Abstract
Biodiversity was estimated and characterized in four temperate ecosystems in Sierra Juarez, Oaxaca, Mexico: an oak-dominated chaparral, two oak forests, and one pine-oak forest (from low to high elevation). Although, the \( \phi \) diversity was relatively low, particularly for tree species, species turnover was very high even between nearby stands, as indicated by the significant contribution of the \( \phi \) diversity (richness, Shannon) to total diversity. The lowest diversity of trees was found at the lowest elevation, whereas the diversity of shrubs decreased with elevation. Tree basal area increased as the shrub cover diminished. Canopy cover, soil litter cover, and tree basal area increased with elevation where humidity is higher, suggesting that humidity is limiting biomass. A deficit of trees in the smallest DBH class coupled with low density of seedlings and small-sized individuals in all sites suggests low recruitment in recent times. On the basis of an estimated shift upwards of the actual rainfall levels of 175 m in altitude by 2030, we predict the expansion of chaparral at the expense of temperate forest and the extinction of high-altitude species. Such predictions appear to be consistent with the observed differences among study sites in size structure, density of saplings and standing dead trees. It is possible that in the near future the sierras in Oaxaca will not have the current climatic conditions to sustain the high altitude vegetation. It is recommended to examine the costs and benefits of active conservation in this sierra, such as assisted migration, and genetic improving, particularly for high-altitude species.

Keywords
chaparral, climate change, conservation, diversity, oak forest, Oaxaca, pine-oak forest, vegetation structur.