# Rebecca Degagne

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Rebecca Degagne is a Geospatial Scientist and Biologist with 15+ years professional experience in the geospatial sciences and conservation planning. She employs spatial analysis, modeling, remote sensing, and cartographic design to further conservation efforts and support sustainable decision-making. Her multidisciplinary background allows her to lead teams in scientifically-rigorous analysis, convene diverse groups of stakeholders, and communicate findings through engaging presentations.

Prior to joining CBI, Rebecca taught courses in the geospatial sciences at College of the Redwoods and Humboldt State University, where she also worked on numerous projects spanning conservation, environmental science, planning, natural resources, socio-economic, and community mapping. Rebecca earned a B.S. in Ecology & Visual Arts from Juniata College (PA) in 2003 and worked as a field biologist for several years.  She completed a M.S. in GIS & Remote Sensing at Humboldt State University (CA) in 2007, mapping ecologically-important, monodominant forests in the tropics using remote sensing techniques.

Rebecca is intrigued by GIS as an interface between multiple disciplines and became a GISP certified professional in 2015. She's involved in numerous professional organizations, such as the Conservation Remote Sensing Network, Women in Geospatial, and the Society for Conservation GIS, where she's currently on the Board and Chair of the Communications Committee.

## PROFESSIONAL SKILLS

Geographic information systems, remote sensing, spatial modeling, data management, cartography, geovisualization, graphic design, scientific communication, stakeholder outreach & engagement, scientific and technical coordination, conservation planning, landscape ecology, landscape condition modeling, animal movement analysis, connectivity analysis, forest & stream ecology, marine spatial planning, sustainable renewable energy planning, spatial least-conflict analysis, decision support analysis.

Software: ESRI ArcGIS, QGIS, EEMS, Google Earth Engine, ENVI, SNAP, Fragstats, Adobe Creative Suite, MS Office

Sensor Data (Remote Sensing): Multi-spectral imagery, Synthetic Aperture Radar, LiDAR, Landsat, Sentinel-1, Sentinel-2, MODIS, SPOT, NAIP, SRTM

## EDUCATION

2015        GISP, Certified Geographic Information Systems Professional

2007        M.S., Natural Resources, Focus: Geographic Information Systems & Remote Sensing, Humboldt State University, CA

2003        B.S., Ecology & Visual Arts, Juniata College, Huntingdon, PA


## EMPLOYMENT HISTORY

2015 - Present. Geospatial Scientist & Biologist, Conservation Biology Institute, Corvallis, OR

2018 - Present. Board Member & Communications Committee Chair, Society for Conservation GIS

2008 - 2012. Associate Faculty, College of the Redwoods, Forestry and Natural Resources, Eureka, CA

2009 - 2012. Lecturer, Humboldt State University, Environmental Science and Management, Arcata, CA

2005 - 2008. GIS/Remote Sensing Analyst, HSU Institute for Spatial Analysis, Arcata, CA

2006. GIS Intern, The Nature Conservancy, California Field Office, San Francisco, CA

2005 - 2006. Biologist, Amphibian Specialist, USDA Forest Service, Chester, CA


## SELECT PROJECT EXPERIENCE

**Supporting Sustainable Trails Planning with Spatial Modeling and Online Tool Development (USFS, Deschutes Trails Coalition)** – Project creating an interactive, web-based system to assist in sustainably managing multi-use trails in Deschutes County, Oregon, and Washington, based on modeling physical, environmental, economic, and social sustainability of recreation activities and trails. Collaborating with a diverse group of stakeholders to create a transparent system for local, regional, and national organizations to answer important questions relevant to trails management.

**Mapping Grasslands with Google Earth Engine and Machine Learning (USDA Conservation Reserve Program)** – Remote sensing science & technical lead. Project

mapping grassland characteristics relevant to USDA CRP program on Google Earth Engine with Landsat, Sentinel-1 and Sentinel-2 data and random forest modeling.

**Mapping Stephens' Kangaroo Rat Habitat Using Satellite Imagery (USFWS, Riverside County Habitat Conservation Agency)** – Led innovative remote sensing component (acquisition, processing, and analysis of Sentinel-2 multispectral data) for habitat suitability modeling of the endangered Stephens' kangaroo rat. Products will be used to develop scientifically-sound management and monitoring protocols to assist in recovering the species.

**Assessing Primary Forest Intactness and Carbon Storage in BC Canada (GEOS Institute)** – Member of a global team assessing primary forest fragmentation and carbon storage capacity. GIS lead for BC case study analyses.

