synchrony of nitrogen supply and crop demand be improved in legume and fertilizer-based agroecosystems? A review. *Nutrient Cycling in Agroecosystems* 72:101–120. doi:10.1007/s10705-004-6480-1.
- Croen, L. A., Todoroff, K., and Shaw, G. M. 2001. Maternal exposure to nitrate from drinking water and diet and risk for neural tube defects. *American Journal of Epidemiology* 153:325–331. doi:10.1093/aje/153.4.325.
- Cross, A. J., Freedman, N. D., Ren, J., Ward, M. H., Hollenbeck, A. R., Schatzkin, A., Sinha, R., and Abnet, C. C. 2011. Meat consumption and risk of esophageal and gastric cancer in a large prospective study. *American Journal of Gastroenterology* 106:432–442. doi:10.1038/ajg.2010.415
- Crutzen, P. J., Mosier, A. R., Smith, K. A., and Winiwarter, W. 2008. N<sub>2</sub>O release from agro-biofuel production negates global warming reduction by replacing fossil fuels. *Atmospheric Chemistry and Physics* 8:389–395.
- Cruzate, G. and Casas, R. 2012. Extraccion y balance de nutrientes en los suelos agricolas de la Argentina. (In Spanish)
- CRWQCB (California Regional Water Quality Control Board). 2007. *Waste Discharge Requirements General Order for Existing Milking Cow Dairies*, Technical Report Order No. R5-2007-0035. California Regional Water Quality Control Board, Central Valley Region.
- CWTRC (California Wastewater Training and Research Center) and EPA (US Environmental Protection Agency). 2003. *Status Report: Onsite Wastewater Treatment Systems in California*. California State University at Chico.
- Daane, K. M., Johnson, R. S., Michailides, T. J., Crisosto, C. H., Dlott, J. W., Ramirez, H. T., Yokota, G. Y., and Morgan, D. P. 1995. Excess nitrogen raises nectarine susceptibility to disease and insects. *California Agriculture* 49:13–18. doi:10.3733/ca.v049n04p13.
- Daberkow, S., Ribaud, M., Doering, O., Schepers, J. S., and Raun, W. R. 2008. Economic implications of public policies to change agricultural nitrogen use and management. Chapter 22 in *Nitrogen in Agricultural Systems*. American Society of Agronomy, Madison, WI, pp.883–910.
- Dahl, M., Bauer, A. K., Arredouani, M., Soininen, R., Tryggvason, K., Kleeberger, S. R., and Kobzik, L. 2007. Protection against inhaled oxidants through scavenging of oxidized lipids by macrophage receptors MARCO and SR-AI/II. *Journal of Clinical Investigation* 117:757–764. doi:10.1172/jci29968.
- Dalal, R. C. and Allen, D. E. 2008. Turner Review No. 18. Greenhouse gas fluxes from natural ecosystems. *Australian Journal of Botany* 56:369–407.
- Dales, R., Doiron, M. S., and Cakmak, S. 2006. Gaseous air pollutants and hospitalization for respiratory disease in the neonatal period. *Environmental Health Perspectives* 114:1751–1754. doi:10.1289/ehp.9044.

- Dales, R., Wheeler, A., Mahmud, M., Frescura, A. M., Smith-Doiron, M., Nethery, E., and Liu, L. 2008. The influence of living near roadways on spirometry and exhaled nitric oxide in elementary schoolchildren. *Environmental Health Perspectives* 116:1423–1427. doi:10.1289/ehp.10943.
- Dallmann, T. R., Harley, R. A., and Kirchstetter, T. W. 2011. Effects of diesel particle filter retrofits and accelerated fleet turnover on drayage truck emissions at the Port of Oakland. *Environmental Science & Technology* 45:10773–10779. doi:10.1021/es202609q.
- Dangour, A. D., Dodhi, S. K., Hayter, A., Allen, E., Lockhart, K., and Uauy, R. 2009. Nutritional quality of organic foods: a systematic review. *The American Journal of Clinical Nutrition* 90:680–685.
- Daniel, C. R., Cross, A. J., Graubard, B. I., Park, Y., Ward, M. H., Rothman, N., Hollenbeck, A. R., Chow, W. H., and Sinha, R. 2012a. Large prospective investigation of meat intake, related mutagens, and risk of renal cell carcinoma. *American Journal of Clinical Nutrition* 95:155–162. doi:10.3945/ajcn.111.019364
- Daniel, T. C. 2001. Whither scenic beauty? Visual landscape quality assessment in the 21st century. *Landscape and Urban Planning* 54:267–281. doi:10.1016/S0169-2046(01)00141-4.
- Daniel, T. C., Muhar, A., Arnberger, A., Aznar, O., Boyd, J. W., Chan, K. M. A., and Costanza, R. 2012b. Contributions of cultural services to the ecosystem services agenda. *Proceedings of the National Academy of Sciences of the United States of America* 109:8812–8819. doi:10.1073/pnas.1114773109.
- Dauchet, L., Amouyel, P., Hercberg, S., and Dallongeville, J. 2006. Fruit and vegetable consumption and risk of coronary heart disease: a meta-analysis of cohort studies. *Journal of Nutrition* 136:2588–2593.
- David, M. B. and Gentry, L. E. 2000. Anthropogenic inputs of nitrogen and phosphorus and riverine export for Illinois, USA. *Journal of Environment Quality* 29:494–508. doi:10.2134/jeq2000.00472425002900020018x
- Davidson, E. A. 2009. The contribution of manure and fertilizer nitrogen to atmospheric nitrous oxide since 1860. *Nature Geoscience* 2:659–662. doi:10.1038/ngeo608.
- Davidson, E. A., David, M. B., Galloway, J. N., Goodale, C. L., Haeuber, R., Harrison, J. A., Howarth, R. W. et al. 2012. Excess nitrogen in the US environment: trends, risks, and solutions. *Issues in Ecology* 15.
- Davidson, E. A. and Kinglerlee, W. 1997. A global inventory of nitric oxide emissions from soils. *Nutrient Cycling in Agroecosystems* 48:37–50. doi:10.1023/A:1009738715891.
- Davis, D. R. 2009. Declining fruit and vegetable nutrient composition: what is the evidence? *HortScience* 44:15–19.
- Davis, F. R. 2013. Worlds built on avian excrement. *Science* 340:1525–1526. doi:10.1126/science.1239339.
- Davis, S. J. and Caldeira, K. 2010. Consumption-based accounting of CO<sub>2</sub> emissions. *Proceedings of the National Academy of Sciences of the United States of America* 107:5687–5692. doi:10.1073/pnas.0906974107.
- Dawson, P. J. and Tiffin, R. 1998. Estimating the demand for calories in India. *American Journal of Agricultural Economics* 80:474–481. doi:10.2307/1244550.
- De Gryze, S., Albarracin, M. V., Catalá-Luque, R., Howitt, R. E., and Six, J. 2009. Modeling shows that alternative soil management can decrease greenhouse gases. *California Agriculture* 63:84–90. doi:10.3733/ca.v063n02p84.
- De Gryze, S., Wolf, A., Kaffka, S. R., Mitchell, J., Rolston, D. E., Temple, S. R., Lee, J., and Six, J. 2010. Simulating greenhouse gas budgets of four California cropping systems under conventional and alternative management. *Ecological Applications* 20:1805–1819.
- De Roos, A. J., Ward, M. H., Lynch, C. F., and Cantor, K. P. 2003. Nitrate in public water supplies and the risk of colon and rectum cancers. *Epidemiology* 14:640–649. doi:10.1097/01.ede.0000091605.01334.d3.

- De Vries, W., Reinds, G. J., and Vel, E. 2003. Intensive monitoring of forest ecosystems in Europe: 2: atmospheric deposition and its impacts on soil solution chemistry. *Forest Ecology and Management* 174:97–115. doi:10.1016/S0378-1127(02)00030-0.
- De Vries, W., Solberg, S., Dobbertin, M., Sterba, H., Laubhann, D., Van Oijen, M., and Evans, C. 2009. The impact of nitrogen deposition on carbon sequestration by European forests and heathlands. *Forest Ecology and Management* 258:1814–1823.
- De Vries, W., Wamelink, G. W. W., Van Dobben, H., Kros, J., Reinds, G. J., Mol-Dijkstra, J. P., Smart, S. M. et al. 2010. Use of dynamic soil-vegetation models to assess impacts of nitrogen deposition on plant species composition: an overview. *Ecological Applications* 20:60–79.
- DeBano, L. F., Rice, R. M., and Eugene, C. C. 1979. *Soil Heating in Chaparral Fires: Effects on Soil Properties, Plant Nutrients, Erosion, and Runoff*, Research Paper No. SW-RP-145. USDA, Forest Service, Pacific Southwest Forest and Range Experiment Station, Berkeley, CA
- DeClerck, F. and Singer, M. J. 2003. Looking back 60 years, California soils maintain overall chemical quality. *California Agriculture* 57:38–41. doi:10.3733/ca.v057n02p38.
- Deen, A., Estrada, T., Everts, C., Farina, S., Gibler, J., Guzman, M., Levine, J. et al. 2005. *Thirsty for Justice: A People's Blueprint for California Water*. Environmental Justice Coalition for Water, Sacramento, CA
- Delfino, R. J., Staimer, N., Gillen, D., Tjoa, T., Sioutas, C., Fung, K., George, S. C., and Kleinman, M. T. 2006. Personal and ambient air pollution is associated with increased exhaled nitric oxide in children with asthma. *Environmental Health Perspectives* 114:1736–1743. doi:10.1289/ehp.9141.
- DeLind, L. B. 2002. Place, work, and civic agriculture: common fields for cultivation. *Agriculture and Human Values* 19: 217–224. doi:10.1023/A: 1019994728252.
- Dellavalle, C. T., Daniel, C. R., Aschebrook-Kilfoy, B., Hollenbeck, A. R., Cross, A. J., Sinha, R., and Ward, M. H. 2013. Dietary intake of nitrate and nitrite and risk of renal cell carcinoma in the NIH-AARP diet and health study. *British Journal of Cancer* 108:205–212. doi:10.1038/bjc.2012.522.
- Dellavalle, C. T., Xiao, Q., Yang, G., Shu, X. O., Aschebrook-Kilfoy, B., Zheng, W., Lan Li, H. et al. 2014. Dietary nitrate and nitrite intake and risk of colorectal cancer in the Shanghai women's health study. *International Journal of Cancer* 134:2917–2926. doi:10.1002/ijc.28612.
- Delwiche, C. C. 1970. The nitrogen cycle. *Scientific American* 223:136–146. doi:10.1038/scientificamerican0970-136.
- Denbaly, M. and Vroomen, H. 1993. Dynamic fertilizer nutrient demands for corn: a cointegrated and error-correcting system. *American Journal of Agricultural Economics* 75:203–209. doi:10.2307/1242968.
- Díaz, F. J., Chow, A. T., O'Geen, A. T., Dahlgren, R. A., and Wong, P. K. 2008. Restored wetlands as a source of disinfection byproduct precursors. *Environmental Science & Technology* 42:5992–5997. doi:10.1021/es800781n.
- Dietz, T., Ostrom, E., and Stern, P. 2003. The struggle to govern the commons. *Science* 302:1907–1912.
- Dijkstra, J., Oenema, O., and Bannink, A. 2011. Dietary strategies to reducing N excretion from cattle: implications for methane emissions. *Current Opinion in Environmental Sustainability, Carbon and Nitrogen Cycles* 3:414–422. doi:10.1016/j.cosust.2011.07.008.
- Dillon, J., Edinger-Marshall, S., and Letey, J. 1999. Farmers adopt new irrigation and fertilizer techniques: changes could help growers maintain yields, protect water quality. *California Agriculture* 53:24–31. doi:10.3733/ca.v053n01p24.

- Doane, T. A., Horwath, W. R., Mitchell, J. P., Jackson, J., Miyao, G., and Brittan, K. 2009. Nitrogen supply from fertilizer and legume cover crop in the transition to no-tillage for irrigated row crops. *Nutrient Cycling in Agroecosystems* 85:253–262. doi:10.1007/s10705-009-9264-9.
- Dobermann, A. 2007. Nutrient use efficiency: measurement and management. Paper presented at *The IFA International Workshop on Fertilizer Best Management Practices*, March 7–9, Brussels, Belgium.
- Dockery, D. W., Pope, C. A., Xu, X., Spengler, J. D., Ware, J. H., Fay, M. E., Ferris, B. G., and Speizer, F. E. 1993. An association between air pollution and mortality in six U.S. cities. *New England Journal of Medicine* 329:1753–1759. doi:10.1056/NEJM199312093292401.
- DOL BLS (US Department of Labor, Bureau of Labor Statistics). 2015a. *Producer Price Index-Industry Data (customized data search)*, US Department of Labor. Accessed June 7, 2015. <http://data.bls.gov/cgi-bin/dsrv?pc>.
- DOL BLS. 2015b. *Producer Price Index Commodity Data: Not Seasonally Adjusted (customized data search)*, US Department of Labor. Accessed June 7, 2015. <http://data.bls.gov/cgi-bin/dsrv?wp>.
- DOL WHD (US Department of Labor, Wage and Hour Division). 2015. *Changes in basic minimum wages in non-farm employment under state law: selected years 1968 to 2013*. Accessed June 7, 2015. <http://www.dol.gov/whd/state/stateMinWageHis.htm>.
- Domene, L. A. F. and Ayres, R. U. 2001. Nitrogen's role in industrial systems. *Journal of Industrial Ecology* 5:77–103. doi:10.1162/108819801753358517.
- Dominici, F., McDermott, A., Zeger, S. L., and Samet, J. M. 2003. Airborne particulate matter and mortality: timescale effects in four US cities. *American Journal of Epidemiology* 157:1055–1065. doi:10.1093/aje/kwg087.
- Dominici, F., Peng, R. D., Bell, M. L., Pham, L., McDermott, A., Zeger, S. L., and Samet, J. M. 2006. Fine particulate air pollution and hospital admission for cardiovascular and respiratory diseases. *Journal of the American Medical Association* 295:1127–1134. doi:10.1001/jama.295.10.1127.
- Donham, K. J., Cumro, D., Reynolds, S. J., and Merchant, J. A. 2000. Dose-response relationships between occupational aerosol exposures and cross-shift declines of lung function in poultry workers: recommendations for exposure limits. *Journal of Occupational Environmental Medicine* 42:260–269.
- Donham, K. J., Thorne, P. S., Breuer, G. M., Powers, W., Marquez, S., and Reynolds, S. J. 2002. Exposure limits related to air quality and risk assessment. Chapter 8 in *Iowa Concentrated Animal Feeding Operations Air Quality Study*. ISU/UI Study Group, University of Iowa College of Public Health, Iowa City.
- Dorsch, M. M., Scragg, R. K., McMichael, A. J., Baghurst, P. A., and Dyer, K. F. 1984. Congenital malformations and maternal drinking water supply in rural South Australia: a case-control study. *American Journal of Epidemiology* 119:473–486.
- Dramstad, W. E., Tveit, M. S., Fjellstad, W. J., and Fry, G. L. A. 2006. Relationships between visual landscape preferences and map-based indicators of landscape structure. *Landscape and Urban Planning* 78:465–474. doi:10.1016/j.landurbplan.2005.12.006.
- Drinkwater, L. E., Letourneau, D. K., Workneh, F., van Bruggen, A. H. C., and Shennan, C. 1995. Fundamental differences between conventional and organic tomato agroecosystems in California. *Ecological Applications* 5:1098–1112. doi:10.2307/2269357.
- Drinkwater, L. E. and Snapp, S. S. 2007. Nutrients in agroecosystems: rethinking the management paradigm, in Sparks, D. L. (Ed.): *Advances in Agronomy*. Academic Press, San Diego, CA, pp.163–186

- Drinkwater, L. E., Wagoner, P., and Sarrantonio, M. 1998. Legume-based cropping systems have reduced carbon and nitrogen losses. *Nature* 396:262–265. doi:10.1038/24376.
- Dubrovsky, N. M., Burow, K. R., Clark, G. M., Gronberg, J. M., Hamilton, P. A., Hitt, K. J., Mueller, D. K. et al. 2010. *The Quality of Our Nation's Waters: Nutrients in the Nation's Streams and Groundwater, 1992–2004*. US Geological Survey Circular 1350.
- Dubrow, R., Darefsky, A. S., Park, Y., Mayne, S. T., Moore, S. C., Kilfoy, B., Cross, A. J. et al. 2010. Dietary components related to N-nitroso compound formation: a prospective study of adult glioma. *Cancer Epidemiology, Biomarkers & Prevention* 19:1709–1722. doi:10.1158/1055-9965.EPI-10-0225.
- Durant, J. L., Ash, C. A., Wood, E. C., Herndon, S. C., Jayne, J. T., Knighton, W. B., Canagaratna, M. R. et al. 2010. Short-term variation in near-highway air pollutant gradients on a winter morning. *Atmospheric Chemistry and Physics* 10:5599–5626.
- Dutton, D. 2003. Aesthetics and evolutionary psychology, in Levinson, J. (Ed.): *The Oxford Handbook for Aesthetics*. Oxford University Press, New York.
- Dzurella, K. N., Medellin-Azuara, J., Jensen, V. B., King, A. M., De La Mora, N., Fryjoff-Hung, A., Rosenstock, T. S. et al. 2012. *Nitrogen Source Reduction to Protect Groundwater Quality. Technical Report 3 in: Addressing Nitrate in California's Drinking Water with a Focus on Tulare Lake Basin and Salinas Valley Groundwater*. Report for the State Water Resources Control Board Report to the Legislature. Center for Watershed Sciences, University of California, Davis.
- Eadie, J. M., Elphick, C. S., Reinecke, K. J., and Miller, M. R. 2010. *Wildlife Values of North American Ricelands*. The Rice Foundation, Stuttgart, AR.
- Eagle, A. J., Bird, J. A., Horwath, W. R., Linquist, B. A., Brouder, S. M., Hill, J. E., and Van Kessel, C. 2001. Rice yield and nitrogen utilization efficiency under alternative straw management practices. *Agronomy Journal* 92: 1096–1103
- Eagle, J. E., Henry, L. R., Olander, L. P., Haugen-Kozyra, K., Millar, N., and Robertson, G. P. 2010. *Greenhouse gas mitigation potential of agricultural land management in the United States: A Synthesis of the Literature*, Technical Working Group on Agricultural Greenhouse Gases (T-AGG) Report. Nicholas Institute for Environmental Policy Solutions, Duke University, Durham, NC
- Egerton-Warburton L. M. and Allen E. B. 2000. Shifts in arbuscular mycorrhizal communities along an anthropogenic nitrogen deposition gradient. *Ecological Applications* 10:484–496. doi:10.1890/1051-0761(2000)010[0484:SIAMCA]2.0.CO;2.
- Egerton-Warburton, L. M., Graham, R. C., Allen, E. B., and Allen, M. F. 2001. Reconstruction of the historical changes in mycorrhizal fungal communities under anthropogenic nitrogen deposition. *Proceedings of the Royal Society of London. Series B: Biological Sciences* 7:2479–2484. doi:10.1098/rspb.2001.1844.
- Elphick, C. S. 2000. Functional equivalency between rice fields and seminatural wetland habitats. *Conservation Biology* 14:181–191. doi:10.1046/j.1523-1739.2000.98314.x.
- Elphick, C. S. and Oring, L. W. 1998. Winter management of Californian rice fields for waterbirds. *Journal of Applied Ecology* 35:95–108. doi:10.1046/j.1365-2664.1998.00274.x.
- Emberson, L. D., Büker, P., Ashmore, M. R., Mills, G., Jackson, L., Agrawal, M., Atikuzzaman, M. D. et al. 2009. A comparison of North American and Asian exposure response data for ozone effects on crop yields. *Atmospheric Environment* 43:1945–1953.
- Emerson, R. W. 1849. *Nature*. J. Munroe and Company, Boston, MA.

- Emmerich, S. D. 2009. Fostering environmental responsibility among watermen of Chesapeake Bay: a faith and action research approach, in Heie, H. and King, M. A. (Eds): *Mutual Treasure: Seeking Better Ways for Christians and Culture to Converse*. Cascadia Publishing House, Telford, PA.
- EPA (US Environmental Protection Agency). 1989. *Health Issue Assessment: Summary Review Of Health Effects Associated With Ammonia (No. PEA/600/8-89-052F)*. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Washington, DC.
- EPA. 1990. *Final Drinking Water Criteria Document on Nitrate/Nitrite (No. PB91-142836)*. EPA, Washington, DC.
- EPA. 1997. *Retrospective Study: 1970 to 1990. Benefits and Costs of the Clean Air Act*. Accessed June 7, 2015. <http://www.epa.gov/air/sect812/retro.html>.
- EPA. 1999a. *1999 Update of Ambient Water Quality Criteria for Ammonia*. EPA, Washington, DC.
- EPA. 1999b. *Technical Bulletin: Nitrogen Oxides (NOx). Why and How They Are Controlled*. EPA, Washington, DC.
- EPA. 2002. *Onsite Wastewater Treatment Systems Manual, EPA/625/R-00/008*. EPA, Washington, DC.
- EPA. 2004a. *National Emission Inventory: Ammonia Emissions from Animal Husbandry Operations (Draft Report)*. EPA, Washington, DC.
- EPA. 2004b. *National Emission Inventory: Ammonia Emissions from Animal Husbandry Operations (Draft Report) – Population*, English edition. EPA, Washington, DC.
- EPA. 2006a. *Conceptual Model for Nutrients in the Central Valley and Sacramento–San Joaquin Delta: Final Report*. EPA, Washington, DC.
- EPA. 2006b. *Air Quality Criteria for Ozone and Related Photochemical Oxidants*. National Center for Environmental Assessment-RTP Division, Research Triangle Park, NC.
- EPA. 2007. *National Estuary Program Coastal Condition Report*. EPA, Washington, DC.
- EPA. 2008a. *Municipal Nutrient Removal Technologies Reference Document, Volume 1*, Technical Report EPA 832-R-08-006.
- EPA. 2008b. *2005 National Emissions Inventory Data & Documentation*. Available at: <http://www.epa.gov/ttn/chief/net/2005inventory.html#inventorydata>.
- EPA. 2008c. *Integrated Science Assessment for Oxides of Nitrogen: Health Criteria*. Research Triangle Park, Research Triangle Park, NC.
- EPA. 2008d. *Risk and Exposure Assessment to Support the Review of the NO<sub>2</sub> Primary National Ambient Air Quality Standard*. Office of Air Quality Planning and Standards, Research Triangle Park, NC.
- EPA. 2008e. *Smart Energy Resources Guide*. EPA, Washington, DC.
- EPA. 2009a. *National Drinking Water Regulations MCL Booklet*. EPA, Washington, DC.
- EPA. 2009b. *Integrated Science Assessment for Particulate Matter (Final Report)*. EPA, Washington, DC.
- EPA. 2009c. *An Urgent Call to Action. Report of the State-EPA Nutrient Innovations Task Group*. EPA, Washington, DC.
- EPA. 2010. *Factsheet: Final Revisions to the National Ambient Air Quality Standards for Nitrogen Dioxide*. EPA, Washington, DC.
- EPA. 2012. *National Ambient Air Quality Standards*. Research Triangle Park, NC.
- EPA. 2013. *Clean Air Act*. Available at: <http://www.epa.gov/air/caa/>.
- EPA. 2014. *Drinking Water Contaminants*. Accessed June 1, 2013. <http://water.epa.gov/drink/contaminants/index.cfm>.

- EPA. 2015. *Air Quality System (AQS) Data Mart [internet database]. Technology Transfer Network (TTN)*. Accessed June 14, 2015. <http://www.epa.gov/ttn/airs/aqsdatamart>.
- EPA SAB (US Environmental Protection Agency Science Advisory Board). 2011. *Reactive Nitrogen in the United States: An Analysis of Inputs, Flows, Consequences, and Management Options: A Report of the EPA Science Advisory Board*. EPA SAB, Washington, DC.
- Erisman, J. W., Galloway, J. N., Seitzinger, S., Bleeker, A., and Butterbach-Bahl, K. 2011. Reactive nitrogen in the environment and its effect on climate change. *Current Opinion in Environmental Sustainability, Carbon and Nitrogen Cycles* 3:281–290. doi:10.1016/j.cosust.2011.08.012.
- Erisman, J. W., Sutton, M. A., Galloway, J. N., Klimont, Z., and Winiwarter, W. 2008. How a century of ammonia synthesis changed the world. *Nature Geoscience* 1:636–639. doi:10.1038/ngeo325.
- Escamilla-Núñez, M. C., Barraza-Villarreal, A., Hernandez-Cadena, L., Moreno-Macias, H., Ramirez-Aguilar, M., Sienra-Monge, J. J., Cortez-Lugo, M., Texcalac, J. L., del Rio-Navarro, B., and Romieu, I. 2008. Traffic-related air pollution and respiratory symptoms among asthmatic children, resident in Mexico City: the EVA cohort study. *Respiratory Research* 9. doi:10.1186/1465-9921-9-74.
- European Food Safety Authority. 2008. Nitrate in vegetables: Scientific Opinion of the Panel on Contaminants in the Food chain. *The EFSA Journal* 689: 1–79. doi:10.2903/j.efsa.2008.689.
- European Food Safety Authority. 2010. Statement on possible public health risks for infants and young children from the presence of nitrates in leafy vegetables. *The EFSA Journal* 8:1935–1977. doi:10.2903/j.efsa.2010.1935.
- Evans, R., Dodge, L., and Newman, J. 2007. *Nutrient Management in Nursery and Floriculture: Publication No. 8221*. University of California Division of Agriculture and Natural Resources, Davis.
- Faith-350. 2013. *Faith Action Round-up*. Available at: <http://350.org/en/faith>.
- Fan, A. M., Willhite, C. C., and Book, S. A. 1987. Evaluation of the nitrate drinking water standard with reference to infant methemoglobinemia and potential reproductive toxicity. *Regulatory Toxicology and Pharmacology* 7:135–148.
- Feigin, A., Letey, J., and Jarrell, W. M. 1982a. Nitrogen utilization efficiency by drip irrigated celery receiving preplant or water applied N fertilizer. *Agronomy Journal* 74:978–983. doi:10.2134/agronj1982.00021962007400060012x.
- Feigin, A., Letey, J., and Jarrell, W. M. 1982b. Celery response to type, amount, and method of N-fertilizer application under drip irrigation. *Agronomy Journal* 74:971–977.
- Felzer, B. S., Cronin, T., Reilly, J. M., Melillo, J. M., and Wang, X. 2007. Impacts of ozone on trees and crops. *Comptes Rendus Geoscience* 339:784–798.
- Felzer, B. S., Kicklighter, D. W., Melillo, J. M., Wang, C., Zhuang, Q., and Prinn, R. G. 2004. Ozone effects on net primary production and carbon sequestration in the conterminous United States using a biogeochemistry model. *Tellus* 56:230–248.
- Felzer, B. S., Reilly, J. M., Melillo, J., Kicklighter, D. W., Sarofim, M., Wang, C., Prinn, R. G., and Zhuang, Q. 2005. Future effects of ozone on carbon sequestration and climate change policy using a biogeochemistry model. *Climatic Change* 73:345–373.
- Feng, Z. Z. and Kobayashi, K. 2009. Assessing the impacts of current and future concentrations of surface ozone on crop yield with meta-analysis. *Atmospheric Environment* 43:1510–1519.
- Feng, Z. Z., Kobayashi, K., and Ainsworth, E. A. 2008. Impact of elevated ozone concentration on growth, physiology, and yield of wheat (*Triticum aestivum* L.): a meta-analysis. *Global Change Biology* 14:2696–2708.

