

**DESIRED LANDSCAPE OUTCOMES**  
**TAHOE CENTRAL SIERRA INITIATIVE**  
2018/07/30

A group of representatives from collaboratives working to restore resilience in the Tahoe-Central Sierra Initiative (TCSI) landscape developed these proposed Desired Landscape Outcomes (DLOs). The TCSI hosted a Comparative Resilience Workshop in June 2018 to initiate DLO development. At the workshop distinguished ecologists at the forefront of resilience research provided foundational concepts for developing DLOs. Planners and land managers experienced in assessing and managing for resilience shared their approaches to linking management actions to resilience. The TCSI Steering Committee members in attendance reinforced the need, urgency, and opportunity to expedite the adoption of a cohesive, scientific approach to landscape restoration.

**Defining Desired Landscape Outcomes**

A DLO describes patterns and processes that characterize resilience across a landscape as a whole over decades. Resilience refers to the capacity of a system to respond to disturbance without shifting to a different state. The DLOs incorporate the presence and activities of people as part of the landscape, make human values explicit, and integrate social and ecological systems. Achieving the DLOs will build the resilience of the TCSI landscape to climate change, disturbance, extreme events, and management impacts.

Historically, topography, disturbance regimes, and other drivers of vegetation generated and sustained the fine-scale heterogeneity and range of conditions present in the TCSI landscape. The landscape had high resilience to disturbances like fire and drought, and the ability to respond and adapt to changing climate. The past 170 years of settlement by the United States transformed the landscape and increased the intensity and scale of disturbances.

Today the landscape has low resilience and adaptive capacity, and climate change will continue to amplify disturbances. In particular, wildfire suppression and extensive logging during the late 1800's reduced fine-scale forest heterogeneity in the Sierra Nevada and created a more homogeneous forest. Today, the same types of disturbances that enhanced forest heterogeneity and resilience in the past – fire, drought, insect and disease – are now more likely to threaten the ecological and social benefits that forests provide.

## **Applying Desired Landscape Outcomes**

These DLOs connect the science, research, and management efforts in the TCSI landscape with the policy, investment, and communications needs of TCSI. This will especially benefit the future work of the TCSI Science Enterprise, Communications Committee, and Core Team. The group designed the DLOs to meet five primary criteria:

- 1) Rely on the best available science
- 2) Allow for quantifiable measurement
- 3) Respond to management
- 4) Translate complex processes into straightforward, compelling messages
- 5) Allow for consistent yet flexible application throughout the greater TCSI landscape

TCSI will use the DLOs to measure and compare progress among the TCSI initiatives and other forest restoration efforts in the Central Sierra through a resilience dashboard. The DLOs will guide the TCSI's efforts to prioritize actions and set landscape-scale goals. This includes helping to guide the development of smaller scale projects and research inquiries that would otherwise exist in isolation.

## TCSI Desired Landscape Outcomes

<p><b>Vegetation</b></p>	<p>Vegetative conditions, including composition and structure, are congruent with topography and desired disturbance dynamics through time. Heterogeneity is accentuated at ecologically appropriate scales, resulting in vegetation mosaics across the landscape.</p>
<p><b>Fire</b></p>	<p>When fire burns, it burns in an ecologically beneficial and socially acceptable way, it perpetuates landscape heterogeneity, and rarely threatens human safety or infrastructure.</p>
<p><b>Communities</b></p>	<p>Society lives safely with wildfire, and is accepting of both natural ecological dynamics and management for restoration and hazard reduction. Beneficial fire is encouraged. Non-planned human-caused ignitions are rare, and unwanted fires are suppressed.</p>
<p><b>Wildlife</b></p>	<p>The diverse and interacting network of native species and ecological communities is present across the landscape in a sufficiently abundant and distributed manner to support and sustain their full suite of ecological and cultural roles.</p>
<p><b>Water</b></p>	<p>Water reliability, quantity, quality, and connectivity are buffered against precipitation variability and disturbance by the integrity of the watershed.</p>
<p><b>Economy</b></p>	<p>Restoration, management and recreation activities support a diverse economy. Forest products are harvested sustainably and utilized at their highest and best use, promoting community workforce development and sustainable capacity for restoration and hazard reduction activities.</p>