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Professional Preparation

Oxford University	Geology	B.A., 1993
University of Southern California	Geological Sciences	M.S., 1996
University of California, Berkeley	Agricultural & Resource Economics	M.S., 2000
University of California, Berkeley	Agricultural & Resource Economics	Ph.D., 2002
University of California, Berkeley	Agricultural & Resource Economics	Postdoc, 2003

Appointments

2014 – present	Director of Policy, Daugherty Water for Food Institute, University of Nebraska
2014 – present	Associate Professor, Agricultural Economics, University of Nebraska-Lincoln
2012 – 2013	Visitor, Civil & Environmental Engineering, Imperial College, London, UK
2011 – 2014	Associate Professor, Agricultural & Consumer Economics, University of Illinois
2003 – 2011	Assistant Professor, Agricultural & Consumer Economics, University of Illinois

Journal Articles

- Foster, T., Brozović, N., Butler, A.P., Neale, C., Raes, D., Steduto, P., Fereres, E., and Hsiao, T.C., 2017, AquaCrop-OS: An open source version of FAO's crop water productivity model, *Agricultural Water Management*, v. 181, 18-22, DOI: [10.1016/j.agwat.2016.11.015](https://doi.org/10.1016/j.agwat.2016.11.015).
- Foster, T., Brozović, N., and Butler, A.P., 2016, Effects of initial aquifer conditions on economic benefits from groundwater conservation, *Water Resources Research*, DOI: [10.1002/2016WR019365](https://doi.org/10.1002/2016WR019365).
- Mieno, T. and Brozović, N., 2016, Price elasticity of groundwater demand: Attenuation and amplification bias due to incomplete information, *American Journal of Agricultural Economics*, DOI: [10.1093/ajae/aaw089](https://doi.org/10.1093/ajae/aaw089).
- Kuwayama, Y. and Brozović, N., 2016, Optimal management of environmental externalities with time lags and uncertainty, *Environmental and Resource Economics*, DOI: [10.1007/s10640-016-0026-2](https://doi.org/10.1007/s10640-016-0026-2).
- O’Keeffe, J., Buytaert, W., Mijic, A., Brozović, N., and Sinha, R., 2016, The use of semi-structured interviews for the characterisation of farmer irrigation practices, *Hydrology and Earth System Sciences*, v. 20, 1911-1924, DOI: [10.5194/hess-20-1911-2016](https://doi.org/10.5194/hess-20-1911-2016).
- Speir, C., Han, J. and Brozović, N., 2016, Spatial dynamic optimization of groundwater use with ecological standards for instream flow, *Water Economics and Policy*, DOI: [10.1142/S2382624X16500132](https://doi.org/10.1142/S2382624X16500132).
- Young, R.K. and Brozović, N., 2016, Innovations in groundwater management: Smart markets for transferable groundwater extraction rights, *Technology and Innovation*, v. 17, 219-226, DOI: [10.3727/194982416X14520374943220](https://doi.org/10.3727/194982416X14520374943220).
- Foster, T., Brozović, N., and Butler, A.P., 2015, Why well yield matters for managing agricultural drought risk, *Weather and Climate Extremes*, DOI: [10.1016/j.wace.2015.07.003](https://doi.org/10.1016/j.wace.2015.07.003).
- Foster, T., Brozović, N., and Butler, A.P., 2015, Analysis of the impacts of well yield and groundwater depth on irrigated agriculture, *Journal of Hydrology*, v. 523, 86-96, DOI: [10.1016/j.jhydrol.2015.01.032](https://doi.org/10.1016/j.jhydrol.2015.01.032).
- Foster, T., Brozović, N., and Butler, A.P., 2014, Modeling irrigation behavior in groundwater systems, *Water Resources Research*, DOI: [10.1002/2014WR015620](https://doi.org/10.1002/2014WR015620).