- Fenn, M. E., Allen, E. B., and Geiser, L. H. 2011. Mediterranean California. Chapter 13 in *Assessment of Nitrogen Deposition Effects and Empirical Critical Loads of Nitrogen for Ecoregions of the United States*. USDA Forest Service, Northern Research Station, Newtown Square, PA, pp.143–169
- Fenn, M. E., Allen, E. B., Weiss, S. B., Jovan, S., Geiser, L. H., Tonnesen, G. S., Johnson, R. F. et al. 2010. Nitrogen critical loads and management alternatives for N-impacted ecosystems in California. *Journal of Environmental Management* 91:2404–2423. doi:10.1016/j.jenvman.2010.07.034.
- Fenn, M. E., Baron, J. S., Allen, E. B., Rueth, H. M., Nydick, K. R., Geiser, L., Bowman, W. D. et al. P. 2003. Ecological effects of nitrogen deposition in the Western United States. *BioScience* 53:404–420. doi:10.1641/0006-3568(2003)053[0404:EEONDI]2.0.CO;2.
- Fenn, M. E., Jovan, S., Yuan, F., Geiser, L., Meixner, T., and Gimeno, B. S. 2008. Empirical and simulated critical loads for nitrogen deposition in California mixed conifer forests. *Environmental Pollution* 155:492–511. doi:10.1016/j.envpol.2008.03.019.
- Fenn, M. E., Poth, M. A., and Johnson, D. W. 1996. Evidence for nitrogen saturation in the San Bernardino Mountains in Southern California. *Forest Ecology and Management* 82:211–230.
- Ferrucci, L. M., Sinha, R., Ward, M. H., Graubard, B. I., Hollenbeck, A. R., Kilfoy, B. A., Schatzkin, A., Michaud, D. S., and Cross, A. J. 2010. Meat and components of meat and the risk of bladder cancer in the NIH-AARP Diet and Health Study. *Cancer* 116:4345–4353. doi:10.1002/cncr.25463.
- Fewtrell, L. 2004. Drinking-water nitrate, methemoglobinemia, and global burden of disease: a discussion. *Environmental Health Perspectives* 112:1371–1374. doi:10.1289/ehp.7216.
- Fick, G. W. 2008. *Food, Farming, and Faith*. SUNY Press, Albany, NY.
- Firestone, L. 2009. *Guide to Community Drinking Water Advocacy*. Community Water Center, Visalia, CA.
- Firestone, L., Kaswan, A., and Meraz, S. 2006. Environmental justice: access to clean drinking water. *Hastings Law Journal* 57:1367–1386.
- Fischer, A. C. 2006. Determinants of California farmland values and potential impacts of climate change. *Agricultural and Resource Economics Update* 9:5–8.
- Florez, D. 2003. *Health and Safety*
- Foe, C., Ballard, A., and Fong, S. 2010. *Nutrient Concentrations and Biological Effects in the Sacramento-San Joaquin Delta*. Central Valley RWQCB, Rancho Cordova, CA
- Fogg, G. E., Rolston, D. E., Decker, D. I., Louie, D. T., and Grismer, M. E. 1998. Spatial Variation in nitrogen isotope values beneath nitrate contamination sources. *Ground Water* 36:418–426. doi:10.1111/j.1745-6584.1998.tb02812.x.
- Forster, P., Ramaswamy, V., Artaxo, P., Berntsen, T., Betts, R., Fahey, D. W., Haywood, J. et al. 2007. Changes in atmospheric constituents and in radiative forcing, in Solomon, S., Qin, D., Manning, M., Chen, Z., Marquis, M., Averyt, K. B., Tignor, M., and Miller, H. L. (Eds): *Climate Change 2007: The Physical Science Basis. Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change*. Cambridge University Press, Cambridge, UK.
- Franco, J., Schad, S., and Cady, C. W. 1994. California's experience with a voluntary approach to reducing nitrate contamination in groundwater: the fertilizer research and education program (FREP). *Journal of Soil and Water Conservation* 49:76–81.
- FRAP (Fire Resource and Assessment Program). 2010. Wildfire threat to ecosystem health and community safety. Chapter 2.1 in *The 2010 Forest and Range Assessment: Final Document*. CAL FIRE, Sacramento, CA



- Fritschi, F. B., Roberts, B. A., Rains, D. W., Travis, R. L., and Hutmacher, R. B. 2005. Recovery of residual fertilizer-n and cotton residue-N by Acala and Pima cotton. *Soil Science Society of America Journal* 69:718–728. doi:10.2136/sssaj2003.0340.
- Fritschi, F. B., Roberts, B. A., Travis, R. L., Rains, D. W., and Hutmacher, R. B. 2004. Seasonal nitrogen concentration, uptake, and partitioning pattern of irrigated Acala and Pima cotton as influenced by nitrogen fertility level. *Crop Science* 44:516–527.
- Fuhrer, J. 2003. Agroecosystem responses to combinations of elevated CO<sub>2</sub>, ozone, and global climate change. *Agriculture Ecosystems and Environment* 97:1–20.
- Fuller, R. A., Irvine, K. N., Devine-Wright, P., Warren, P. H., and Gaston, K. J. 2007. Psychological Benefits of Greenspace Increase with Biodiversity. *Biology Letters* 3:390–394. doi:10.1098/rsbl.2007.0149.
- Galloway, J. N. 1998. The global nitrogen cycle: changes and consequences. *Environmental Pollution, Nitrogen, the Confer-N-s First International Nitrogen Conference* 102:15–24. doi:10.1016/S0269-7491(98)80010-9.
- Galloway, J. N., Aber, J. D., Erisman, J. W., Seitzinger, S. P., Howarth, R. W., Cowling, E. B., and Cosby, B. J. 2003. The nitrogen cascade. *Bioscience* 53:341–356.
- Galloway, J. N. and Cowling, E. B. 2002. Reactive nitrogen and the world: 200 years of change. *AMBIO: A Journal of the Human Environment* 31:64–71. doi:10.1579/0044-7447-31.2.64.
- Galloway, J. N., Dentener, F. J., Capone, D. G., Boyer, E. W., Howarth, R. W., Seitzinger, S. P., Asner, G. P. et al. 2004. Nitrogen cycles: past, present, and future. *Biogeochemistry* 70:153–226. doi:10.1007/s10533-004-0370-0.
- Galloway, J. N., Townsend, A. R., Bekunda, M., Cai, Z., Freney, J. R., Martinelli, L. A., Seitzinger, S. P., and Sutton, M. A. 2008. Transformation of the nitrogen cycle: recent trends, questions, and potential solutions. *Science* 320:889–892. doi:10.1126/science.1136674.
- Gardner, J. B. and Drinkwater, L. E. 2009. The fate of nitrogen in grain cropping systems: a meta-analysis of 15N field experiments. *Ecological Applications* 19:2167–2184.
- Garr, J. D. 2002. *Rice Enhancement Project Annual Report*. Ducks Unlimited, Inc., Western Regional Office, Rancho Cordova, CA.
- Garten, C. T., Wullschleger, S. D., and Classen, A. T. 2011. Review and model-based analysis of factors influencing soil carbon sequestration under hybrid poplar. *Biomass and Bioenergy* 35:214–226. doi:10.1016/j.biombioe.2010.08.013.
- Gaskell, M., Fouche, B., Koike, S., Lanini, T., Mitchell, J., and Smith, R. 2000. Organic vegetable production in California: science and practice. *HortTechnology* 10:699–713.
- Gatto, M. and Alejo, L. 2014. *California Assembly Bill 52: Native Americans: California Environmental Quality Act*.
- Gauderman, W. J., Avol, E., Gilliland, F., Vora, H., Thomas, D., Berhane, K., McConnell, R. et al. 2004. The effect of air pollution on lung development from 10 to 18 years of age. *New England Journal of Medicine* 351:1057–1067. doi:10.1056/NEJMoa040610.
- Gauderman, W. J., Avol, E., Lurmann, F., Kuenzli, N., Gilliland, F., Peters, J., and McConnell, R. 2005. Childhood asthma and exposure to traffic and nitrogen dioxide. *Epidemiology* 16:737–743. doi:10.1097/01.ede.0000181308.51440.75.
- Gauderman, W. J., Gilliland, G. F., Vora, H., Avol, E., Stram, D., McConnell, R., Thomas, D. et al. 2002. Association between air pollution and lung function growth in Southern California children: results

- from a second cohort. *American Journal of Respiratory and Critical Care Medicine* 166:76–84. doi:10.1164/rccm.2111021.
- Gelperin, A., Moses, V. K., and Bridger, C. 1975. Relationship of high nitrate community water supply to infant and fetal mortality. *IMJ Illinois Medical Journal* 147:155–157, 186.
- Gerland, P., Raftery, A. E., Ševc'íková, H., Li, N., Gu, D., Spoorenberg, T., Alkema, L. et al. 2014. World population stabilization unlikely this century. *Science* 346:234–237. doi:10.1126/science.1257469.
- Gilchrist, M., Shore, A. C., and Benjamin, N. 2011. Inorganic nitrate and nitrite and control of blood pressure. *Cardiovascular Research* 89:492–498. doi:10.1093/cvr/cvq309.
- Glibert, P. M. 2010. Long-term changes in nutrient loading and stoichiometry and their relationships with changes in the food web and dominant pelagic fish species in the San Francisco estuary, California. *Reviews in Fisheries Science* 18:211–232. doi:10.1080/10641262.2010.492059.
- Goolsby, D. A., Battaglin, W. A., Lawrence, G. B., Artz, R. S., Aulenbach, B. T., Hooper, R. P., Keeney, D. R., and Stensland, G. J. 1999. *Flux and Sources of Nutrients in the Mississippi-Atchafalaya River Basin: Topic 3 – Report for the Integrated Assessment on Hypoxia in the Gulf of Mexico, Decision Analysis Series No. 17*. NOAA Coastal Ocean Program, NOAA, Washington, DC.
- Gould, B. W., Sharpe, W. E., and Klemme, R. M. 1989. Conservation tillage: the role of farm and operator characteristics and the perception of soil erosion. *Land Economics* 85:167–82.
- Governor's Delta Vision Blue Ribbon Task Force. 2008. *Blue Ribbon Task Force Final Vision Report*
- Granett, A. L. and Musselman, R. C. 1984. Simulated acidic fog injures lettuce. *Atmospheric Environment* 18:887–890.
- Grantz, D. A. 2003. Ozone impacts on cotton: towards an integrated mechanism. *Environmental Pollution* 126:331–344. doi:10.1016/S0269-7491(03)00246-X.
- Grantz, D. A. and Shrestha, A. 2005. Ozone reduces crop yields and alters competition with weeds such as yellow nutsedge. *California Agriculture* 59:137–143.
- Grantz, D. A. and Shrestha, A. 2006. Tropospheric ozone and interspecific competition between yellow nutsedge and Pima cotton. *Crop Science* 46:1879–1889.
- Green, C. T., Fisher, L. H., and Bekins, B. A. 2008a. Nitrogen fluxes through unsaturated zones in five agricultural settings across the United States. *Journal of Environment Quality* 37:1073–1085. doi:10.2134/jeq2007.0010.
- Green, C. T., Puckett, L. J., Böhlke, J. K., Bekins, B. A., Phillips, S. P., Kauffman, L. J., Denver, J. M., and Johnson, H. M. 2008b. Limited occurrence of denitrification in four shallow aquifers in agricultural areas of the United States. *Journal of Environment Quality* 37:994–1009. doi:10.2134/jeq2006.0419.
- Greenblatt, M. and Mirvish, S. S. 1973. Dose-response studies with concurrent administration of piperazine and sodium nitrite to strain A mice. *Journal of the National Cancer Institute* 50:119–124.
- Greenblatt, M., Mirvish, S., and So, B. T. 1971. Nitrosamine studies: induction of lung adenomas by concurrent administration of sodium nitrite and secondary amines in Swiss mice. *Journal of National Cancer Institute* 46:1029–1034.
- Griesenbeck, J. S., Brender, J. D., Sharkey, J. R., Steck, M. D., Huber, J. C., Rene, A. A., and McDonald, T. J. et al. 2010. Maternal characteristics associated with the dietary intake of nitrates, nitrites, and nitrosamines in women of child-bearing age: a cross-sectional study. *Environmental Health* 9:10. doi:10.1186/1476-069X-9-10.
- Griffin, D. and Anchukaitis, K. J. 2014. How unusual is the 2012–2014 California drought? *Geophysical Research Letters* 41:9017–9023. doi:10.1002/2014GL062433

- Grigg, D. 1995. The pattern of world protein consumption. *Geoforum* 26:1–17. doi:10.1016/0016-7185(94)00020-8.
- Griliches, Z. 1958. The demand for fertilizer: an economic interpretation of a technical change. *American Journal of Agricultural Economics* 40:591–606. doi:10.2307/1235370.
- Grimm, K. A., Blanck, H. M., Scanlon, K. S., Moore, L. V., and Grummer-Strawn, L. M. 2010. State-specific trends in fruit and vegetable consumption among adults: united States, 2000–2009. *Center for Disease Control* 59:1125–1130.
- Grimm, N. B., Grove, J. G., Pickett, S. T. A., and Redman, C. L. 2000. Integrated approaches to long-term studies of urban ecological systems urban ecological systems present multiple challenges to ecologists: pervasive human impact and extreme heterogeneity of cities, and the need to integrate social and ecological approaches, concepts, and theory. *BioScience* 50:571–584. doi:10.1641/0006-3568(2000)050[0571:IATLTO]2.0.CO;2.
- Grineski, S. E., Staniswalis, J. G., Peng, Y., and Atkinson-Palombo, C. 2010. Children’s asthma hospitalizations and relative risk due to nitrogen dioxide (NO<sub>2</sub>): effect modification by race, ethnicity, and insurance status. *Environmental Research* 110:178–188. doi:10.1016/j.envres.2009.10.012.
- Groffman, P. M., Law, N. L., Belt, K. T., Band, L. E., and Fisher, G. T. 2004. Nitrogen fluxes and retention in urban watershed. *Ecosystems* 7:393–403. doi:10.1007/s10021-003-0039-x.
- Gruber, N. and Galloway, J. N. 2008. An earth-system perspective of the global nitrogen cycle. *Nature* 451: 293–296.
- Grulke, N. E., Andersen, C. P., Fenn, M. E., and Miller, P. R. 1998. Ozone exposure and nitrogen deposition lowers root biomass of ponderosa pine in the San Bernardino Mountains, California. *Environmental Pollution* 103:63–73.
- Gu, B., Chang, J., Ge, Y., Ge, H., Yuan, C., Peng, C., and Jiang, H. 2009. Anthropogenic modification of the nitrogen cycling within the Greater Hangzhou Area system, China. *Ecological Applications* 19:974–988. doi:10.1890/08-0027.1.
- Gupta, P., Christopher, S. A., Wang, J., Gehrig, R., Lee, Y. C., and Kumar, N. 2006. Satellite remote sensing of particulate matter and air quality over global cities. *Atmospheric Environment* 40:5880–5892.
- Gupta, S. K., Fitzgerald, J. F., Chong, S. K. F., Croffie, J. M., and Garcia, J. G. N. 1998. Expression of inducible nitric oxide synthase (iNOS) mRNA in inflamed esophageal and colonic mucosa in a pediatric population. *American Journal of Gastroenterology* 93:795–798. doi:10.1111/j.1572-0241.1998.227\_a.x.
- Hackes, B. L., Shanklin, C. W., Kim, T., and Su, A. Y. 1997. Tray service generates more food waste in dining areas of a continuing-care retirement community. *Journal of the American Dietetic Association* 97:879–882. doi:10.1016/S0002-8223(97)00213-7.
- Haden, V. R., Dempsey, M., Wheeler, S., Salas, W., and Jackson, L. E. 2013. Use of local greenhouse gas inventories to prioritise opportunities for climate action planning and voluntary mitigation by agricultural stakeholders in California. *Journal of Environmental Planning and Management* 56:553–571. doi:10.1080/09640568.2012.689616.
- Hajrasuliha, S., Rolston, D. E., and Louie, D. T. 1998. Fate of 15N fertilizer applied to trickle-irrigated grapevines. *American Journal of Enology and Viticulture* 49:191–198.
- Hall, J. V., Brajer, V., and Lurmann, F. W. 2003. Economic valuation of ozone-related school absences in the South Coast air basin of California. *Contemporary Economic Policy* 21:407–417.

- Hall, J. V., Brajer, V., and Lurmann, F. W. 2006. The health and related economic benefits of attaining healthful air in the San Joaquin Valley. California State University-Fullerton, Institute for Economic and Environmental Studies, Fullerton.
- Hall, J. V., Brajer, V., and Lurmann, F. W. 2008a. *The Benefits of Meeting Federal Clean Air Standards in the South Coast and San Joaquin Valley Air Basins*. California State University-Fullerton, Institute for Economic and Environmental Studies, Fullerton.
- Hall, J. V., Brajer, V., and Lurmann, F. W. 2008b. Measuring the gains from improved air quality in the San Joaquin Valley. *Journal of Environmental Management* 88:1003–1015. doi:10.1016/j.jenvman.2007.05.002.
- Hall, J. V., Brajer, V., and Lurmann, F. W. 2010. Air pollution, health and economic benefits—lessons from 20 years of analysis. *Ecological Economics* 69:2590–2597. doi:10.1016/j.ecolecon.2010.08.003.
- Hall, J. V., Winer, A. M., Kleinman, M. T., Lurmann, F. W., Brajer, V., and Colome, S. D. 1992. Valuing the health benefits of clean air. *Science* 255:812–817.
- Hall, K. D., Guo, J., Dore, M., and Chow, C. C. 2009. The progressive increase of food waste in America and its environmental impact. *PLOS ONE* 4:e7940. doi:10.1371/journal.pone.0007940.
- Hallock, R. J., Elwell, R. F., and Fry, D. H. J. 1970. *Fish Bulletin 151. Migrations of Adult King Salmon *Oncorhynchus tshawytscha* in the San Joaquin Delta as Demonstrated by the Use of Sonic Tags*. Scripps Institution of Oceanography Library, La Jolla, CA.
- Halonen, J. I., Lanki, T., Tiittanen, P., Niemi, J. V., Loh, M., and Pekkanen, J. 2010. Ozone and cause-specific cardiorespiratory morbidity and mortality. *Journal of Epidemiology and Community Health* 64(9):814–820. doi:10.1136/jech.2009.087106.
- Han, H. and Allen, J. D. 2008. Estimation of nitrogen inputs to catchments: comparison of methods and consequences for riverine export prediction. *Biogeochemistry* 91:177–199.
- Han, Y., Li, X., and Nan, Z. 2011. Net anthropogenic nitrogen accumulation in the Beijing metropolitan region. *Environmental Science and Pollution Research* 18:485–496.
- Hanley, N. 1990. The economics of nitrate pollution. *European Review of Agricultural Economics* 17:129–151. doi:10.1093/erae/17.2.129.
- Hanley, N., Shogren, J. F., and White, B. 1997. *Environmental Economics in Theory and Practice*. Oxford University Press, Oxford/New York
- Hanson, B. R. 1995. Water resources engineering, Volume 2: practical potential irrigation efficiencies. Paper presented at *The 1st International Conference, American Society of Civil Engineers*, San Antonio, TX, pp.1580–1584.
- Hanson, B. R., Hopmans, J. W., and Šimu<sup>•</sup> nek, J. 2008. Leaching with subsurface drip irrigation under saline, shallow groundwater conditions. *Vadose Zone Journal* 7:810–818. doi:10.2136/vzj2007.0053.
- Hanson, B. R., May, D. E., Šim<sup>•</sup> nek, J., Hopmans, J. W. and Hutmacher, R. B. 2009. Drip irrigation provides the salinity control needed for profitable irrigation of tomatoes in the San Joaquin Valley. *California Agriculture* 63:131–136. doi:10.3733/ca.v063n03p131.
- Hanson, B. R., Schwankl, L. J., Schulbach, K. F., and Pettygrove, G. S. 1997. A comparison of furrow, surface drip, and subsurface drip irrigation on lettuce yield and applied water. *Agricultural Water Management* 33:139–157. doi:10.1016/S0378-3774(96)01289-9.
- Hanukoglu, A. and Danon, P. N. 1996. Endogenous methemoglobinemia associated with diarrheal disease in infancy. *Journal of Pediatric Gastroenterology and Nutrition* 23:1–7.

- Harrison, J. A., Maranger, R. J., Alexander, R. B., Giblin, A. E., Jacinthe, P. A., Mayorga, E., Seitzinger, S. P., Sobota, D. J., and Wollheim, W. M. 2008. The regional and global significance of nitrogen removal in lakes and reservoirs. *Biogeochemistry* 93:143–157. doi:10.1007/s10533-008-9272-x.
- Harrod, H. L. 2000. *The Animals Came Dancing: Native American Sacred Ecology and Animal Kinship*. University of Arizona Press, Tucson.
- Harter, T. 2009. Nitrates in groundwater agricultural impacts on groundwater nitrate. *Hydrology* 8(4):22–24
- Harter, T., Davis, H., Mathews, M. C., and Meyer, R. D. 2002. Shallow groundwater quality on dairy farms with irrigated forage crops. *Journal of Contaminant Hydrology* 55:287–315. doi:10.1016/S0169-7722(01)00189-9.
- Harter, T. and Lund, J. R. 2012. Project and technical report outline: Technical Report 1, in *Addressing Nitrate in California's Drinking Water with A Focus on Tulare Lake Basin and Salinas Valley Groundwater*. Report for the State Water Resources Control Board Report to the Legislature. Center for Watershed Sciences, University of California, Davis.
- Harter, T., Lund, J. R., Darby, J., Fogg, G. E., Howitt, R. E., Jessoe, K., Pettygrove, G. S. et al. 2012. *Addressing Nitrate in California's Drinking Water: With a Focus on Tulare Lake Basin and Salinas Valley Groundwater*. Report for the State Water Resources Control Board Report to the Legislature. Center for Watershed Sciences, University of California, Davis.
- Hart, J. F. 2001. Half a century of cropland change. *Geographical Review* 91:525–543. doi:10.1111/j.1931-0846.2001.tb00239.x.
- Hart, J. F. 2003. *The Changing Scale of American Agriculture*. University of Virginia Press, Charlottesville.
- Hartz, T. K., Bendixen, W. E., and Wierdsma, L. 2000. The value of presidedress soil nitrate testing as a nitrogen management tool in irrigated vegetable production. *HortScience* 35:651–656.
- Hartz, T. K. and Bottoms, T. G. 2010. Humic substances generally ineffective in improving vegetable crop nutrient uptake or productivity. *HortScience* 45:906–910.
- Hartz, T. K. and Johnstone, P. R. 2006. Nitrogen availability from high-nitrogen-containing organic fertilizers. *HortTechnology* 16:39–42.
- Hartz, T. K., Johnstone, P. R., and Nunez, J. J. 2005. Production environment and nitrogen fertility affect carrot cracking. *HortScience* 40:611–615.
- Hartz, T. K., Le Strange, M., May, D. M. 1993. Nitrogen requirements of drip-irrigated peppers. *HortScience* 28:1097–1099.
- Hartz, T. K., Mitchell, J. P., and Giannini, C. 2000. Nitrogen and carbon mineralization dynamics of manures and composts. *HortScience* 35:209–212.
- Hartz, T. K., Reade, C., Wierdsma, L., Costa, F., Bendixen, W., and Kitinoja, L. 1994a. *Nitrogen Management through Intensive On-Farm Monitoring*. Sacramento
- Hartz, T. K., Smith, R., Schulbach, K. F., and Le Strange, M. 1994b. On-farm nitrogen tests improve fertilizer efficiency, protect groundwater. *California Agriculture* 48:29–32. doi:10.3733/ca.v048n04p29.
- Hassan, I. A., Bender, J., and Weigel, H. J. 1999. Effects of ozone and drought stress on growth, yield and physiology of tomatoes (*Lycopersicon esculentum* Mill. cv. Baladey). *Gartenbauwissenschaft* 64:152–157.
- Hauser, H., Gordon, M., Engel, K., Langenback, A., Harryman, W., Hernandez, C., and Verma, P. 2010. *California Ocean Wastewater Discharge Report and Inventory*. Heal the Ocean, Santa Barbara, CA.

- Hayhoe, K., Cayan, D., Field, C. B., Frumhoff, P. C., Maurer, E. P., Miller, N. L., Moser, S. C. et al. 2004. Emissions pathways, climate change, and impacts on California. *Proceedings of the National Academy of Sciences of the United States of America* 101:12422–12427. doi:10.1073/pnas.0404500101.
- He, F. J., Nowson, C. A., Lucas, M., and MacGregor, G. A. 2007. Increased consumption of fruit and vegetables is related to a reduced risk of coronary heart disease: meta-analysis of cohort studies. *Journal of Human Hypertension* 21:717–728. doi:10.1038/sj.jhh.1002212.
- Health Canada. 2013. *Guidelines for Canadian Drinking Water Quality: Guideline Technical Document – Nitrate and Nitrite*. Health Canada, Ottawa, ON.
- Heck, W. W., Taylor, O. C., Adams, R., Bingham, G., Miller, J., Preston, E., and Weinstein, L. 1982. Assessment of crop loss from ozone. *Journal of the Air Pollution Control Association* 32:353–362.
- Hedin, L. O., Armesto, J. J., and Johnson, A. H. 1995. patterns of nutrient loss from unpolluted, old-growth temperate forests: evaluation of biogeochemical theory. *Ecology* 76:493–509. doi:10.2307/1941208.
- Hegesh, E. and Shiloah, J. 1982. Blood nitrates and infantile methemoglobinemia. *Clinica Chimica Acta* 125:107–115.
- Helfand, G. E. and House, B. W. 1995. Regulating non-point source pollution under heterogeneous conditions. *American Journal of Agricultural Economics* 77:1024–1032.
- Henrichs, T., Zurek, M., Eickhout, B., Kok, K., Raudsepp-Hearne, C., Ribeiro, T., van Vuuren, D., and Volkery, A. 2010. Scenario development and analysis for forward-looking ecosystem assessments, in Ash, N., Blanco, H., Brown, C., Garcia, K., Henrichs, T., Lucas, N., Raudsepp-Hearne, C., Scholes, R., and Simpson, R. D. (Eds): *Ecosystems and Human Well-Being: A Manual for Assessment Practitioners*. Island Press, Washington, DC.
- Henze, M. 1991. Capabilities of biological nitrogen removal processes from wastewater. *Water Science & Technology* 23:669–679.
- Henze, M. 2008. *Biological Wastewater Treatment: Principles, Modelling and Design*. IWA Publishing, London, UK
- Heres-Del-Valle, D. and Niemeier, D. A. 2011. CO<sub>2</sub> emissions: are land-use changes enough for California to reduce VMT? Specification of a two-part model with instrumental variables. *Transportation Research Part B: Methodological* 45:150–161. doi:10.1016/j.trb.2010.04.001.
- Hesterberg, T. W., Bunn, W. B., McClellan, R. O., Hamade, A. K., Long, C. M., and Valberg, P. A. 2009. Critical review of the human data on short-term nitrogen dioxide (NO<sub>2</sub>) exposures: evidence for NO<sub>2</sub> no-effect levels. *Critical Reviews in Toxicology* 39:743–781. doi:10.3109/10408440903294945.
- Hidy, G. M., Brook, J. R., Chow, J. C., Green, M., Husar, R. B., Lee, C., Scheffe, R. D., Swanson, A., and Watson, J. G. 2009. Remote sensing of particulate pollution from space: have we reached the promised land? *Journal of the Air and Waste Management Association* 59:1130–1139.
- Hill, J. E., Williams, J. F., Mutters, R. G., and Greer, C. A. 2006. The California rice cropping system: agronomic and natural resource issues for long-term sustainability. *Paddy and Water Environment* 4:13–19. doi:10.1007/s10333-005-0026-2.
- Hills, F. J., Broadbent, F. E., and Fried, M. 1978. Timing and rate of fertilizer nitrogen related to nitrogen uptake and pollution potential. *Journal of Environment Quality* 7:368–372.
- Hills, F. J., Broadbent, F. E., and Lorenz, O. A. 1983. Fertilizer nitrogen utilization by corn, tomato, and sugarbeet. *Agronomy Journal* 75:423–426. doi:10.2134/agronj1983.00021962007500030002x.

