

### Sp4. Oral

#### **Long-Term trends of Sierra Nevada ecological systems: a first diagnosis**

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The synergies between researchers and managers have allowed to develop a monitoring program of ecological processes and information management in Sierra Nevada (South of Spain). Thanks to this common effort, we are able to make an initial diagnosis of the situation. We have identified the main expected impacts in the context of global change, and analyzed the biophysical and socioeconomic data available to assess exposure, sensitivity and adaptive capacity of ecosystems to new scenarios. Sierra Nevada ecosystems act as sensors for early detection of signs of change, due to the high altitude and geographical position of this Mediterranean Mountain. In our project, we are also evaluating the suitability of different management actions to improve adaptation and provision of ecosystem services in the new scenarios. The study incorporates a retrospective of past human management, in order to understand the current state of conservation of ecosystems and to make plausible forecasts on its response to future scenarios. The results show: 1) An ancestral human footprint on the ecosystems of Sierra Nevada, particularly evident during the twentieth century, 2) A Moderate climate warming and reduction and increased variability in precipitation, with a consequent reduction in coverage snow during the last decades, 3) Significant changes in biophysical characteristics of rivers and mountain lakes, 4) Changes in the altitudinal distribution and phenology of many species of plants and animals.