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# Israel's Carmel Fire and the Shifting Baselines of Fire in the Mediterranean Region

The “Carmel 2010 Fire” was the largest in Israel’s history, burning 2,500 hectares of forest, destroying 81 homes and damaging 173 more, and incurring human casualties. But can these results be explained simply by extraordinary weather conditions at the time of the fire? A special issue of the *Israel Journal of Ecology & Evolution*, with invited papers by USGS fire ecologist Jon Keeley, presents a review of fire impacts on the flora and fauna of the Mediterranean region, and ways to recognize the shifting needs of fire management.

A cursory review of Mount Carmel’s fire-history reveals that from 1944 to 1982, the frequency of large fires was about once every 6 years — whereas during 1983–2010 it increased to about one large fire every 3 years. Anticipated climatic changes in the region may cause repetitions of such weather conditions.

The highly variable responses to fire across scales (plot to landscape), organization levels (genes, individuals, population, and communities), taxonomic groups and trophic levels makes it practically impossible to draw broad management conclusions that address the diversity of negative effects of Mediterranean fires. Fire regimes conducive to the success of some taxa may have opposite effects on other taxa.

But two conclusions can be drawn. First, due to the huge difficulty suppressing wildfires under extreme weather conditions — conditions likely to become more frequent in the future — managers may need to consider shifting resources away from only suppressing fires, to implementing pre-fire forest management techniques and increased emphasis on fire prevention.

Second, managers need to diversify their post-fire management practices to include a greater diversity of plant species and a “mosaic pattern” at all possible landscape scales. This will likely enhance biodiversity resilience and potentially improve ecosystem functions on post-fire landscapes, while minimizing the negative effects of any single form of management treatment.

## Management Implications

- Fire regimes in the Mediterranean are expected to shift with changing climate conditions.
- Managers in the Mediterranean may need to consider shifting resources away from only suppressing fires, to implementing pre-fire application of forest management techniques and increased fire prevention.
- The application of different postfire restoration regimes in relatively small areas could enhance biodiversity resilience on postfire landscapes, while minimizing the negative effects of any single form of management treatment.

### THIS BRIEF REFERS TO:

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Fire on Mount Carmel on December 2, 2010, at its starting stages.