- Hinkle, N. C. and Hickle, L. A. 1999. California caged layer pest management evaluation. *Journal of Applied Poultry Research* 8:327–338. doi:10.1093/japr/8.3.327.
- Hitzhusen, G. E., Fick, G. W., and Moore, R. H. 2013. Theological and religious approaches to soil stewardship. Chapter 12 in Lal, R. and Stewart, B. A. (Eds): *Advances in Soil Sciences: Principles of Sustainable Soil Management in Agroecosystems*. Taylor & Francis Group, Boca Raton, FL.
- Hoefer, M., Rytina, N., and Baker, B. 2012. *Estimates of the Unauthorized Immigrant Population Residing in the United States*. Department of Homeland Security, Office of Immigration Statistics, Washington, DC.
- Hoek, G. and Brunekreef, B. 1994. Effects of low-level winter air pollution concentrations on respiratory health of Dutch children. *Environmental Research* 64:136–150. doi:10.1006/enrs.1994.1012.
- Hoek, G., Brunekreef, B., Goldbohm, S., Fischer, P., and Van Den Brandt, P. A. 2002. Association between mortality and indicators of traffic-related air pollution in the Netherlands: a cohort study. *Lancet* 360:1203–1209. doi:10.1016/s0140-6736(02)11280-3.
- Hollander, A. 2010. *The California Augmented Multisource Landcover Map*. Accessed January 27, 2015. <http://climate.calcommons.org/dataset/california-augmented-multisource-landcover-map-caml-2010>.
- Holmes, C. D., Prather, M. J., Søvdde, O. A., and Myhre, G. 2013. Future methane, hydroxyl, and their uncertainties: key climate and emission parameters for future predictions. *Atmospheric Chemistry and Physics* 13:285–302.
- Holmes, G. J. and Schultheis, J. R. 2003. Sensitivity of watermelon cultigens to ambient ozone in North Carolina. *Plant Disease* 87:428–434.
- Holtby, C. E., Guernsey, J. R., Allen, A. C., Vanleeuwen, J. A., Allen, V. M., and Gordon, R. J. 2014. A population-based case-control study of drinking-water nitrate and congenital anomalies using geographic information systems (GIS) to develop individual-level exposure estimates. *International Journal of Environmental Research and Public Health* 11:1803–1823. doi:10.3390/ijerph110201803.
- Holz, O., Mücke, M., Paasch, K., Böhme, S., Timm, P., Richter, K., Magnussen, H., and Jörres, R. A. 2002. Repeated ozone exposures enhance bronchial allergen responses in subjects with rhinitis or asthma. *Clinical and Experimental Allergy* 32:681–689. doi:10.1046/j.1365-2222.2002.01358.x.
- Home, R., Bauer, N., and Hunziker, M. 2010. Cultural and biological determinants in the evaluation of urban green spaces. *Environment and Behavior* 42:494–523. doi:10.1177/0013916509338147.
- Honeycutt, K., Canada, H. E., Jenkins, M. W., and Lund, J. R. 2012. Alternative water supply options for nitrate contamination. Technical Report 7, in *Addressing Nitrate in California's Drinking Water with A Focus on Tulare Lake Basin and Salinas Valley Groundwater*. Report for the State Water Resources Control Board Report to the Legislature.. Center for Watershed Sciences, University of California, Davis.
- Hord, N. G., Tang, Y., and Bryan, N. S. 2009. Food sources of nitrates and nitrites: the physiologic context for potential health benefits. *American Journal of Clinical Nutrition* 90:1–10. doi:10.3945/ajcn.2008.27131.
- Horwath, W. and Burger, M. 2012. *Assessment of Baseline Nitrous Oxide Emissions in California Cropping Systems*, Contract No. 08-324. California Air Resources Board, Sacramento.
- Houlton, B. Z., Boyer, E. W., Finzi, A., Galloway, J. N., Leach, A., Liptzin, D., Melillo, J., Rosenstock, T. S., Sobota, D., and Townsend, A. R. 2012 The US nitrogen inventory: N-use efficiency among economic sectors and Nx climate risks nationwide. . Chapter 2 in Suddick, E. C. and Davidson, E. A. (Eds): *The Role of Nitrogen in Climate Change and the Impacts of Nitrogen-Climate Interactions on Terrestrial and*

- Aquatic Ecosystems, Agriculture, and Human Health in the United States*, A Technical Report Submitted to the US National Climate Assessment. North American Nitrogen Center of the International Nitrogen Initiative (NANC-INI), Falmouth, MA.
- Houlton, B. Z., Boyer, E. W., Finzi, A., Galloway, J. N., Leach, A., Liptzin, D., Melillo, J., Rosenstock, T. S., Sobota, D., and Townsend, A. R. 2013. Intentional versus unintentional nitrogen use in the United States: trends, efficiency and implications. *Biogeochemistry* 114:11–23.
- Howarth, R., Swaney, D., Billen, G., Garnier, J., Hong, B., Humborg, C., Johnes, P., Mörth, C. M., and Marino, R. 2012. Nitrogen fluxes from the landscape are controlled by net anthropogenic nitrogen inputs and by climate. *Frontiers in Ecology and the Environment* 10:37–43. doi:10.1890/100178.
- Howarth, R. W. 2004. Human acceleration of the nitrogen cycle: drivers, consequences, and steps toward solutions. *Water Science and Technology* 49:7–13.
- Howarth, R. W., Billen, G., Swaney, D., Townsend, A., Jaworski, N., Lajtha, K., Downing, J. A. et al. 1996. Regional nitrogen budgets and riverine N & P fluxes for the drainages to the North Atlantic Ocean: natural and human influences, in Howarth, R. W. (Ed.): *Nitrogen Cycling in the North Atlantic Ocean and Its Watersheds*. Springer Netherlands, Heidelberg, pp.75–139.
- Howe, G. R., Jain, M., and Miller, A. B. 1990. Dietary factors and risk of pancreatic cancer: results of a Canadian population-based case-control study. *International Journal of Cancer* 45:604–608.
- Howitt, R. E. 2014. Water, climate change, and California agriculture. *Agricultural And Resource Economics Update* 18:13–15.
- Howitt, R. E., Adams, R. M., and Gossard, T. W. 1984. Effects of alternative ozone concentrations and response data on economic assessments: the case of California crops. *Journal of the Air Pollution Control Association* 34:1122–1127.
- Howitt, R. E. and Goodman, C. 1989. *The Economic Assessment of California Field Crop Losses Due to Air Pollution: Final Report*, Contract #A5-105-32. California Air Resources Board, Sacramento.
- Howley, P. 2011. Landscape aesthetics: assessing the general publics' preferences towards rural landscapes. *Ecological Economics* 72:161–169. doi:10.1016/j.ecolecon.2011.09.026.
- Hristov, A. N., Hanigan, M., Cole, A., Todd, R., McAllister, T. A., Ndegwa, P. M., and Rotz, A. 2011. Review: ammonia emissions from dairy farms and beef feedlots. *Canadian Journal of Animal Science* 91:1–35. doi:10.4141/CJAS10034
- Hu, S., Fruin, S., Kozawa, K., Mara, S., Winer, A. M., and Paulson, S. E. 2009. Aircraft emission impacts in a neighborhood adjacent to a general aviation airport in southern California. *Environmental Science & Technology* 43:8039–8045. doi:10.1021/es900975f.
- Huang, W. 2009. *Factors Contributing to the Recent Increase in U.S. Fertilizer Prices, 2002-08 (Outlook No. AR-33)*. USDA ERS, Washington, DC.
- Huang, W., Magleby, R., and Christensen, L. 2005. Economic impacts of EPA's manure application regulations on dairy farms with lagoon liquid systems in the southwest region. *Journal of Agricultural and Applied Economics* 37:209–227.
- Huenneke, L. F., Hamburg, S. P., Koide, R., Mooney, H. A., and Vitousek, P. M. 1990. Effects of soil resources on plant invasion and community structure in Californian serpentine grassland. *Ecology* 71:478–491.
- Hughes, J. E., Knittel, C. R., and Sperling, D. 2008. Evidence of a shift in the short-run price elasticity of gasoline demand. *The Energy Journal* 29:113–134.



- Hughes, L. S., Allen, J. O., Salmon, L. G., Mayo, P. R., Johnson, R. J., and Cass, G. R. 2002. Evolution of nitrogen species air pollutants along trajectories crossing the Los Angeles area. *Environmental Science & Technology* 36:3928–3935. doi:10.1021/es0110630.
- Hummels, D. 1999. *Have International Transportation Costs Declined? (No. GTAP Resource #1158)*. Purdue University Global Trade Analysis Project.
- Hummels, D. 2007. Transportation costs and international trade in the second era of globalization. *The Journal of Economic Perspectives* 21:131–154.
- Hundley, N. 1992. *The Great Thirst: Californians and Water, 1770s-1990s*. University of California Press, Berkeley.
- Hutmacher, R. B., Travis, R. L., Rains, D. W., Vargas, R. N., Roberts, B. A., Weir, B. L., Wright, S. D., Munk, D. S., Marsh, B. H., and Keeley, M. P. 2004. Response of recent Acala cotton varieties to variable nitrogen rates in the San Joaquin Valley of California. *Agronomy Journal* 96:48–62.
- Hutson, S., Barber, N., Kenny, J. F., Linsey, K. S., Lumia, D., and Maupin, M. 2004. *Estimated Use of Water in the United States in 2000*. USGS Circular 1268. USGS, Reston, VA.
- IARC (International Agency for Research on Cancer). 2014. *IARC Monographs on the Evaluation of Carcinogenic Risks to Humans*. World Health Organization, Geneva.
- Idaho DWR (Department of Water Resources). 2013. *Mapping Evapotranspiration*. Idaho DWR, Boise.
- IFA (International Fertilizer Industry Association). 2010. Fertilizer outlook 2010–2014. Paper presented at *The 78th IFA Annual Conference*, 31 May–June 2, Paris, France.
- Innes, R. and Cory, D. 2001. The economics of safe drinking water. *Land Economics* 77:94–117. doi:10.2307/3146983.
- Inoue-Choi, M., Ward, M. H., Cerhan, J. R., Weyer, P. J., Anderson, K. E., and Robien, K. 2012. Interaction of nitrate and folate on the risk of breast cancer among postmenopausal women. *Nutrition and Cancer* 64:685–694. doi:10.1080/01635581.2012.687427.
- Integrated Waste Management Consulting. 2010. *Third Assessment of California's Compost- and Mulch-Producing Infrastructure: Management Practices and Market Conditions, Waste Management*. CalRecycle, Sacramento, CA.
- Iowa State University. 2004. *Practices to Reduce Ammonia Emissions from Livestock Operations*. Iowa State University, Ames.
- IPCC (Intergovernmental Panel on Climate Change). 1999. *Appendix A to the Principles Governing IPCC Work*. IPCC, Geneva, Switzerland.
- IPCC. 2000. *Special Report on Emissions Scenarios*. Cambridge University Press, Cambridge.
- IPCC. 2001. *Climate Change 2001: The Scientific Basis. Contribution of Working Group I to the Third Assessment Report of the Intergovernmental Panel on Climate Change*. Cambridge University Press, Cambridge, UK/New York.
- IPCC. 2006. *2006 IPCC Guidelines for National Greenhouse Gas Inventories, Prepared by the National Greenhouse Gas Inventories Program*. IGES, Kanagawa, Japan.
- IPCC. 2007a. *Climate Change 2007: Synthesis Report. Contribution of Working Groups I, II and III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change*. IPCC, Geneva, Switzerland.
- IPCC. 2007b. *Climate Change 2007: Mitigation of Climate Change: Working Group III Contribution to the Fourth Assessment Report of the IPCC*. Cambridge University Press, Cambridge, UK.

- IPCC. 2007c. Policies, instruments, and co-operative arrangements. Chapter 13 in Metz, B., Davidson, O. R., Bosch, P. R., Dave, R., and Meyer, L. A. (Eds): *Contribution of Working Group III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change, 2007*. Cambridge University Press, UK/New York.
- IPCC. 2014. *Climate Change 2014: Synthesis Report. Contribution of Working Groups I, II, and III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change*. IPCC, Geneva, Switzerland.
- Irving, P. M. 1983. Acidic precipitation effects on crops: a review and analysis of research. *Journal of Environmental Quality* 12:442–453.
- Islam, T., Berhane, K., McConell, R., Gauderman, W. J., Avol, E., Peters, J. M., and Gilliland, F. D. 2009. Glutathione-S-transferase (GST) P1, GSTM1, exercise, ozone and asthma incidence in school children. *Thorax* 64:197–202. doi:10.1136/thx.2008.099366.
- Islam, T., Gauderman, W. J., Berhane, K., McConell, R., Avol, E., Peters, J. M., and Gilliland, F. D. 2007. Relationship between air pollution, lung function and asthma in adolescents. *Thorax* 62:957–963. doi:10.1136/thx.2007.078964.
- Islam, T., McConell, R., Gauderman, W. J., Avol, E., Peters, J. M., and Gilliland, F. D. 2008. Ozone, oxidant defense genes, and risk of asthma during adolescence. *American Journal of Respiratory and Critical Care Medicine* 177:388–395. doi:10.1164/rccm.200706-863OC.
- IUCN (International Union for Conservation of Nature). 2013. *IUCN Red List of Threatened Species*. Accessed June 16, 2013. www.iucnredlist.org.
- Jackson, L. E. 2000. Fates and losses of nitrogen from a nitrogen-15-labeled cover crop in an intensively managed vegetable system. *Soil Science Society of America Journal* 64:1404. doi:10.2136/sssaj2000.6441404x.
- Jackson, L. E., Haden, V. R., Hollander, A., Lee, H., Lubell, M., Mehta, V. K., O'Geen, T., and Niles, M. T. 2012a. *Adaptation Strategies for Agricultural Sustainability in Yolo County: A White Paper from the California Energy Commission's California Climate Change Center (No. 500-2012-032)*. University of California, Davis
- Jackson, L. E., Haden, V. R., Wheeler, S., Hollander, A. D., Perlman, J., O'Geen, T., Mehta, V., Clark, V., and Williams, J. 2012b. *Vulnerability and Adaptation to Climate Change in California Agriculture: A White Paper from the California Energy Commission's California Climate Change Center (No. CEC-500-2012-031)*. University of California, Davis.
- Jackson, L. E., Ramirez, I., Yokota, R., Fennimore, S. A., Koike, S. T., Henderson, D. M., Chaney, W. E., and Klonsky, K. M. 2003. Scientists, growers assess trade-offs in use of tillage, cover crops and compost. *California Agriculture* 57:48–54.
- Jackson, L. E., Santos-Martin, F., Hollander, A. D., Horwath, W. R., Howitt, R. E., Kramer, J. B., O'Geen, A. T. et al. 2009. *Potential for Adaptation to Climate Change in an Agricultural Landscape in the Central Valley of California (No. CEC-500-2009-044-F)*. Prepared for the California Energy Commission, Sacramento.
- Jackson, L. E., Stivers, L. J., Warden, B. T., and Tanji, K. K. 1994. Crop nitrogen utilization and soil nitrate loss in a lettuce field. *Fertilizer Research* 37:93–105. doi:10.1007/BF00748550.
- Jacobson, J. S. 1984. Effects of acidic aerosol, fog, mist and rain on crops and trees. *Philosophical Transactions of the Royal Society B* 305:327–338.
- Jaffé, E. R. 1993. Impact of the environment on blood and blood-forming tissues. *Otolaryngology: Head and Neck Surgery* 109:806–807.

- Jakszyn, P. and Gonzalez, C. A. 2006. Nitrosamine and related food intake and gastric and oesophageal cancer risk: a systematic review of the epidemiological evidence. *World Journal of Gastroenterology* 12:4296–4303.
- Jalaludin, B. B., O’Toole, B. I., and Leeder, S. R. 2004. Acute effects of urban ambient air pollution on respiratory symptoms, asthma medication use, and doctor visits for asthma in a cohort of Australian children. *Environmental Research* 95:32–42. doi:10.1016/s0013-9351(03)00038-0.
- Jalaludin, B., Morgan, G., Lincoln, D., Sheppard, V., Simpson, R., and Corbett, S. 2006. Associations between ambient air pollution and daily emergency department attendances for cardiovascular disease in the elderly (65 + years), Sydney, Australia. *Journal of Exposure Science and Environmental Epidemiology* 16:225–237. doi:10.1038/sj.jea.7500451.
- Jansen, K. L., Larson, T. V., Koenig, J. Q., Mar, T. F., Fields, C., Stewart, J., and Lippmann, M. 2005. Associations between health effects and particulate matter and black carbon in subjects with respiratory disease. *Environmental Health Perspectives* 113:1741–1746.
- Janssens, I. A., Dieleman, W., Luyssaert, S., Subke, J.-A., Reichstein, M., Ceulemans, R., Ciais, P. et al. 2010. Reduction of forest soil respiration in response to nitrogen deposition. *Nature Geoscience* 3:315–322. doi:10.1038/ngeo844.
- Janzen, H. H., Beauchemin, K. A., Bruinsma, Y., Campbell, C. A., Desjardins, R. L., Ellert, B. H., and Smith, E. G. 2003. The fate of nitrogen in agroecosystems: an illustration using Canadian estimates. *Nutrient Cycling in Agroecosystems* 67:85–102. doi:10.1023/A:1025195826663.
- Jarrell, W. M. and Beverly, R. B. 1981. The dilution effect in plant nutrition studies. *Advances in Agronomy* 34:197–224.
- Jassby, A. 2008. Phytoplankton in the Upper San Francisco Estuary: recent biomass trends, their causes and their trophic significance. *San Francisco Estuary and Watershed Science* 6:1–24.
- Jassby, A. and Van Nieuwenhuysse, E. E. 2005. Low dissolved oxygen in an estuarine channel (San Joaquin River, California): mechanisms and models based on long-term time series. *San Francisco Estuary and Watershed Science* 3(2)
- Jaworska, G. 2005. Nitrates, nitrites, and oxalates in products of spinach and New Zealand spinach: Effect of technological measures and storage time on the level of nitrates, nitrites, and oxalates in frozen and canned products of spinach and New Zealand spinach. *Food Chemistry* 93:395–401. doi:10.1016/j.foodchem.2004.09.035.
- Jensen, L. S., Schjoerring, J. K., van der Hoek, K. W., Poulsen, H. D., Zevenbergen, J. F., Pallière, C., Lammel, J. et al. 2011. Benefits of nitrogen for food, fibre and industrial production, in Sutton, M. A., Howard, C. M., Erisman, J. W., Billen, G., Bleeker, A., Grennfelt, P., van Grinsven, H., and Grizzetti, B. (Eds): *The European Nitrogen Assessment: Sources, Effects and Policy Perspectives*. Cambridge University Press, Cambridge.
- Jensen, V. B., Darby, J., Seidel, C., and Gorman, C. 2012. *Drinking Water Treatment for Nitrate*. Technical Report 6, in *Addressing Nitrate in California’s Drinking Water with a Focus on Tulare Lake Basin and Salinas Valley Groundwater. Report for the State Water Resources Control Board Report to the Legislature*. Center for Watershed Sciences, University of California, Davis.
- Jensen, V. B., Darby, J. L., Seidel, C., and Gorman, C. 2014. Nitrate in potable water supplies: alternative management strategies. *Critical Reviews in Environmental Science and Technology* 44:2203–2286. doi:10.1080/10643389.2013.828272.

- Johnson, T. V. 2009. Review of diesel emissions and control. *International Journal of Engine Research* 10:275–285. doi:10.1243/14680874JER04009.
- Johnston, W. E. and McCalla, A. F. 2004. *Whither California Agriculture: Up, Down, or Out? Some Thoughts about the Future*. Giannini Foundation of Agricultural Economics, Oakland, CA.
- Jordan, T. E., Correll, D. L., and Weller, D. E. 1997a. Effects of agriculture on discharges of nutrients from coastal plain watersheds of Chesapeake Bay. *Journal of Environment Quality* 26:836–848. doi:10.2134/jeq1997.00472425002600030034x.
- Jordan, T. E., Correll, D. L., and Weller, D. E. 1997b. Nonpoint source discharges of nutrients from Piedmont Watersheds of Chesapeake Bay. *JAWRA Journal of the American Water Resources Association* 33:631–645. doi:10.1111/j.1752-1688.1997.tb03538.x.
- Jordan, T. E. and Weller, D. E. 1996. Human contributions to terrestrial nitrogen flux. *BioScience* 46:655–664. doi:10.2307/1312895.
- Jörres, R., Nowak, D., Magnussen, H., Speckin, P., and Koschyk, S. 1996. The effect of ozone exposure on allergen responsiveness in subjects with asthma or rhinitis. *American Journal of Respiratory and Critical Care Medicine* 153:56–64.
- Just, J., Ségala, C., Sahraoui, F., Priol, G., Grimfeld, A., and Neukirch, F. 2002. Short-term health effects of particulate and photochemical air pollution in asthmatic children. *European Respiratory Journal* 20:899–906. doi:10.1183/09031936.02.00236902.
- Kaduwela, A. 2007. *Central California Ozone Study*, Report No. CEC-500-2006-087-APA. California Energy Commission, Sacramento.
- Kaffka, S. R. 2009. Can feedstock production for biofuels be sustainable in California? *California Agriculture* 63:202–207.
- Kallenbach, C. M., Rolston, D. E., and Horwath, W. R. 2010. Cover cropping affects soil N<sub>2</sub>O and CO<sub>2</sub> emissions differently depending on type of irrigation. *Agriculture, Ecosystems & Environment* 137:251–260. doi:10.1016/j.agee.2010.02.010.
- Kampschreur, M. J., Temmink, H., Kleerebezem, R., Jetten, M. S. M., and van Loosdrecht, M. C. M. 2009. Nitrous oxide emission during wastewater treatment. *Water Research* 43:4093–4103. doi:10.1016/j.watres.2009.03.001.
- Kang, S., Olmstead, K., Takacs, K., and Collins, J. 2008. *Municipal Nutrient Removal Technologies Reference Document, Vol. 1*, Technical Report. US Environmental Protection Agency, Washington, DC.
- Kanter, D., Mauzerall, D. L., Ravishankara, A. R., Daniel, J. S., Portmann, R. W., Grabel, P. M., Moomaw, W. R., and Galloway, J. N. 2013. A post-Kyoto partner: considering the stratospheric ozone regime as a tool to manage nitrous oxide. *Proceedings of the National Academy of Sciences of the United States of America* 110:4451–4457. doi:10.1073/pnas.1222231110.
- Kantor, L. S., Lipton, K., Manchester, A., and Oliveira, V. 1997. Estimating and addressing America's food losses. *Food Review* 20:2–12.
- Kaplan, R. and Herbert, E. J. 1987. Cultural and sub-cultural comparisons in preferences for natural settings. *Landscape and Urban Planning* 14:281–293. doi:10.1016/0169-2046(87)90040-5.
- Kar, J., Fishman, J., Creilson, J. K., Richter, A., Ziemke, J., and Chandra, S. 2010. Are there urban signatures in the tropospheric ozone column products derived from satellite measurements? *Atmospheric Chemistry and Physics* 10:5213–5222.

- Karner, A. A., Eisinger, D. S., and Niemeier, D. A. 2010. Near-roadway air quality: synthesizing the findings from real-world data. *Environmental Science & Technology* 44:5334–5344. doi:10.1021/es100008x.
- Katan, M. B. 2009. Nitrate in foods: harmful or healthy? *American Journal of Clinical Nutrition* 90:11–12. doi:10.3945/ajcn.2009.28014.
- Katsouyanni, K., Samet, J. M., Anderson, H. R., Atkinson, R., Le Tertre, A., Medina, S., Samoli, E. et al. 2009. Air pollution and health: a European and North American approach (APHENA). *Research Report (Health Effects Institute)* 142:5–90.
- Kattan, M., Gergen, P. J., Eggleston, P., Visness, C. M., and Mitchell, H. E. 2007. Health effects of indoor nitrogen dioxide and passive smoking on urban asthmatic children. *Journal of Allergy and Clinical Immunology* 120:618–624. doi:10.1016/j.jaci.2007.05.014.
- Kaye, J. P., Groffman, P. M., Grimm, N. B., Baker, L. A., and Pouyat, R. V. 2006. A distinct urban biogeochemistry? *Trends in Ecology & Evolution* 21:192–199. doi:10.1016/j.tree.2005.12.006.
- Kean, A. J., Harley, R. A., Littlejohn, D., and Kendall, G. R. 2000. On-road measurement of ammonia and other motor vehicle exhaust emissions. *Environmental Science & Technology* 34:3535–3539. doi:10.1021/es991451q.
- Kean, A. J., Littlejohn, D., Ban-Weiss, G. A., Harley, R. A., Kirchstetter, T. W., and Lunden, M. M. 2009. Trends in on-road vehicle emissions of ammonia. *Atmospheric Environment* 43:1565–1570. doi:10.1016/j.atmosenv.2008.09.085.
- Kebreab, E., France, J., Beever, D. E., and Castillo, A. R. 2001. Nitrogen pollution by dairy cows and its mitigation by dietary manipulation. *Nutrient Cycling in Agroecosystems* 60:275–285. doi:10.1023/A:1012668109662.
- Keeney, D. R. 1979. A mass balance of nitrogen in Wisconsin. *Wisconsin Academy of Sciences, Arts and Letters* 67:95–102.
- Kehrl, H. R., Peden, D. B., Ball, B., Folinsbee, L. J., and Horstman, D. 1999. Increased specific airway reactivity of persons with mild allergic asthma after 7.6 hours of exposure to 0.16 ppm ozone. *Journal of Allergy and Clinical Immunology* 104:1198–1204.
- Kennedy, C., Cuddihy, J., and Engel-Yan, J. 2007. The changing metabolism of cities. *Journal of Industrial Ecology* 11:43–59. doi:10.1162/jie.2007.1107.
- Kenny, J. F., Barber, N., Hutson, S., Linsey, K. S., Lovelace, J. K., and Maupin, M. 2009. *Estimated Use of Water in the United States in 2005*. USGS Circular 1344.
- Kevil, C. G. and Lefer, D. J. 2011. Review focus on inorganic nitrite and nitrate in cardiovascular health and disease. *Cardiovascular Research* 89:489–491. doi:10.1093/cvr/cvq409.
- Kim, H. J., Howitt, R. E., and Helfand, G. E. 1998. An economic analysis of ozone control in California's San Joaquin Valley. *Journal of Agricultural and Resource Economics* 23:55–70.
- Kim, S. W., Heckel, A., Frost, G. J., Richter, A., Gleason, J., Burrows, J. P., McKeen, S., Hsie, E. Y., Granier, C., and Trainer, M. 2009. NO<sub>2</sub> columns in the western United States observed from space and simulated by a regional chemistry model and their implications for NO<sub>x</sub> emissions. *Journal of Geophysical Research* 114. doi:10.1029/2008JD011343.

