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A checklist and floristic summary of the vascular plants of Napa County, California

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Abstract

Napa County contains particularly high levels of biological diversity in a variety of categories and is considered one of ten localized areas in California that contain the highest numbers of native and endemic plant species. Here we present a floristic summary based on a new annotated checklist of the flora of this uniquely diverse region. The checklist was developed by combining several local and statewide floristic data sources that represent herbarium collection records and other observations from Napa County. The final checklist of vascular plants for Napa County consists of 1,716 taxa, including 1,418 native taxa from 101 different families. Alarming, 126 native taxa in Napa County were listed as rare or threatened to some degree. The results of this study demonstrate that for its size, Napa County contains remarkably high levels of plant diversity as well as high concentrations of special status taxa as compared to other areas within the California Floristic Province, the State of California as a whole, and other regions within global biodiversity hotspots characterized by Mediterranean climates. In particular, this analysis highlights the floristic significance of Napa County at global and local levels, and thus, this review is an important step to help promote and facilitate long term research and conservation planning in the area.

Key words: biodiversity hotspots, California floristic province, Mediterranean biome, rare taxa, species-area models

Introduction

California is considered one of the most biologically diverse regions of the world (Myers *et al.* 2000, Orme *et al.* 2005, Brooks *et al.* 2006) and the state ranks high on the list of areas within the USA with unusually large numbers of rare and endangered species (Dobson *et al.* 1997, Chaplin *et al.* 2000). Many parts of California also rank in the highest categories for human population densities, a factor contributing directly to habitat degradation, the leading cause of species loss in the state (Parisi 2003). California is classified as both a national hotspot of imperiled biodiversity (Abbitt *et al.* 2000, Chaplin *et al.* 2000) and one of the 25 global hotspots of biodiversity (Myers *et al.* 2000) because of its high diversity levels and the presence of imminent threats.

Recent research suggests that species richness patterns are not evenly distributed within global biodiversity hotspots and that local hotspots of diversity need to be identified (Médail & Quézel 1997, 1999, Harris *et al.* 2005, Murray-Smith *et al.* 2008). Compared to the majority of California, Napa County contains particularly high levels of diversity for a number of groups of organisms ranging from plants to amphibians (Parisi 2003) and it is considered one of ten areas in the state that contain the richest concentrations of native and endemic plant species (Stebbins & Major 1965, Thorne *et al.* 2004). Stebbins and Major (1965) strongly encouraged the development of local level plant checklists and specifically noted the absence of published data from places such as Napa County. Despite Napa's floristic significance, however, the four-county vascular plant checklist and floristic summary prepared by Major (1963) remains the only checklist containing local level data for the area. Recently several researchers have renewed the argument that developing checklists for all fields of biological research is critical to understanding and conserving