SCALING WATER RESILIENCE AND STEWARDSHIP

SRP

ASU Julie Ann Wrigley Global Futures Laboratory
Arizona State University

Arizona Water Innovation Initiative

Date: Wednesday, September 18, 2024, 9:45 am to 6:00 pm

Location: Walton Center for Planetary Health, Arizona State University, Tempe Campus, 777 E. University Dr., Tempe, AZ, 85281.

Impact through Science, Data, and Corporate Engagement

Background: Forests and grasslands play a significant role in providing freshwater for ecosystems and regional economies. However, these ecosystems are at risk of elevated levels of drought, wildfire, and land degradation. Under increasing water risks, private sector investors need methods to quantify and verify water related benefits to report on corporate water goals. Practitioners need to understand the latest science and data available to scale their water stewardship activities and attract investments.

Description: A science-based training opportunity on available tools and methods to calculate and value the benefits of water stewardship activities and ecosystem management to achieve water resilience. This is an excellent networking opportunity to scale solutions for addressing water challenges and meet sustainability goals.

Audience: Local leaders, corporations, practitioners and researchers from private industry, non-profit organizations, government agencies and academic institutions.

AGENDA

Time	Activity
9:45 am – 10:15 am	Registration/Networking – Light Breakfast
10:15 am – 10:20 am	Welcome (Kelly Barr, ASU)
10:20 am – 10:30 am	Opening Remarks (Enrique Vivoni, ASU)
10:30 am – 11:10 am	A Crossroads Moment for Water Resilience: Impact vs. Accounting Keynote Speaker – Todd Reeve, CEO, Bonneville Environmental Foundation (BEF)
11:15 pm – 12:15 pm	Corporate Panel Discussion (Moderator: Elvy Barton, Water and Forest Sustainability Manager at Salt River Project, SRP) • Lawren Cooper, Director of Sustainability at PepsiCo Beverages North America (PBNA) • Laura Meadors, Global Sustainability Programs Manager at Apple • Aaron Blawn, Fab Facilities Operations Site Manager for the Ocotillo Campus, Intel
12:30 pm – 1:30 pm	Lunch
1:45 pm – 2:45 pm	**Afternoon Sessions 1:**

Option A: *Using Applied Innovation to Scale Water Stewardship.* Wren Raming, Postdoctoral Researcher, ASU, Nathan Swain, Director of Development Services, Aquaveo, and Hannah Buchanan, Forest Health Analyst, SRP

Option B: *Investing in Forest Restoration and Green Infrastructure.* Micah Elias, Director for Natural Capital, Blue Forest.

2:55 pm – 3:55 pm **Afternoon Session 2:**

Option A: *Catalyzing Investment in Nature-based Solutions across Headwaters of the Southwest: Redefining the "What's In It For Me".* Carina Bracer, Director of Conservation Finance and Natural Climate Solutions, and Rebecca Davidson, Sr. Director of Conservation Programs. National Forest Foundation.

Option B: *Forest Carbon Monitoring: Advances in Mapping Tree-scale Change using Planet's High Resolution Satellite Constellation.* Christopher Anderson, Lead Scientist, Forest Ecosystems, Planet.

3:55 pm – 4:15 pm	Break
4:15 pm – 4:45 pm	Closing Remarks (Elvy Barton, SRP, Michael Bernier, Swire Coca-Cola, Enrique Vivoni, ASU).
4:45 pm – 6:00 pm	Reception

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Scaling Water Resilience and Stewardship

Afternoon Session 1A

Using Applied Innovation to Scale Water Stewardship

Time

1:45 p.m. to 2:45 p.m.

Location

Biodesign (Building B) Auditorium – B105

Abstract: Forest thinning has emerged as a promising strategy to mitigate severe wildfire risks while increasing water yield and sub-surface water storage. These water benefits offer opportunities for corporations and NGOs to meet sustainability goals and address shared water challenges with local communities. However, accurately predicting the hydrological impacts of thinning remains challenging. To address this, we introduce an innovative approach that leverages high-resolution lidar data, by constraining individual computational elements of the TIN-based Real-time Integrated Basin Simulator (tRIBS) hydrological model to individual trees. This method effectively leverages the increasing availability of lidar and other high resolution data sets and, in turn, offers detailed and accurate water yield predictions of forest thinning scenarios. We demonstrate the scalability of this approach through Forest Hydrology Model Builder, a cloud-based web application that allows users to assemble, simulate, and analyze forest thinning scenarios using the tRIBS model.

This tool has the potential to empower diverse stakeholders, from corporate sustainability teams to local water managers, to quantify the water benefits of forest thinning. By bridging the gap between advanced hydrological modeling and practical forest management, Forest Hydrology Model Builder represents a significant step forward in promoting sustainable water management practices and climate change adaptation strategies in forested landscapes.

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Afternoon Session 1A

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Location

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Speaker Bios:

Hannah Buchanan is a Forest Health Analyst at Salt River Project. In her role, Hannah leads SRP's forest health co-benefit analysis program, working with public and private research institutions to better understand the effects of forest restoration on watershed health. Hannah holds a J.D. from the Sandra Day O'Connor College of Law, specializing in water and environmental law.

Wren Raming is a postdoctoral researcher at the Center for Hydrologic Innovations, Ira A. Fulton Schools of Engineering, Arizona State University (ASU), working with Dr. Enrique Vivoni. He models the effects of forest thinning on the hydrological cycle in Arizona's Salt and Verde River basins. Wren holds a PhD in geological sciences from ASU's School of Earth and Space Exploration, specializing in hydrology and surface processes.