**Characterizing Mississippi Forests with Remotely-Sensed Data and Machine Learning (USDA Conservation Reserve Program)** – Team member on project mapping bottomland hardwood forest metrics (composition, basal area, tree height, biomass, tree density) using ESA's Sentinel-1 and Sentinel-2 data and random forest modeling. Remote-sensing lead.

**California Offshore Wind Energy Project (CEC, BOEM)** – Led data acquisition and review for the CA Offshore Wind Gateway, a data portal developed by the CA Renewable Energy Task Force to investigate the potential for offshore wind development. Conducted outreach, curation, and processing of spatial data, as well as GIS analysis for screening areas potentially suitable for wind energy generation.

**Antelope Valley Regional Conservation Investment Strategy (RCIS, ICF International)** – Team member on assessment analyses relating to conservation of focal species and habitats, vegetation communities, and protected status of the land base. Provided scientific and geospatial technical support for the RCIS, intended to guide conservation investments and advance mitigation.

**CA Statewide Energy Science Support, DRECP, RCA (CEC, BLM, CDFW, USFWS)** – Team member on science assessments and web-based application development for the CA Energy Commission. Led GIS and spatial EEMS logic modeling for the landscape condition and conservation values analysis on the project.

**BLM Rapid Ecological Assessment Stepdown Analysis** – Led GIS, spatial logic modeling, expert-based species distribution modeling, species habitat condition analysis, and data management for the project. Contributed to interactive online tools

developed to support climate-wise management practices and conservation initiatives in Utah and throughout the Colorado Plateau ecoregion.

**Dynamic Decision-support System for Fisher Conservation (USFS)** – Conducted remote sensing analysis of Landsat imagery and derivation of spectral indices for habitat modeling. Led logic modeling and coordination of tool development for a spatially-explicit, decision-support system to inform fisher conservation and forest management strategies in Sierra Nevada, CA.

**Web–Based Spatial Carbon Calculator for Latin America and the Caribbean (IDB, GIZ)** – Carried out data processing, design, and science support for a web-based tool created to assess the impact of potential development projects on carbon stocks in Latin America and the Caribbean.

**Inter-American Development Bank (IDB)-CIAT Analysis** – Performed spatial analysis to quantify the confluence of carbon and biodiversity in Latin America, assess potential impacts of infrastructure, and identify areas of likely ecological conflict.

**Mapping Ecologically-Important Forests in Guyana using Landsat Satellite Imagery (HSU Foundation)** – Designed and executed a project to identify the distribution of scientifically-significant monodominant (*Dicymbe corymbosa*) forests in Guyana, SA. Conducted field data acquisition in remote tropical locations and carried out satellite image classification to identify areas with high potential for field mycologists to find unique species of undescribed fungi.

**California Center for Rural Policy Health Care, Food Security, Poverty, and Latino Projects (The California Endowment)** – Lead GIS analyst. Supervised interns and supported projects to inform policy, build community, and promote the health of rural people and environments using innovative socio-spatial research methods.

**Fire and Forest Management Effects on Western Toad (University of Montana Foundation)** – Conducted telemetry and field data collection for *Bufo boreas*. Analyzed spatial data to determine the effects of fire and forestry practices on animal movement and habitat use.

**Redwood Coast Connect: Broadband infrastructure mapping initiative (CA Emerging Technology Fund, Northern California SBDC Network, HAF, RCRA)** – Managed GIS data, spatial analysis, and map production for the RCC pilot project to develop a multidimensional model to increase broadband access in rural and underserved regions of California.

**Humboldt Bay Management Plan** – Worked with environmental, recreational and economic stakeholders to design and produce conservation, recreation, and land use maps for inclusion in the Harbor, Recreation and Conservation District's Management Plan.

**USFS Herger-Feinstein QLG Forest Management Project** - Conducted amphibian monitoring surveys for declining frog species on the Lassen, Plumas, & Tahoe National Forests. Responsible for field data collection, data entry & database organization.

**California Cooperative Fish Research Unit** - Performed aquatic entomology lab work examining the structure of macroinvertebrate communities on a project predicting prey availability for stream salmonids in six northern California streams.

## SELECT PUBLICATIONS

**Degagne**, R. 2014. Tools for Balance: Conservation and renewable energy planning in California deserts. Fremontia: Journal of the CA Native Plant Society 42: 17-19.

**Degagne**, R., L. Fox, T. Henkel, and S. Steinberg. 2009. Identifying Dicymbe corymbosa monodominant forests in Guyana with satellite imagery. Biotropica 41: 7-15.

