The present study was carried out to find the environmental and biotic indicators for site suitability of Crimean juniper (Juniperus excelsa L.) in the Acipayam district, Turkey. Data were collected from 100 sample plots. Environmental variables (elevation, slope, radiation index, topographical position, landform characteristics and parent material) and plant species were recorded at each sample plot. Generalised additive model (GAM) and indicator species analysis (ISA) were applied in order to model the distribution of Crimean juniper and determine the indicator species within its range. The results of the applied GAM analysis and the distribution model obtained showed that most suitable sites for the occurrence of Crimean juniper are the areas in the higher zones (supra and mountain Mediterranean zones) covered by limestone. The results obtained from indicator species analysis (ISA) confirmed the applied GAM results, in the sense that thermo-Mediterranean plant species such as Arbutus andrachne, Cercis siliquastrum, Cotinus coggyria, Pistacia terebinthus, Styrax officinalis are the negative indicator plant species for Crimean juniper while its positive associates from supra- and mountain-Mediterranean elements are Berberis crataegiana, Lonicera etrusca var. etrusca, Juniperus foetidissima and Phlomis armeniaca. These findings are crucial to predict the suitable sites for the utilization of Crimean juniper in afforestation efforts by field managers in degraded and forestless areas of the Acipayam district.