Nathan Swain is the Director of Development Services at Aquaveo specializing in developing web solutions for water resources modeling and hydroinformatics. He completed a Ph.D. at Brigham Young University, Provo, Utah, USA with an emphasis on Civil and Environmental Engineering and Hydroinformatics. His research culminated in the development of Tethys Platform, a Django-powered, open-source web development platform targeted to ease the development of scientific web applications.

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Afternoon Session 1B

Investing in Forest Restoration and Green Infrastructure

Abstract: Blue Forest works to increase the pace and scale of forest restoration to address the wildfire crisis. By leveraging cutting edge scientific tools and partnerships, Blue Forest quantifies the benefits of restoration and drives private investment into forest management. This session will provide an overview of Blue Forest's work with a particular focus on the process and tools used to quantify the water benefits of management and increased fire resilience in forests.

Time

1:45 p.m. to 2:45 p.m.

Location

Biodesign (Building A) Basement AL1-10

Speaker Bio

Dr. Micah Elias is the Director of Natural Capital at Blue Forest where he leads the development of the tools and strategies to value the benefits of forest restoration. His work spans carbon markets, water security, biodiversity, biomass utilization, and wildfire risk reduction to natural and built infrastructure. He earned his PhD from UC Berkeley focusing on the interactions between forest management, wildfire, carbon markets, and private investment.

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Scaling Water Resilience and Stewardship

Afternoon Session 2A

Catalyzing investment in nature-based solutions across headwaters of the Southwest: Redefining the "what's in it for me".

Abstract: National Forest System lands across the United States, and especially in the West, provide the largest single source of clean drinking water for millions of people whether in bustling cities or rural communities. They are encompassed by vast forested landscapes which also help mitigate climate impacts and keep air clean. These lands are home to thousands of native fish and wildlife species and are culturally significant in immeasurable ways. The National Forest Foundation (NFF) works hand-in-hand with the US Forest Service and partners to fulfill a collective responsibility to steward these lands and protect them from degradation and to restore resilience and health to diverse ecosystems. In the Southwest, the NFF focuses efforts on improving forest and watershed health across millions of acres, and in doing so, generating a variety of valuable co-benefits that corporations and stakeholders are committed to supporting. Learn how NFF's Northern Arizona Forest Fund and the Water Benefits Program are incentivizing investment by redefining "what's in it for me" through assessing and quantifying water related metrics (and more) and multiplying impacts through strategic collaboration.

Time

2:55 p.m. to 3:55 p.m.

Location

Biodesign (Building B) Auditorium – B105

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Afternoon Session 2A

Catalyzing investment in nature-based solutions across headwaters of the Southwest: Redefining the "what's in it for me".

Time

2:55 p.m. to 3:55 p.m.

Location

Biodesign (Building B) Auditorium – B105

Speaker Bios:

Carina Bracer joined the NFF in 2022 as Director of Conservation Finance and Natural Climate Solutions. Her team supports the organization's strategy and practices related to outcomes-focused partnerships and enables scaling of project development and implementation through robust funding and finance mechanisms. Carina enjoys contributing to NFFs strategy and practices related to partnerships, projects and programs that utilize innovative funding to increase the pace and scale of forest health and climate resilience. Carina brings experience related to scaling quantifiable climate-related benefits across the land use sector, with expertise in voluntary carbon markets. Prior to her recent roles at Verra, Climate Focus and the Ecosystem Marketplace, Carina managed Forest Trend's Katoomba Group, fostering ecosystem service payment initiatives across Latin America, leveraging the water, carbon, and biodiversity values of natural landscapes.

Rebecca Davidson joined the National Forest Foundation in 2016 and serves as a Senior Director of Conservation Programs, providing direction and support to NFF's field teams in the Southwest, Southern California, Northern Rockies, the Great Lakes, and the Midwest. Rebecca also supports the development and trajectory of NFF's Conservation Partnership and Conservation Connect programs. In her role, Rebecca acts as a liaison with the U.S. Forest Service at the Regional and National Levels. She helps implement NFF's vision, mission, and ongoing plans for strategic growth and on-the-ground impacts. Before her start at NFF, Rebecca worked in the field of water rights and policy at the Salt River Project, and wildlife and habitat management at the Arizona Game and Fish Department. Rebecca has a BS in Environmental Science from Northern Arizona University and a Master of Environmental Law and Policy from Vermont Law School.

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Afternoon Session 2B

Investing Forest Carbon Monitoring Advances in Mapping Tree-scale Change using Planet's High Resolution satellite constellation

Time

2:55 p.m. to 3:55 p.m.

Location

Biodesign (Building A) Basement AL1-10

Abstract: Blue Watershed health and forest health are often closely linked, as highlighted by emerging green bonds that fund forest management strategies to improve water quality and soil stability. Monitoring, reporting, and verification on forest change is an essential component of project diligence yet is difficult to perform at scale. Satellite data provide a promising solution, providing standardized, high quality, and regularly-updated measurements of forest structure and forest health over time. This talk will describe two new products from Planet that map patterns of canopy cover, canopy height, and aboveground carbon density over time. The presentation in this section is expected to be short, with an emphasis placed on Q&A, and a discussion of how forest monitoring technologies can be used to support large-scale investments in water resilience and stewardship.

Dr. Christopher Anderson is the is the Lead Scientist for the Forest Ecosystems team at Planet, building forest mapping systems to reveal how the world's ecosystems are changing from the vantage point of space. Previously, he was the co-founder and CTO of Salo Sciences, a conservation technology company, and he completed his PhD. at Stanford University at the Center for Conservation Biology.