Synoptic view of the steppe vegetation of Central Anatolia, Turkey

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Introduction
Turkey has a rich flora and a great diversity of vegetation types. This is due to the location of the country, where two continents meet and where the migration routes of plants passes through at the intersection points of three phytogeographical regions (Euro-Siberian, Irano-Turanian and Mediterranean). Turkey also has a great variety of climate types including Continental, Oceanic and Mediterranean. Geological and geomorphological diversity is high, while many types of water bodies can be found such as the sea, lakes and many rivers. The altitude varies from sea level to 5,000 metres. As a result of this, approximately 9,000 species of flowering plants and a great variety of vegetation types can be found in Turkey. One of the most important vegetation types of Turkey is steppe, which is a common feature in Central Anatolia but it also extends towards East and South-east Anatolia. It also occupies high altitude areas of the Black Sea and Taurus mountains.

The Central Anatolian steppe developed as the result of the destruction of the primary forest vegetation by humans, especially through grazing and intensive agricultural activities (Uslu, 1970; Akman, 1974; Kilinc, 1976; Aytug 1967, 1970; Inceoglu and Pehlivan, 1987).

Although Central Anatolian steppe shows a uniform physiognomy, it sometimes harbours trees and shrubs and hemicryptophytic grasses such as Bromus tomentellus, Festuca valesiaca, Koeleria cristata, Stipa lessingiana and S. holosericeus. Cushion forming chaemephytes such as Astragalus angustifolius, A. microcephalus, and Onobrychis cornuta are dominant.

Study area
The case study area includes the steppe vegetation covering approximately all of the Central Anatolian territory, extending from the Ilgaz mountains in the north to the Taurus mountains in the south and from Afyon in the west to the Anatolian Diagonale (Sivas environs) in the east.

The Steppe vegetation of Central Anatolia
Central Anatolia belongs to the Irano-Turanian phytogeographical region. Steppe vegetation lying between 800 and 1,200 m is known as “plain steppe” and steppe vegetation above 1,200 m is termed “montane steppe”. The moist common soil types are derived from calcareous, marly, marly-gypseous and gypseous parent rocks and often show great variation over very short distances.

The Steppe formations in Central Anatolia can be physiognomically divided into groups:

- Malacophyll steppes with broad-leaved plants. It is supposed that these steppes can be derived from Gramineae steppes as a result of intensive grazing in relatively moist conditions and over deep soils.
- Gramineae steppe with grassy species.
- Tragaganthic steppes with cushion forming spiny species such as Astragalus and Acantholimon.
- Salty steppes with Chenopodiaceae and Plumbaginaceae on salt pans around Salt and Seyfe Lake.

History of Central Anatolian Steppe vegetation
Since prehistoric times, the woody vegetation that previously dominated in Central Anatolia was replaced by a steppe vegetation due to heavy anthropogenic impacts. During these successive changes in the vegetation, the species of Mediterranean origin have been replaced by species that originated from the Irano-Turanian floristic region. There are 42 primary forest remnants remaining around the Anatolian province at Afyon-Eskişehir in the west, Sivas in the east, Çankırı in the north and Konya in the south (Uslu, 1970).

The most common trees found in these remnant areas are Pinus nigra ssp. pallasiana, Quercus pubescens, Q. robur ssp. robur, Q. ithaburensis ssp. macrolepis, Juniperus ssp. such as J. oxycedrus, J. foetidissima, J. excelsa, Pyrus eleagnifolia, Rhus coriaria, Celtis tournefortii, C.