

## Eastern Beech (*Fagus orientalis*) Natural Regeneration and Forest Diversity

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**Aim of the study:** The coastal Black Sea Region is primarily composed of eastern beech (*Fagus orientalis*). Dense rhododendron (*R. ponticum*) understories inhibit regeneration and seedling growth and survival, due to the combined effects of low light and reduced belowground resource availability of water and nutrients. Thus, controlling rhododendron is considered to be the most critical requirement for sustainable beech forest management in Black sea Region of Turkey. The aim of this study is evaluate the natural beech regeneration practices on plant diversity in the region.

**Material and Methods:** The beech stands are naturally regenerated during harvesting on mast years which occurs 4-5 years intervals. Different woody vegetation control methods have been applied to rhododendron on eastern beech natural regeneration sites in Turkey without any attention paid to the plant diversity of these ecosystems. However, many broadleaves contribute the region's plant diversity: *Acer campestre* L., *A. platanoides* L., *A. trautvetteri* Medw., *Castanea sativa* Mill., and *Cerasus avium* (L.) Moench. Rhododendron is the dominant woody species in the understory, and it outcompetes the other understory plant species once it is established on the site. In addition to rhododendron, some of the gaps under the forest canopy are occupied by *Hedera helix* L., *Cornus sanguinea* C. A. Mey, *Ilex aquifolium* L., *Sambucus ebulus* L., *Daphne pontica* L., *Mespilis germanica* L., *Rosa canina* L., *Atropa belladonna* L., *Clematis vitalba* L., *Clinopodium vulgare* L., *Conyza canadensis* (L.) Cronquist, *Coronilla varia* L., *Euphorbia amygdaloides* L., *Geranium rotundifolium* L., *Helleborus orientalis* Lam., *Lolium perenne* L., *Plantago lanceolata* L., *Pteridium aquilinum* (L.) Kuhn., *Solanum nigrum* L., *Sonchus asper* (L.) Hill, *Tamus communis* L., *Trachystemon orientalis* (L.) G. Don, *Trifolium repens* L., *Tussilago farfara* L., and *Viola odorata* L.

**Results:** Removing *Rhododendron* from the site may give an opportunity to the other plant species to establish on the site. However, during the operation 70-80 beech trees are left as seed sources and the other plant species are usually removed from the site. Therefore the seed sources of the species contributing the mixture is wipe out off the site. In addition, the bulldozer equipped with a brush rake used for site preparation can lead to scalping and surface soil removal with substantial negative effects in seedbank. Despite the risk of declining plant diversity, this type of management is still carried out over large areas of the Black Sea Region. To sustain plant diversity of these ecosystems, new regeneration techniques should be adopted for the region

**Keywords:** Beech regeneration, mixed broadleaves, diversity, Black Sea Region.