- Kim, T., Kim, G., Kim, S., and Choi, E. 2008. Estimating riverine discharge of nitrogen from the South Korea by the mass balance approach. *Environmental Monitoring and Assessment* 136:371–378. doi:10.1007/s10661-007-9692-4.
- Kiparsky, M. and Gleick, P. H. 2003. Climate Change and California Water Resources: A Survey and Summary of the Literature (No. CEC-500-04-073). Pacific Institute for Studies in Development, Environment, and Security, Oakland, CA.
- Kirchmann, H. and Bergström, L. 2001. Do organic farming practices reduce nitrate leaching? *Communications in Soil Science and Plant Analysis* 32:997–1028. doi:10.1081/CSS-100104101.
- Kirchstetter, T. W., Harley, R. A., Kreisberg, N. M., Stolzenburg, M. R., and Hering, S. V. 1999. On-road measurement of fine particle and nitrogen oxide emissions from light- and heavy-duty motor vehicles. *Atmospheric Environment* 33:2955–2968. doi:10.1016/S1352-2310(99)00089-8.
- Kleijn, D., Bekker, R. M., Bobbink, R., De Graaf, M. C. C., and Roelofs, J. G. M. 2008. In search for key biogeochemical factors affecting plant species persistence in heathland and acidic grasslands: a comparison of common and rare species. *Journal of Applied Ecology* 45:680–687. doi:10.1111/j.1365-2664.2007.01444.x.
- Kliesch, J. and Langer, T. 2006. *Plug-in Hybrids: An environmental and Economic Performance Outlook*, Report No. 61. American Council for an Energy-Efficient Economy, Washington, DC.
- Klonsky, K. and Richter, K. 2005. *Statistical Review of California's Organic Agriculture*. UC Agricultural Issues Center, Davis, CA.
- Knapp, K. C. and Schwabe, K. A. 2008. Spatial dynamics of water and nitrogen management in irrigated agriculture. *American Journal of Agricultural Economics* 90:524–539. doi:10.1111/j.1467-8276.2007.01124.x.
- Knekt, P., Järvinen, R., Dich, J., and Hakulinen, T. 1999. Risk of colorectal and other gastro-intestinal cancers after exposure to nitrate, nitrite and N-nitroso compounds: a follow-up study. *International Journal of Cancer* 80:852–856.
- Knobeloch, L., Salna, B., Hogan, A., Postle, J., and Anderson, H. 2000. Blue babies and nitrate-contaminated well water. *Environmental Health Perspectives* 108:675–678.
- Knorr, M., Frey, S. D., and Curtis, P. S. 2005. Nitrogen additions and litter decomposition: a meta-analysis. *Ecology* 86:3252–3257.
- Knox, G., Jackson, D., and Nevers, E. 1995. *Farm\*A\*Syst: Progress Report 1991–1994*. University of Wisconsin Cooperative Extension, Madison.
- Ko, F. W. S. and Hui, D. S. C. 2010. Effects of air pollution on lung health. *Clinical Pulmonary Medicine* 17:300–304. doi:10.1097/CPM.0b013e3181fa1555.
- Kong, A. Y. Y., Fonte, S. J., van Kessel, C., and Six, J. 2009. Transitioning from standard to minimum tillage: trade-offs between soil organic matter stabilization, nitrous oxide emissions, and N availability in irrigated cropping systems. *Soil and Tillage Research* 104:256–262. doi:10.1016/j.still.2009.03.004.
- Kongshaug, G. 1998. Energy consumption and greenhouse gas emissions in fertilizer production. Paper presented at *The IFA Technical Conference*, 28 September–1 October, Marrakech, Morocco, 18pp.
- Kramer, S. B., Reganold, J. P., Glover, J. D., Bohannon, B. J. M., and Mooney, H. A. 2006. Reduced nitrate leaching and enhanced denitrifier activity and efficiency in organically fertilized soils. *Proceedings of the National Academy of Sciences of the United States of America* 103:4522–4527. doi:10.1073/pnas.0600359103.

- Kratzer, C. R., Kent, R. H., Saleh, D. K., Knifong, D. L., Dileanis, P. D., and Orlando, J. L. 2011. *Trends in Nutrient Concentrations, Loads, and Yields in Streams in the Sacramento, San Joaquin, and Santa Ana Basins, California, 1975–2004*. U.S. Geological Survey Scientific Investigations Report 2010-5228.
- Krewski, D. 2009. Evaluating the effects of ambient air pollution on life expectancy. *New England Journal of Medicine* 360:413–415. doi:10.1056/NEJMe0809178.
- Kris-Etherton, P. M., Hu, F. B., Ros, E., and Sabaté, J. 2008. The role of tree nuts and peanuts in the prevention of coronary heart disease: multiple potential mechanisms. *Journal of Nutrition* 138:1746S–1751S.
- Kroeber, A. L. 1907. Indian myths of South Central California. *American Archaeology and Ethnology* 4:167–250.
- Kroodsma, D. A. and Field, C. B. 2006. Carbon sequestration in California agriculture, 1980–2000. *Ecological Applications* 16:1975–1985.
- Krupa, S. V. 2003. Effects of atmospheric ammonia (NH<sub>3</sub>) on terrestrial vegetation: a review. *Environmental Pollution* 124:179–221.
- Kuminoff, N. V. and Sumner, D. A. 2001. Modeling farmland conversion with new GIS data. Paper presented at *The American Agricultural Economics Association Annual Meeting*, Chicago, IL.
- Kunkel, K. E., Stevens, L. E., Stevens, S. E., Sun, L., Janssen, E., Wuebbles, D., Redmond, K. T., and Dobson, J. G. 2013. *Regional Climate Trends and Scenarios for the U.S. National Climate Assessment. Part 5. Climate of the Southwest U.S.*, NOAA Technical Report No. NESDIS 142-5.
- Kurkalova, L. A., Kling, C. L., and Zhao, J. 2004. Value of agricultural non-point source pollution measurement technology: assessment from a policy perspective. *Applied Economics* 36:2287–2298. doi:10.1080/00036840412331313512.
- Kushi, L. H., Doyle, C., McCullough, M., Rock, C. L., Demark-Wahnefried, W., Bandera, E. V., Gapstur, S., Patel, A. V., Andrews, K., and Gansler, T. 2012. American Cancer Society guidelines on nutrition and physical activity for cancer prevention. *CA: A Cancer Journal for Clinicians* 62:30–67.
- Ladha, J. K., Pathak, H., J. Krupnik, T., Six, J., and van Kessel, C. 2005. Efficiency of fertilizer nitrogen in cereal production: retrospects and prospects, in Sparks, D. L. (Ed.): *Advances in Agronomy*. Academic Press, Vermont, VT, pp.85–156.
- Ladha, J. K., Reddy, C. K., Padre, A. T., and van Kessel, C. 2011. Role of nitrogen fertilization in sustaining organic matter in cultivated soils. *Journal of Environment Quality* 40:1756–1766. doi:10.2134/jeq2011.0064.
- LaFranchi, B. W., Goldstein, A. H., and Cohen, C. R. 2011. Observations of the temperature dependent response of ozone to NO<sub>x</sub> reductions in the Sacramento, CA urban plume. *Atmospheric Chemistry and Physics* 11:6945–6960. doi:10.5194/acp-11-6945-2011.
- Lairon, D. 2010. Nutritional quality and safety of organic food: a review. *Agronomy for Sustainable Development* 30:33–41.
- Landis, J. D. and Reilly, M. 2004. *How We Will Grow: Baseline Projections of the Growth of California's Urban Footprint through the Year 2100*. Institute of Urban and Regional Development, University of California, Berkeley.
- Landon, M. K., Green, C. T., Belitz, K., Singleton, M. J., and Esser, B. K. 2011. Relations of hydrogeologic factors, groundwater reduction-oxidation conditions, and temporal and spatial distributions of nitrate, Central-Eastside San Joaquin Valley, California, USA. *Hydrogeology Journal* 19:1203–1224. doi:10.1007/s10040-011-0750-1

- Larson, B. A. and Vroomen, H. 1991. Nitrogen, phosphorus and land demands at the us regional level: a primal approach. *Journal of Agricultural Economics* 42:354–364. doi:10.1111/j.1477-9552.1991.tb00360.x.
- LeBauer, D. S. and Treseder, K. K. 2008. Nitrogen limitation of net primary productivity in terrestrial ecosystems is globally distributed. *Ecology* 89:371–379.
- Lebby, T., Roco, J. J., and Arcinue, E. L. 1993. Infantile methemoglobinemia associated with acute diarrheal illness. *American Journal of Emergency Medicine* 11:471–472.
- Lee, H. 1999. *The Role of Crop Insurance in California: ARE Update*. Giannini Foundation of Agricultural Economics, University of California, Berkeley.
- Lee, H. and Sumner, D. A. 2014. *The 2014 Farm Bill, Commodity Subsidies, and California Agriculture: ARE Update*. Giannini Foundation of Agricultural Economics, University of California, Berkeley.
- Lehman, P. W., Sevier, J., Giulianotti, J., and Johnson, M. 2004. Sources of oxygen demand in the lower San Joaquin River, California. *Estuaries* 27:405–418. doi:10.1007/BF02803533.
- Leip, A., Achermann, B., Billen, G., Bleeker, A., Bouwman, A., de Vries, W., Dragosits, U. et al. 2011. Integrating nitrogen fluxes at the European scale, in Sutton, M., Howard, C., Erisman, J. W., Billen, G., Bleeker, A., Greenfelt, P., van Grinsven, H., and Grizzette, B. (Eds): *The European Nitrogen Assessment*. Cambridge University Press, Cambridge, pp.345–376.
- Lenihan, J. M., Bachelet, D., Neilson, R. P., and Drapek, R. 2007. Response of vegetation distribution, ecosystem productivity, and fire to climate change scenarios for California. *Climatic Change* 87:215–230. doi:10.1007/s10584-007-9362-0.
- Lenihan, J. M., Drapek, R., Bachelet, D., and Neilson, R. P. 2003. Climate change effects on vegetation distribution, carbon, and fire in California. *Ecological Applications* 13:1667–1681. doi:10.1890/025295.
- Leopold, A. 1949. *Sand County Almanac: And Sketches Here and There*. Oxford University Press. Oxford, UK.
- Letey, J., Pratt, P. F., and Rible, J. M. 1979. Combining water and fertilizer management for high productivity, low water degradation. *California Agriculture* 33:8–9.
- Leverenz, H. L., Haunschild, K., Hopes, G., Tchobanoglous, G., and Darby, J. L. 2010. Anoxic treatment wetlands for denitrification. *Ecological Engineering* 36:1544–1551. doi:10.1016/j.ecoleng.2010.03.014.
- Leverenz, H. L., Tchobanoglous, G., and Darby, J. L. 2002. *Review of Technologies for the Onsite Treatment of Wastewater in California*. Center for Environmental and Water Resources Engineering, University of California, Davis.
- Levine, J. J., Pettei, M. J., Valderrama, E., Gold, D. M., Kessler, B. H., and Trachtman, H. 1998. Nitric oxide and inflammatory bowel disease: evidence for local intestinal production in children with active colonic disease. *Journal of Pediatric Gastroenterology and Nutrition* 26:34–38.
- Lewandowski, A. M., Montgomery, B. R., Rosen, C. J., and Moncrief, J. F. 2008. Groundwater nitrate contamination costs: a survey of private well owners. *Journal of Soil and Water Conservation* 63: 153–161.
- Li, C., Narayanan, V., and Harriss, R. C. 1996. Model estimates of nitrous oxide emissions from agricultural lands in the United States. *Global Biogeochemical Cycles* 10:297–306. doi:10.1029/96GB00470.
- Liebig, M. A., Gross, J. R., Kronberg, S. L., and Phillips, R. L. 2010. Grazing management contributions to net global warming potential: a long-term evaluation in the Northern Great Plains. *Journal of Environment Quality* 39:799–809. doi:10.2134/jeq2009.0272



- Light, A. R. 2010. Reducing nutrient pollution in the everglades agricultural area through best management practices. *Natural Resources & Environment* 25(2):26–30
- Lijinsky, W. 1984. Induction of tumours in rats by feeding nitrosatable amines together with sodium nitrite. *Food and Chemical Toxicology* 22:715–720.
- Lillywhite, R., Chandler, D., Grant, W., Lewis, K., Firth, C., Schmutz, U., and Halpin, D. 2007. *Environmental Footprint and Sustainability of Horticulture (including Potatoes) - A Comparison with other Agricultural Sectors*. Warwick HRI, University of Warwick, Warwick, UK.
- Lin, S., Bell, E. M., Liu, W., Walker, R. J., Kim, N. K., and Hwang, S. A. 2008. Ambient ozone concentration and hospital admissions due to childhood respiratory diseases in New York State, 1991–2001. *Environmental Research* 108:42–47. doi:10.1016/j.envres.2008.06.007.
- Linaker, C. H., Coggon, D., Holgate, S. T., Clough, J., Josephs, L., Chauhan, A. J., and Inskip, H. M. 2000. Personal exposure to nitrogen dioxide and risk of airflow obstruction in asthmatic children with upper respiratory infection. *Thorax* 55:930–933. doi:10.1136/thorax.55.11.930.
- Lindemann-Matthies, P., Briegel, R., Schüpbach, B., and Junge, X. 2010. Aesthetic preference for a Swiss Alpine landscape: the impact of different agricultural land-use with different biodiversity. *Landscape and Urban Planning* 98:99–109. doi:10.1016/j.landurbplan.2010.07.015.
- Linn, W. S., Shamoo, D. A., Anderson, K. R., Peng, R. C., Avol, E. L., Hackney, J. D., and Gong Jr., H. 1996. Short-term air pollution exposures and responses in Los Angeles area schoolchildren. *Journal of Exposure Analysis and Environmental Epidemiology* 6:449–472.
- Linn, W. S., Szlachcic, Y., Henry Jr., G., Kinney, P. L., and Berhane, K. T. 2000. Air pollution and daily hospital admissions in Metropolitan Los Angeles. *Environmental Health Perspectives* 108:427–434.
- Linquist, B., van Groenigen, K. J., Adviento-Borbe, M. A., Pittelkow, C., and van Kessel, C. 2012. An agronomic assessment of greenhouse gas emissions from major cereal crops. *Global Change Biology* 18:194–209.
- Linquist, B. A., Byous, E., Jones, G., Williams, J. F., Six, J., Horwath, W., and van Kessel, C. 2008. Nitrogen and potassium fertility impacts on aggregate sheath spot disease and yields of rice. *Plant Production Science* 11:260–267. doi:10.1626/pp.11.260.
- Linquist, B. A., Hill, J. E., Mutters, R. G., Greer, C. A., Hartley, C., Ruark, M. D., and Van Kessel, C. 2009. Assessing the necessity of surface-applied preplant nitrogen fertilizer in rice systems. *Agronomy Journal* 101:905–915. doi:10.2134/agronj2008.0230x.
- Lipman, T. E. and Delucchi, M. A. 2010. Expected greenhouse gas emission reductions by battery, fuel cell, and plug-in hybrid electric vehicles, in Pistoia, G. (Ed.): *Electric and Hybrid Vehicles*. Elsevier, Amsterdam, pp.113–158.
- Liu, L. L. and Greaver, T. L. 2009. A review of nitrogen enrichment effects on three biogenic GHGs: the CO<sub>2</sub> sink may be largely offset by stimulated N<sub>2</sub>O and CH<sub>4</sub> emission. *Ecology Letters* 12:1103–1117.
- Liu, L., Poon, R., Chen, L., Frescura, A. M., Montuschi, P., Ciabattini, G., Wheeler, A., and Dales, R. 2009. Acute effects of air pollution on pulmonary function, airway inflammation, and oxidative stress in asthmatic children. *Environmental Health Perspectives* 117:668–674. doi:10.1289/ehp11813.
- Liu, X., Wang, X., Lin, S., Yuan, J., and Yu, I. T.-S. 2014. Dietary patterns and oesophageal squamous cell carcinoma: a systematic review and meta-analysis. *British Journal of Cancer* 110:2785–2795. doi:10.1038/bjc.2014.172.
- Loh, Y. H., Jakszyn, P., Luben, R. N., Mulligan, A. A., Mitrou, P. N., and Khaw, K. T. 2011. N-Nitroso compounds and cancer incidence: the European Prospective Investigation into Cancer and Nutrition

- (EPIC)-Norfolk Study. *American Journal of Clinical Nutrition* 93:1053–1061. doi:10.3945/ajcn.111.012377.
- Lopez, B. 1996. A literature of place, in *A Sense of Place: Regional American Literature*. US Information Agency, Washington, DC, pp.10–12
- Lopus, S. E., Santibáñez, M. P., Beede, R. H., Duncan, R. A., Edstrom, J., Niederholzer, F. J. A., Trexler, C. J., and Brown, P. H. 2010. Survey examines the adoption of perceived best management practices for almond nutrition. *California Agriculture* 64:149–154. doi:10.3733/ca.v064n03p149.
- Lorenz, O. A., Weir, B. L., and Bishop, J. C. 1974. Effect of sources of nitrogen on yield and nitrogen absorption of potatoes. *American Journal of Potato Research* 51:56–65. doi:10.1007/BF02858514.
- Lowe, K. S., Tucholke, M. B., Tomaras, J. M. B., Conn, K., Hoppe, C., Drewes, J. E., McCray, J. E., and Munakata-Marr, J. 2009. *Influent Constituent Characteristics of the Modern Waste Stream from Single Sources*. IWA Publishing, London, UK
- Lubell, M., Schneider, M., Scholz, J. T., and Mete, M. 2002. Watershed partnerships and the emergence of collective action institutions. *American Journal of Political Science* 46:148–163. doi:10.2307/3088419.
- Lund, L. J. 1982. Variations in nitrate and chloride concentrations below selected agricultural fields. *Soil Science Society of America Journal* 46:1062–1066. doi:10.2136/sssaj1982.03615995004600050035x.
- Lund, L. J., Page, A. L., and Nelson, C. O. 1976. Nitrogen and phosphorus levels in soils beneath sewage disposal ponds. *Journal of Environment Quality* 5:26–30. doi:10.2134/jeq1976.00472425000500010005x.
- Lundberg, J. O., Carlström, M., Larsen, F. J., and Weitzberg, E. 2011. Roles of dietary inorganic nitrate in cardiovascular health and disease. *Cardiovascular Research* 89:525–532. doi:10.1093/cvr/cvq325.
- Lundberg, J. O., Feelisch, M., Björne, H., Jansson, E. A., and Weitzberg, E. 2006. Cardioprotective effects of vegetables: is nitrate the answer? *Nitric Oxide* 15:359–362. doi:10.1016/j.niox.2006.01.013.
- Lundberg, J. O., Weitzberg, E., Cole, J. A., and Benjamin, N. 2004. Nitrate, bacteria and human health. *Nature Reviews Microbiology* 2:593–602. doi:10.1038/nrmicro929.
- Lutsey, N. P. 2008. *Assessment of Out-of-State Heavy-Duty Truck Activity Trends in California (No. 04-328)*. Institute of Transportation Studies, UC Davis.
- Lynn, K., Daigle, J., Hoffman, J., Lake, F., Michelle, N., Ranco, D., Viles, C., Voggesser, G., and Williams, P. 2013. The impacts of climate change on tribal traditional foods. *Climate Change* 120:545–556.
- Lyon, G. S. and Stein, E. D. 2008. How effective has the Clean Water Act been at reducing pollutant mass emissions to the Southern California Bight over the past 35 years? *Environmental Monitoring Assessment* 154:413–426. doi:10.1007/s10661-008-0408-1.
- MA (Millennium Ecosystem Assessment). 2005a. *Ecosystems and Human Well-Being: Current State and Trends. Findings of the Condition and Trends Working Group. Millennium Ecosystem Assessment Series*. Island Press, Washington, DC.
- MA. 2005b. *Ecosystems and Human Well-Being: Synthesis*. Island Press, Washington, DC.
- Magkos, F., Arvaniti, F., and Zampelas, A. 2003. Organic food: nutritious food or food for thought? A review of the evidence. *International Journal of Food Sciences and Nutrition* 54:357–371.
- Marschner, H. 1995. *Mineral Nutrition of Higher Plants*. Academic Press, London, UK.
- Marshall, J. D. 2008. Environmental inequality: air pollution exposures in California's South Coast Air Basin. *Atmospheric Environment* 42:5499–5503. doi:10.1016/j.atmosenv.2008.02.005.
- Marshall, J. D., Granvold, P. W., Hoats, A. S., McKone, T. E., Deakin, E., and Nazaroff, W. W. 2006. Inhalation intake of ambient air pollution in California's South Coast Air Basin. *Atmospheric Environment* 40:4381–4392. doi:10.1016/j.atmosenv.2006.03.034.

- Mar, T. H., Jansen, K., Shepherd, K., Lumley, T., Larson, T. V., and Koenig, J. Q. 2005. Exhaled nitric oxide in children with asthma and short-term PM<sub>2.5</sub> exposure in Seattle. *Environmental Health Perspectives* 113:1791–1794.
- Martin, P. 2001. Farm labor in California: then and now. Paper presented at the *The State of Migrant Labor in the Western United States: Then and Now*. Center for Comparative Immigration Studies, University of California, San Diego.
- Martin, P. and Calvin, L. 2011. *Labor Trajectories in California's Produce Industry: ARE Update*. Giannini Foundation of Agricultural Economics, University of California, Davis.
- Masumoto, D. M. 1995. *Epitaph for a Peach: Four Seasons on My Family Farm*. HarperCollins, San Francisco, CA.
- Matallana González, M. C., Martínez-Tomé, M. J., and Torija Isasa, M. E. 2010. Nitrate and nitrite content in organically cultivated vegetables. *Food Additives & Contaminants: Part B. Surveillance* 3:19–29. doi:10.1080/19440040903586299.
- Matson, P. A., Firestone, M., Herman, D., Billow, T., Kiang, N., Benning, T., and Burns, J. 1997. *Agricultural Systems in the San Joaquin Valley: Development of Emissions Estimates for Nitrogen Oxides*, Technical Report No. 94-732). California Air Resources Board, Sacramento.
- Matson, P. A., Lohse, K. A., and Hall, S. J. 2002. The globalization of nitrogen deposition: consequences for terrestrial ecosystems. *AMBIO: A Journal of the Human Environment* 31:113–119.
- Matthews, W. A., Gabrielyan, G., DaSilva, A., and Sumner, D. A. 2011. *California International Agriculture Exports in 2009*. Agricultural Issues Center, University of California, Davis
- Mayzelle, M. M. and Harter, T. 2011. *Dutch Groundwater Nitrate Contamination Policies*. University of California, Davis.
- Mayzelle, M. M., Viers, J. H., Medellin-Azuara, J., and Harter, T. 2015. Economic feasibility of irrigated agricultural land use buffers to reduce groundwater nitrate in rural drinking water sources. *Water* 7:12–27. doi:10.3390/w7010012.
- McCalley, C. K. and Sparks, J. P. 2009. Abiotic gas formation drives nitrogen loss from a desert ecosystem. *Science* 326:837–840. doi:10.1126/science.1178984.
- McCarty, M. 1981. *The Health Effects of Nitrate, Nitrite, and N-Nitroso Compounds*. National Academy Press, Washington, DC.
- McClellan, R. O., Frampton, M. W., Koutrakis, P., McDonnell, W. F., Moolgavkar, S. H., North, D. W., Smith, A. E., Smith, R. L., and Utell, M. J. 2009. Critical considerations in evaluating scientific evidence of health effects of ambient ozone: A conference report. *Inhalation Toxicology* 21:1–36. doi:10.1080/08958370903176735.
- McConnell, R., Berhane, K., Gilliland, F., London, S. J., Islam, T., Gauderman, W. J., Avol, E., Margolis, H. G., and Peters, J. M. 2002. Asthma in exercising children exposed to ozone: a cohort study. *Lancet* 359:386–391. doi:10.1016/s0140-6736(02)07597-9.
- McConnell, R., Berhane, K., Molitor, J., Gilliland, F., Künzli, N., Thorne, P. S., Thomas, D. et al. 2006. Dog ownership enhances symptomatic responses to air pollution in children with asthma. *Environmental Health Perspectives* 114:1910–1915. doi:10.1289/ehp.8548.
- McConnell, R., Islam, T., Shankardass, K., Jerrett, M., Lurmann, F., Gilliland, F., Gauderman, J., Avol, E., Künzli, N., Yao, L., Peters, J., and Berhane, K. 2010. Childhood incident asthma and traffic-related air pollution at home and school. *Environmental Health Perspectives* 118:1021–1026. doi:10.1289/ehp.0901232.

- McCune, B. and Geiser, L. 1997. *Macrolichens of the Pacific Northwest*. Oregon State University Press, Corvallis.
- McDonald, B. C., Dallmann, T. R., Martin, E. W., and Harley, R. A. 2012. Long-term trends in nitrogen oxide emissions from motor vehicles at national, state, and air basin scales. *Journal of Geophysical Research* 117. doi:10.1029/2012JD018304.
- McElroy, J. A., Trentham-Dietz, A., Gangnon, R. E., Hampton, J. M., Bersch, A. J., Kanarek, M. S., and Newcomb, P. A. 2008. Nitrogen-nitrate exposure from drinking water and colorectal cancer risk for rural women in Wisconsin, USA
- McKnight, G. M., Duncan, C. W., Leifert, C., and Golden, M. H. 1999. Dietary nitrate in man: friend or foe? *British Journal of Nutrition* 81:349–358.
- McSwiney, C. P. and Robertson, G. P. 2005. Nonlinear response of N<sub>2</sub>O flux to incremental fertilizer addition in a continuous maize (*Zea mays* L.) cropping system. *Global Change Biology* 11:1712–1719. doi:10.1111/j.1365-2486.2005.01040.x.
- Medellín-Azuara, J., Howitt, R. E., MacEwan, D. J., and Lund, J. R. 2011. Economic impacts of climate-related changes to California agriculture. *Climatic Change* 109:387–405. doi:10.1007/s10584-011-0314-3.
- Medellín-Azuara, J., Rosenstock, T. S., Howitt, R. E., Harter, T., Jessoe, K., Dzurella, K., Pettygrove, G. S., and Lund, J. R. 2013. Agro-economic analysis of nitrate crop source reductions. *Journal of Water Resources Planning and Management* 139:501–511. doi:10.1061/(ASCE)WR.1943-5452.0000268.
- Medina-Ramón, M., Zanobetti, A., and Schwartz, J. 2006. The effect of ozone and PM<sub>10</sub> on hospital admissions for pneumonia and chronic obstructive pulmonary disease: a national multicity study. *American Journal of Epidemiology* 163:579–588. doi:10.1093/aje/kwj078.
- Melia, S., Parkhurst, G., and Barton, H. 2011. The paradox of intensification. *Transport Policy* 18:46–52. doi:10.1016/j.tranpol.2010.05.007.
- Mellano, V. and Meyer, D. 1996. *Technologies and Management Practices for More Efficient Manure Handling: A Committee Report*. UC Agricultural Issues Center, Davis, CA.
- Meng, Y. Y., Rull, R. P., Wilhelm, M., Lombardi, C., Balmes, J., and Ritz, B. 2010. Outdoor air pollution and uncontrolled asthma in the San Joaquin Valley, California. *Journal of Epidemiology and Community Health* 64(2):142–147. doi:10.1136/jech.2009.083576.
- Merenlender, A. M. 2000. Mapping vineyard expansion provides information on agriculture and the environment. *California Agriculture* 54:7–12. doi:10.3733/ca.v054n03p7.
- Messer, J. and Brezonik, P. L. 1983. Agricultural nitrogen model: a tool for regional. *Environmental Management* 7:177–187. doi:10.1007/BF01867279.
- Metcalf & Eddy, Inc. 2003. *Wastewater Engineering: Treatment, Disposal, Reuse*. McGraw-Hill, New York.
- Metzger, K. B., Tolbert, P. E., Klein, M., Peel, J. L., Flanders, W. D., Todd, K., Mulholland, J. A., Ryan, P. B., and Frumkin, H. 2004. Ambient air pollution and cardiovascular emergency department visits. *Epidemiology* 15:46–56. doi:10.1097/01.ede.0000101748.28283.97.
- Meyer, D. 2000. Dairying and the environment. *Journal of Dairy Science* 83:1419–1427.
- Meyer, D., Garnett, I., and Guthrie, J. C. 1997. A survey of dairy manure management practices in California. *Journal of Dairy Science* 80:1841–1845. doi:10.3168/jds.S0022-0302(97)76119-8.
- Meyer, D., Price, P. L., Rossow, H. A., Silva-del-Rio, N., Karle, B. M., Robinson, P. H., DePeters, E. J., and Fadel, J. G. 2011. Survey of dairy housing and manure management practices in California. *Journal of Dairy Science* 94:4744–4750. doi:10.3168/jds.2010-3761.

