TAHOE SCIENCE ADVISORY COUNCIL

Upland Ecosystem Science to Action

2021-2023

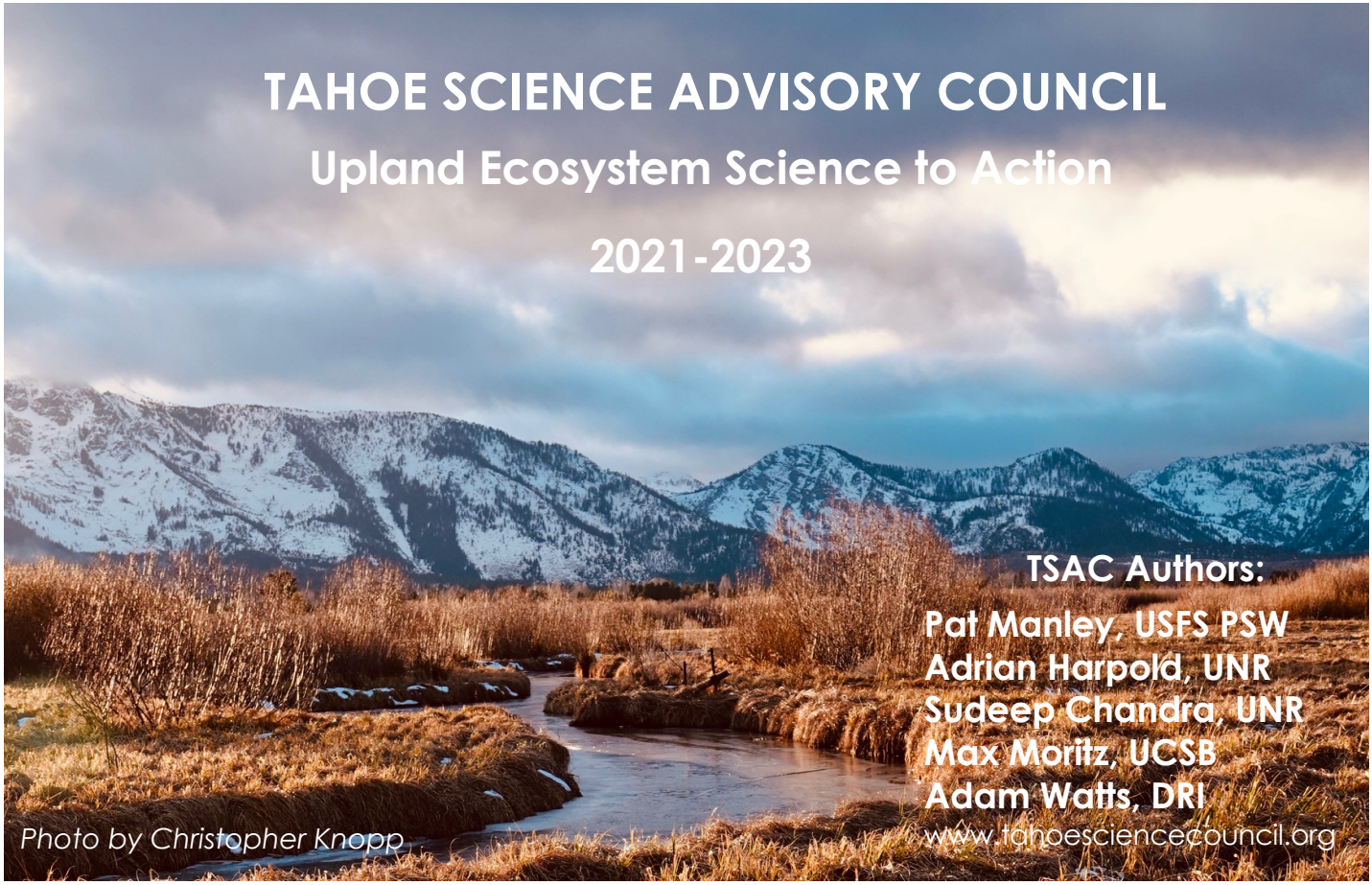

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Photo by Christopher Knopp

Foundation

Scientific research has an increasingly important role in achieving land management objectives. New research consistently continues to expand our knowledge of natural systems, and it helps us predict future conditions and guide planning to respond to climate change and related challenges. No place is this more apparent than Lake Tahoe.

There are 63 watersheds that include a diverse array of terrestrial and aquatic ecosystems and feed directly into Lake Tahoe. As a result, the health of the Lake is highly dependent on the health of these upland ecosystems. As part of the 2019/2020 work plan, the Tahoe Science Advisory Council (Council) committed to developing an Upland Ecosystem Science to Action Plan that guides research and monitoring needs to promote the resilience of upland ecosystems, particularly focused on the threat of climate change and the persistence of valued benefits and services.

Objective

The objective of Upland Ecosystem Science to Action is to establish and implement a forward-looking vision for near- and long-term research that improves future outcomes, promotes resilience, protects resources, adapts to change, and enhances ecological and community sustainability. The members of the Upland Science Team are conducting a synthesis of Lake Tahoe upland ecosystem research investments to inform and shape the plan components outlined below.

Co-Development Process

Upland Ecosystem Science to Action is based on the premise that an effective research-management partnership is the key to developing and implementing an effective research agenda that delivers applicable and impactful science products.

Priority Focal Areas

1) FORESTS AND FIRE
Forest health and fire dynamics are a primary concern in the Lake Tahoe basin. They have a significant influence on nearly every aspect of environmental quality. An improved understanding of forest health and fire dynamics is needed to enable managers to successfully respond to the challenge of future forest resilience and sustainability.

2) TERRESTRIAL AND AQUATIC LINKAGES
Terrestrial and aquatic ecosystems are highly intertwined. Forest management activities affect forest hydrology, water availability, and downslope aquatic ecosystems. An improved understanding of these linkages is needed to successfully co-manage terrestrial and aquatic ecosystems across the basin.

3) BIOLOGICAL INTEGRITY
Basic data on the occurrence, abundance, and distribution of plants and animals are fundamental to understanding and predicting biodiversity risks and vulnerabilities. An improved understanding of current distributions and anticipated future climate responses is needed to enable managers to design effective persistence and adaptation strategies in response to climate change.

Next Steps - 2021-2023

1 - NEAR-TERM RESEARCH INVESTMENTS
The Council identified key questions and specific information needs for each priority focal area. The activities include gathering, analyzing, and evaluating existing information and tools, and improving tools based largely on available data.

2 - LONGER-TERM RESEARCH NEEDS
The Council will develop a robust set of longer-term (10-year) research needs and priorities integrating across Upland and Lake Tahoe Science to Action Plans. Projects will be co-developed with stakeholders and informed by the synthesis of research progress to-date and near-term research investments.

3 - CAPACITY BUILDING
The Council will develop research proposals targeting funding sources inside and outside the basin to advance cutting-edge modeling and analytical capacity that supports and informs management across the basin and into the future.