

Fire Season Aromatic Plant Conservation Strategies by Region

Mediterranean region aromatic plant conservation strategies

- Favor drought-tolerant, less flammable aromatics (e.g., oregano, myrtle)
- Prune oil-rich shrubs like rosemary and thyme regularly
- Create olive-based firebreaks with lower flammability foliage
- Revive traditional coppicing and controlled burns
- Create a seed bank of regional aromatic plants

Southwest U.S.

- Replace flammable ornamental sagebrush with native fire-resilient species
- Use gravel and native groundcover as buffers
- Incorporate aloe and yucca into landscaping
- Educate communities on VOC volatility during drought
- Create a seed banks of all Southwest US species of sagebrush

Australian Bushlands

- Map Eucalyptus and Melaleuca concentrations for risk zoning
- Practice cultural burning with Aboriginal leaders
- Encourage use of native succulents in fire-prone areas
- Create community greenbelts with low-VOC species
- As fire regimes become more frequent and severe, seed banking becomes a critical hedge against ecological collapse, genetic erosion, and post-fire recovery failure.

Horn of Africa

Boswellia and Commiphora are keystone aromatic species, producing frankincense (*Boswellia*) and myrrh (*Commiphora*), with deep spiritual, medicinal, and economic significance. Natural populations are in severe decline and *Boswellia papyrifera* populations are not regenerating in much of Ethiopia and Eritrea. Resin overharvesting, habitat loss, grazing pressure, and increasing fire events threaten natural regeneration.

- Protect *Boswellia* and *Commiphora* groves through seasonal thinning
- Harvest resin sustainably to avoid over-drying and fire sensitivity
- Combine agroforestry with a shaded, fire-resistant understory
- Even though recalcitrant or requiring treatment to germinate, establish seed banks for endangered aromatic trees

Seed Banking for *Boswellia* and *Commiphora*: Fragile Giants of the Aromatic World

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Seed Biology and Conservation Challenges

***Boswellia* spp.**

- Seeds are **recalcitrant** or **intermediate**—they lose viability quickly when dried or stored.
- They exhibit **low natural germination rates** in the wild (less than 20% in many species).
- Trees often reproduce poorly due to **overharvesting**, **poor pollination**, or **bark damage**.

***Commiphora* spp.**

- Seed viability varies widely by species.
- Some species have hard seed coats requiring **scarification** or **smoke treatment** to germinate.
- Often dispersed by animals—if those species decline, so does dispersal.