- Demissie, Y., Valocchi, A., Cai, X., Brozović, N., Senay, G., and Gebremichael, M., 2014, Parameter estimation for groundwater models under uncertain forcing data, *Groundwater*, DOI: 10.1111/gwat.12235.
- Honey-Rosés, J., Schneider, D.W., and Brozović, N., 2014, Changing ecosystem services values following technological change. *Environmental Management*, v. 53(6), 1146-1157, DOI: 10.1007/s00267-014-0270-6.
- Palazzo, A., and Brozović, N., 2014, The role of groundwater trading in spatial water management, *Agricultural Water Management*, DOI: 10.1016/j.agwat.2014.03.004.
- Lentz, A., Ando, A.W. and Brozović, N., 2013, Water quality trading with lumpy investments, credit stacking, and ancillary benefits, *Journal of the American Water Resources Association*, 1-18, DOI: 10.1111/jawr.12117.
- Kuwayama, Y. and Brozović, N., 2013, The regulation of a spatially heterogeneous externality: tradable groundwater permits to protect instream flows, *Journal of Environmental Economics and Management*, DOI: 10.1016/j.jeem.2013.02.004.
- Honey-Rosés, J., Acuna, W., Bardina, M., Brozović, N., Marce, R., Munne, A., Sabater, S., Termes, M., Valero, F., Vega, A., and Schneider, D., 2013, Examining the demand for ecosystem services: The value of stream restoration for drinking water treatment managers in the Llobregat River, Spain, *Ecological Economics*, v. 90:196-205, DOI: 10.1016/j.ecolecon.2013.03.019.
- Kuwayama, Y. and Brozović, N., 2012, Analytical hydrologic models and the design of policy instruments for groundwater quality management, *Hydrogeology Journal*, v. 20(5), 957-972, DOI: 10.1007/s10040-012-0851-5.
- Reinelt, P., Brozović, N., Qureshi, M.E., and Hellegers, P., 2012, Preface: Economics of groundwater management, *Hydrogeology Journal*, v. 20(5), 817-820, DOI: 10.1007/s10040-012-0878-7.
- Qureshi, M.E., Reeson, A., Reinelt, P., Brozović, N., and Whitten, S., 2012, Factors determining the economic value of groundwater, *Hydrogeology Journal*, v. 20(5), 821-829, DOI: 10.1007/s10040-012-0867-x.
- Newburn, D.A., Brozović, N., and Mezzatesta, M., 2011, Agricultural water security and instream flows for endangered salmonids, *American Journal of Agricultural Economics*, v. 93(4), p. 1212-1228.
- McConnell, W.J., Millington, J.D.A., Reo, N.J., Baker, L.A., Brozović, N., Fragoso, J., Holland, D.S., Kohler, T.A., Maschner, H.D.G., Monticino, M., Podesta, G., Pontius Jr., R.G., Redman, C.L., Sailor, D., Urquhart, G., and Liu, J., 2011, Research on Coupled Human and Natural Systems (CHANS): Approach, Challenges and Strategies, *Bulletin of the Ecological Society of America*, v. 92(2), p. 218–228, DOI: 10.1890/0012-9623-92.2.218.
- Brozović, N. and Schlenker, W., 2011, Optimal management of an ecosystem with an unknown threshold, *Ecological Economics*, v. 70, p. 627-640, DOI: 10.1016/j.ecolecon.2010.10.001.
- Brozović, N., Sunding, D.L., and Zilberman, D., 2010, On the spatial nature of the groundwater pumping externality, *Resource and Energy Economics*, DOI: 10.1016/j.reseneeco.2009.11.010.
- Najman, Y., Bickle, M., Garzanti, E., Pringle, M., Barfod, D., Brozović, N., Burbank, D., and Ando, S. 2009, Reconstructing the exhumation history of the Lesser Himalaya, NW India, from a multitechnique provenance study of the foreland basin Siwalik Group, *Tectonics*, v. 28, TC5018, DOI: 10.1029/2009TC002506.
- Brozović, N. and Ando, A.W., 2009, Defensive purchasing, the safety (dis)advantage of light trucks, and motor-vehicle policy effectiveness, *Transportation Research, Part B – Methodological*, v. 43, p. 477-493, DOI: 10.1016/j.trb.2008.09.002.
- BenDor, T.K., Brozović, N., and Pallathucheril, V., 2008, Exploring the social impacts of wetland mitigation policies in the United States, *Journal of Planning Literature*, v. 22 (4), p. 341-357, DOI: 10.1177/0885412207314011.

