



The Effects of Degradational Factors on the Ecosystem of Mount Madra

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Significant degradation has been observed in Turkey's Mediterranean woodlands and mountainous areas. Mediterranean climate prevails in the southern and western part of Turkey. Mount Madra, which is located on Turkey's western Aegean coast, is part of a rangeland which is particularly exposed to the effects of degradation resulting from human activities. The principal factors in the degradation are inappropriate land use, destruction of forests, mining, construction, overgrazing and transhumance. Mount Madra and its environs benefit from a Mediterranean climate, experiencing dry, hot summers and cool, wet winters. The average yearly rainfall is 700-1000 mm, of which most occurs in the winter months. The mountain extends from east to west, and between the South and North slopes there is great variety in terms of plant species and biodiversity. The regeneration of the lost plant cover has been hindered by the mountain's geomorphologic characteristics. The slopes have suffered destruction of vegetation and, as a result of severe erosion, the soil has been swept away and in many places the bedrock has become exposed. The Kozak plateau on mount Madra is notable for the richness of its natural vegetation. This plateau, covered in pine forest (*Pinus pinea*), is the site for the traditional transhumance of over 500 families. Pine nuts and livestock breeding are livelihood of these families.

Mount Madra and its surrounding area is one of the most important locations with gold mining potential in Turkey and it is estimated that it has 16.7 tons of gold reserve. The gold mining which took place on the west of the Madra Mountain around Ovacik village in 1994 led to serious land degradation in the surrounding area. The new mining on the study area and the proposed feldspar mining on the Madra riverbed poses a serious threat to the region's ecosystem and biodiversity. The removal of increasing amounts of granite and other quarrying has had a negative impact on the natural environment of Kozak Plateau, and in addition to this, quarrying activity has recently begun in the area around Burhaniye.

All these activities have led to problems such as erosion, decreased biodiversity, and pollution of water sources on Mount Madra. The forest clearances which have been made, for various reasons, on the northern and southern slopes of Mount Madra, have caused the topsoil to be worn away by surface water. The most striking examples of this can be seen on Mount Şabla (1111m) and on the southern slopes of Maya peak (1344m). The trimming recently carried out by the Forestry Commission on sections of Mount Madra has badly damaged the forest's vegetation and in a short space of time caused irreversible harm to the ecosystem of the mountain. For thousands of years, parts of the top of Mount Madra and the Kozak plateau have been used as summer grounds and, as a result, the forest has been cleared from a wide section. On the north-facing slopes of Mount Madra, the number of chestnut trees (*Castanea sativa*) found within pine woods is increasing daily. The pine trees around the chestnuts are being chopped down in order to increase the number of chestnut trees, whose fruit are harvested for the economic benefit they bring. The pine forests are, for this reason, in constant decline. Forest roads, both planned and unplanned, have led to further destruction of forest vegetation.

Apart from the forest vegetation of the Mountain, other natural resources are under threat; particularly water sources. Facilities for fish farming have been built with no pre-planning or research, leading to the clearance of forest and pollution of the environment. Mount Madra is an important water source for the rivers in the surrounding areas. It is the source of the Madra and Karınca Rivers which flow into the Aegean Sea, the Kocaçay River which feeds Manyas Lake and several tributaries of the Bakırçay River. The protection of Mount Madra and its freshwater sources and biodiversity is therefore of great importance. Around 90 plant species, including 19 endemic species are found on the study area and it is vital that its ecosystem is protected, the threats are eliminated, and the sustainable use of its resources is secured.

Key words: Madra Mountains, Degradation, Human Activities, Mediterranean Ecosystem, Biodiversity,

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