

Brendan C. Ward

Software Engineer

541.250.9544
bcward@astutespruce.com
[Website](#) | [GitHub](#) | [LinkedIn](#)

WORK EXPERIENCE

2019—present: Owner / Lead Software Engineer, Astute Spruce, LLC Corvallis, OR

I work collaboratively with science-based organizations to develop custom software solutions for real-world problems. I leverage my unique talents and background at the fusion point between science and software engineering to amplify the impact of these organizations, empower their stakeholders with higher-quality data through intuitive and compelling applications, and increase engagement within the science and conservation communities.

- Develop intuitive, highly-performant user-oriented applications using full-stack software engineering including Python, Javascript, Go, and Rust.
- Provide consulting, user interface design, and software architecture guidance.

2007—2019: Chief Software Engineer, Conservation Biology Institute Corvallis, OR

I led CBI's software development team to create tools and platforms that empower the conservation community to share, visualize, interpret, and apply geospatial data.

- Worked closely with scientists and clients to co-design highly effective, intuitive, and innovative data visualization and communication applications that allowed them to deliver value-added information. Used full-stack software engineering across a range of applications and technologies to make these applications a reality.
- Led development of [Data Basin](#), a multi-million dollar, groundbreaking geospatial data sharing and collaboration platform used by over 28k registered users (as of 2019).
- Wrote successful proposals and managed multi-disciplinary projects (won projects totaling over \$500K; led projects totaling over \$1.5M).
- Recruited and supervised staff, managed team operations, and oversaw staff development. Contributed to CBI's strategic direction and business development.

2004—2007: Biological Scientist / GIS Specialist, U.S. Forest Service Missoula, MT

I led the historical fire regime mapping and modeling team within the LANDFIRE project, an ambitious project to quantify current vegetation cover, potential vegetation, fire risk and behavior, and departure from historical conditions across the U.S.

- Added value across the entire project by contributing major improvements to data acquisition, processing, and products; these improvements saved thousands of dollars in computing and labor costs and expanded the diversity and value of project products.
- Directly applied software engineering skills to improve simulation models, resulting in major decreases in processing time, and created new tools using machine learning to classify and map vegetation types using remotely sensed imagery at landscape scales.
- Developed new methods for mapping invasive vegetation and potential fire impacts.

EDUCATION

2004: M.Sc. Forest Ecology

University of Wisconsin
Madison, WI

2002: B.Sc. Envr. Science

Western Washington University,
Bellingham, WA

HIGHLIGHTED PROJECT EXPERIENCE

U.S. Fish and Wildlife Service (USFWS): Enhanced User Engagement with Conservation Blueprints in the Southeastern U.S. (2019-2026):

- Developed and expanded the [Southeast Conservation Blueprint Explorer](#) in close collaboration with USFWS staff. It enables users to explore and apply the Southeast Conservation Blueprint, underlying landscape-level indicators, and other contextual datasets for their particular goals by providing easy access to summary and pixel-level detail, including a novel approach for visualizing pixel-level data based on the complex stack of underlying raster data. It includes the ability for users and USFWS support staff to create data-rich reports that are used in landscape and species-level conservation strategies, grant applications, and more.
- Developed the [Southeast Species Status Landscape Assessment Tool](#) (Pilot) to enable USFWS staff and partners to more easily query landscape-level datasets that may be useful for USFWS's Species Status Assessments.

Southeast Aquatic Resources Partnership (SARP): [National Aquatic Barrier Inventory & Prioritization Tool](#) (2019 - 2026):

- Developed and expanded this tool in close collaboration with SARP staff to empower members of the aquatic conservation community to better identify and prioritize aquatic barriers for removal and restoration, which will improve aquatic connectivity and support healthier aquatic ecosystems.
- Developed a highly-performant yet cost-effective map-oriented visualization framework and data processing pipeline for exploring the aquatic network characteristics of nearly a million dams and surveyed road-related barriers, as well as several million unsurveyed potential road-related barriers, using aquatic network data that include several million river and stream reaches.
- The inventory and tool have directly contributed toward identifying aquatic barriers that have already been removed or are in the process of being removed or mitigated.

Marine Conservation Institute (MCI): [Marine Protection Atlas](#) (2020-2025):

- Developed this tool in close collaboration with MCI staff to synthesize global marine protection data with a focus on highlighting marine protected areas with the highest levels of overall protection. This tool is a core component of MCI's strategy for monitoring and promoting marine protection around the world and is the public outlet for a scientifically-based assessment process developed by MCI and partners to rigorously measure the protection afforded by each marine protected area.

New Zealand Department of Conservation (DOC): Budget Allocation Application (2019-2025):

- Developed and expanded this tool to assist with DOC's 10-year budgeting process. It enables staff and senior leaders to explore the tradeoffs of different levels of resources allocated to different objectives across the DOC's internal organizational structure.