- Meyer, R. D. and Marcum, D. B. 1998. Potato yield, petiole nitrogen, and soil nitrogen response to water and nitrogen. *Agronomy Journal* 90:420–429.
- Mikkelsen, D. 1987. Nitrogen budgets in flooded soils used for rice production. *Plant and Soil* 100:71–97. doi:10.1007/BF02370933.
- Mikkelsen, D. and Rauschkolb, R. 1978. *Survey of Fertilizer Use in California: 1973*. University of California Division of Agricultural Sciences, Oakland.
- Mikkelsen, R. and Hartz, T. 2008. Nitrogen sources for organic crop production. *Better Crops* 92:16–19.
- Miller, C. and Urban, D. L. 1999. A model of surface fire, climate and forest pattern in the Sierra Nevada, California. *Ecological Modelling* 114:113–135. doi:10.1016/S0304-3800(98)00119-7.
- Miller, J. D., Safford, H. D., Crimmins, M., and Thode, A. E. 2008. Quantitative evidence for increasing forest fire severity in the Sierra Nevada and Southern Cascade Mountains, California and Nevada, USA. *Ecosystems* 12:16–32. doi:10.1007/s10021-008-9201-9.
- Miller, J. D., Skinner, C. N., Safford, H. D., Knapp, E. E., and Ramirez, C. M. 2012. Trends and causes of severity, size, and number of fires in northwestern California, USA. *Ecological Applications* 22:184–203. doi:10.1890/10-2108.1.
- Miller, K. A., Siscovick, D. S., Sheppard, L., Shepherd, K., Sullivan, J. H., Anderson, G. L., and Kaufman, J. D. 2007. Long-term exposure to air pollution and incidence of cardiovascular events in women. *New England Journal of Medicine* 356:447–458. doi:10.1056/NEJMoa054409.
- Miller, R. J., Rolston, D. E., Rauschkolb, R. S., and Wolfe, D. W. 1981. Labeled nitrogen uptake by drip-irrigated tomatoes. *Agronomy Journal* 73:265. doi:10.2134/agronj1981.00021962007300020006x.
- Miller, R. J. and Smith, R. B. 1976. Nitrogen balance in the Southern San Joaquin Valley. *Journal of Environmental Quality* 5:274–278. doi:10.2134/jeq1976.00472425000500030011x.
- Millock, K., Sunding, D., and Zilberman, D. 2002. Regulating pollution with endogenous monitoring. *Journal of Environmental Economics and Management* 44:221–241.
- Mills, G., Buse, A., Gimeno, B., Bermejo, V., Holland, M., Emberson, L., and Pleijel, H. 2007. A synthesis of AOT40-based response functions and critical levels of ozone for agricultural and horticultural crops. *Atmospheric Environment* 41:2630–2643.
- Millstein, D. E. and Harley, R. A. 2010. Effects of retrofitting emission control systems on in-use heavy diesel vehicles. *Environmental Science and Technology* 44:5042–5048. doi:10.1021/es1006669.
- Millstein, J., Gilliland, F., Berhane, K., Gauderman, W. J., McConnell, R., Avol, E., Rappaport, E. B., and Peters, J. M. 2004. Effects of ambient air pollutants on asthma medication use and wheezing among fourth-grade school children from 12 Southern California communities enrolled in the children's health study. *Archives of Environmental Health* 59:505–514.
- Milly, P. C. D., Betancourt, J., Falkenmark, M., Hirsch, R. M., Kundzewicz, Z. W., Lettenmaier, D. P., and Stouffer, R. J. 2008. Stationarity is dead: whither water management? *Science* 319:573–574. doi:10.1126/science.1151915.
- Mirvish, S. S., Grandjean, A. C., Reimers, K. J., Connelly, B. J., Chen, S. C., Morris, C. R., Wang, X., Haorah, J., and Lyden, E. R. 1998. Effect of ascorbic acid dose taken with a meal on nitrosoproline excretion in subjects ingesting nitrate and proline. *Nutrition and Cancer* 31:106–110. doi:10.1080/01635589809514688.
- Mitchell, J. P., Klonsky, K., Shrestha, A., Fry, R., DuSault, A., Beyer, J., and Harben, R. 2007. Adoption of conservation tillage in California: current status and future perspectives. *Australian Journal of Experimental Agriculture* 47:1383. doi:10.1071/EA07044.

- Modell, B. and Darlison, M. 2008. Global epidemiology of haemoglobin disorders and derived service indicators. *Bulletin of the World Health Organization*. Available at: <http://www.who.int/bulletin/volumes/86/6/06-036673/en/>.
- Møller, H. 1997. Work in agriculture, childhood residence, nitrate exposure, and testicular cancer risk: a case-control study in Denmark. *Cancer Epidemiology, Biomarkers & Prevention* 6:141–144.
- Moolgavkar, S. H. 2003. Air pollution and daily mortality in two U.S. counties: season-specific analyses and exposure-response relationships. *Inhalation Toxicology* 15:877–907.
- Moore, E. and Matalon, E. 2011. *The Human Costs of Nitrate-contaminated Drinking Water in the San Joaquin Valley*. The Pacific Institute, Oakland, CA.
- Moran, J. E., Esser, B. K., Hillegonds, D., Holtz, M., Roberts, S. K., Singleton, M. J., and Visser, A. 2011. *California GAMA Special Study: Nitrate Fate and Transport in the Salinas Valley, Final Report for the California State Water Resources Control Board (No. LLNL - TR - 484186)*. Lawrence Livermore National Laboratory, Livermore, CA.
- Morello-Frosch, R. and Lopez, R. 2006. The riskscape and the color line: Examining the role of segregation in environmental health disparities. *Environmental Research* 102:181–196. doi:10.1016/j.envres.2006.05.007.
- Morrison, F. B. and Henry, W. A. 1940. *Feeds and Feeding: A Handbook for the Student and Stockman*. The Morrison Pub. Co., Ithaca, NY.
- Morse, D. 1995. Environmental considerations of livestock producers. *Journal of Animal Science* 73:2733–2740.
- Mortimer, K. M., Neas, L. M., Dockery, D. W., Redline, S., and Tager, I. B. 2002. The effect of air pollution on inner-city children with asthma. *European Respiratory Journal* 9:699–705. doi:10.1183/09031936.02.00247102.
- Moshhammer, H., Hutter, H. P., Hauck, H., and Neuberger, M. 2006. Low levels of air pollution induce changes of lung function in a panel of schoolchildren. *European Respiratory Journal* 27:1138–1143
- Mosier, A., Bleken, M. A., Chaiwanakupt, P., Ellis, E. C., Freney, J. R., Howarth, R. B., Matson, P. A. et al. 2002. Policy implications of human-accelerated nitrogen cycling, in Boyer, E. W. and Howarth, R. W. (Eds): *The Nitrogen Cycle at Regional to Global Scales*. Springer, New York, pp.477–516
- Mosier, A., Kroeze, C., Nevison, C., Oenema, O., Seitzinger, S., and van Cleemput, O. 1998. Closing the global N<sub>2</sub>O budget: nitrous oxide emissions through the agricultural nitrogen cycle. *Nutrient Cycling in Agroecosystems* 52:225–248. doi:10.1023/A:1009740530221.
- Mosier, A., Syers, J. K., and Freney, J. R. 2001. Nitrogen fertilizer: an essential component of increased food, feed, and fiber production, in Mosier, A., Syers, J. K., and Freney, J. R. (Eds): *Agriculture and the Nitrogen Cycle: Assessing the Impacts of Fertilizer Use on Food Production and the Environment*. Island Press, Washington, DC, pp.3–18
- Moxey, A. and White, B. 1994. Efficient compliance with agricultural nitrate pollution standards. *Journal of Agricultural Economics* 25:27–37.
- Mozafar, A. 1996. Decreasing the NO<sub>3</sub> and increasing the vitamin C contents in spinach by a nitrogen deprivation method. *Plant Foods for Human Nutrition* 49:55–162.
- Mudway, I. S. and Kelly, F. J. 2004. An investigation of inhaled ozone dose and the magnitude of airway inflammation in healthy adults. *American Journal of Respiratory and Critical Care Medicine* 169:1089–1095.

- Mueller, B. A., Searles Nielsen, S., Preston-Martin, S., Holly, E. A., Cordier, S., Filippini, G., Peris-Bonet, R., and Choi, N. W. 2004. Household water source and the risk of childhood brain tumours: results of the SEARCH International Brain Tumor Study. *International Journal of Epidemiology* 33:1209–1216. doi:10.1093/ije/dyh215.
- Muga, H. E. and Mihelcic, J. R. 2008. Sustainability of wastewater treatment technologies. *Journal of Environmental Management* 88:437–447. doi:10.1016/j.jenvman.2007.03.008.
- Muir, J. 1894. *The Mountains of California*. Century, New York.
- Muir, J. 1901. *Our National Parks*. Houghton Mifflin, Boston, MA.
- Muir, J. 1997. The wild parks and forest reservations of the West, in Cronon, W. (ED.): *Nature Writings*. Library of America, New York
- Mullens, B. A., Hinkle, N. C., Szijj, C. E., and Kuney, D. R. 2001. Managing manure and conserving predators helps control flies in caged-layer poultry systems. *California Agriculture* 55:26–30
- Muller, N. Z. and Mendelsohn, R. 2007. Measuring the damages of air pollution in the United States. *Journal of Environmental Economics and Management* 54:1–14.
- Muller, N. Z. and Mendelsohn, R. 2009. Efficient pollution regulation: getting the prices right. *The American Economic Review* 99:1714–1739.
- Muller, N. Z., Mendelsohn, R., and Nordhaus, W. 2011. Environmental accounting for pollution in the United States economy. *The American Economic Review* 101:1649–1675.
- Munger, J. W., Jacob, D. J., Waldman, J. M., and Hoffmann, M. R. 1983. Fogwater chemistry in an urban environment. *Journal of Geophysical Research* 88:5109–5121.
- Murphy, J. G., Day, D. A., Cleary, P. A., Wooldridge, P. J., Millet, D. B., Goldstein, A. H., and Cohen, R. C. 2007. The weekend effect within and downwind of Sacramento – Part 1: observations of ozone, nitrogen oxides, and VOC reactivity. *Atmospheric Chemistry and Physics Discussions* 6:11427–11464.
- Murphy, J. G., Day, D. A., Cleary, P. A., Wooldridge, P. J., Millet, D. B., Goldstein, A. H., and Cohen, R. C. 2006. The weekend effect within and downwind of Sacramento – Part 2: observational evidence for chemical and dynamical contributions. *Atmospheric Chemistry and Physics Discussions* 6:11971–12019
- Murphy, J. J., Delucchi, M. A., McCubbin, D. R., and Kim, H. J. 1999. The cost of crop damage caused by ozone air pollution from motor vehicles. *Journal of Environmental Management* 55:273–289.
- Murray, A. B. and Morrison, B. J. 1986. The effect of cigarette smoke from the mother on bronchial responsiveness and severity of symptoms in children with asthma. *Journal of Allergy and Clinical Immunology* 77:575–581.
- Muth, M. K., Karns, S. A., Nielsen, S. J., Buzby, J. C., and Wells, H. F. 2011. *Consumer-Level Food Loss Estimates and Their Use in the ERS Loss-Adjusted Food Availability*. USDA, Washington, DC.
- Mutters, R. and Soret, S. 1998. *Statewide Potential Crop Yield Losses from Ozone Exposure (No. 94-345)*. Division of Agricultural and Natural Resources, North Region, University of California, Davis.
- Nafstad, P., Haheim, L. L., Oftedal, B., Gram, F., Holme, I., Hjermmann, I., and Leren, P. 2003. Lung cancer and air pollution: a 27 year follow up of 16 209 Norwegian men. *Thorax* 58:1071–1076. doi:10.1136/thorax.58.12.1071.
- Nagy, K. A., Henen, B. T., and Vyas, D. B. 1998. Nutritional quality of native and introduced food plants of wild desert tortoises. *Journal of Herpetology* 32:260–267. doi:10.2307/1565306.
- Nahm, K. H. 2002. Efficient feed nutrient utilization to reduce pollutants in poultry and swine manure. *Critical Reviews in Environmental Science and Technology* 32:1–16. doi:10.1080/10643380290813435.

- Nahm, K. H. 2010. Efficient feed nutrient utilization to reduce pollutants in poultry and swine manure. *Critical Reviews in Environmental Science and Technology* 32:1–16. doi:10.1080/10643380290813435
- Naidoo, R. and Adamowicz, W. L. 2005. Biodiversity and nature-based tourism at forest reserves in Uganda. *Environment and Development Economics* 10:159–178.
- Nakamura, G. 1996. Harvesting forest biomass reduces wildfire fuel. *California Agriculture* 50:13–16. doi:10.3733/ca.v050n02p13.
- Navarro Silvera, S. A., Mayne, S. T., Risch, H. A., Gammon, M. D., Vaughan, T., Chow, W. H., Dubin, J. A. et al. 2011. Principal component analysis of dietary and lifestyle patterns in relation to risk of subtypes of esophageal and gastric cancer. *Annals of Epidemiology* 21:543–550. doi:10.1016/j.annepidem.2010.11.019.
- NCHS (National Center for Health Statistics) 2011. Asthma prevalence, health care use, and mortality: United States, 2005–2009, in *National Health Statistics Reports*. NCHS, Hyattsville, MD.
- Ndegwa, P. M., Hristov, A. N., Arogo, J., and Sheffield, R. E. 2008. A review of ammonia emission mitigation techniques for concentrated animal feeding operations. *Biosystems Engineering* 100:453–469. doi:10.1016/j.biosystemseng.2008.05.010.
- Neary, D. G., Klopatek, C. C., DeBano, L. F., and Ffolliott, P. F. 1999. Fire effects on belowground sustainability: a review and synthesis. *Forest Ecology and Management* 122:51–71. doi:10.1016/S0378-1127(99)00032-8.
- Neijat, M., House, J. D., Guenter, W., and Kebreab, E. 2011. Calcium and phosphorus dynamics in commercial laying hens housed in conventional or enriched cage systems. *Poultry Science* 90:2383–2396.
- NEJAC (National Environmental Justice Advisory Council). 2002. *Integration of Environmental Justice in Federal Agency Programs*. United States Environmental Protection Agency, Washington, DC.
- NHLBI (National Heart, Lung, and Blood Institute). 2007. *Expert Panel Report 3: Guidelines for the Diagnosis and Management of Asthma*. US Department of Health and Human Services, National Institutes of Health, National Asthma Education and Prevention Program, Bethesda, MD.
- NHLBI. 2010. *What Is COPD?* Available at: <http://www.nhlbi.nih.gov/health/public/lung/copd/what-is-copd/index.htm>.
- Nichols, F. H., Cloern, J. E., Luoma, S. N., and Peterson, D. H. 1986. The modification of an estuary. *Science* 231:567–573.
- Niederholzer, F. J. A., DeJong, T. M., Saenz, J.-L., Muraoka, T. T., and Weinbaum, S. A. 2001. Effectiveness of fall versus spring soil fertilization of field-grown peach trees. *Journal of the American Society for Horticultural Science* 126:644–648.
- Niemeier, D. A. and Rowan, D. 2009. From kiosks to megastores: the evolving carbon market. *California Agriculture* 63:96–103. doi:10.3733/ca.v063n02p96.
- NOAA (National Oceanic and Atmospheric Administration). 2006. *National Atmospheric Deposition Program Annual Summary*. NOAA, Silver Springs, MD.
- Noble, R., Weisberg, S., Leecaster, M., McGee, C., Dorsey, J., Vainik, P., and Orozco-Borbon, V. 2003. Storm effects on regional beach water quality along the Southern California Shoreline. *Journal of Water Health* 1:23–31.
- Nohl, W. 2001. Sustainable landscape use and aesthetic perception—preliminary reflections on future landscape aesthetics. *Landscape and Urban Planning* 54:223–237. doi:10.1016/S0169-2046(01)00138-4.



- Nowak, J. B., Neuman, J. A., Bahreini, R., Middlebrook, A. M., Holloway, J. S., McKeen, S. A., Parrish, D. D., Ryerson, T. B., and Trainer, M. 2012. Ammonia sources in the California South Coast Air Basin and their impact on ammonium nitrate formation. *Geophysical Research Letters* 39(7). doi:10.1029/2012GL051197
- Nowak, P. J., O'Keefe, G., Bennett, C., Anderson, S., and Trumbo, C. 1997. *Communication and Adoption of USDA Water Quality Demonstration Projects (Evaluation Report)*. USDA CSREES, Washington, DC.
- NRC (National Research Council). 1972. *Accumulation of Nitrate*. Committee on Nitrate Accumulation. Agriculture Board, National Academy of Sciences, Washington, DC.
- NRC. 1994. *Nutrient Requirements of Poultry*, 9th rev. ed. National Academies Press, Washington, DC.
- NRC. 2001. *Nutrient Requirements of Dairy Cattle*, 7th ed. National Academies Press, Washington, DC.
- NRC. 2008. *Estimating Mortality Risk Reduction and Economic Benefits from Controlling Ozone Air Pollution*. National Academies Press, Washington, DC.
- NRC. 2011. *Renewable Fuel Standard: Potential Economic and Environmental Effects of U.S. Biofuel Policy*. National Academies Press, Washington, DC
- NRCan (Natural Resources Canada). 2007. *Canadian Ammonia Producers: Benchmarking Energy Efficiency and Carbon Dioxide Emissions*. Canadian Industry Program for Energy Efficiency, Ottawa, ON.
- Nyberg, F., Gustavsson, P., Järup, L., Bellander, T., Berglund, N., Jakobsson, R., and Pershagen, G. 2000. Urban air pollution and lung cancer in Stockholm. *Epidemiology* 11:487–495. doi:10.1097/00001648-200009000-00002.
- OECD (Organisation for Economic Co-operation and Development). 2001. *OECD National Soil Surface Nitrogen Balances: Explanatory Notes*. OECD, Paris.
- OECD. 2007. Instrument mixes addressing non-point sources of water pollution, in: *Instrument Mixes for Environmental Policy*. OECD, Paris.
- Oenema, O., Bannink, A., Sommer, S. G., Van Groenigen, J. W., and Velthof, G. L. 2008. Gaseous nitrogen emissions from livestock farming systems, in Hatfield, J. L. and Follett, R. F. (Eds): *Nitrogen in the Environment: Sources, Problems, & Management*. Academic Press, New York, pp.395–442.
- Oenema, O., Bleeker, A., Braathen, N. A., Budnakova, M., Bull, K., Cermak, P., Geupel, M. et al. 2011a. Nitrogen in current European policies. Chapter 4 in *The European Nitrogen Assessment*. Cambridge University Press, Cambridge, UK.
- Oenema, O., Salomez, J., Branquinho, C., Budnáková, M., Cermák, P., Geupel, M., Johnes, P. et al. 2011b. Developing integrated approaches to nitrogen management. Chapter 23 in *The European Nitrogen Assessment*. Cambridge University Press, Cambridge, UK
- Oenema, O. and Tamminga, S. 2005. Nitrogen in global animal production and management options for improving nitrogen use efficiency. *Science China Life Sciences* 48:871–887. doi:10.1007/BF03187126.
- Oftedal, B., Brunekreef, B., Nystad, W., Madsen, C., Walker, S. E., and Nafstad, P. 2008. Residential outdoor air pollution and lung function in schoolchildren. *Epidemiology* 19:129–137. doi:10.1097/EDE.0b013e31815c0827.
- Ogden, J. and Anderson, L. 2011. *Sustainable Transportation Energy Pathways: A Research Summary for Decision Makers*. Accessed April 21, 2015. <http://steps.ucdavis.edu/files/09-06-2013-STEPS-Book-A-Research-Summary-for-Decision-Makers-Sept-2011.pdf>.

- Okey, T. A. 2003. Macrobenthic colonist guilds and renegades in Monterey canyon (USA) drift algae: partitioning multidimensions. *Ecological Monographs* 73:415–440.
- O’Neil, C. E., Keast, D. R., Nicklas, T. A., and Fulgoni III, V. L. 2011. Nut consumption is associated with decreased health risk factors for cardiovascular disease and metabolic syndrome in U.S. adults: NHANES 1999–2004. *Journal of the American College of Nutrition* 30:502–510. doi:10.1080/07315724.2011.10719996.
- Orians, G. H. and Heerwagen, J. H. 1992. Evolved responses to landscapes, in: Barkow, J. H., Cosmides, L., and Tooby, J. (Eds): *The Adapted Mind: Evolutionary Psychology and the Generation of Culture*. Oxford University Press, New York, pp.555–579.
- Ostro, B., Roth, L., Malig, B., and Marty, M. 2009. The effects of fine particle components on respiratory hospital admissions in children. *Environmental Health Perspectives* 117:475–480. doi:10.1289/ehp.11848.
- Ostro, B. D., Tran, H., and Levy, J. I. 2006. The health benefits of reduced tropospheric ozone in California. *Journal of the Air and Waste Management Association* 56:1007–1021.
- Ostrom, E. 1990. *Governing the Commons: The Evolution of Institutions for Collective Action*. Cambridge University Press, Cambridge, UK.
- P. E. International. 2009. *GaBi 4 Professional*. P. E. International, Stuttgart.
- Padgett, P. E. and Allen, E. B. 1999. Differential responses to nitrogen fertilization in native shrubs and exotic annuals common to Mediterranean Coastal Sage Scrub of California. *Plant Ecology* 144:93–101. doi:10.1023/A: 1009895720067.
- Padgett, P. E., Allen, E. B., Bytnerowicz, A., and Minich, R. A. 1999. Changes in soil inorganic nitrogen as related to atmospheric nitrogenous pollutants in southern California. *Atmospheric Environment* 33:769–781. doi:10.1016/S1352-2310(98)00214-3.
- Pan, Y., Birdsey, R., Hom, J., and McCullough, K. 2009. Separating effects of changes in atmospheric composition, climate and land-use on carbon sequestration of U.S. Mid-Atlantic temperate forests. *Forest Ecology and Management* 259:151–164. doi:10.1016/j.foreco.2009.09.049.
- Pang, X. P., Letey, J., and Wu, L. 1997. Irrigation quantity and uniformity and nitrogen application effects on crop yield and nitrogen leaching. *Soil Science Society of America Journal* 61:257–261. doi:10.2136/sssaj1997.03615995006100010036x.
- Parfitt, R. L., Schipper, L. A., Baisden, W. T., and Elliott, A. H. 2006. Nitrogen inputs and outputs for New Zealand in 2001 at national and regional scales. *Biogeochemistry* 80:71–88. doi:10.1007/s10533-006-0002-y.
- Parker, A. E., Dugdale, R. C., and Wilkerson, F. P. 2012. Elevated ammonium concentrations from wastewater discharge depress primary productivity in the Sacramento River and the Northern San Francisco Estuary. *Marine Pollution Bulletin* 64:574–586. doi:10.1016/j.marpolbul.2011.12.016.
- Parker, J. D., Woodruff, T. J., Basu, R., and Schoendorf, K. C. 2005. Air pollution and birth weight among term infants in California. *Pediatrics* 115:121–128. doi:10.1542/peds.2004-0889.
- Park, S., Croteau, P., Boering, K. A., Etheridge, D. M., Ferretti, D., Fraser, P. J., Kim, K. R. et al. 2012. Trends and seasonal cycles in the isotopic composition of nitrous oxide since 1940. *Nature Geoscience* 5:261–265.
- Parrish, D. D., Singh, H. B., Molina, L., and Madronich, S. 2011. Air quality progress in North American megacities: a review. *Atmospheric Environment* 45:7015–7025.

- Parry, M. L., Canziani, O. F., Palutikof, J. P., van der Linden, P. J., and Hanson, C. E. (Eds). 2007. *IPCC: Climate Change 2007: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change*. Cambridge University Press, Cambridge.
- Parsons, R. and Daniel, T. C. 2002. Good looking: in defense of scenic landscape aesthetics. *Landscape and Urban Planning* 60:43–56. doi:10.1016/S0169-2046(02)00051-8.
- Paulson, L. and Baker, J. 1980. *Nutrient Interactions among Reservoirs on the Colorado River*. Publications (WR), Littleton, CO.
- Peacock, W. L., Christensen, L. P., and Hirschfeld, D. J. 1991. Influence of timing of nitrogen fertilizer application on grapevines in the San Joaquin Valley. *American Journal of Enology and Viticulture* 42:322–326.
- Pearson, J. and Stewart, G. R. 1993. The deposition of atmospheric ammonia and its effects on plants. *New Phytologist* 125:283–305. doi:10.1111/j.1469-8137.1993.tb03882.x.
- Peel, J. L., Tolbert, P. E., Klein, M., Metzger, K. B., Flanders, W. D., Todd, K., Mulholland, J. A., Ryan, P. B., and Frumkin, H. 2005. Ambient air pollution and respiratory emergency department visits. *Epidemiology* 16:164–174. doi:10.1097/01.ede.0000152905.42113.db.
- Pellerin, B. A., Downing, B. D., Kendall, C., Dahlgren, R. A., Kraus, T. E. C., Saraceno, J., Spencer, R. G. M., and Bergamaschi, B. A. 2009. Assessing the sources and magnitude of diurnal nitrate variability in the San Joaquin River (California) with an in situ optical nitrate sensor and dual nitrate isotopes. *Freshwater Biology* 54:376–387. doi:10.1111/j.1365-2427.2008.02111.x.
- Pelletier, N. 2008. Environmental performance in the US broiler poultry sector: life cycle energy use and greenhouse gas, ozone depleting, acidifying and eutrophying emissions. *Agricultural Systems* 98:67–73. doi:10.1016/j.agsy.2008.03.007
- Pelletier, N., Audsley, E., Brodt, S., Garnett, T., Henriksson, P., Kendall, A., Kramer, K. J., Murphy, D., Nemecek, T., and Troell, M. 2011. Energy intensity of agriculture and food systems. *Annual Review of Environment and Resources* 36:223–246.
- Pelletier, N., Pirog, R., and Rasmussen, R. 2010. Comparative life cycle environmental impacts of three beef production strategies in the Upper Midwestern United States. *Agricultural Systems* 103:380–389. doi:10.1016/j.agsy.2010.03.009.
- Peters, G. P., Minx, J. C., Weber, C. L., and Edenhofer, O. 2011. Growth in emission transfers via international trade from 1990 to 2008. *Proceedings of the National Academy of Sciences of the United States of America* 108:8903–8908. doi:10.1073/pnas.1006388108.
- Pettygrove, G. S., Putnam, D. H., and Meyer, D. 2003. *Integrating Forage Production with Dairy Manure Management in the San Joaquin Valley Final Report*. SAREP (Sustainable Agriculture Research and Education Program). University of California, Davis
- Pickett, S. T. A., Cadenasso, M. L., Grove, J. M., Groffman, P. M., Band, L. E., Boone, C. G., Burch, W. R. et al. 2008. Beyond urban legends: an emerging framework of urban ecology, as illustrated by the Baltimore ecosystem study. *BioScience* 58:139–150. doi:10.1641/B580208.
- Pidgeon, N. and Fischhoff, B. 2011. The role of social and decision sciences in communicating uncertain climate risks. *Nature Climate Change* 1:35–41.
- Pilotto, L., Nitschke, M., Smith, B. J., Pisaniello, D., Ruffin, R. E., McElroy, H. J., Martin, J., and Hiller, J. E. 2004. Randomized controlled trial of unflued gas heater replacement on respiratory health of asthmatic schoolchildren. *International Journal of Epidemiology* 33:208–214. doi:10.1093/ije/dyh018.