- BenDor, T.K. and Brozović, N., 2007, Determinants of spatial and temporal patterns in compensatory wetland mitigation, *Environmental Management*, v. 40, p. 349-364.
- Brozović, N., Sunding, D.L., and Zilberman, D., 2007, Estimating business and residential water supply interruption losses from catastrophic events, *Water Resources Research*, v. 43, W08423, DOI:10.1029/2005WR004782.
- BenDor, T.K., Brozović, N., and Pallathucheril, V., 2007, Assessing the socioeconomic impacts of wetland mitigation in the Chicago region, *Journal of the American Planning Association*, v.73, p. 263-282, DOI: 10.1080/01944360708977977.
- BenDor, T.K. and Brozović, N., 2007, The role of regulatory change on wetlands mitigation, *National Wetlands Newsletter*, v. 29, no. 4, p. 10-13.
- Power, M.E., Brozović, N., Bode, C., and Zilberman, D., 2005, Spatially explicit tools for understanding and sustaining inland water ecosystems, *Frontiers in Ecology and the Environment*, v. 3, p. 47-55.
- Rich, K.M., Winter-Nelson, A., and Brozović, N., 2005, Regional externalities and spatial interactions with heterogeneous incentives and fixed boundaries: Applications to Foot and Mouth Disease control in South America, *Review of Agricultural Economics*, v. 27, p. 456-464.
- Rich, K.M., Winter-Nelson, A., and Brozović, N., 2005, Regionalization and foot-and-mouth disease control in South America: Lessons from spatial models of coordination and interactions, *Quarterly Review of Economics and Finance*, v. 45, p. 526-540.
- Brozović, N., Carey, J.M., and Sunding, D.L., 2002, Trading activity in an informal agricultural water market: An example from California, *Water Resources Update*, no. 121, p. 3-16.
- Brozović, N., and Burbank, D.W., 2000, Dynamic fluvial systems and gravel progradation in the Himalayan foreland, *Geological Society of America Bulletin*, v. 112, p. 394-412.
- Meigs, A.J., Brozović, N., and Johnson, M.L., 1999, Steady, balanced rates of uplift and erosion of the Santa Monica Mountains, California, *Basin Research*, v. 11, p. 59-73.
- Brozović, N., Burbank, D.W., and Meigs, A.J., 1997, Climatic limits on landscape development in the northwestern Himalaya, *Science*, v. 276, p. 571-574.
- Burbank, D.W., Meigs, A.J., and Brozović, N., 1996, Interactions of growing folds and coeval depositional systems, *Basin Research*, v. 8, p. 199-223.
- Burbank, D.W., Leland, J., Fielding, E., Anderson, R.S., Brozović, N., Reid, M.R., and Duncan, C., 1996, Bedrock incision, rock uplift and threshold hillslopes in the northwestern Himalayas, *Nature*, v. 379, p. 505-510.

Book Chapters

- Kuwayama, Y., Young, R.K., and Brozović, N., 2016, Groundwater scarcity: Management approaches and recent innovations, in J. Ziolkowska and J. Peterson (eds.), *Competition for Water Resources: Experiences and Management Approaches in the U.S. and Europe*, Elsevier, 480 p.
- Montginoul, M., Rinaudo, J.D., Brozović, N., and Donoso, G., 2016, Controlling groundwater exploitation through economic instruments: Current practices, challenges and innovative approaches, in A. Jakeman et al. (eds.), *Integrated Groundwater Management*, DOI: 10.1007/978-3-319-23576-9_22.
- Brozović, N., 2015, What policy instruments help to manage agricultural groundwater use sustainably? in *Drying Wells, Rising Stakes: Towards Sustainable Agricultural Groundwater Use*, OECD Studies on Water, OECD Publishing, Paris, <http://dx.doi.org/10.1787/9789264238701-en>.
- Brozović, N., and Young, R., 2014, Design and implementation of markets for groundwater pumping rights, in *Water Markets for the 21st Century: What Have We Learned?* (eds. K. Easter and Q. Huang).

