



Beau MacDonald

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Education

M.A., Geography. California State University Northridge, August 2010.

- Thesis: Habitat Suitability Modeling for Western Snowy Plover in Central California.

B.A., Geography/Environmental Studies. University of California at Los Angeles, December 2004.

- Honors Research: Conservation in Africa, 1950–2004.

Publications

Refereed Journal Articles

Clemesha, R.E.S., Gershunov, A., Lawson, D.M., Longcore, T., MacDonald, B., Booker, M., Munson, B., & O'Connor, K. 2021. A high-resolution record of coastal clouds and fog and their role in plant distributions over San Clemente Island, California. *Environmental Research Communications* 3: 105003.

<https://doi.org/10.1088/2515-7620/ac2894>

Zhang, L., Wilson J.P., MacDonald, B., Zhang, W., & Yu, T. 2020. The changing PM2.5 dynamics of global megacities based on long-term remotely sensed observations. *Environment International* 142:105862.

<https://doi.org/10.1016/j.envint.2020.105862>

Paudel, S., Benavides, J., MacDonald, B., Longcore, T., Wilson, G., & Loss, S. 2017. Determinants of native and non-native plant community structure on an oceanic island. *Ecosphere* 8: e01927.

<https://doi.org/10.1002/ecs2.1927>

Paudel, S., Wilson, G.W.T., MacDonald, B., Longcore, T., & Loss, S.R. 2016. Predicting spatial extent of invasive earthworms on an oceanic island. *Diversity and Distributions* 22: 1013–1023.

<https://doi.org/10.1111/ddi.12472>

Paudel, S., Longcore, T., MacDonald, B., McCormick, M.K., Szlavecz, K., Wilson, G.W.T., & Loss, S.R. 2016. Belowground interactions with aboveground consequences: Invasive earthworms and arbuscular mycorrhizal fungi. *Ecology* 97: 605–614. <https://doi.org/10.1890/15-1085>

Longcore, T., Rich, C., Mineau, P., MacDonald, B., Bert, D.G. et al. 2013. Avian mortality at communication towers in the United States and Canada: which species, how many, and where? *Biological Conservation* 158: 410–419. <https://doi.org/10.1016/j.biocon.2012.09.019>

Longcore, T., Rich, C., Mineau, P., MacDonald, B., Bert, D.G. et al. 2012. An estimate of avian mortality at communication towers in the United States and Canada. *PLoS ONE* 7(4): e34025.

<https://doi.org/10.1371/journal.pone.0034025>

Manuscripts Submitted or Under Construction

Wolfswinkel, E.M., Howell, A.C., MacDonald, B., Wilson, J.P., & Howell, L.K. 2021. American Indian Alaskan Native access to appropriate cleft lip and palate treatment. *Cleft Palate-Craniofacial Journal* (revised and resubmitted 3/22).

Espinoza, J., Meeker, D., Bahroos, N., Angyan, P., Kingsbury, P., Wilson, J.P., MacDonald, B., Chuang, A., Abajian, M., Garofalo, D., Shah, P., Integrating the exposome: A standards-based approach to integrating location-based social and environmental determinants of health into i2b2 and the Observational Medical Outcomes Partnership common data models. *Journal of the American Medical Informatics Association* (in preparation).

MacDonald, B. & Longcore, T. Inductive and deductive niche models provide complementary insights on species distribution and guide conservation of a threatened moth (in revision).

Technical Reports

Ablondi, R, et al. 2021. Maximizing the benefits of increased urban canopy on the eastside of Los Angeles. Report for the City of Los Angeles and the University of Southern California. Los Angeles: Dornsife Public Exchange, University of Southern California. 52 pp.

FitzGerald, J., Nie, L., Ta, S., Nguyen, H., MacDonald, B., & Wilson, J. 2020. Modeling the health impacts of proposed urban design interventions in the City of Los Angeles. Report to the City of Los Angeles. Los Angeles: Spatial Sciences Institute, University of Southern California. 38 pp.

Longcore, T., MacDonald, B., & Wilson J.P. 2020. Reconstruction of historical topography to estimate erosion and model historical vegetation distribution on San Clemente Island, California. Los Angeles: University of Southern California Spatial Sciences Institute and UCLA Institute of the Environment. Final Report for the Department of the Navy (California Cooperative Ecosystem Studies Unit), San Diego, CA. Cooperative Agreement W9126G-17-2-0040. 71 pp.

Ethington, P.J., MacDonald, B., Stein, G., Deverell, W., & Longcore, T. 2020. Historical ecology of the Los Angeles River watershed and environs: infrastructure for a comprehensive analysis. Report to the John Randolph Haynes and Dora Haynes Foundation. Los Angeles: Spatial Sciences Institute, University of Southern California. 104 pp.

