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A Comparative Overview of Fire and Flora in Mediterranean Climate Ecosystems

Four regions of the world share a similar climate and structurally similar plant communities with the Mediterranean Basin. These five areas, known collectively as “mediterranean-type climate (MTC) regions”, are the focus of a review by Jon Keeley published in the *Israel Journal of Ecology and Evolution*.

MTC regions are dominated by evergreen sclerophyllous-leaved shrublands, semi-deciduous scrub, and woodlands, all of which are prone to widespread crown fires. Summer droughts produce an annual fire hazard that contributes to a highly predictable fire regime.

Fire has been an important factor driving the convergence of these systems and is reflected in certain plant traits, as well as in delayed reproduction, which restricts recruitment to a postfire pulse of seedlings.

On fertile soils where postfire resprouting is very rapid, there is limited opportunity for postfire seedling success. Woody taxa in these soils do not exhibit delayed reproduction, and such **fire-independent recruitment** is widespread in the flora of MTC regions of the Mediterranean Basin and California, although **postfire seeding** does dominate the more arid areas of those regions.

On nutrient-poor substrates, such as in South Africa and Western Australia, postfire seeding is very widespread in these flora, since postfire resprouters do not have an advantage over postfire seedlings on such sites.

Chile’s MTC region has its own unique aspects. Evidence suggests Chile had fire-prone landscapes in the Tertiary Period, but ignition risks were reduced after the late Miocene Andean Range uplift, which blocked summer lightning storms from moving into the region.

With annual fire hazard and highly flammable vegetation juxtaposed with metropolitan centers, all five MTC regions pose significant fire management challenges. Management across the five MTC landscapes will need to account for the differences in regional fuel loads, plant natural history and population density.

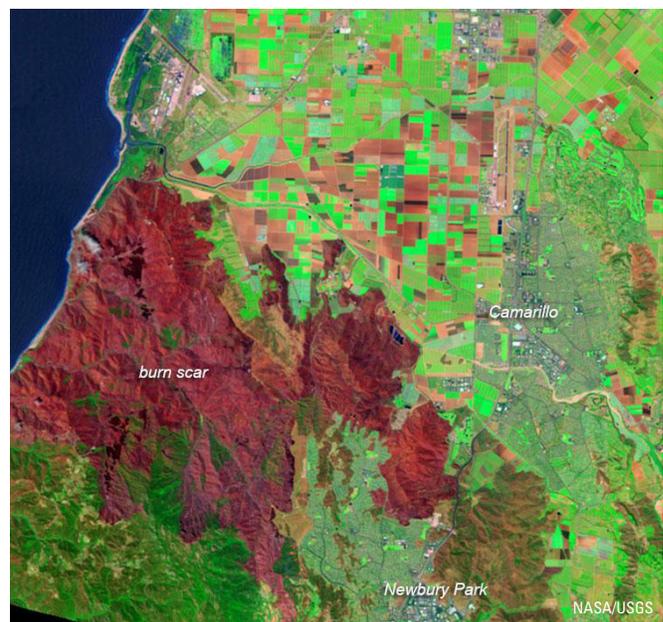
Management Implications

- Fire has been an important factor driving the evolution of plants in MTC regions, although local soil geology has additionally shaped the reproductive strategy of plants in each region.
- Fire management and natural resource management across the five MTC landscapes will need to account for the differences in regional fuel loads, plant natural history and population density.

THIS BRIEF REFERS TO:

Keeley, JE. 2012. Fire in Mediterranean climate ecosystems—a comparative overview. *Israel Journal of Ecology & Evolution* 58(2-3): 123-135. doi: 10.1560/IJEE.58.2-3.123

<http://www.werc.usgs.gov/ProductDetails.aspx?ID=4902>
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Mediterranean-Type Regions juxtapose fire hazard and highly flammable vegetation, often directly adjacent to densely populated urban areas.