Brozović, N., Sunding, D.L., and Zilberman, D., 2006, Optimal management of groundwater over space and time, in *Frontiers in Water Resource Economics*, eds. R. Goetz and D. Berga, Natural Resource Management and Policy Series, Vol. 29, Springer, 275 p.

Selected Recent Grants and Contracts

Water Education Leaders for Secondary Science, C. Forbes (PI), N. Brozovic, J. Griffin, *USDA-NIFA*, \$144,500, 2016-2019.

The state of informal agricultural water trading in the American West, Brozović, N., *USDA-Office of the Chief Economist*, \$40,150, 2016-2017.

Groundwater management in a conjunctive use system with managed flows for protected fish species, T. Foster (PI), N. Brozović, *NOAA*, \$29,300, 2016.

IUSE: Fostering Undergraduate Students' Disciplinary Learning and Water Literacy, C. Forbes (PI), N. Brozovic, T. Franz, *National Science Foundation*, \$299,018, 2016-2019.

Groundwater Availability and Conservation Program Outcomes in the High Plains Aquifer, N. Brozović (PI), K. Schoengold, T. Mieno, *USDA-Economic Research Service*, \$130,000, 2015-2017.

USDA Water for Agriculture Challenge Area: Developing and Promoting Water-, Nutrient-, and Climate-Smart Technologies to Help Agricultural Systems Adapt to Climate and Societal Changes, B. Basso (Lead PD), D. Hyndman, J. Hatfield, P. Robertson, J. Butler, J. Zhao, N. Brozović, J. Winter, J. Rice, J. Parker, and J. Andresen (co-PDs), *USDA-NIFA*, \$4,900,000, 2015-2020.

The Effects of Institutions and Hydrological Conditions on Optimal Management of a Shared Aquifer: a case study of the High Plains, K. Schoengold (PI), N. Brozović, \$395,671, *USDA Hatch Multistate*, 2015-2020.

An online clearing house for trading resource use rights with environmental and spatial constraints, N. Brozović, *National Science Foundation I-Corps Team Program*, \$50,000, 2013.

WSC-CATEGORY 1: Development of an integrated economic-hydrologic-ecologic framework for resilient groundwater governance systems, N. Brozović (PI), K. Schoengold, C. Speir, X. Cai, R. Carroll, (co-PIs), M. Pegg, A. Valocchi, Y. Kuwayama (co-Is), *NSF/USDA Interagency Climate Change: Water Sustainability and Climate*, \$147,260 (funded by *USDA-NIFA*), 2012-2016.

Analysis of Potential Groundwater Trading Programs for Nebraska, K. Schoengold (PI), N. Brozović, *US Geological Survey, 104b Program*, \$56,818, 2012-2013.

Evaluation Of Groundwater Management Strategies For Salmon Recovery Planning, N. Brozović, *NOAA*, \$14,996, 2011-2012.

Norman E. Borlaug International Agricultural Science and Technology Fellowship Program (Morocco, Algeria, and Tunisia), B. Hutchinson (PI), N. Brozović and 11 others (co-PIs), *USDA Foreign Agricultural Service*, \$233,892, 2010-2013.

Selected Recent Presentations

Experiences in Groundwater Management: The Daugherty Water for Food Institute and Nexus Challenges, *Lower Mekong Public Policy Initiative, Ho Chi Minh City, Vietnam*, 2014.