Wilson, J.P., Nguyen, H. & MacDonald, B. 2019. Unmet surgical needs in Madagascar. Report for Operation Smile. Los Angeles: Spatial Sciences Institute, University of Southern California. 12 pp.

Longcore, T. & MacDonald, B. 2019. Reconstruction of historical topography to estimate erosion and model historical vegetation distribution on San Clemente Island, California. Phase 1 Final Report for the Department of the Navy (California Cooperative Ecosystem Studies Unit), San Diego, CA. Los Angeles: Spatial Sciences Institute, University of Southern California. 28 pp.

Brazil, N., MacDonald, B., Wilson, J.P., Mitchell, I., Ngo, L., Windisch, R., Qian, Y., Schoonover, K., & Franke, R. 2017. Methods protocol for the Los Angeles Crime Street Network. Prepared for the City of Los Angeles Mayor's Office. Los Angeles: Spatial Sciences Institute, University of Southern California. Wilson Map Lab Technical Report. 55 pp.

Paudel, S., MacDonald, B., Longcore, T., & Loss, S. 2015. Invasive species (earthworm) assessment for spatial extent, ecological effects, and control or eradication, San Clemente Island, CA. Annual Report: 10-23-2015. Prepared for Naval Base Coronado Natural Resources Office, Environmental Division (N45) San Diego, CA. Cooperative Agreement W9126G-13-2-0047. 63 pp.

Paudel, S., MacDonald, B., Longcore, T., & Loss, S. 2014. Invasive species (earthworm) assessment for control or eradication, San Clemente Island, CA. Annual Report: 10-21-2014. Prepared for Naval Base Coronado Natural Resources Office, Environmental Division (N45) San Diego, CA. Cooperative Agreement W9126G-13-2-0047. 48 pp.

Weiss, S., MacDonald, B., & Longcore, T. 2013. Prioritization of information gaps critical to strengthening the scientific basis of habitat enhancement planning and determining site readiness for Taylor's checkerspot butterfly. Strategy and recommendations to address priority information gaps. Taylor's checkerspot habitat enhancement review and strategy development. Prepared for Center for Natural Lands Management, Olympia, WA. Los Angeles: The Urban Wildlands Group. 45 pp.

MacDonald, B., Longcore, T., & Weiss, S. 2013. Summary of existing datasets. Taylor's checkerspot habitat enhancement review and strategy development. Los Angeles: The Urban Wildlands Group. 59 pp.

MacDonald B., Longcore, T., & Weiss, S. 2012. Status and variability of Mission Blue Butterfly populations at Milagra Ridge, Marin Headlands, and Oakwood Valley. Prepared for Golden Gate National Parks Conservancy, San Francisco, CA. Los Angeles: The Urban Wildlands Group. 69 pp.

MacDonald, B., Longcore, T., & Weiss, S. 2012. Annotated bibliography: improving habitat enhancement efforts and determination of site readiness for Taylor's checkerspot butterflies in south Puget Sound lowlands. Taylor's checkerspot habitat enhancement review and strategy development. Los Angeles: The Urban Wildlands Group. 118 pp.

MacDonald, B., Longcore, T., & Weiss, S. 2012. Synthesis of cooperators' assessments of current knowledge and information gaps for improving habitat enhancement efforts and determination of site readiness for Taylor's checkerspot butterflies in south Puget Sound lowlands. Taylor's checkerspot habitat enhancement review and strategy development. Los Angeles: The Urban Wildlands Group. 29 pp.

MacDonald, B., Longcore, T., & Dark, S. 2010. Habitat suitability modeling for western snowy plover in central California. Los Angeles: The Urban Wildlands Group. 129 pp.

Longcore, T., Rich, C., Mineau, P., MacDonald, B., Bert, D., Sullivan, L.M., Gauthreaux, S.A., Mutrie, E., Vincent, S., Avery, M.L., & Crawford, R.L. 2009. Avian mortality at communication towers in Canada. Ottawa: Environment Canada Science and Technology Branch. 45 pp.

MacDonald, B. 2006. 'Habitat,' and 'Geology and Geomorphology' in Cannon D., Casanova, J., Golding, A., MacDonald, B., & Winter, M., The State of the Tujunga: an assessment of the Tujunga/Pacoima Watershed. Studio City, CA: The River Project. 243 pp.