- Pinder, R. W., Bettez, N. D., Bonan, G. B., Greaver, T. L., Wieder, W. R., Schlesinger, W. H., and Davidson, E. A. 2012a. Impacts of human alteration of the nitrogen cycle in the US on radiative forcing. *Biogeochemistry* 114:25–40. doi:10.1007/s10533-012-9787-z.
- Pinder, R. W., Davidson, E. A., Goodale, C. L., Greaver, T. L., Herrick, J. D., and Liu, L. 2012b. Climate change impacts of US reactive nitrogen. *Proceedings of the National Academy of Sciences of the United States of America* 109:7671–7675. doi:10.1073/pnas.1114243109.
- Pliss, G. B. and Frolov, A. G. 1991. Sodium nitrate as a possible promoter of bladder carcinogenesis in rats. *Voprosy Onkologii* 37:203–206.
- Pollack, E. S. and Pollack, C. V. 1994. Incidence of subclinical methemoglobinemia in infants with diarrhea. *Annals of Emergency Medicine* 24:652–656.
- Pollan, M. 2008. *In Defense of Food: An Eater's Manifesto*. Penguin, New York
- Popp, D. 2010. Exploring links between innovation and diffusion: adoption of NO<sub>x</sub> control technologies at US coal-fired power plants. *Environmental and Resource Economics* 45:319–352. doi:10.1007/s10640-009-9317-1.
- Posas, P. J. 2007. Roles of religion and ethics in addressing climate change. *Ethics in Science and Environmental Politics* 6:31–49.
- Posey, D. A. (Ed.). 1999. *Cultural and Spiritual Values of Biodiversity*. Intermediate Technology Publications, London.
- Post, W. M. and Mann, L. K. 1990. Changes in soil organic carbon and nitrogen as a result of cultivation, in Bouwman, A. F. (Ed.): *Soils and the Greenhouse Effect*. John Wiley & Sons, New York, pp.401–406.
- Postma, D. S. and Boezen, H. M. 2004. Rationale for the Dutch hypothesis: allergy and airway hyperresponsiveness as genetic factors and their interaction with environment in the development of asthma and COPD. *Chest* 126. doi:10.1378/chest.126.2\_suppl\_1.96S.
- Potter, C. 2010. The carbon budget of California. *Environmental Science & Policy* 13:373–383. doi:10.1016/j.envsci.2010.04.008.
- Potter, C. S., Matson, P. A., Vitousek, P. M., and Davidson, E. A. 1996. Process modeling of controls on nitrogen trace gas emissions from soils worldwide. *Journal of Geophysical Research* 101:1361–1377. doi:10.1029/95JD02028.
- Poudel, D. D., Horwath, W. R., Lanini, W. T., Temple, S. R., and van Bruggen, A. H. C. 2002. Comparison of soil N availability and leaching potential, crop yields and weeds in organic, low-input and conventional farming systems in northern California. *Agriculture, Ecosystems & Environment* 90:125–137. doi:10.1016/S0167-8809(01)00196-7.
- Powell, J. M., Gourley, C. J. P., Rotz, C. A., and Weaver, D. M. 2010. Nitrogen use efficiency: a potential performance indicator and policy tool for dairy farms. *Environmental Science & Policy* 13:217–228. doi:10.1016/j.envsci.2010.03.007.
- Powers, R. F. and Reynolds, P. E. 1999. Ten-year responses of ponderosa pine plantations to repeated vegetation and nutrient control along an environmental gradient. *Canadian Journal of Forest Research* 29:1027–1038.
- Powlson, D. S., Addiscott, T. M., Benjamin, N., Cassman, K. G., de Kok, T. M., van Grinsven, H., L'Hirondel, J. L., Avery, A. A., and van Kessel, C. 2008. When does nitrate become a risk for humans? *Journal of Environmental Quality* 37:291–295. doi:10.2134/jeq2007.0177.
- PPIC. 2008. *Just the Facts: California's Future Population*. Available at: [http://www.ppic.org/content/pubs/jtf/JTF\\_FuturePopulationJTF.pdf](http://www.ppic.org/content/pubs/jtf/JTF_FuturePopulationJTF.pdf).

- Prasad, S. and Chetty, A. A. 2008. Nitrate-N determination in leafy vegetables: study of the effects of cooking and freezing. *Food Chemistry* 106:772–780. doi:10.1016/j.foodchem.2007.06.005.
- Prasad, V. K., Badarinath, K. V. S., Yonemura, S., and Tsuruta, H. 2004. Regional inventory of soil surface nitrogen balances in Indian agriculture (2000–2001). *Journal of Environmental Management* 73:209–218. doi:10.1016/j.jenvman.2004.06.013.
- Pratt, P. F. 1984. Salinity, sodium, and potassium in an irrigated soil treated with bovine manure. *Soil Science Society of America Journal* 48:823–828.
- Pratt, P. F. and Castellanos, J. Z. 1981. Available nitrogen from animal manures. *California Agriculture* 35:24–24.
- Preston-Martin, S., Pogoda, J., Mueller, B. A., Holly, E., Lijinsky, W., and Davis, R. L. 1996. Maternal consumption of cured meats and vitamins in relation to pediatric brain tumors. *Cancer Epidemiology Biomarkers & Prevention* 8:599–605.
- Pulkrabek, W. 2003. *Engineer Fundamentals of the Internal Combustion Engine*, 2nd. ed. Prentice Hall, Upper Saddle River, NJ.
- Purkey, D. R., Huber-Lee, A., Yates, D. N., Hanemann, M., and Herrod-Julius, S. 2007. Integrating a climate change assessment tool into stakeholder-driven water management decision-making processes in California. *Water Resources Management* 21:315–329. doi:10.1007/s11269-006-9055-x.
- Pusede, S. E. and Cohen, R. C. 2012. On the observed response of ozone to NO<sub>x</sub> and VOC reactivity reductions in San Joaquin Valley California 1995–present. *Atmospheric Chemistry and Physics* 12:8323–8339.
- Quynh, L. T. P., Billen, G., Garnier, J., Théry, S., Fézard, C., and Minh, C. V. 2005. Nutrient (N, P) budgets for the Red River basin (Vietnam and China). *Global Biogeochemical Cycles* 19:GB2022. doi:10.1029/2004GB002405.
- Rabalais, N. N. 1998. *Oxygen Depletion in Coastal Waters. National Oceanic and Atmospheric Administration's State of the Coast Report*. NOAA, Silver Spring, MD.
- Rabotyagov, S., Valcu, A., Dampbell, T., Jha, M. K., Gassman, P., and Kling, C. L. 2012. Using a coupled simulation-optimization approach to design cost-effective reverse auctions for watershed nutrient reductions. Paper presented at *The Agricultural and Applied Economics Association Annual Meeting*, Seattle, WA, pp.173–184.
- Raciti, S. M., Groffman, P. M., Jenkins, J. C., Pouyat, R. V., Fahey, T. J., Pickett, S. T. A., and Cadenasso, M. L. 2011. Accumulation of carbon and nitrogen in residential soils with different land-use histories. *Ecosystems* 14:287–297. doi:10.1007/s10021-010-9409-3.
- Rademacher, J. J., Young, T. B., and Kanarek, M. S. 1992. Gastric cancer mortality and nitrate levels in Wisconsin drinking water. *Archives of Environmental Health* 47:292–294. doi:10.1080/00039896.1992.9938364.
- Rae, A. N. and Strutt, A. 2004. Agricultural trade reform and nitrogen pollution in OECD countries. Paper presented at *The New Zealand Association of Economists Conference*, Wellington.
- Rajsic, P., Weersink, A., and Gandorfer, M. 2009. Risk and nitrogen application levels. *Canadian Journal of Agricultural Economics/Revue canadienne d'agroeconomie* 57:223–239. doi:10.1111/j.1744-7976.2009.01149.x.
- Ramos, D. E. 1997. *Walnut Production Manual*. University of California Division of Agriculture and Natural Resources, Davis.
- Randall, D. J. and Tsui, T. K. N. 2002. Ammonia toxicity in fish. *Marine Pollution Bulletin* 45:17–23.

- Randall, G. W., Delgado, J. A., and Schepers, J. S. 2008. Nitrogen management to protect water resources, in Schepers, J. S. and Raun, W. R. (Eds): *Nitrogen in Agricultural Systems*. Agronomy Monograph 49. ASA, CSSA, and SSSA, Madison, WI
- Ravishankara, A. R., Daniel, J. S., and Portmann, R. W. 2009. Nitrous oxide (N<sub>2</sub>O): the dominant ozone-depleting substance emitted in the 21st century. *Science* 326:123–125. doi:10.1126/science.1176985.
- Reed, K., Horwath, W. R., Kaffka, S. R., Denison, R. F., Bryant, D., and Kabir, Z. 2006. Long-term comparison of yield and nitrogen use in organic, winter legume cover crop and conventional farming systems. *SAFS Newsletters*
- Reganold, J. P., Andrews, P. K., Reeve, J. R., Carpenter-Boggs, L., Schadt, C. W., Alldredge, J. R., Ross, C. F., Davies, N. M., and Zhou, J. 2010. Fruit and soil quality of organic and conventional strawberry agroecosystems. *PLOS ONE* 5:e12346. doi:10.1371/journal.pone.0012346.
- Reganold, J. P., Glover, J. D., Andrews, P. K., Hinman, H. R. 2001. Sustainability of three apple production systems. *Nature* 410:926–930. doi:10.1038/35073574.
- Reid, S., Sullivan, D., Penfold, B. M., Raffuse, S. M., and Funk, T. H. 2007. Activity trends for key emission sources in California's San Joaquin Valley, 1970–2030. Paper presented at *The Environmental Protection Agency's 16th Annual International Emission Inventory Conference*, May 14–17, Raleigh.
- Reish, D. J. 1955. The relation of polychaetous annelids to harbor pollution. *Public Health Reports* 70:1168–1174.
- Reish, D. J. 2000. The seasonal settlement of polychaete larvae before and after pollution abatement in Los Angeles-Long Beach Harbors, California. *Bulletin of Marine Science* 67:672.
- Rembialkowska, E. 2007. Quality of plant products from organic agriculture. *Journal of the Science of Food and Agriculture* 87:2757–2762.
- Rettie, D. F. 1996. *Our National Park System: Caring for America's Greatest Natural and Historic Treasures*. University of Illinois Press, Champaign.
- Retzlaff, W. A., DeJong, T. M., and Williams, L. E. 1990. Screening almond cultivars for ozone susceptibility. *American Society for Horticultural Science* 15
- Retzlaff, W. A., Dejong, T. M., and Williams, L. E. 1992. Photosynthesis and growth-response of almond to increased atmospheric ozone partial pressures. *Journal of Environmental Quality* 21:208–216.
- Ribaudo, M. and Agapoff, J. 2005. Importance of cost offsets for dairy farms meeting a nutrient application standard. *Agricultural and Resource Economics Review* 34:173–184.
- Ribaudo, M., Delgado, J., Hansen, L., Livingston, M., Mosheim, R., and Williamson, J. 2011. *Nitrogen in Agricultural Systems: Implications for Conservation Policy (No. 127)*. USDA ERS (Economic Research Service), Washington, DC.
- Ribaudo, M., Gollehon, N., Aillery, M., Kaplan, J., Johansson, R., Agapoff, J., Christensen, L., Breneman, V., and Peters, M. 2003. *Manure Management for Water Quality: Costs to Animal Feeding Operations of Applying Manure Nutrients to Land (Agricultural Economic Report No. AER824)*. USDA ERS, Washington, DC.
- Ribaudo, M., Horan, R. D., and Smith, M. E. 1999. *Economics of Water Quality Protection from Nonpoint Sources (Agricultural Economic Report Number No. 782)*. USDA ERS, Washington, DC.
- Richardson, W. F. and Meyer, R. D. 1990. Spring and summer nitrogen applications to Vina walnuts. *California Agriculture* 44:30–32.

- Riddell, J., Nash, T. H., III, and Padgett, P. 2008. The effect of HNO<sub>3</sub> gas on the lichen *Ramalina menziesii*. *Flora: Morphology, Distribution, Functional Ecology of Plants* 203:47–54. doi:10.1016/j.flora.2007.10.001.
- Rilla, E., Hardesty, S. D., Getz, C., and George, H. 2011. California agritourism operations and their economic potential are growing. *California Agriculture* 65:57–65. doi:10.3733/ca.v065n02p57.
- Ritz, B., Wilhelm, M., Hoggatt, K. J., and Ghosh, J. K. C. 2007. Ambient air pollution and preterm birth in the environment and pregnancy outcomes study at the University of California, Los Angeles. *American Journal of Epidemiology* 166:1045–1052. doi:10.1093/aje/kwm181.
- Ritz, B., Zhao, Y., and Wilhelm, M. 2006. Air pollution and infant death in Southern California, 1989–2000. *Pediatrics* 118:493–502. doi:10.1542/peds.2006-0027.
- Robertson, G. P. 1982. Regional nitrogen budgets: approaches and problems, in Robertson, G. P., Herrera, R., and Rosswall, T. (Eds): *Nitrogen Cycling in Ecosystems of Latin America and the Caribbean, Developments in Plant and Soil Sciences*. Springer Netherlands, Heidelberg, pp.73–79.
- Robertson, G. P. and Rosswall, T. 1986. Nitrogen in West Africa: the regional cycle. *Ecological Monographs* 56:43–72. doi:10.2307/2937270.
- Robertson, G. P. and Vitousek, P. M. 2009. Nitrogen in agriculture: balancing the cost of an essential resource. *Annual Review of Environment and Resources* 34:97–125.
- Rockström, J., Steffen, W., Noone, K., Persson, A., Chapin, F. S., Lambin, E. F., Lenton, T. M. et al. 2009. A safe operating space for humanity. *Nature* 461:472–475. doi:10.1038/461472a.
- Rodriguez, C., Tonkin, R., Heyworth, J., Kusel, M., Klerk, N. D., Sly, P. D., Franklin, P., Runnion, T., Blockley, A., Landau, L., and Hinwood, A. L. 2007. The relationship between outdoor air quality and respiratory symptoms in young children. *International Journal of Environmental Health Research* 17:351–360. doi:10.1080/09603120701628669.
- Rogers, M. A., Vaughan, T. L., Davis, S., and Thomas, D. B. 1995. Consumption of nitrate, nitrite, and nitrosodimethylamine and the risk of upper aerodigestive tract cancer. *Cancer Epidemiology, Biomarkers & Prevention* 4:29–36.
- Rojas-Martinez, R., Perez-Padilla, R., Olaiz-Fernandez, G., Mendoza-Alvarado, L., Moreno-Macias, H., Fortoul, T., McDonnell, W., Loomis, D., and Romieu, I. 2007. Lung function growth in children with long-term exposure to air pollutants in Mexico City. *American Journal of Respiratory and Critical Care Medicine* 176:377–384. doi:10.1164/rccm.200510-1678OC.
- Roland-Holst, D. and Zilberman, D. 2006. *How Vulnerable is California Agriculture to Higher Energy Prices?: ARE Update*. Giannini Foundation of Agricultural Economics, University of California, Davis.
- Romieu, I., Ramirez-Aguilar, M., Sienna-Monge, J. J., Moreno-Macias, H., del Rio-Navarro, B., David, G., Marzec, J., Hernandez-Avila, M., and London, S. 2006. GSTM1 and GSTP1 and respiratory health in asthmatic children exposed to ozone. *European Respiratory Journal* 28:953–959. doi:10.1183/09031936.06.00114905.
- Romley, J. A., Hackbarth, A., and Goldman, D. P. 2010. *The Impact of Air Quality on Hospital Spending Monica, Calif. (Technical Report No. TR-777-WFHF)*. RAND Corporation, Santa Monica, CA
- Roosevelt, T. 1985. *An Autobiography*. Da Capo Press, New York.
- Rosecrance, R., Faber, B., and Lovatt, C. 2012. Patterns of nutrient accumulation in “Hass” avocado fruit. *Better Crops* 96:12–13

- Rosenstock, T. S., Liptzin, D., Dzurella, K., Fryjoff-Hung, A., Hollander, A., Jensen, V., King, A. et al. 2014. Agriculture's contribution to nitrate contamination of Californian groundwater (1945–2005). *Journal of Environment Quality* 43:895. doi:10.2134/jeq2013.10.0411.
- Rosenstock, T. S., Liptzin, D., Six, J., and Tomich, T. P. 2013. Nitrogen fertilizer use in California: assessing the data, trends and a way forward. *California Agriculture* 67:68–79. doi:10.3733/ca.E.v067n01p68.
- Rotz, C. A. 2004. Management to reduce nitrogen losses in animal production. *Journal of Animal Science* 82:E119–E137
- Rowe, R. D. and Chestnut, L. G. 1985. Economic assessment of the effects of air pollution on agricultural crops in the San Joaquin Valley. *Journal of the Air Pollution Control Association* 35:728–734.
- Ruehl, C. R., Fisher, A. T., Los Huertos, M., Wankel, S. D., Wheat, G. C., Kendall, C., Hatch, C. E., and Shennan, C. 2007. Nitrate dynamics within the Pajaro River, a nutrient-rich, losing stream. *Journal of the North American Benthological Society* 26:191–206. doi:http://dx.doi.org/10.1899/0887-3593(2007)26[191:NDWTPR]2.0.CO;2.
- Russell, A. G., Winner, D. A., Harley, R. A., McCue, K. F., and Cass, G. R. 1993. Mathematical modeling and control of the dry deposition flux of nitrogen-containing air pollutants. *Environmental Science & Technology* 27:2772–2782. doi:10.1021/es00049a016.
- Russell, A. R., Valin, L. C., Bucsele, E. J., Wenig, M., and Cohen, R. C. 2010. Space-based constraints on spatial and temporal patterns of NO<sub>x</sub> emissions in California, 2005, 2008. *Environmental Science & Technology* 44:3608–3615. doi:10.1021/es903451j.
- Russelle, M. P., Entz, M. H., and Franzluebbbers, A. J. 2007. Reconsidering integrated crop–livestock systems in North America. *Agronomy Journal* 99:325. doi:10.2134/agronj2006.0139.
- Ryden, J. C., Lund, L. J., and Whaley, S. A. 1981. Direct measurement of gaseous nitrogen losses from an effluent irrigation area. *Journal (Water Pollution Control Federation)* 53:1677–1682
- Ryerson, T. B., Andrews, A. E., Angevine, W. M., Bates, T. S., Brock, C. A., Cairns, B., Cohen, R. C. et al. 2013. The 2010 California Research at the Nexus of Air Quality and Climate Change (CalNex) field study. *Journal of Geophysical Research: Atmospheres* 118:5830–5866. doi:10.1002/jgrd.50331.
- Rynk, R., van de Kamp, M., Willson, G. B., Singley, M. E., Richard, T. L., Kolega, J. J., Gouin, F. R. et al. 1992. *On-Farm Composting Handbook*. Northeast Regional Agricultural Engineering Service, Ithaca, NY.
- Sadeq, M., Moe, C. L., Attarassi, B., Cherkaoui, I., Elaouad, R., and Idrissi, L. 2008. Drinking water nitrate and prevalence of methemoglobinemia among infants and children aged 1–7 years in Moroccan areas. *International Journal of Hygiene and Environmental Health* 211:546–554. doi:10.1016/j.ijheh.2007.09.009.
- Saenz, J. L., DeJong, T. M., and Weinbaum, S. A. 1997. Nitrogen stimulated increases in peach yields are associated with extended fruit development period and increased fruit sink capacity. *Journal of the American Society for Horticultural Science* 122(6):772–777
- Salam, M. T., Millstein, J., Li, Y. F., Lurmann, F. W., Margolis, H. G., and Gilliland, F. D. 2005. Birth outcomes and prenatal exposure to ozone, carbon monoxide, and particulate matter: results from the Children's Health Study. *Environmental Health Perspectives* 113:1638–1644. doi:10.1289/ehp.8111.
- Salo, T., Lemola, R., and Esala, M. 2008. National and regional net nitrogen balances in Finland in 1990–2005. *Agricultural and Food Science* 16:366–375.



- Samani Majd, A. M. and Mukhtar, S. 2013. Ammonia recovery enhancement using a tubular gas-permeable membrane system in laboratory and field-scale studies. *Transactions of the ASABE* 56:1951–1958.
- Samaras, C. and Meisterling, K. 2008. Life cycle assessment of greenhouse gas emissions from plug-in hybrid vehicles: implications for policy. *Environmental Science and Technology* 42:3170–3176. doi:10.1021/es702178s.
- Samoli, E., Aga, E., Touloumi, G., Nisiotis, K., Forsberg, B., Lefranc, A., Pekkanen, J. et al. 2006. Short-term effects of nitrogen dioxide on mortality: an analysis within the APHEA project. *European Respiratory Journal* 27:1129–1138. doi:10.1183/09031936.06.00143905.
- San Joaquin Valley Dairy Manure Technology Feasibility Assessment Panel. 2005a. *An Assessment of Technologies for Management and Treatment of Dairy Manure in California's San Joaquin Valley*. CARB (California Air Resources Board), Sacramento.
- San Joaquin Valley Dairy Manure Technology Feasibility Assessment Panel. 2005b. *An Assessment of Technologies for Management and Treatment of Dairy Manure in California's San Joaquin Valley*. San Joaquin Valley Dairy Manure Technology Feasibility Assessment Panel, San Francisco, CA.
- Sandermann, H. 1996. Ozone and plant health. *Annual Review of Phytopathology* 34:347–366.
- Sanger, D. M., Arendt, M. D., Chen, Y., Wenner, E. L., Holland, A. F., Edwards, D., and Caffrey, J. 2002. *A Synthesis of Water Quality Data: National Estuarine Research Reserve System-Wide Monitoring Program (1995–2000) (No. 500)*, National Estuarine Research Reserve Technical Report Series. South Carolina Department of Natural Resources, Marine Resources Division, Charleston.
- SAREP (Sustainable Agriculture Research and Education Program). 2004. *Dairy Manure Nutrient Management Survey Results*. Unpublished. University of California, Davis.
- Sawada, H. and Kohno, Y. 2009. Differential ozone sensitivity of rice cultivars as indicated by visible injury and grain yield. *Plant Biology* 11:70–75.
- Sawyer, R. F., Harley, R. A., Cadle, S. H., Norbeck, J. M., Slott, R., and Bravo, H. A. 2000. Mobile sources critical review: 1998 NARSTO assessment. *Atmospheric Environment* 34:2161–2181. doi:10.1016/S1352-2310(99)00463-X.
- Schaap, M., Timmermans, R. M. A., Roemer, M., Boersen, G. A. C., Bultjes, P., Sauter, F., Velders, G., and Beck, J. 2008. The LOTOS-EUROS model: description, validation and latest developments. *International Journal of Environment and Pollution* 32:270–290.
- Schaefer, S. C., Hollibaugh, J. T., and Alber, M. 2009. Watershed nitrogen input and riverine export on the west coast of the US. *Biogeochemistry* 93:219–233. doi:10.1007/s10533-009-9299-7.
- Schildcrout, J. S., Sheppard, L., Lumley, T., Slaughter, J. C., Koenig, J. Q., and Shapiro, G. G. 2006. Ambient air pollution and asthma exacerbations in children: an eight-city analysis. *American Journal of Epidemiology* 164:505–517. doi:10.1093/aje/kwj225.
- Schindler, C., Keidel, D., Gerbase, M. W., Zemp, E., Bettschart, R., Brändli, O., Brutsche, M. H. et al. 2009. Improvements in PM10 exposure and reduced rates of respiratory symptoms in a cohort of Swiss adults (SAPALDIA). *American Journal of Respiratory and Critical Care Medicine* 179:579–587. doi:10.1164/rccm.200803-388OC.
- Schindler, C., Künzli, N., Bongard, J. P., Leuenberger, P., Karrer, W., Rapp, R., Monn, C., and Ackermann-Lieblich, U. 2001. Short-term variation in air pollution and in average lung function among never-smokers: the Swiss Study on Air Pollution and Lung Diseases in Adults (SAPALDIA). *American Journal of Respiratory and Critical Care Medicine* 163:356–361.

- Schlesinger, W. H. 2009. On the fate of anthropogenic nitrogen. *Proceedings of the National Academy of Sciences of the United States of America* 106:203–208. doi:10.1073/pnas.0810193105.
- Schlösser, E. 2001. *Fast Food Nation: The Dark Side of the All-American Meal*. Harper Perennial, New York.
- Schwartz, J., Dockery, D. W., Neas, L. M., Wypij, D., Ware, J. H., Spengler, J. D., Koutrakis, P., Speizer, F. E., and Ferris Jr., B. G. 1994. Acute effects of summer air pollution on respiratory symptom reporting in children. *American Journal of Respiratory Critical Care Medicine* 150:1234–1242.
- Schwartz, P. 1996. *The Art of the Long View: Planning for the Future in an Uncertain World*. Doubleday, New York.
- Schweizer, S., Davis, S., and Thompson, J. L. 2013. Changing the conversation about climate change: a theoretical framework for place-based climate change engagement. *Environmental Communication: A Journal of Nature and Culture* 7:42–62. doi:10.1080/17524032.2012.753634.
- Searchinger, T., Heimlich, R., Houghton, R. A., Dong, F., Elobeid, A., Fabiosa, J., Tokgoz, S., Hayes, D., and Yu, T. H. 2008. Use of U.S. croplands for biofuels increases greenhouse gases through emissions from land-use change. *Science* 319:1238–1240. doi:10.1126/science.1151861.
- Seidel, C., Gorman, C., Darby, J., and Jensen, V. B. 2011. *An Assessment of the State of Nitrate Treatment Alternatives*
- Seinfeld, J. H. and Pandis, S. N. 1998. *Atmospheric Chemistry and Physics: From Air Pollution to Climate Change*. Wiley-Interscience Publication, New York, NY. USA.
- Seitzinger, S., Harrison, J. A., Böhlke, J. K., Bouwman, A. F., Lowrance, R., Peterson, B., Tobias, C., and Van Drecht, G. 2006. Denitrification across landscapes and waterscapes: a synthesis. *Ecological Applications* 16:2064–2090. doi:10.1890/1051-0761(2006)016[2064:DALAWA]2.0.CO;2.
- Selman, M., Greenhalgh, S., Taylor, M., and Guiling, J. 2008. *Paying for Environmental Performance: Potential Cost Savings Using a Reverse Auction in Program Sign-Up*. World Resources Institute, Washington, DC.
- Service, R. F. 2014. New recipe produces ammonia from air, water, and sunlight. *Science* 345:610.
- Shah, P. S. and Balkhair, T. 2011. Air pollution and birth outcomes: a systematic review. *Environment International* 37:498–516. doi:10.1016/j.envint.2010.10.009.
- Shank, R. C. and Newberne, P. M. 1976. Dose-response study of the carcinogenicity of dietary sodium nitrite and morpholine in rats and hamsters. *Food and Cosmetics Toxicology* 14:1–8.
- Shaver, T. M., Khosla, R., and Westfall, D. G. 2011. Evaluation of two crop canopy sensors for nitrogen variability determination in irrigated maize. *Precision Agriculture* 12:892–904. doi:10.1007/s11119-011-9229-2
- Shindell, D. T., Faluvegi, G., Koch, D. M., Schmidt, G. A., Unger, N., and Bauer, S. E. 2009. Improved attribution of climate forcing to emissions. *Science* 326:716–718.
- Shine, K. P., Berntsen, T. K., Fuglestedt, J. S., Skeie, R. B., and Stuber, N. 2007. Comparing the climate effect of emissions of short and long lived climate agents. *Philosophical Transactions of the Royal Society A* 365:1903–1914.
- Shine, K. P., Fuglestedt, J. S., Hailemariam, K., and Stuber, N. 2005. Alternatives to the global warming potential for comparing climate impacts of emissions of greenhouse gases. *Climatic Change* 68:281–302.