Economics of agricultural groundwater management, *Organization for Economic Cooperation and Development, Paris, France*, 2014.

Agricultural groundwater markets, *USDA Undersecretaries' briefing, Washington DC*, 2014.

Coping with drought – institutional innovation in groundwater management, *Royal Swedish Academy of Agriculture and Forestry, Stockholm, Sweden*, 2015.

Challenges and opportunities for agricultural water technology investment, *Cultivian Sandbox investors' meeting, Chicago, IL*, 2015.

Innovations in groundwater management institutions, *Columbia Water Center webinar, Columbia University*, 2015; *Nebraska Department of Environmental Quality, Lincoln, Nebraska*, 2016.

Innovations in groundwater management in the High Plains region of the United States, *International workshop on groundwater overexploitation control and management measures, Beijing, China*, 2015.

Design and implementation of groundwater trading systems, *Fox Canyon Groundwater Management Agency, Oxnard, California*, 2016.

Smart markets for transferable pumping rights, “*Toward Sustainable Groundwater in Agriculture*,” 2nd *International Conference Linking Science and Policy, Burlingame, California*, 2016.

Water markets, *The Council of State Governments West Legislative Council on River Governance, Boise, Idaho*, 2016.

Myths and misconceptions about water, *2016 ALS Student Symposium keynote, Hastings College, Hastings, Nebraska*, 2016.

The economic importance of Western aquifers, *2016 American Geosciences Institute Critical Issues Forum, Golden, Colorado*, 2016.

The policy landscape of California and its impact on agriculture, *Stockholm International Water Intitute/Swedish Water House, Stockholm, Sweden*, 2016.

Selected Synergistic Activities

- *Interdisciplinary Collaborations:*
 - Former chair of the W2190 USDA Multistate Research Committee (2010-2011; previously also Vice-Chair and Secretary), *Water Policy and Management Challenges in the West*, with a goal of facilitating collaborative multidisciplinary, multistate research on water resource management.
 - Board member (*ex officio* 2013-2015, full 2015-) and program manager (2015-), *International Arid Lands Consortium*, a multinational, multi-institution group that facilitates interdisciplinary research and applied collaborations in arid lands.
- *Selected Conference and Meeting Planning:*
 - Co-convener, with UNDP, SIWI, and Water Integrity Network, *(Re)thinking governance* workshop at SIWI World Water Week, Stockholm (2015)
 - Co-organizer and host, with USDA, EPA, and The Conservation Foundation, *National Workshop on Water Quality Markets*, Lincoln, Nebraska (2015)
 - Co-organizer and host, with the International Arid Lands Consortium and University of Nebraska, *International conference on water security implications of the Syrian refugee crisis*, Lincoln, Nebraska (April 2016)
- *Editorial Activities:* Associate Editor, *Water Resources Research*, 2010-2014; Editorial Board, *Water Economics and Policy*, 2013-present; Guest Editor, *Hydrogeology Journal*, 2012 Special Issue.

Graduate Student Advising (degree and current placement)

B. Barkley, MS 2015 (Cleveland Federal Reserve); T. Foster, PhD 2014 (*University of Manchester*); T. Hackbart, MS (in progress, University of Nebraska); J. Han, MS 2011 (AIG); S. Islam, MS 2010 (IFPRI); Y. Kuwayama, PhD 2011 (Resources for the Future); A. Lentz, MS 2011 (Danish Energy Agency); H. Li, MS 2009 (University of Maryland); T. Mieno, Ph.D. 2014 (UNL); J. O’Keeffe, PhD 2016 (Imperial College, London); A. Palazzo, MS, 2009 (IIASA); G. Pitois, MS 2012 (IFPRI); M. Rabassa, PhD 2008 (World Bank); M.R. Rad PhD 2017 (Yale); D. Riley, MS (in progress, University of Nebraska); J. Savage, PhD 2011 (USDA-ERS); J. Wright, MS 2006 (Universal Scientific, Chicago); R. Young, MS 2014 (Mammoth Trading).