MacDonald, B. 2005. 'Demographics of the Tujunga Watershed,' 'Community Economic Conditions,' 'Habitat,' and 'Tujunga Watershed Project Document Summary' in The River Project Staff and Tujunga Watershed Project Team Inventory of Existing Information for the State of the Tujunga Report. Studio City, CA: The River Project. 79 pp.

Selected Presentations

Espinoza, J., Meeker, D., Bahroos, N., Angyan, P., Kingsbury, P., Wilson, J.P., MacDonald, B., Chuang, A., Abajian, M., Garofalo, D., & Shah, P. *Integrating the exposome: A standards-based approach to integrating location-based social and environmental determinants of health into i2b2 and the Observational Medical Outcomes Partnership common data models*. American Medical Informatics Association Informatics Summit, Chicago, IL. March 21–24, 2022.

Ablondi, R., FitzGerald, J., Huisman, E., Randhawa, S., MacDonald, B., & Wilson, J., *Urban Trees Initiative* (Poster). Eleventh Annual Los Angeles Geospatial Summit, Los Angeles, CA. 2021.

FitzGerald, J., Nie, L., Ta, S., MacDonald, B., & Wilson, J., *Using geodesign to model the health impacts of new urban design interventions* (Poster). Eleventh Annual Los Angeles Geospatial Summit, Los Angeles, CA. 2021.

Wilson, J.P. & MacDonald, B., *GIS and Spatial Humanities Workshop*. Spatial Sciences Institute, University of Southern California, Los Angeles, CA. August 3–7, 2020.

Wolfswinkel, E.M., Howell, A.C., MacDonald, B., Wilson, J.P., Magee III, W., & Howell, L.K., *American Indian and Alaskan Native (AIAN) access to appropriate cleft lip and palate treatment using Geographic Information Systems (GIS)*. Seventy-seventh Annual Meeting of the American Cleft Palate-Craniofacial Association, Portland, Oregon. 2020.

Carrera Ruedas, E., Nie, L., Whipple, C., MacDonald, B., & Wilson, J.P., *Superblocks for Los Angeles: Sustainable urban alternatives evaluated with geodesign* (Map presentation). Esri User Conference, San Diego, CA. Second Place, Map Gallery Communicating Science Spatially Category. 2019.

Chow, A., Lee, Z., MacDonald, B., & Wilson, J.P., *The macro of micro: A geospatial exploration of economic development's effects on small business vitality in Los Angeles* (Map presentation). Esri User Conference, San Diego, California. 2019.

de Figueiredo, M.F.P., Klerman, D., Wilson, J.P., Hall, M. B., & MacDonald, B., *Legal origin from outer space*. National Bureau of Economic Research Law and Economics Summer Institute, Cambridge, Massachusetts. 2019.

Wilson, J.P. & MacDonald, B., *GIS and Spatial Humanities Workshop*. Spatial Sciences Institute, University of Southern California, Los Angeles, CA. June 17–21, 2019.

de Figueiredo, M.F.P., Klerman, D., Wilson, J.P., Hall, M.B., & MacDonald, B., *Legal origin from outer space*. Annual Meeting of the American Law and Economics Association, New York, New York. 2019.

de Figueiredo, M. F. P., Klerman, D., Wilson, J. P., Hall, M. B., & MacDonald, B., *Legal origin from outer space*. University of Arizona QuantLaw Conference, Tucson, Arizona. 2019.

Wolfswinkel, E.M., Howell, A.C., MacDonald, B., Wilson, J.P., Magee III, W., & Howell, L.K., *American Indian / Alaskan Native (AIAN) access to appropriate cleft lip and palate treatment using geographic information systems* (Poster). Eighth International Meeting on Indigenous Child Health, Calgary, Alberta, Canada. 2019.

MacDonald, B. & Windisch, R., *Showcasing public benefits of stormwater capture with geospatial applications*. GIS-Pro & CalGIS Conference, Palm Springs, CA. 2018.

Wilson, J.P. & MacDonald, B. *GIS and Spatial Humanities Workshop*. Spatial Sciences Institute, University of Southern California, Los Angeles, CA. August 6–10, 2018.

Sylvester, B., MacDonald, B., McCullough, M., Brindopke, F., Magee, W., & Wilson, J.P., *Visualizing surgical mission catchment areas in Mexico using geospatial technologies*. Annual Meeting of the California Society of Plastic Surgeons, San Diego, California. 2018.

MacDonald, B., Chow, A., Wang, H.J., Windisch, R., & Wilson, J.P. *Water You Doing? Geospatial applications to showcase public benefits of stormwater capture*. City of Los Angeles Sustainability Tools Launch, Los Angeles, CA. 2018.