- Shortle, J. S., Ribaud, M., Horan, R. D., and Blandford, D. 2012. Reforming agricultural nonpoint pollution policy in an increasingly budget-constrained environment. *Environmental Science & Technology* 46:1316–1325.
- Shrestha, A. and Grantz, D. A. 2005. Ozone impacts on competition between tomato and yellow nutsedge: above- and below-ground. *Crop Science* 45:1587–1595.
- Shuval, H. I. and Gruener, N. 1972. Epidemiological and toxicological aspects of nitrates and nitrites in the environment. *American Journal of Public Health* 62:1045–1052.
- Silkoff, P. E., Zhang, L., Dutton, S., Langmack, E. L., Vedal, S., Murphy, J., and Make, B. 2005. Winter air pollution and disease parameters in advanced chronic obstructive pulmonary disease panels residing in Denver, Colorado. *The Journal of Allergy and Clinical Immunology* 115:337–344. doi:10.1016/j.jaci.2004.11.035.
- Silverman, R. A. and Ito, K. 2010. Age-related association of fine particles and ozone with severe acute asthma in New York City. *Journal of Allergy and Clinical Immunology* 125:367–373. doi:10.1016/j.jaci.2009.10.061.
- Simpson, R., Williams, G., Petroeschovsky, A., Best, T., Morgan, G., Denison, L., Hinwood, A., and Neville, G. 2005a. The short-term effects of air pollution on hospital admissions in four Australian cities. *Australian and New Zealand Journal of Public Health* 29:213–221.
- Simpson, R., Williams, G., Petroeschovsky, A., Best, T., Morgan, G., Denison, L., Hinwood, A., Neville, G., and Neller, A. 2005b. The short-term effects of air pollution on daily mortality on four Australian cities. *Australian and New Zealand Journal of Public Health* 29:205–212.
- Sinclair, A., Edgerton, E. S., Wyzga, R., and Tolsma, D. 2010. A two-time-period comparison of the effects of ambient air pollution on outpatient visits for acute respiratory illnesses. *Journal of the Air and Waste Management Association* 60:163–175.
- Singer, M. J. 2001. Looking back 60 years, California soils maintain overall chemical quality. *California Agriculture* 57:2–5.
- Sitch, S., Cox, P. M., Collins, W. J., and Huntingford, C. 2007. Indirect radiative forcing of climate change through ozone effects on the land-carbon sink. *Nature* 448:791–794.
- Six, J., Ogle, S. M., Breidt, F. J., Conant, R. T., Mosier, A. R., and Paustian, K. 2004. The potential to mitigate global warming with no-tillage management is only realized when practised in the long term. *Global Change Biology* 10: 155–160.
- Skrivan, J. 1971. Methemoglobinemia in pregnancy (clinical and experimental study). *Acta Universitatis Carolinae Medica (Praha)* 17:123–161.
- Sleeter, B. M., Wilson, T. S., Soular, C. E., and Liu, J. 2010. Estimation of late twentieth century land-cover change in California. *Environmental Monitoring and Assessment* 173:251–266. doi:10.1007/s10661-010-1385-8.
- Small, K. A. and Van Dender, K. 2007. Fuel efficiency and motor vehicle travel: the declining rebound effect. *The Energy Journal* 28:25–51.
- Smart, D. R., Alsina, M. M., Wolff, M. W., Matiasek, M. G., Schellenberg, D. L., Edstrom, J. P., Brown, P. H., and Scow, K. M. 2011a. N<sub>2</sub>O emissions and water management in California perennial crops. Chapter 12 in Guo, L., Gunasekara, A., and McConnell, L. (Eds): *Understanding Greenhouse Gas Emissions from Agricultural Management*. American Chemical Society, Washington, DC, pp.227–255

- Smart, J. C. R., Hicks, K., Morrissey, T., Heinemeyer, A., Sutton, M. A., and Ashmore, M. 2011b. Applying the ecosystem service concept to air quality management in the UK: a case study for ammonia. *Environmetrics* 22:649–661. doi:10.1002/env.1094.
- Smil, V. 1999. Nitrogen in crop production: an account of global flows. *Global Biogeochemical Cycles* 13:647–662. doi:10.1029/1999GB900015.
- Smil, V. 2001. *Feeding the World: A Challenge for the Twenty-First Century*, Reprint ed. The MIT Press, Cambridge, MA.
- Smith, K. A., Mosier, A. R., Crutzen, P. J., and Winiwarter, W. 2012. The role of N<sub>2</sub>O derived from crop-based biofuels, and from agriculture in general, in Earth's climate. *Philosophical Transactions of the Royal Society B: Biological Sciences* 367:1169–1174.
- Smith, P. D., Martino, Z., Cai, D., Janzen, H., Kumar, P., McCarl, B., Ogle, S., O'Mara, F., Rice, C., Scholes, B., and Sirotenko, O. 2007. Agriculture, in *Climate Change 2007: The Physical Science Basis. Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change*. Cambridge University Press, Cambridge, UK/New York.
- Smith, W. N., Grant, B. B., Desjardins, R. L., Worth, D., Li, C., Boles, S. H., and Huffman, E. C. 2010. A tool to link agricultural activity data with the DNDC model to estimate GHG emission factors in Canada. *Agriculture, Ecosystems & Environment* 136:301–309. doi:10.1016/j.agee.2009.12.008.
- Smukler, S. M., Jackson, L. E., Murphree, L., Yokota, R., Koike, S. T., and Smith, R. F. 2008. Transition to large-scale organic vegetable production in the Salinas Valley, California. *Agriculture, Ecosystems & Environment* 126:168–188. doi:10.1016/j.agee.2008.01.028.
- Snyder, C. S. and Bruulsema, T. W. 2007. *Nutrient Use Efficiency and Effectiveness in North America: Indices of Agronomic and Environmental Benefits*. International Plant Nutrition Institute, Peachtree Corners, GA
- Snyder, C. S., Bruulsema, T. W., Jensen, T. L., and Fixen, P. E. 2009. Review of greenhouse gas emissions from crop production systems and fertilizer management effects. *Agriculture, Ecosystems & Environment* 133:247–266. doi:10.1016/j.agee.2009.04.021.
- Snyder, G. 1993. Coming in to the watershed: biological and cultural diversity in the California habitat. *Chicago Review* 39:75–86. doi:10.2307/25305721.
- Sobota, D. J., Harrison, J. A., and Dahlgren, R. A. 2009. Influences of climate, hydrology, and land use on input and export of nitrogen in California watersheds. *Biogeochemistry* 94:43–62. doi:10.1007/s10533-009-9307-y.
- Söderlund, R. and Svensson, B. H. 1976. The global nitrogen cycle. *Ecological Bulletins* 22:23–73
- Sokolow, A. D. 2006. *A National View of Agricultural Easement Programs: Measuring Success in Protecting Farmland, Report 4*. American Farmland Trust, Dekalb, IL.
- Solomon, S., Qin, D., Manning, M., Marquis, M., Averyt, K., Tignor, M., Miller, H. L., and Chen, Z. (Eds). 2007. *Climate Change 2007: The Physical Science Basis. Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change*. Intergovernmental Panel on Climate Change, Cambridge, UK.
- Sommer, S. G. and Hutchings, N. J. 2001. Ammonia emission from field applied manure and its reduction—invited paper. *European Journal of Agronomy* 15:1–15. doi:10.1016/S1161-0301(01)00112-5.
- Southwick, S. M., Rupert, M. E., Yeager, J. T., Lampinen, B. D., Dejong, T. M., and Weis, K. G. 1999. Effects of nitrogen fertigation on fruit yield and quality of young “French” prune trees. *Journal of Horticultural Science and Biotechnology* 74:187–195.

- Srivastava, P., Day, R. L., Robillard, P. D., and Hamlett, J. M. 2001. AnnGIS: integration of GIS and a continuous simulation model for non-point source pollution assessment. *Transactions in GIS* 5:221–234
- Staley, B. and Barlaz, M. 2009. Composition of municipal solid waste in the United States and implications for carbon sequestration and methane yield. *Journal of Environmental Engineering* 135:901–909. doi:10.1061/(ASCE)EE.1943-7870.0000032.
- Stallman, H. R. 2011. Ecosystem services in agriculture: determining suitability for provision by collective management. *Ecological Economics* 71:131–139. doi:10.1016/j.ecolecon.2011.08.016.
- Stedman, R. C. 2002. Toward a social psychology of place predicting behavior from place-based cognitions, attitude, and identity. *Environment and Behavior* 34:561–581. doi:10.1177/0013916502034005001.
- Steenwerth, K. L. and Belina, K. M. 2010. Vineyard weed management practices influence nitrate leaching and nitrous oxide emissions. *Agriculture, Ecosystems and Environment* 138:127–131.
- Steffen, W., Persson, A., Deutsch, L., Zalasiewicz, J., Williams, M., Richardson, K., Crumley, C. et al. 2011. The Anthropocene: from global change to planetary stewardship. *Ambio* 40:739–761.
- Stehfest, E. and Bouwman, L. 2006. N<sub>2</sub>O and NO emission from agricultural fields and soils under natural vegetation: summarizing available measurement data and modeling of global annual emissions. *Nutrient Cycling in Agroecosystems* 74:207–228. doi:10.1007/s10705-006-9000-7.
- Stern, P. C. 2011. Design principles for global commons: natural resources and emerging technologies. *International Journal of the Commons* 5:213–232.
- Sterner, T. S. 2003. *Policy Instruments for Environmental and Natural Resource Management*. Resources for the Future, Washington, DC.
- Stewart, I. T., Cayan, D. R., and Dettinger, M. D. 2005a. Changes toward earlier streamflow timing across Western North America. *Journal of Climate* 18:1136–1155. doi:10.1175/JCLI3321.1.
- Stewart, W. M., Dibb, D. W., Johnston, A. E., and Smyth, T. J. 2005b. The contribution of commercial fertilizer nutrients to food production. *Agronomy Journal* 97:1. doi:10.2134/agronj2005.0001.
- Stieb, D. M., Judek, S., and Burnett, R. T. 2003. Meta-analysis of time-series studies of air pollution and mortality: update in relation to the use of generalized additive models. *Journal of the Air and Waste Management Association* 53:258–261.
- Stieb, D. M., Szyszkowicz, M., Rowe, B. H., and Leech, J. A. 2009. Air pollution and emergency department visits for cardiac and respiratory conditions: a multi-city time-series analysis. *Environmental Health: A Global Access Science Source* 8:25. doi:10.1186/1476-069x-8-25.
- Stillerman, K. P., Mattison, D. R., Giudice, L. C., and Woodruff, T. J. 2008. Environmental exposures and adverse pregnancy outcomes: a review of the science. *Reproductive Sciences* 15:631–650. doi:10.1177/1933719108322436.
- Su, J. G., Morello-Frosch, R., Jesdale, B. M., Kyle, A. D., Shamasunder, B., and Jerrett, M. 2009. An index for assessing demographic inequalities in cumulative environmental hazards with application to Los Angeles, California. *Environmental Science and Technology* 43:7626–7634. doi:10.1021/es901041p
- Suddick, E. C., Steenwerth, K., Garland, G. M., Smart, D. R., and Six, J. 2011. Discerning agricultural management effects on nitrous oxide emissions from conventional and alternative cropping systems: a California case study, in *Understanding Greenhouse Gas Emissions from Agricultural Management*, ACS Symposium Series. American Chemical Society, Washington, DC, pp.203–226.
- Suding, K. N., Collins, S. L., Gough, L., Clark, C., Cleland, E. E., Gross, K. L., Milchunas, D. G., and Pennings, S. 2005. Functional- and abundance-based mechanisms explain diversity loss due to N

- fertilization. *Proceedings of the National Academy of Sciences of the United States of America* 102:4387–4392. doi:10.1073/pnas.0408648102.
- Sugihara, N. G., van Wageningen, J. W., Shaffer, K. E., Fites-Kaufman, J., Thode, A. E., and Agee, J. K. (Eds). 2006. *Fire in California's Ecosystems*. University of California Press, Berkeley.
- Sulc, R. M. and Tracy, B. F. 2007. Integrated crop–livestock systems in the U.S. corn belt. *Agronomy Journal* 99:335. doi:10.2134/agronj2006.0086.
- Summers, C. G. and Putnam, D. H. 2008. *Irrigated Alfalfa Management for Mediterranean and Desert Zones (Publication 3512)*. Division of Agriculture and Natural Resources, University of California, Davis
- Sumner, D. A. and Rosen-Molina, J. T. 2010. Impacts of AB 32 on Agriculture, ARE Update. Giannini Foundation of Agricultural Economics, University of California, Davis
- Sunyer, J., Puig, C., Torrent, M., Garcia-Algar, O., Calicó, I., Muñoz-Ortiz, L., Barnes, M., Cullinan, P., and on Behalf of the AMICS Study. 2004. Nitrogen dioxide is not associated with respiratory infection during the first year of life. *International Journal of Epidemiology* 33:116–120. doi:10.1093/ije/dyh037
- Sutton, M. A., Howard, C. M., Erisman, J. M., Billen, G., Bleeker, A., Grennfelt, P., van Grinsven, H., and Grizzetti, B. 2011a. *The European Nitrogen Assessment: Sources, Effects and Policy Perspectives*. Cambridge University Press, Cambridge.
- Sutton, M. A., Oenema, O., Erisman, J. W., Leip, A., van Grinsven, H., and Winiwarer, W. 2011b. Too much of a good thing. *Nature* 472:159–161.
- Sutton, M. A., Simpson, D., Levy, P. E., Smith, R. I., Reis, S., van Oijen, M., and de Vries, W. 2008. Uncertainties in the relationship between atmospheric nitrogen deposition and forest carbon sequestration. *Global Change Biology* 14:2057–2063.
- SWRCB (State Water Resources Control Board). 2010. *California Polluted Runoff Reduction or Nonpoint Source (NPS) Success Stories*. SWRCB, Sacramento, CA.
- SWRCB. 2015. *Water Quality Control Policy for Siting, Design, Operation and Maintenance of Onsite Wastewater Treatment Systems (OWTS Policy)*. SWRCB, Sacramento, CA.
- Syakila, A. and Kroeze, C. 2011. The global nitrous oxide budget revisited. *Greenhouse Gas Measurement and Management* 1:17–26.
- Tabacova, S., Baird, D. D., and Balabaeva, L. 1998. Exposure to oxidized nitrogen: lipid peroxidation and neonatal health risk. *Archives of Environmental Health* 53:214–221. doi:10.1080/00039899809605698.
- Tabacova, S., Balabaeva, L., and Little, R. E. 1997. Maternal exposure to exogenous nitrogen compounds and complications of pregnancy. *Archives of Environmental Health* 52:341–347. doi:10.1080/00039899709602209.
- Takemoto, B. K., Bytnerowicz, A., and Fenn, M. E. 2001. Current and future effects of ozone and atmospheric nitrogen deposition on California's mixed conifer forests. *Forest Ecology and Management* 144(1–3):159–173. doi:10.1016/S0378-1127(00)00368-6
- Takemoto, B. K., Bytnerowicz, A., and Olszyk, D. M. 1988. Depression of photosynthesis, growth, and yield of field-grown green pepper (*Capsicum annum* L.) exposed to acidic fog and ambient ozone. *Plant Physiology* 88:477–481.
- Tamme, T., Reinik, M., Roasto, M., Meremäe, K., and Kiis, A. 2010. Nitrate in leafy vegetables, culinary herbs, and cucumber grown under cover in Estonia: content and intake. *Food Additives & Contaminants: Part B. Surveillance* 3:108–113. doi:10.1080/19440041003725944.

- Tanaka, Y., Sato, Y. 2005. Farmers managed irrigation districts in Japan: assessing how fairness may contribute to sustainability. *Agricultural Water Management* 77: 196–209.
- Tang, Y., Jiang, H., and Bryan, N. S. 2011. Nitrite and nitrate: cardiovascular risk-benefit and metabolic effect. *Current Opinion in Lipidology* 22:11–15. doi:10.1097/MOL.0b013e328341942c.
- Tangermann, S., Blandford, D., and Meilke, K. D. 2010. Agricultural Trade 1980 vs. 2010: some progress, but still so far to go. Chapter 4 in *Proceedings Issues, 2010: Trade in Agriculture. Much Done, So Much More to Do*. International Agricultural Trade Research Consortium, St. Paul, MN.
- Tannenbaum, S. R., Fett, D., Young, V. R., Land, P. D., and Bruce, W. R. 1978. Nitrite and nitrate are formed by endogenous synthesis in the human intestine. *Science* 200:1487–1489.
- Tate, K. W., Lancaster, D. L., Morrison, J. A., Lile, D. F., Sado, Y., and Huang, B. 2005. Monitoring helps reduce water-quality impacts in flood-irrigated pasture. *California Agriculture* 59:169–175
- Taylor, B. 2004. A green future for religion? *Futures* 36:991–1008. doi:10.1016/j.futures.2004.02.011.
- Taylor, B. 2005. *Encyclopedia of Religion and Nature*. Continuum, New York/London.
- Taylor, B. 2009. *Dark Green Religion: Spirituality and the Planetary Future*. University of California Press, Berkeley.
- Tchobanoglous, G., Stensel, H. D., Tsuchihashi, R., and Burton, F. 2013. *Wastewater Engineering: Treatment and Resource Recovery*, 5th ed. McGraw-Hill Education, New York.
- Temple, P. J., Lennox, R. W., Bytnerowicz, A., and Taylor, O. C. 1987. Interactive effects of simulated acidic fog and ozone on field-grown alfalfa. *Environmental and Experimental Botany* 27:409–417.
- Thayer, R. L. 2003. *LifePlace: Bioregional Thought and Practice*. University of California Press, Berkeley.
- Thomas, M. D. 1951. Gas damage to plants. *Annual Review of Plant Physiology* 2:293–322.
- Thomas, R. Q., Canham, C. D., Weathers, K. C., and Goodale, C. L. 2010. Increased tree carbon storage in response to nitrogen deposition in the US. *Nature Geoscience* 3:13–17. doi:10.1038/ngeo721.
- Tietenberg, T. H. and Sterner, T. S. 1998. Disclosure strategies for pollution control, in Sterner, T. (Ed.): *The Market and the Environment*. Edward Elgar, Cheltenham, UK.
- Tilman, D., Cassman, K. G., Matson, P. A., Naylor, R., and Polasky, S. 2002. Agricultural sustainability and intensive production practices. *Nature* 418:671–677. doi:10.1038/nature01014.
- Timonen, K. L., Pekkanen, J., Tiittanen, P., and Salonen, R. O. 2002. Effects of air pollution on changes in lung function induced by exercise in children with chronic respiratory symptoms. *Occupational and Environmental Medicine* 59:129–134. doi:10.1136/oem.59.2.129.
- Tolbert, P. E., Klein, M., Peel, J. L., Sarnat, S. E., and Sarnat, J. A. 2007. Multipollutant modeling issues in a study of ambient air quality and emergency department visits in Atlanta. *Journal of Exposure Science and Environmental* 17( Suppl 2):S29–S35. doi:10.1038/sj.jes.7500625.
- Tolley, G., Randall, A., Blomquist, G., Fabian, R., Fishelson, G., Frankel, A., Hoehn, J., Krumm, R., Mensah, E., and Smith, T. 1986. *Establishing and Valuing the Effects of Improved Visibility in the Eastern United States (Report to the Environmental Protection Agency)*. EPA, Washington, DC.
- Townsend-Small, A. and Czimczik, C. I. 2010. Carbon sequestration and greenhouse gas emissions in urban turf. *Geophysical Research Letters* 37:L02707. doi:10.1029/2009GL041675.
- Townsend-Small, A., Pataki, D. E., Czimczik, C. I., and Tyler, S. C. 2011a. Nitrous oxide emissions and isotopic composition in urban and agricultural systems in southern California. *Journal of Geophysical Research* 116:G01013. doi:10.1029/2010JG001494.

- Townsend-Small, A., Pataki, D. E., Tseng, L. Y., Tsai, C. Y., and Rosso, D. 2011b. Nitrous oxide emissions from wastewater treatment and water reclamation plants in Southern California. *Journal of Environment Quality* 40:1542. doi:10.2134/jeq2011.0059.
- Tress, B., Tress, G., Décamps, H., and d’Hautesserre, A.-M. 2001. Bridging human and natural sciences in landscape research. *Landscape and Urban Planning* 57:137–141. doi:10.1016/S0169-2046(01)00199-2.
- Tyler, K. B., Broadbent, F. E., and Bishop, J. C. 1983. Efficiency of nitrogen uptake by potatoes. *American Potato Journal* 60:261–269. doi:10.1007/BF02854276.
- Tyler, K. B., May, D. M., Guerard, J. P., Ririe, D., and Hatakeda, J. J. 1988. Diagnosing nutrient needs of garlic. *California Agriculture* 42:28–29.
- UC Davis Agricultural and Resource Economics. n.d. *Current Cost and Return Studies*. Accessed June 2, 2012. coststudies.ucdavis.edu.
- UN FAO (Food and Agriculture Organization of the United Nations). n.d. *FAOSTAT*. Accessed June 5, 2015. <http://faostat.fao.org/site/291/default.aspx>.
- United Nations. 2011. *World Population Prospects: The 2010 Revision*. Department of Economic and Social Affairs, Population Division, New York.
- United Nations. 2013. *World Population Prospects: The 2012 Revision*. Department of Economic and Social Affairs, Population Division, New York.
- United States Census Bureau. 2012. *Historical Census of Housing Tables: Sewage Disposal*. Available at: <http://www.census.gov/housing/census/data/sewage.html>.
- United States Census Bureau. 2013. *2010 Census Data. United States Census 2010*. Accessed July 10, 2015. <http://www.census.gov/2010census/data/>.
- United States District Court for the Middle District of Pennsylvania. 2013. *American Farm Bureau Federation et al. v. United States Environmental Protection Agency et al.*
- Unkovich, M. J., Baldock, J., Peoples, M. B. 2010. Prospects and problems of simple linear models for estimating symbiotic N<sub>2</sub> fixation by crop and pasture legumes. *Plant Soil* 329:75–89. doi:10.1007/s11104-009-0136-5.
- US BEA (Bureau of Economic Analysis). 2015. *Table 1.1.9. Implicit Price Deflators for Gross Domestic Product*. US BEA, Washington, DC
- US EIA (Energy Information Administration). 2015. *Short-Term Energy Outlook*. Accessed February 15, 2015. <http://www.eia.gov/forecasts/steo/>.
- US General Accounting Office. 2003. *Natural Gas: Domestic Nitrogen Fertilizer Production Depends on Natural Gas Availability and Prices (No. GAO-03-1148)*. US General Accounting Office, Washington, DC
- US Patent and Trademark Office. 2014. *Patenting By Geographic Region (CALIFORNIA), Breakout By Technology Class, CY1963-2014 Utility Patent Grants Distributed By Year of Grant*. Accessed January 5, 2015. [http://www.uspto.gov/web/offices/ac/ido/oeip/taf/stcteca/castcl\\_gd.htm](http://www.uspto.gov/web/offices/ac/ido/oeip/taf/stcteca/castcl_gd.htm).
- USDA (US Department of Agriculture). 2009a. *2007 Census of Agriculture United States (No. AC-07-A-51)*. USDA, Washington, DC.
- USDA. 2009b. *Income from Farm-Related Sources*. USDA, Washington, DC.
- USDA. 2010. *2007 Census of Agriculture: Organic Production Survey (2008) (No. AC-07-SS-2)*. USDA, Washington, DC.
- USDA. 2011a. *Crop Production 2010 Summary. January 2011. Cr Pr 2-1 (11) (No. Cr Pr 2-1 (11))*. USDA, Washington, DC



- USDA. 2011b. *Dietary Guidelines for Americans, 2010*, 7th ed. US Government Printing Office, Washington, DC.
- USDA. 2012. *Crop Nutrient Tool*. Accessed July 1, 2015. <http://plants.usda.gov/npk/main>.
- USDA ERS (US Department of Agriculture Economic Research Service). 2006. *Balancing the Multiple Objectives of Conservation Programs (No. ERR-19)*. USDA ERS, Washington, DC
- USDA ERS. 2009. *2008 Farm Bill Side-By-Side Comparison*. Accessed June 7, 2015. [http://webarchives.cdlib.org/wayback.public/UERS\\_ag\\_1/20111128201038/http://ers.usda.gov/FarmBill/2008/](http://webarchives.cdlib.org/wayback.public/UERS_ag_1/20111128201038/http://ers.usda.gov/FarmBill/2008/).
- USDA ERS. 2012. *ARMS Farm Financial and Crop Production Practices: Tailored Reports*. United States Department of Agriculture Economic Research Service, Washington, DC.
- USDA ERS. 2013. *Food Availability (Per Capita) Data System*. Accessed December 18, 2014. [http://www.ers.usda.gov/data-products/food-availability-\(per-capita\)-data-system/.aspx](http://www.ers.usda.gov/data-products/food-availability-(per-capita)-data-system/.aspx).
- USDA ERS. n.d. *Food Expenditures*. Accessed December 18, 2014a. <http://www.ers.usda.gov/data-products/food-expenditures.aspx>.
- USDA ERS. n.d. *Feed Grains: Yearbook Tables*. Accessed February 20, 2015b. <http://www.ers.usda.gov/data-products/feed-grains-database/feed-grains-yearbook-tables.aspx>.
- USDA ERS. n.d. *Agricultural Exchange Rate Data Set*. Accessed January 6, 2015c. <http://www.ers.usda.gov/data-products/agricultural-exchange-rate-data-set.aspx>.
- USDA ERS. n.d. *Farm Income and Wealth Statistics*. Accessed January 5, 2015d. <http://www.ers.usda.gov/data-products/farm-income-and-wealth-statistics/government-payments-by-program.aspx>.
- USDA ERS. n.d. *Fertilizer Use and Price*. Accessed January 5, 2015e. <http://www.ers.usda.gov/data-products/fertilizer-use-and-price.aspx>.
- USDA FAS (US Department of Agriculture Foreign Agricultural Service). n.d. *Production, Supply, and Distribution Online Database*. Available at: <http://apps.fas.usda.gov/psdonline/>.
- USDA FSA (US Department of Agriculture Farm Service Agency). 2007. *Conservation Reserve Program: Summary and Enrollment Statistics*. USDA FSA, Washington, DC
- USDA NASS (US Department of Agriculture National Agricultural Statistics Service). 2006. *California Agricultural Statistics, 2005*. USDA NASS, Washington, DC
- USDA NASS. 2010. *Agricultural statistics 2010*. United States Government Printing Office, Washington, DC.
- USDA NASS. 2011a. *California Agricultural Production Statistics: 2010 Crop Year*. USDA NASS, Washington, DC
- USDA NASS. 2011b. *California Walnut Acreage Report*. United States Department of Agriculture, Sacramento, CA.
- USDA NASS. 2012. *County Agricultural Commissioner's Data*. Accessed July 1, 2012. [http://www.nass.usda.gov/Statistics\\_by\\_State/California/Publications/AgComm/Detail/index.asp](http://www.nass.usda.gov/Statistics_by_State/California/Publications/AgComm/Detail/index.asp).
- USDA NASS. 2014a. *California Agricultural Production Statistics*. California Department of Food and Agriculture, Sacramento
- USDA NASS. 2014b. *Land Values 2014 Summary*. USDA NASS, Washington, DC
- USDA NASS. 2015a. *Farms and Land in Farms: 2014 Summary*. USDA NASS, Washington, DC
- USDA NASS. 2015b. *Agricultural Prices*. Accessed March 2, 2015. <http://usda.mannlib.cornell.edu/MannUsda/viewDocumentInfo.do?documentID=1002>.