**Degagne**, R. 2008. Seeing the forests for the trees. California State University Geospatial Review.

**Degagne**, R., A. Desjardins, B. Diesel, and B.J. Greenberger. 2003. Effects of non-point source pollution on the macroinvertebrate community of Standing Stone Creek, Pennsylvania. The Journal of Ecological Research 5: 21-26.

## SELECT PRESENTATIONS

Degagne R., D. DiPietro, H. Rustigian-Romsos, W. Spencer. 2019. Modeling Stephens' Kangaroo Rat Habitat Using Remotely-Sensed Data. Society for Conservation GIS Annual Conference, Monterey, CA.

Degagne R., D. Pearce, M. Gough, J. Brice, B. Klinkow, K. Karimi, N. Stevenson-Molnar, G. Joseph, J. Strittholt. 2019. Mapping Mississippi Forests with Sentinel Satellites and Machine Learning. Society for Conservation GIS Annual Conference, Monterey, CA.

Degagne R., B. Baker, D. Bachelet, D. DiPietro, K. Ferschweiler, M. Gough, T. Sheehan, J. Strittholt. 2018. The California Climate Console: An online tool for examining climate impacts & supporting climate change adaptation. Society for Conservation GIS Annual Conference, Monterey, CA.

Degagne, R., J. Brice, M. Gough, J. Strittholt. 2017. California's landscape condition: Spatial modeling to support conservation and renewable energy planning. Ecological Society of America Annual Meeting, Portland, OR.

Brice, J., R. Degagne, M. Gough, A. Jacobs, J. Strittholt. 2017. Planning for conservation: A tool for identifying and analyzing species distributions. ESA Annual Meeting, Portland, OR.

Pearce, D., J. Brice, R. Degagne, J. Gallo, A. Jacobs, J. Strittholt, H. Rustigian-Romsos. 2017. Bridging Decision Support between Conservation Planners and Stakeholders. Society for Conservation Biology 28th International Congress for Conservation Biology, Cartagena, Colombia.

Degagne R., K. O'Conner, J. Strittholt. 2016. Mapping aquatic condition to facilitate informed management decisions. Society for Conservation GIS Annual Conference, Monterey, CA.

Sheehan, T., B. Baker, R. Degagne. 2015. Taming data to make decisions: Using a spatial fuzzy logic decision support framework to inform conservation and land use planning. American Geophysical Union Annual Fall Meeting, San Francisco, CA.

Spencer, W., H. Romsos, R. Degagne, C. Thompson, R. Sweitzer, and W. Zielinski. 2013. Developing a dynamic decision-support system to inform conservation of an isolated fisher population. Presentation, North American Congress for Conservation Biology, Missoula, MT.

Degagne, R., D. Bachelet, D. Grossman, M. Lundin, B. Ward. 2013. Implementation of a Web–Based Spatial Carbon Calculator for Latin America and the Caribbean. American Geophysical Union Annual Fall Meeting, San Francisco, CA.

Steinberg, S., R. Degagne, and M. Gough. 2008. Broadband demand aggregation: Planning broadband in rural Northern California. Annual ESRI International User Conference, San Diego, CA.

Degagne R., T. Henkel, S. Steinberg, L. Fox. 2006. Identifying *Dicymbe corymbosa* Monodominant Forests in Guyana Using Landsat Satellite Imagery. ASPRS Imaging and Geospatial Society Annual Conference, Las Vegas, NV.

Degagne, R. 2006. Using a raster GIS model to classify foothill yellow-legged frog (*Rana boylii*) habitat on the Trinity River, CA. Society for Conservation GIS and Society for Conservation Biology Integrated Conference, San Jose, CA.

Degagne, R. 2005. Post-breeding movement and habitat use of *Bufo boreas* in western Montana. Humboldt State University College of Natural Resources and Sciences Poster Session, Arcata, CA.

Degagne, R. March 2003. Forest succession in an old-growth hemlock-beech (*Tsuga canadensis-Fagus grandfolia*) community following a catastrophic disturbance by tornado. National Conference for Undergraduate Research, University of Utah, Salt Lake City, UT.

Degagne, R., P. Adei, E. Brown, F. Dapas, J. Esguerra, D. Kane, and K. Kane. May 2002. "Assessing the effects of the water accommodated fraction (WAF) of crude oil on the marine molluscs *Austrocochlea porcata* and *Siphonaria denticulate*." University of Newcastle Environmental Biology Research Symposium, Newcastle, Australia.