Mitchell, I., Brazil, N., MacDonald, B., Franke, R., Ngo, L., Qian, Y., Schoonover, K., Windisch, R., & Wilson, J.P., *A spatial analysis of street-level crime trends in Los Angeles*. Seventh Annual Los Angeles Geospatial Summit, Los Angeles, CA. 2017.

MacDonald B., *Quino reintroduction planning. Conservation and management of three imperiled West Coast butterflies: bay, quino, and Taylor's checkerspots*. (Workshop). Don Edwards NWR, Alviso, CA. 2014.

MacDonald B., *Assessing habitat model input and predictive power during multi-year diapause*. Kern primrose sphinx moth 2013 annual meeting. Ojai, CA.

MacDonald B., *Habitat suitability modeling for Kern Primrose Sphinx Moth: potential distribution of *Euproserpinus euterpe* in the Cuyama Valley, Carrizo Plain, and Walker Basin on USFS, BLM, and privately-owned lands*. Kern primrose sphinx moth 2012 annual meeting. Ojai, CA.

MacDonald B., *Extending spatial and site-specific data collection to RU 6 and Rangewide with the interactive website westernsnowyplover.org*. Western Snowy Plover Species Recovery Unit 2012 meeting. Carlsbad, CA.

MacDonald B., *www.westernsnowyplover.org: Recovery Unit 5's interactive website to share spatial and site-specific data*. Western Snowy Plover Species Recovery Group 2010 Rangewide Meeting. Portland, OR.

MacDonald, B., *Habitat suitability models for western snowy plover on the central coast of California*. Western Snowy Plover Species Recovery Group 2008 Rangewide Meeting. San Diego, CA.

MacDonald B., Longcore, T., & Dark, S., *Inductive and deductive habitat models predict historic distribution of western snowy plover on the central coast of California*. Association of American Geographers 2007 Annual Conference. San Francisco, CA.

MacDonald B. 2005, *Fuzzy Biogeography*. (Poster). Association of Pacific Coast Geographers 2005 Annual Conference. Phoenix, AZ.

Selected Geospatial Analysis, Cartography & Graphic Design

Data analysis and synthesis; maps to support butterfly and vegetation surveys (2006–2021) for Longcore, T. & Osborne, K.H., Palos Verdes blue butterfly adult surveys on Defense Fuel Support Point, San Pedro, California. (Defense Logistics Agency Agreement #N62473-19-2-2101). The Urban Wildlands Group.

Map, 'Laguna Mountain Skipper Reintroduction, Laguna Mountains' for Longcore, T., Osborne K., & MacDonald B. 2019. Reintroduction Plan for Laguna Mountains Skipper (*Pyrgus ruralis lagunae*). Prepared for U.S. Fish and Wildlife Service, Carlsbad, CA.

Geospatial analysis; graphics: Figures 1–50 in Wilson, J.P. 2018. *Environmental Applications of Digital Terrain Modeling*. Oxford, U.K: Wiley/Blackwell, 360 pp.

Data synthesis, historical ecology, and maps to infer riparian habitat composition and extent and support ecological management for Brooks, T. et al. 2016. Water supply and habitat resiliency for a future Los Angeles River: Site-specific natural enhancement opportunities informed by river flow and watershed-wide action: Los Feliz to Taylor Yard. The Nature Conservancy, Urban Conservation Program, Los Angeles, CA.

Geospatial analysis, maps and graphics for McNally, T. 2016. Catholic Sisters in Latin America. Report to the Conrad N. Hilton Foundation. University of Southern California Center for Religion and Civic Culture.

Data analysis and vegetation change maps for Johnson, J.J., Wilson, T., Taylor, C., Xia, Y., Jones, J., Osborne, K., & Longcore, T. 2016. Captive rearing of Lange's metalmark butterfly, 2011–2015. Report to United States Fish and Wildlife Service, CVPIA Habitat Restoration Program. (USFWS Agreement #F11AP00168).

Map, 'Los Feliz Congregations' and 'Los Feliz Congregations Interactive Web Map' in Flory, R., Gajaweera, N., Johnson, A., & Street, N. 2015. Mapping the new landscape of religion: block-by-block in a changing Los Angeles neighborhood. *BOOM, A Journal of California* 5: 34–43.

Preliminary schematics for 'Water LA' Los Angeles Rainwater Harvesting Project, 2013. Prepared for the California Coastal Commission, City of Los Angeles Department of Water and Power, Board of Public Works, and Planning Department: 'Rain Garden,' 'Parkway,' 'Rain Barrels,' 'Greywater,' 'No Hard Yard,' 'Dry Well.'

