

Background

The Sierra Nevada Conservancy (SNC) 2006 Strategic Plan identifies the need to develop System Indicators to measure progress in improving the environmental, economic, and social well-being of the Sierra Nevada Region. Since that time, staff has worked diligently to overcome data limitations and other obstacles in order to develop a set of Indicator Reports that include all of the nineteen Board approved Indicators. While staff previously reported to the Board that there would be five Indicator Reports, further analysis suggests that a sixth report is needed to deal comprehensively with data related to fire threat within the entire Region. Therefore, the six reports are:

- Demographics and the Economy
- Land Conserved and Habitat
- Water and Air Quality and Climate
- Forest Health and Carbon Storage
- Agricultural Lands and Ranches
- Fire Threat

The first report on Demographics and the Economy was presented at the September 2011 Board Meeting. The second report on Land Conservation and Habitat was presented at the December 2011 Board meeting. The third report on Water and Air Quality and Climate was presented at this September 2012 Board meeting. This fourth report on Sierra Nevada forests is being presented at this December 2012 Board meeting.

While staff are now proposing to develop a separate Indicator Report to address fire threat, there is also an important linkage between certain data sets related to fire and the health of Sierra forests. Therefore, some fire-related information is included in this report as it relates to forest health. The subsequent Indicator Report on fire threat will build on this information and also provide a comprehensive set of data on fire threat that addresses the threat not only to forest lands within the Sierra, but agricultural lands and communities as well.

Forest System Indicators Report

This fourth report includes Indicators related to Forest Health and Carbon Storage on forest lands. Because we could not determine a single measurement of forest health in the Region, three data sets are used to provide an indication of the health of the forests in the Region. The specific indicators included in this report are:

- Forest Health
 - Fire Return Interval Departure(FRID) (Number of acres in each FRID Condition Class);
 - Wildfire Threats to Ecosystems (Number of acres within each Priority Level for addressing wildfire threat); and,
 - Forest Pest Impact and Threat (Number of acres identified for each Landscape Priority Level for Pest Impacts and Prevention);

- Carbon storage on forest lands (total tons of above-ground forest biomass and the estimated amount of carbon contained therein)

In addition, this report describes the extent, character, and ownership of forest land in the Sierra Nevada.

Report Highlights

- Productive forest land within the SNC Region totals over 10.5 million acres, covering 43 percent of the Region.
- Plumas and Shasta Counties have the most forested acres (1.4 and 1 million respectively within the SNC Region) followed closely by Lassen and Tulare Counties (about 900,000 each.)
- Seventy percent of Sierra forests are under public ownership; Yuba, Butte, and Calaveras Counties have the least public forest land with 39 percent, 37 percent, and 34 percent respectively. Public ownership of forest land in Fresno, Alpine, Inyo, Mono, and Tulare Counties runs from 95 to 98 percent.
- In a historical, natural, and healthy fire regime, nearly half of Sierra forests would experience fire mostly of low severity every 12 years and three-quarters would experience fire every 20 years. However, only two-tenths of one percent of Sierra forest land has burned repeatedly at least every 20 years in modern times, and 74 percent of Sierra forest land has not had a single wildfire or prescribed burn in the last 103 years.
- Much of the Sierra forest land is vulnerable to high severity wildfire. More than half of forest land within the Region – 5.5 million acres – is classified as ‘high priority’ by CalFire for treatment to prevent severe wildfire threats. The North Central and North Subregions had the most high priority acres with 1.6 million and 1.5 million respectively.
- High severity wildfire poses a threat to watershed function, particularly in the northern half of the SNC Region. Nearly two-thirds of the watershed area in the North Central and North Subregions are classified as high threat.
- Insects and diseases are a natural and necessary part of healthy forests, but tree mortality rates have increased from historical rates. About 3.6 million acres of Sierra forest land is identified for some amount of restoration need from pest damage, with 1.2 million acres classified as high priority.
- Sierra mixed-conifer is the most impacted forest type from pest damage, with 1.7 million acres (36 percent of this forest type) identified for restoration need to mitigate damage.
- Over one million acres of Sierra forest not yet significantly impacted by pests are identified for some level of needed action to prevent future pest infestation.
- Sierra productive forest land holds about 840 million tons of above-ground biomass, representing approximately 420 million tons of stored carbon. About 62 percent of this biomass/carbon is on public lands.

- Nearly half of total forest biomass is in mixed conifer forest. The North Central Subregion contains the most forest biomass, followed by the South Subregion (with 220 million and 175 million tons respectively).

Next Steps

The data in this report, along with the methodologies and frameworks that have been developed, will allow consistent tracking of forest changes and impacts over time. Information relative to these indicators will be available on the SNC Web site and will be updated periodically as the underlying data is updated.

In addition to providing information relevant to the administration of SNC's programs throughout the Sierra Nevada Region, we hope that this information will also be useful to others located in or working in the Region, including other State agencies, as they develop and implement their own projects and programs.

Recommendation

Staff recommends the Board approve this fourth System Indicators report after making any revisions resulting from its review.