**Ecosystem Type: Scrublands/Shrublands**

**Category: Biodiversity Conservation**

1. **Materials**

***Supplier*** – Scrublands are part of the Mediterranean biome and is one of the most rich ecosystem types of floral species (Medail and Quezel, 1999). Even though shrubland species are susceptible to fires, this sensitivity maintains the biodiversity (Shlisky et al., 2007; Syphard, Clarke, and Franklin, 2007), making them an important group to protect (Kemper, Cowling, and Richardson, 1999).

***Driver*** – not applicable

***Demander*** – not applicable

1. **Nutrition**

***Supplier*** – not applicable

***Driver*** -not applicable

***Demander*** - not applicable

1. **Energy**

***Supplier*** – not applicable

***Driver*** – not applicable

***Demander*** – not applicable

1. **Mediation of Waste, Toxics, and Other Nuisances**

***Supplier*** – no literature review available

***Driver*** – not applicable

***Demander*** – not applicable

1. **Mediation of Flows**

***Supplier*** – no literature review available

***Driver*** – not applicable

***Demander*** – not applicable

1. **Maintenance of Physical, Chemical, and Biological Indicators**

***Supplier*** – Shrublands are home to many types of species that maintain the physical, chemical, and biological structure of the ecosystem. For example, mycorrhizal fungal species and biological soil crusts maintain the stability of soils to support the diversity of plant species in these ecosystems (Chaudhary et al., 2009).

***Driver*** – not applicable

***Demander*** – not applicable

1. **Spiritual, Symbolic, Religious, and Social Experiences**

***Supplier*** – A recent study found that people are realizing the importance of the vegetative biodiversity shrublands support, so they are becoming more accepting of the need for prescribed fires on these ecosystems only if it helps to support the life of scrub/shrub species (Moskwa, 2018).

***Driver*** – not applicable

***Demander*** – not applicable

1. **Physical and Intellectual Interactions w/ Biota, Ecosystems, and Land/Seascapes**

***Supplier*** – People that live in shrubland ecosystems can interact with various bird species permitting that the land is not too dense with housing development (Burhans and Thompson, 2006). The biodiversity of shrublands also support the presence of livestock species (Garcia et al., 2013), providing humans with a way to interact with agricultural animals.

***Driver*** – not applicable

***Demander*** - not applicable

**Sources:**

Burhans, D.E. and Thompson, F.R. III (2006) Songbird Abundance and Parasitism Differ Between Urban and Rural Shrublands. *Ecological Applications, 16*(1), 394-405. DOI: 10.1890/04-0927. [abstract only]

Chaudhary, V.B. et al. (2009) Untangling the biological contributions to soil stability in semiarid shrublands. *Ecological Applicatoins, 19*(1), 110-122. DOI: 10.1890/07-2076.1. [abstract only]

Garcia, R.R. et al. (2013) Grazing land management and biodiversity in the Atlantic European heathlands: a review. *Agroforestry Systems, 87*(1), 19-43. <https://doi.org/10.1007/s10457-012-9519-3>. [abstract only]

Kemper, J. Cowling, R.M., and Richardson, D.M. (1999) Fragmentation of South African renosterveld shrublands: effects on plant community structure and conservation implications. *Biological Conservation, 90*(2), 103-111. <https://doi.org/10.1016/S0006-3207(99)00021-X>. [abstract only]

Medail, F. and Quezel, P. (1999) Biodiversity Hotspots in the Mediterranean Basin: Setting Global Conservation Priorities. *Conservation Biology, 13*(6), 1510-1513. DOI: 10.1046/j.1523-1739.1999.98467.x. [abstract only]

Moskwa, E. et al. (2018) Living with bushfire: Recognising ecological sophistication to manage risk while retaining biodiversity values. *International Journal of Disaster Risk Reduction, 27*, 459-469. <https://doi.org/10.1016/j.ijdrr.2017.11.010>. [abstract only]

Shliksy, A. et al. (2007) “Fire, ecosystems and people: Threats and strategies for global biodiversity conservation.” GFI Technical Report no. 2007-2. Nature Conservancy, Arlington, Virginia.

Syphard, A.D., Clarke, K.C., and Franklin, J. (2007) Simulating fire frequency and urban growth in southern California coastal shrublands, USA. *Landscape Ecology, 22*(3), 431-445. <https://doi.org/10.1007/s10980-006-9025-y>. [abstract only]