Additional analysis of western snowy plover habitat suitability modeling results (MacDonald et al., 2010; MacDonald, 2010) prepared for California State Parks and U.S. Fish and Wildlife Service, Ventura to support San Luis Obispo Coast District & Oceano Dunes SVRA Habitat Conservation Plan, 2013.

Retrospective data analysis; map: 'Presumed historic range of quino checkerspot butterfly with recorded presence of butterfly and larval host plants, 1881–2012.' Figure 1 in Longcore, T. & Bonebrake, T. 2012. Captive propagation and release plan for quino checkerspot butterfly. Prepared for U.S. Fish and Wildlife Service, Carlsbad, CA.

Maps: 'Improved land, 1860, 1880, 1900, 1980'; 'The decline of wheat cultivation, proportion of land in wheat, 1880 & 1900'; 'Corn and soybean cultivation, proportion of land in corn and soybeans, 1900, 1940, 1960, & 1980'; 'Density of grazing animals (cows, sheep, horses), 1880, 1900, 1920, 1940' (U.S. Census of Agriculture data); Figures 2.4, 2.6, 2.7, and 2.9 in Trimble S.W. 2012. *Historical Agriculture and Soil Erosion in the Upper Mississippi Valley Hill Country*. Boca Raton, FL.: CRC Press.

Map: 'Study Areas in San Fernando Valley and Bel-Air to Hollywood Hills.' Figure 1 in Bartos, M. et al. 2011. Use of anticoagulant rodenticides in single-family neighborhoods along an urban-wildland interface in California. *Cities and the Environment* 4(1), 19pp. Manuscript 1100, Digital Commons @ LMU and LLS.

Map: 'California Estuaries.' Figure 1 in Jacobs D., E.D. Stein, and T. Longcore. 2011. Classification of California estuaries based on natural closure patterns: templates for restoration and management. Southern California Coastal Water Research Project Technical Report 619.a – August 2011.

Work Experience

Current Positions

GIS Project Specialist Spatial Sciences Institute, University of Southern California, Los Angeles, CA.
May 2015–present

<https://spatial.usc.edu/index.php/team-view/beau-macdonald>

- Social and environmental determinants of health: integration of geospatial datasets, informatics, location analytics and ontologies to enrich electronic health records (thousands to millions of research subjects) with community-level demographic, socio-economic, and environmental data, with objectives that include improved health and welfare outcomes, predictive risk models, enhanced opportunities for clinicians and researchers, and development of platforms to share data.
- Environmental modelling: historical ecology and landscapes; species distribution models; suitability analyses; retrospective data analysis; and assessments of contemporary baseline conditions.
- Data acquisition, creation, QA/QC, management, analysis and synthesis. Design, development, and implementation of algorithms, data structures, and geoprocessing methods. Preparation of maps, apps, graphics, presentation materials, and technical reports. Resource for questions about data and methods.
- Coordination with interdisciplinary research teams and administrative entities within and outside the university, including public agencies and non-profit organizations. Resource for project-specific data, contacts, and information, along with question and problem resolution.
- Assistance with initial project specifications, formulation of research objectives, and preliminary data or literature reviews and feasibility analyses for specific components. Contributions to development and implementation of research protocols, and ongoing documentation and review of procedures and policies to support research operations. Development and administration of project-specific training; ongoing assessment of trainee proficiency; evaluation of prospective research assistants.
- Mentorship, supervision, and technical expertise for Wilson Map Lab research teams. Many collaborations are designed to simultaneously deliver experiential learning for student research assistants. Highlights: 2020–2022, 'USC Urban Trees Initiative: Phase I' and 'Phase II' (USC Dornsife Public Exchange and City of Los Angeles); 2020–2022, 'USC GeoHealth Hub'; 2019–2020, 'Resilience' mobile and web app development (City of Los Angeles Mayor's Office Data Science Team and Office of Resilience; Los Angeles Department of Neighborhood Empowerment); 2018–2019, 'Community Science Tree Inventory' web app development (Mayor's Office of Infrastructure; Urban Forestry Division, Bureau of Street Services); 'The Macro of Micro' business resilience investigation, 2003–2018 (Mayor's Office of Community Business Development); 2017–2018, 'Water You Doing' stormwater capture web apps (Mayor's Office of Sustainability); 2016–2017, development of the 'Los Angeles Crime Street Network', street-segment-level investigation of violent and property crime, 2012–2016 (Los Angeles Police Department; Mayor's Office of Budget and Innovation).

Grants and Contracts

2021–2023 *Mapping Los Angeles landscape history: A multi-institutional collaboration*. John Randolph and Dora Haynes Foundation; Co-PI. P.E. Ethington, Department of History and Spatial Sciences Institute, University of Southern California, PI.