- USDA NASS. n.d. *Historical Data*. Accessed July 1, 2012a.  
[http://www.nass.usda.gov/Statistics\\_by\\_State/California/Historical\\_Data/](http://www.nass.usda.gov/Statistics_by_State/California/Historical_Data/).
- USDA NASS. n.d. *Historical Data*. Accessed January 6, 2015b.  
[http://www.nass.usda.gov/Statistics\\_by\\_State/California/Historical\\_Data/index.asp](http://www.nass.usda.gov/Statistics_by_State/California/Historical_Data/index.asp).
- USDA NASS. n.d. *Surveys: Agricultural Chemical Use Program*. Accessed June 2, 2012c.  
[http://www.nass.usda.gov/Surveys/Guide\\_to\\_NASS\\_Surveys/Chemical\\_Use/](http://www.nass.usda.gov/Surveys/Guide_to_NASS_Surveys/Chemical_Use/).
- USDOT (US Department of Transportation). 2013. *Public Use Waybill Sample*. USDOT, Washington, DC
- USGS (US Geological Survey). 2012. *Mineral Commodity Summaries: Nitrogen (Fixed). Ammonia*. USGS, Reston, VA
- Valiela, I. and Bowen, J. L. 2002. Nitrogen sources to watersheds and estuaries: role of land cover mosaics and losses within watersheds. *Environmental Pollution* 118:239–248. doi:10.1016/S0269-7491(01)00316-5.
- Van der Schans, M. L., Harter, T., Leijnse, A., Mathews, M. C., and Meyer, R. D. 2009. Characterizing sources of nitrate leaching from an irrigated dairy farm in Merced County, California. *Journal of Contaminant Hydrology* 110:9–21. doi:10.1016/j.jconhyd.2009.06.002.
- Van Drecht, G., Bouwman, A. F., Knoop, J. M., Beusen, A. H. W., Meinardi, C. R. 2003. Global modeling of the fate of nitrogen from point and nonpoint sources in soils, groundwater, and surface water. *Global Biogeochemical Cycles* 17:1115. doi:10.1029/2003GB002060.
- Van Grinsven, H. J. M., Rabl, A., and de Kok, T. M. 2010. Estimation of incidence and social cost of colon cancer due to nitrate in drinking water in the EU: a tentative cost-benefit assessment. *Environmental Health* 9:58. doi:10.1186/1476-069X-9-58.
- Van Grinsven, H. J. M., ten Berge, H. F. M., Dalgaard, T., Fraters, B., Durand, P., Hart, A., Hofman, G. et al. 2012. Management, regulation and environmental impacts of nitrogen fertilization in northwestern Europe under the Nitrates Directive; a benchmark study. *Biogeosciences* 9:5143.
- Van Groenigen, J. W., Velthof, G. L., Oenema, O., Van Groenigen, K. J., and Van Kessel, C. 2010. Towards an agronomic assessment of N<sub>2</sub>O emissions: a case study for arable crops. *European Journal of Soil Science* 61:903–913. doi:10.1111/j.1365-2389.2009.01217.x
- Van Houtven, G., Loomis, R., Baker, J., Beach, R., and Casey, S. 2012. *Nutrient Credit Trading for the Chesapeake Bay*. Chesapeake Bay Commission, Annapolis, MD
- Van Kessel, C., Clough, T., and van Groenigen, J. W. 2009. Dissolved organic nitrogen: an overlooked pathway of nitrogen loss from agricultural systems? *Journal of Environmental Quality* 38:393–401. doi:10.2134/jeq2008.0277.
- Van Loon, A. J., Botterweck, A. A., Goldbohm, R. A., Brants, H. A., van Klaveren, J. D., and van den Brandt, P. A. 1998. Intake of nitrate and nitrite and the risk of gastric cancer: a prospective cohort study. *British Journal of Cancer* 78:129–135.
- VandeHaar, M. J. and St-Pierre, N. 2006. Major advances in nutrition: relevance to the sustainability of the dairy industry. *Journal of Dairy Science* 89:1280–1291. doi:10.3168/jds.S0022-0302(06)72196-8
- VanDerslice, J. 2009. *Well water quality and infant health study: Final Report*. EPASTAR Grant #82978101 (unpublished).
- VanDerslice, J. 2011. Drinking water infrastructure and environmental disparities: evidence and methodological considerations. *American Journal of Public Health* 101(Suppl 1):S109–S114. doi:10.2105/AJPH.2011.300189.

- Velders, G. J. M., Andersen, S. O., Daniel, J. S., Fahey, D. W., and McFarland, M. 2007. The importance of the Montreal Protocol in protecting climate. *Proceedings of the National Academy of Sciences of the United States of America* 104:4814–4819. doi:10.1073/pnas.0610328104.
- Velmurugan, A., Dadhwal, V. K., and Abrol, Y. P. 2008. Regional nitrogen cycle: an Indian perspective. *Current Science* 94:1455–1468.
- Velthof, G. L., Oudendag, D., Witzke, H. P., Asman, W. A. H., Klimont, Z., and Oenema, O. 2009. Integrated assessment of nitrogen losses from agriculture in EU-27 using MITERRA-EUROPE. *Journal of Environment Quality* 38:402. doi:10.2134/jeq2008.0108.
- Venterea, R. T., Bijesh, M., and Dolan, M. S. 2011. Fertilizer source and tillage effects on yield-scaled nitrous oxide emissions in a corn cropping system. *Journal of Environmental Quality* 40:1521–1531.
- Vermeer, I. T., Moonen, E. J., Dallinga, J. W., Kleinjans, J. C., and van Maanen, J. M. 1999. Effect of ascorbic acid and green tea on endogenous formation of N-nitrosodimethylamine and N-nitrosopiperidine in humans. *Mutation Research* 428:353–361.
- Vermeer, I. T., Pachen, D. M., Dallinga, J. W., Kleinjans, J. C., and van Maanen, J. M. 1998. Volatile N-nitrosamine formation after intake of nitrate at the ADI level in combination with an amine-rich diet. *Environmental Health Perspectives* 106:459–463.
- Vermeulen, S. J., Campbell, B. M., and Ingram, J. S. I. 2012. Climate change and food systems. *Annual Review of Environment and Resources* 37:195–222. doi:10.1146/annurev-environ-020411-130608.
- Viers, J. H., Liptzin, D., Rosenstock, T. S., Jensen, V. B., Hollander, A. D., McNally, A., King, A. M. et al. 2012. *Nitrogen Sources and Loading to Groundwater. Technical Report 2, in: Addressing Nitrate in California's Drinking Water with a Focus on Tulare Lake Basin and Salinas Valley Groundwater.* Report for the State Water Resources Control Board Report to the Legislature. Center for Watershed Sciences, University of California, Davis.
- Vitousek, P. M., Aber, J. D., Howarth, R. W., Likens, G. E., Matson, P. A., Schindler, D. W., Schlesinger, W. H., and Tilman, D. G. 1997. Human alteration of the global nitrogen cycle: sources and consequences. *Ecological Applications* 7:737–750. doi:10.1890/1051-0761(1997)007[0737:HAOTGN]2.0.CO;2.
- Volkmar, E. C. and Dahlgren, R. A. 2006. Biological oxygen demand dynamics in the lower San Joaquin River, California. *Environmental Science & Technology* 40:5653–5660. doi:10.1021/es0525399.
- Von Klot, S., Peters, A., Aalto, P., Bellander, T., Berglind, N., D'Ippoliti, D., Elosua, R. et al. 2005. Ambient air pollution is associated with increased risk of hospital cardiac readmissions of myocardial infarction survivors in five European cities. *Circulation* 112:3073–3079. doi:10.1161/circulationaha.105.548743.
- Vorne, V., Ojanperä, K., De Temmerman, L., Bindi, M., Högy, P., Jones, M. B., Lawson, T., and Persson, K. 2002. Effects of elevated carbon dioxide and ozone on potato tuber quality in the European multiple-site experiment 'CHIP-project. *European Journal of Agronomy* 17:369–381.
- Wagner, D. A., Young, V. R., Tannenbaum, S. R., Schultz, D. S., and Deen, W. M. 1984. Mammalian nitrate biochemistry: metabolism and endogenous synthesis. *IARC Scientific Publications* 54:247–253.
- Wainger, L. A. and Shortle, J. S. 2013. Local innovations in water protection: experiments with economic incentives. *Choices* 28
- Wakida, F. T. and Lerner, D. N. 2005. Non-agricultural sources of groundwater nitrate: a review and case study. *Water Research* 39:3–16. doi:10.1016/j.watres.2004.07.026.
- Waldman, J. M., Munger, J. W., Jacob, D. J., Flagan, C., and Hoffmann, M. R. 1982. Chemical composition of acid fog. *Science* 218:677–680.

- Walters, S. P., Thebo, A. L., and Boehm, A. B. 2011. Impact of urbanization and agriculture on the occurrence of bacterial pathogens and stx genes in coastal waterbodies of central California. *Water Research* 45:1752–1762. doi:10.1016/j.watres.2010.11.032.
- Walton, G. 1951. Survey of literature relating to infant methemoglobinemia due to nitrate-contaminated water. *American Journal of Public Health and the Nation's Health* 41:986–996.
- Wang, J. 2012. *Policies for Controlling Groundwater Pollution from Concentrated Animal Feeding Operations*, Doctoral Dissertation. Department of Environmental Sciences, University of California, Riverside.
- Wang, J. and Baerenklau, K. A. 2014. How inefficient are nutrient application limits? A dynamic analysis of groundwater nitrate pollution from concentrated animal feeding operations. *Applied Economic Perspectives and Policy* 37:130–150. doi:10.1093/aep/ppy023
- Wang, X. and Taub, D. R. 2010. Interactive effects of elevated carbon dioxide and environmental stresses on root mass fraction in plants: a meta-analytical synthesis using pairwise techniques. *Oecologia* 163:1–11.
- Ward, D. J., Roberts, K. T., Jones, N., Harrison, R. M., Ayres, J. G., Hussain, S., and Walters, S. 2002. Effects of daily variation in outdoor particulates and ambient acid species in normal and asthmatic children. *Thorax* 57:489–502. doi:10.1136/thorax.57.6.489.
- Ward, M. H., Cantor, K. P., Riley, D., Merkle, S., and Lynch, C. F. 2003. Nitrate in public water supplies and risk of bladder cancer. *Epidemiology* 14:183–190. doi:10.1097/01.EDE.0000050664.28048.DF.
- Ward, M. H., Cerhan, J. R., Colt, J. S., and Hartge, P. 2006. Risk of non-Hodgkin lymphoma and nitrate and nitrite from drinking water and diet. *Epidemiology* 7:375–382. doi:10.1097/01.ede.0000219675.79395.9f.
- Ward, M. H., Heineman, E. F., Markin, R. S., and Weisenburger, D. D. 2008. Adenocarcinoma of the stomach and esophagus and drinking water and dietary sources of nitrate and nitrite. *International Journal of Occupational and Environmental Health* 14:193–197. doi:10.1179/oeh.2008.14.3.193.
- Ward, M. H., Heineman, E. F., McComb, R. D., and Weisenburger, D. D. 2005. Drinking water and dietary sources of nitrate and nitrite and risk of glioma. *Journal of Occupational and Environmental Medicine* 47:1260–1267.
- Ward, M. H., Kilfoy, B. A., Weyer, P. J., Anderson, K. E., Folsom, A. R., and Cerhan, J. R. 2010. Nitrate intake and the risk of thyroid cancer and thyroid disease. *Epidemiology* 21:389–395. doi:10.1097/EDE.0b013e3181d6201d.
- Ward, M. H., Mark, S. D., Cantor, K. P., Weisenburger, D. D., Correa-Villaseñor, A., and Zahm, S. H. 1996. Drinking water nitrate and the risk of non-Hodgkin's lymphoma. *Epidemiology* 7:465–471.
- Ward, M. H., Rusiecki, J. A., Lynch, C. F., and Cantor, K. P. 2007. Nitrate in public water supplies and the risk of renal cell carcinoma. *Cancer Causes Control* 18:1141–1151. doi:10.1007/s10552-007-9053-1.
- Warneke, C., de Gouw, J. A., Holloway, J. S., Peischl, J., Ryerson, T. B., Atlas, E., Blake, D., Trainer, M., and Parrish, D. D. 2012. Multiyear trends in volatile organic compounds in Los Angeles, California: five decades of decreasing emissions. *Journal of Geophysical Research* 117:D00V17. doi:10.1029/2012JD017899.

- Webb, A. J., Patel, N., Loukogeorgakis, S., Okorie, M., Aboud, Z., Misra, S., Rashid, R. et al. 2008. Acute blood pressure lowering, vasoprotective, and antiplatelet properties of dietary nitrate via bioconversion to nitrite. *Hypertension* 51:784–790. doi:10.1161/HYPERTENSIONAHA.107.103523.
- Weinbaum, S. A., Klein, I., Broadbent, F. E., Micke, W. C., and Muraoka, T. T. 1984. Use of isotopic nitrogen to demonstrate dependence of mature almond trees on annual uptake of soil nitrogen. *Journal of Plant Nutrition* 7:975–990. doi:10.1080/01904168409363258.
- Weinbaum, S. A., Niederholzer, F. J. A., Ponchner, S., Rosecrance, R. C., Carlson, R. M., Whittlesey, A. C., and Muraoka, T. T. 1994a. Nutrient uptake by cropping and defruited fieldgrown “French” prune trees. *Journal of the American Society for Horticultural Science* 119:925–930.
- Weinbaum, S. A., Picchioni, G. A., Muraoka, T. T., Ferguson, L., and Brown, P. H. 1994b. Fertilizer nitrogen and boron uptake, storage, and allocation vary during the alternate-bearing cycle in pistachio trees. *Journal of the American Society for Horticultural Science* 119:24–31.
- Weinbaum, S. A., Uriu, K., Micke, W. C., and Meith, H. C. 1980. Nitrogen fertilization increases yield without enhancing blossom receptivity in almond. *HortScience* 15:78–79.
- Weinbaum, S. and Van Kessel, C. 1998. Quantitative estimates of uptake and internal cycling of <sup>14</sup>N-labeled fertilizer in mature walnut trees. *Tree Physiology* 18:795–801. doi:10.1093/treephys/18.12.795.
- Weinmayr, G., Romeo, E., De Sario, M., Weiland, S. K., and Forastiere, F. 2009. Short-term effects of PM10 and NO2 on respiratory health among children with asthma or asthma-like symptoms: a systematic review and meta-analysis. *Environmental Health Perspectives* 118:449–457. doi:10.1289/ehp.0900844.
- Weiss, S. B. 1999. Carros, Vacas, y Mariposas: Deposición De Nitrógeno y Manejo De Pastisales Pobres En Nitrógeno Para Una Especie Amenazada. *Conservation Biology* 13:1476–1486. doi:10.1046/j.1523-1739.1999.98468.x. (In Spanish)
- Welch, N. C., Tyler, K. B., and Ririe, D. 1979. Nitrogen stabilization in the Pajaro Valley in lettuce, celery, and strawberries. *California Agriculture* 33:12–13.
- Welch, N. C., Tyler, K. B., Ririe, D., and Broadbent, F. 1983. Lettuce efficiency in using fertilizer nitrogen. *California Agriculture* 37:18–19.
- Welch, N. C., Tyler, K. B., Ririe, D., and Broadbent, F. 1985. Nitrogen uptake by cauliflower. *California Agriculture* 39:12–13.
- Wellenius, G. A., Burger, M. R., Coull, A. B., Schwartz, J., Suh, H. H., Koutrakis, P., Schlaug, G., Gold, D. R., and Mittleman, M. A. 2012. Ambient air pollution and the risk of acute ischemic stroke. *Archives of Internal Medicine* 172:229–234. doi:10.1001/archinternmed.2011.732.
- Weng, H. H., Tsai, S. S., Wu, T. N., Sung, F. C., and Yang, C. Y. 2011. Nitrates in drinking water and the risk of death from childhood brain tumors in Taiwan. *Journal of Toxicology and Environmental Health, Part A* 74:769–778. doi:10.1080/15287394.2011.567951.
- Westhoek, H., van den Berg, R., de Hoop, W., and van der Kamp, A. 2004. Economic and environmental effects of the manure policy in The Netherlands: synthesis of integrated ex-post and ex-ante evaluation. *Water Science & Technology* 49:109–16.
- Weyer, P. J., Cerhan, J. R., Kross, B. C., Hallberg, G. R., Kantamneni, J., Breuer, G., Jones, M. P., Zheng, W., and Lynch, C. F. 2001. Municipal drinking water nitrate level and cancer risk in older women: the Iowa Women’s Health Study. *Epidemiology* 12:327–338.
- Wheeler, S. M. 2008. State and municipal climate change plans: the first generation. *Journal of the American Planning Association* 74:481–496

- White, A., Cannell, M. G. R., and Friend, A. D. 1999. Climate change impacts on ecosystems and the terrestrial carbon sink: a new assessment. *Global Environmental Change* 9:21–30.
- Whitledge, T. E. 1985. *Nationwide Review of Oxygen Depletion and Eutrophication in Estuarine and Coastal Waters: Northeast Region*. Report to U.S. Department of Commerce, NOAA, National Ocean Service. NOAA, Rockville, MD.
- Wickham, J. D., Wade, T. G., and Riitters, K. H. 2008. Detecting temporal change in watershed nutrient yields. *Environmental Management* 42:223–231. doi:10.1007/s00267-008-9120-8.
- Wiek, A., Binder, C., and Scholz, R. W. 2006. Functions of scenarios in transition processes. *Futures* 38:740–766.
- Wiesen, P. 2010. Abiotic nitrous oxide sources: chemical industry and mobile and stationary combustion systems, in Smith, K. (Ed.): *Nitrous Oxide and Climate Change*. Routledge, London, UK.
- Wilhelm, M. and Ritz, B. 2003. Residential proximity to traffic and adverse birth outcomes in Los Angeles County, California, 1994–1996. *Environmental Health Perspectives* 111:207–216.
- Wilkens, L. R., Kadir, M. M., Kolonel, L. N., Nomura, A. M., and Hankin, J. H. 1996. Risk factors for lower urinary tract cancer: the role of total fluid consumption, nitrites and nitrosamines, and selected foods. *Cancer Epidemiology, Biomarkers & Prevention* 5:161–166.
- Williams, C. M. 2002. Nutritional quality of organic food: shades of grey or shades of green? *Proceedings of the Nutritional Society* 61:19–24.
- Williams, J. W., Seabloom, E. W., Slayback, D., Stoms, D. M., Viers, J. H. 2005. Anthropogenic impacts upon plant species richness and net primary productivity in California. *Ecology Letters* 8:127–137.
- Williams, L. E. 1991. Vine nitrogen requirements: utilization of N sources from soils, fertilizers, and reserves. *American Society of Enology and Viticulture* 62–66
- Winter, T. C., Harvey, J. W., Franke, O. L., and Alley, W. M. 1998. *Ground Water and Surface Water: A Single Resource*. US Geological Survey Circular No. 1139.
- Witthöft, T., Eckmann, L., Kim, J. M., and Kagnoff, M. F. 1998. Enteroinvasive bacteria directly activate expression of iNOS and NO production in human colon epithelial cells. *American Journal of Physiology* 275:G564–G571.
- Wohlgemuth, P. M., Hubbert, K., and Arbaugh, M. J. 2006. Fire and physical environment interactions, in Sugihara, N. (Ed.): *Fire in California's Ecosystems*. University of California Press, Berkeley, pp.75–93.
- Wong, M., Wolf, C., Collins, N., Guo, L., Metzler, D., and English, P. 2015. Development of a web-based tool to collect and display water system customer service areas for public health action. *Journal of Public Health Management & Practice* 21:S44–S49. doi:10.1097/PHH.0000000000000159.
- Wood, S. and Cowie, A. 2004. *A Review of Greenhouse Gas Emission Factors for Fertiliser Production*. Research and Development Division, State Forests of New South Wales, Beecroft, NSW.
- Woodruff, T. J., Parker, J. D., and Schoendorf, K. C. 2006. Fine particulate matter (PM<sub>2.5</sub>) air pollution and selected causes of postneonatal infant mortality in California. *Environmental Health Perspectives* 114:786–790. doi:10.1289/ehp.8484.
- Woods, M. J. 2009. *Cultivating Soil and Soul: Twentieth-Century Catholic Agrarians Embrace the Liturgical Movement*. Liturgical Press, Collegeville, MN.
- World Bank. 1998. Nitrogen oxides: pollution prevention and control, in *Pollution Prevention and Abatement Handbook*. World Bank Group, Washington, DC.
- World Bank. 2015a. *World Development Indicators: Data*. Accessed January 8, 2015. <http://data.worldbank.org/data-catalog/world-development-indicators>.

- World Bank. 2015b. *GDP Deflator (Base Year Varies by Country): World Development Indicators*. Accessed January 12, 2015. <http://data.worldbank.org/indicator/NY.GDP.DEFL.ZS>.
- World Health Organization. 1996. *Guidelines for Drinking-Water Quality: Health Criteria and Other Supporting Information*, 2nd ed. WHO, Geneva, Switzerland.
- Wossink, A. 2003. The Dutch nutrient quota system: past experience and lessons for the future. Paper presented at *The OECD Workshop: The Ex-Post Evaluation of Tradeable Permit Regimes*, January 21–22, Paris.
- Wright, R. O., Lewander, W. J., and Woolf, A. D. 1999. Methemoglobinemia: etiology, pharmacology, and clinical management. *Annals of Emergency Medicine* 34:646–656.
- Wu, J. and Babcock, B. 1998. The choice of tillage, rotation, and soil testing: economics and environmental implications. *American Journal of Agricultural Economics* 80:494–511.
- Wu, L., Letey, J., French, C., Wood, Y., and Birkle, D. 2005. Nitrate leaching hazard index developed for irrigated agriculture. *Journal of Soil and Water Conservation* 60:90A–95A.
- Wuebbles, D. J. 2009. Nitrous oxide: no laughing matter. *Science* 326:56–57.
- Wuest, S. B. and Cassman, K. G. 1992. Fertilizer-nitrogen use efficiency of irrigated wheat: I. Uptake efficiency of preplant versus late-season application. *Agronomy Journal* 84:682. doi:10.2134/agronj1992.00021962008400040028x.
- Xin, H., Gates, R. S., Green, A. R., Mitloehner, F. M., Moore, P. A., and Wathes, C. M. 2011. Environmental impacts and sustainability of egg production systems. *Poultry Science* 90:263–277. doi:10.3382/ps.2010-00877.
- Xuan, W., Peat, J. K., Toelle, B. G., Marks, G. B., Berry, G., and Woolcock, A. J. 2000. Lung function growth and its relation to airway hyperresponsiveness and recent wheeze: results from a longitudinal population study. *American Journal of Respiratory and Critical Care Medicine* 161:1820–1824.
- Yang, C., McCollum, D., McCarthy, R., and Leighty, W. 2009. Meeting an 80% reduction in greenhouse gas emissions from transportation by 2050: a case study in California. *Transportation Research Part D: Transport and Environment* 14:147–156. doi:10.1016/j.trd.2008.11.010.
- Yang, C. Y., Cheng, M. F., Tsai, S. S., and Hsieh, Y. L. 1998. Calcium, magnesium, and nitrate in drinking water and gastric cancer mortality. *Japanese Journal of Cancer Research* 89:124–130.
- Yang, Y. J., Hwang, S. H., Kim, H. J., Nam, S. J., Kong, G., and Kim, M. K. 2010. Dietary intake of nitrate relative to antioxidant vitamin in relation to breast cancer risk: a case-control study. *Nutrition and Cancer* 62:555–566. doi:10.1080/01635581003605557.
- Yara. 2009. *Yara Fertilizer Industry Handbook 2009*. Yara, Oslo.
- Yara. 2012. *Yara Fertilizer Industry Handbook February 2012*. Yara, Oslo.
- Ye, Y., Liang, X., Chen, Y., Ji, Y., and Zhu, C. 2014. Carbon, nitrogen and phosphorus accumulation and partitioning, and C:N:P stoichiometry in late-season rice under different water and nitrogen managements. *PLOS ONE* 9(7):e101776. doi:10.1371/journal.pone.0101776
- Yeh, S., Rubin, E. S., Taylor, M. R., and Hounshell, D. A. 2005. Technology innovations and experience curves for nitrogen oxides control technologies. *Journal of the Air & Waste Management Association* 55:1827–1838. doi:10.1080/10473289.2005.10464782.
- Yeo, B.-L. and Lin, C.-Y. C. 2014. *Optimal Regulation and Management of Nitrogen Emissions to the Atmospheric and Aquatic Ecosystems*. University of California, Davis.

- Ying, Q. and Kleeman, M. 2009. Regional contributions to airborne particulate matter in central California during a severe pollution episode. *Atmospheric Environment* 43:1218–1228. doi:10.1016/j.atmosenv.2008.11.019.
- Zanobetti, A. and Schwartz, J. 2005. The effect of particulate air pollution on emergency admissions for myocardial infarction: a multicity case-crossover analysis. *Environmental Health Perspectives* 113:978–982. doi:10.1289/ehp.7550.
- Zanobetti, A. and Schwartz, J. 2008. Temperature and mortality in nine US cities. *Epidemiology* 19:563–570. doi:10.1097/EDE.0b013e31816d652d.
- Zavaleta, E. S., Shaw, M. R., Chiariello, N. R., Mooney, H. A., Field, et al. 2003. Additive effects of simulated climate changes, elevated CO<sub>2</sub>, and nitrogen deposition on grassland diversity. *Proceedings of the National Academy of Sciences of the United States of America* 100:7650–7654. doi:10.1073/pnas.0932734100.
- Zeegers, M. P., Selen, R. F. M., Kleinjans, J. C. S., Goldbohm, R. A., and van den Brandt, P. A. 2006. Nitrate intake does not influence bladder cancer risk: The Netherlands cohort study. *Environmental Health Perspectives* 114:1527–1531.
- Zeman, C. L., Kross, B., and Vlad, M. 2002. A nested case-control study of methemoglobinemia risk factors in children of Transylvania, Romania. *Environmental Health Perspectives* 110:817–822.
- Zhang, Q. and Anastasio, C. 2003. Free and combined amino compounds in atmospheric fine particles (PM<sub>2.5</sub>) and fog waters from Northern California. *Atmospheric Environment* 37:2247–2258.
- Zhang, R., El-Mashad, H. M., Hartman, K., Wang, F., Liu, G., Choate, C., and Gamble, P. 2007. Characterization of food waste as feedstock for anaerobic digestion. *Bioresource Technology* 98:929–935. doi:10.1016/j.biortech.2006.02.039.
- Zhu, Y., Hinds, W. C., Kim, S., and Sioutas, C. 2002. Concentration and size distribution of ultrafine particles near a major highway. *Journal of the Air & Waste Management Association* 52:1032–1042. doi:10.1080/10473289.2002.10470842.
- Zia, H., Harris, N. R., Merrett, G. V., Rivers, M., and Coles, N. 2013. The impact of agricultural activities on water quality: A case for collaborative catchment-scale management using integrated wireless sensor networks. *Computers and Electronics in Agriculture* 96:126–138.