2020–2022 *Design and Launch of the GeoHealth Hub to Support Population, Health and Place Research*. USC Addiction Research Center, Norris Cancer Center, and the Southern California Environmental Health Sciences Center; Co-PI with J.P. Wilson, Spatial Sciences Institute, University of Southern California.

2020–2021 *Using Geospatial Analysis for the City of Los Angeles to Make Data-Driven Decisions, Impact Policy, and Advance Resilience, Sustainability, and Civic Engagement*. University of Southern California Undergraduate Research Associates Program; Co-PI with J.P. Wilson, Spatial Sciences Institute, University of Southern California.

2019–2020 *Superblocks for Los Angeles: Sustainable Urban Alternatives*. University of Southern California Undergraduate Research Associates Program; Co-PI with J.P. Wilson, Spatial Sciences Institute, University of Southern California.

2018–2019 *Urban Data Analytics*. University of Southern California Undergraduate Research Associates Program; Co-PI with J.P. Wilson, Spatial Sciences Institute, University of Southern California.

2017–2018 *Gentrification, Densification, and Urban Life*. University of Southern California Undergraduate Research Associates Program; Co-PI with J.P. Wilson, Spatial Sciences Institute, University of Southern California.

2015–2022 *Geographic Analysis, Modeling, and Mapping Support for the Children’s Data Network Project*. University of Southern California, School of Social Work; Co-PI with J.P. Wilson, Spatial Sciences Institute, University of Southern California.

2015–2018 *Visualizing a University Campus with Esri’s CityEngine™*. University of Southern California Undergraduate Research Associates Program; Co-PI with J.P. Wilson, Spatial Sciences Institute, University of Southern California.

2015–2018 *Geospatial Data and Mapping Support for Africa Business Creativity and Innovation Project*. Gould School of Law, University of Southern California; Co-PI with J.P. Wilson, Spatial Sciences Institute, University of Southern California.

Funded Research Participation

2022–2027 *Southern California Clinical and Translational Science Institute (CTSI): Clinical and Translational Science Award*. National Center for Advancing Translational Sciences, National Institutes of Health; T.A. Buchanan, Department of Medicine, University of Southern California, and M.D. Kipke, Department of Pediatrics, Children’s Hospital Los Angeles, PIs; J.P. Wilson, Spatial Sciences Institute, University of Southern California, Co-I.

2021–2026 *Southern California Center for Chronic Health Disparities in Latino Children and Families*. National Institute on Minority Health and Health Disparities. M. Goran, Children’s Hospital Los Angeles, PI; J.P. Wilson, Spatial Sciences Institute, University of Southern California, Co-I.

2021–2026 *Southern California Environmental Health Sciences Center: Environmental Exposures, Host Factors, and Human Disease*. National Institute of Environmental Health Sciences; R. McConnell, Department of Population and Public Health Sciences, University of Southern California, PI; J.P. Wilson, Spatial Sciences Institute, University of Southern California, Co-PI.

2021–2022 *USC Urban Trees Initiative (Phase II)*. Public Exchange, Dornsife College of Letters, Arts and Sciences, University of Southern California. J.P. Wilson, Spatial Sciences Institute, University of Southern California, PI.

2021 *Design and Launch of the USC Sustainability GIS Hub*. Office of Sustainability, University of Southern California; J.P. Wilson, Spatial Sciences Institute, University of Southern California, PI.

2020–2021 *Maximizing the Benefits of Increased Urban Canopy on the Eastside of Los Angeles*. Sherman Fairchild Foundation and the Public Exchange, Dornsife College of Letters, Arts and Sciences, University of Southern California. J.P. Wilson, Spatial Sciences Institute, University of Southern California, PI.

2020 *Modeling the Health Impacts of Proposed Zero Emission Areas in the City of Los Angeles*. Public Exchange, Dornsife College of Letters, Arts and Sciences. J.P. Wilson, Spatial Sciences Institute, University of Southern California, PI.

2019–2023 *Contextual Effects on Cardiometabolic Health: Evidence from a Natural Experiment*. National Heart, Lung, and Blood Institute, National Institutes for Health; A. Datar, Center for Economic and Social Research, University of Southern California, PI; J.P. Wilson, Spatial Sciences Institute, University of Southern California, Co-I.

2018–2020 *Historical Ecology of the Los Angeles River*. John Randolph and Dora Haynes Foundation Grant; P.E. Ethington & T. Longcore, University of Southern California, Co-PIs.

2018–2019 *Modeling the Geographic Relationships between the Locations of Operation Smile Missions and Need for Medical Services across Madagascar and Vietnam*. Operation Smile; J.P. Wilson, Spatial Sciences Institute, University of Southern California, PI.

2018–2019 *Affordable Housing and Parks/Open Space Joint-Development Site Identification and Analysis*. Los Angeles Regional Open Space and Affordable Housing (LA ROSAH), NRDC, and Enterprise Community Partners; Project Team: Studio One Eleven, Los Angeles Neighborhood Initiative, and Spatial Sciences Institute, University of Southern California.

2017–2020 *Reconstruction of historical topography to estimate erosion and model historical vegetation distribution on San Clemente Island, California*. Army Corps of Engineers and Department of the Navy (California Cooperative Ecosystem Studies Unit); J.P. Wilson and T. Longcore, Spatial Sciences Institute, University of Southern California, PIs.

2017–2018 *Modeling the Geographic Relationships between the Locations of Operation Smile Missions and Need for Medical Services across Mexico*. Operation Smile; J.P. Wilson, Spatial Sciences Institute, University of Southern California, PI.

2016–2021 *Southern California Clinical and Translational Science Institute (CTSI): Clinical and Translational Science Award*. National Center for Advancing Translational Sciences, National Institutes of Health; T.A. Buchanan, Department of Medicine, USC, M.D. Kipke, Department of Pediatrics, Children's Hospital Los Angeles, and J.M. Samet, Department of Preventive Medicine, USC, PIs; J.P. Wilson, Spatial Sciences Institute, University of Southern California, Co-I.

2016–2021 *Southern California Environmental Health Sciences Center: Environmental Exposures, Host Factors, and Human Disease*. National Institute of Environmental Health Sciences; F. D. Gilliland,

Department of Preventive Medicine, University of Southern California, PI; J.P. Wilson, Spatial Sciences Institute, University of Southern California, Co-I.

2014–2017 *Religious Competition and Creative Innovation: Los Angeles and Seoul, South Korea*. John Templeton Foundation; R. Flory & B. Loskota, Center for Religion and Civic Culture, University of Southern California, PIs; J.P. Wilson, Spatial Sciences Institute, University of Southern California, Co-I.

2013–2018 *Adolescent Smoking: Vulnerability to Tobacco Use and Marketing across Life (P3 – Adolescent Smoking: Vulnerability to Tobacco Use)*. National Cancer Institute; R. McConnell, Department of Preventive Medicine, University of Southern California, PI; funded as part of the "USC Tobacco Center of Regulatory Science (TCORS) for Vulnerable Populations" grant awarded to J. Samet & M. Pentz, Department of Preventive Medicine, University of Southern California; J.P. Wilson, Spatial Sciences Institute, University of Southern California, Co-I.

2013–2018 *Maternal Stress and Children's Obesity Risk*. National Heart, Blood, and Lung Institute, National Institutes of Health; G.F. Dunton, Department of Preventive Medicine, University of Southern California, PI; J.P. Wilson, Spatial Sciences Institute, University of Southern California, Co-I.

2012–2016 *Southern California Environmental Health Sciences Center: Environmental Exposures, Host Factors, and Human Disease*. National Institute of Environmental Health Sciences; F. D. Gilliland, Department of Preventive Medicine, University of Southern California, PI; J.P. Wilson, Spatial Sciences Institute, University of Southern California, Co-I.

Research Associate

The Urban Wildlands Group, Los Angeles, CA.

December 2004–present

- Data analysis and synthesis at multiple levels: identified data gaps and research needs; QA/QC for spatial and non-spatial quantitative and qualitative data; ecological sampling-scheme specification; devised and applied post-collection methodologies and retrospective analyses; conducted R- and GIS-based statistical and geospatial analyses of field data; and developed spatially-explicit species-distribution and habitat suitability models that incorporated multiple environmental variables and logistical constraints.
- Spatial analysis, maps, graphics, research and writing to support local, regional, and continental-scale investigations targeting threatened species and ecosystems. Specialist for species and habitat conservation for endangered Pacific Coast insects, including Palos Verdes blue, Mission blue, Taylor's checkerspot, quino checkerspot, and Lange's metalmark butterflies, Kern primrose sphinx moth, Laguna Mountains skipper.

Additional Work Experience

Research Assistant Center for Geographical Studies (CGS), California State University Northridge
April 2014–May 2015. Grant funding: USGS; State of California Department of Transportation.

- In-Lab GIS Supervisor and Lead, USGS Western Ecological Research Center Pinyon-Juniper Project (2014). Analysis/classification of remotely-sensed imagery performing 'conifer extraction' to support conservation in the Basin and Range Province. Developed CGS GIS workflow, intern training, and documentation; responsible for QA/QC and production of intermediate/final vector/raster/mosaic GIS data.

- In-Lab GIS Supervisor, Development of Linear Referencing System (LRS) and digital HPMS (Highway Performance Monitoring System) for Caltrans (State of California Department of Transportation), 2014–2015. Two-year project with multiple deliverables to produce the first LRS and GIS-based database for all publicly-owned roads. Supervised, trained, wrote documentation for 30-35 student interns.

Grant Administrative Assistant (Consultant) Los Angeles Rainwater Harvesting Project ('Water LA') April 2012–April 2014. Grant funding: State of California Coastal Conservancy

- Ensured project compliance with terms of grant contract; responsible for coordination of deliverables and subcontracts; wrote monthly progress reports, prepared invoices, provided budget and subcontract input.
- Created maps for Water LA Project; schematic drawings for plans for rainwater-harvesting projects (e.g., parkway retrofits, rain gardens, permeable paving); created and presented educational materials (e.g., native garden stewardship, water conservation); and trained/supervised volunteers/interns.

Mid-level Supervisor U.S. Census Decennial Field Operations, Los Angeles, CA. March 2009–May 2010 and April–August 2000

- Held five short-term full-time positions for Census 2010, three for Census 2000. Extensive field/office work creating/managing data/maps as crew leader, field operations staff, and local operations supervisor.
- Led local data QA/QC operations to ensure accurate enumeration of historically under-counted groups: elderly, mentally ill, and homeless individuals. Trained/supervised ~25 people during field operations.

Graphic Design & Cartography

June 2008–present

- Designed maps, posters, flyers, and advertising; produced figures (maps, charts, graphic elements, tables) for publication for clients including non-profit organizations and university academic departments.

Graduate Research Assistant California State University Northridge Spring 2006–Fall 2007 Grant funding: California State Parks, Off-Highway Motor Vehicle Recreation

- Designed and implemented GIS and statistical analyses and quantitative and qualitative environmental models; extensive digital cartography, chart and map production. Conducted independent field, online, and literature research, retrospective data analysis, and database QA/QC; created and ground-truthed GIS data; interpreted historical topographic maps.

Administrative Assistant The River Project. Tujunga/Pacoima Watershed Project. Studio City, CA. November 2004–March 2006 Grant funding: CALFED Bay-Delta Proposition 50 grant to The River Project

- Responsible for grant administration and compliance, including coordination and preparation of reports, deliverables, and invoices.
- Researched/produced GIS analyses, maps and reports for Tujunga Watershed Management Plan. Catalogued relevant literature and data (e.g., environmental, historic, cultural); identified data gaps, potential sources, and research needs. Representative to academic/community stakeholder/advisory groups involved with environmental education, surveys and outreach targeting a diverse community.

Horticultural and Design Consultant

February 1994–December 2004; intermittently January 2005–present

- Specialties: biodiversity-enhancing edible landscapes for southern and central California; vegetables, herbs, berries, orchards; citrus tree renovation. Designs for residential gardens (0-350 acres) that include California native or mediterranean-climate-appropriate drought-tolerant plants and perennial borders.
- Custom design: trelliswork, container gardens, functional artwork, stage props, costume and set design, including special-purpose backdrops, caves, spinning wheels, and tree-to-rocket transformers.

Sales Manager

Sperling Nursery, Calabasas, CA.

April 1987–January 1994

- Progressively greater responsibility in supervisory role at successful independent retail nursery; oversaw consistent sales volume and profit increases. Buyer/merchandiser for tools/supplies, roses/fruit trees, bulbs/seeds. California Certified Nursery Professional; California EPA DPR-designated dealer's agent; safety lead; supervised 10–25 people. Advertising design, accounting/payroll, general office experience.

Community Service

Spring 2008–present

- Technical and multi-level administrative CMS website support (database, content, maintenance, updates, graphic design, workshops) for a Southern California 501(c)3 non-profit organization; local and regional sites, average traffic ~15,000 unique visitors/month; regional group hosts/assists ~20 other local sites.
- Community youth sports organization volunteer (referee staff, board of directors) for a program that annually serves 1,000–1,800 kids ages 4-19 at a regional park.

Fall 1992–Spring 2005

- Elementary education consultant. Developed/taught grade-specific science units for K-5 students, integrating physical/life sciences with arts, writing, and other curricula. Planted/maintained school gardens with 20+ classes; designed hands-on instruction with specific goals, e.g., native plants, vegetable production, cut flowers, butterfly gardens. Implemented school-wide recycling programs.