Evaluation of Akdag and Cebireis Mountains (Alanya-Antalya) as an Important Plant Area

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Received date: 11.06.2014

Abstract
In this study, Akdag and Cebireis mountains were evaluated according to IPA criteria. 11 globally threatened, 108 regionally (European) threatened, 15 nationally rare species and 4 threatened habitats were determined. Also these results were compared with the nearest IPAs. As a result, the research area, located between "Gevne valley and Gokbel plateau" IPA and "Kargı river" IPA, meets IPAs criteria. Consequently, it is suggested that Akdag and Cebireis mountains should be a new IPA or combined with the other two IPAs.
Keywords: IPA, Alanya, Turkey

Akdağ ve Cebireis Dağlarının (Alanya-Antalya) Önemli Bitki Alanı Olarak Değerlendirilmesi

Özet:
Bu çalışmada Akdağ ve Cebireis Dağları Önemli Bitki Alanı (ÖBA) kriterlerine göre değerlendirilmiştir. 11 adet küresel tehlike altında olan, 108 adet Avrupa ölçeğinde tehlike altında olan, 15 adet ulusal ölçekte nadir olan tür ve 4 tehlike altında olan alan habitat tespit edilmiştir. Ayrıca bu sonuçlar en yakında bulunan ÖBA'larla kıyaslanmıştır. Sonuçta Gevne vadisi-Gökbel yaylası ve Kargı çayı arasında kalan çalışma sahası ÖBA kriterlerini sağlamaktadır. Sonuç olarak Akdağ ve Cebireis Dağı'nın yeni bir ÖBA olarak tescil edilmesi ya da diğer iki ÖBA (Gevne vadisi-Gökbel yaylası ve Kargı çayı) ile birleştirilmesi tavsiye edilmektedir.
Anahtar Kelimeler: ÖBA, Alanya, Türkiye

Introduction

Turkey, one of the richest countries in terms of plant diversity in temperate climate zone, has more than 3000 endemic plant species. This number is distinctly higher than the number of the endemics of whole European countries. However, the richness of plant diversity in Turkey is under threat and being reduced. The conservation studies in Turkey recently came into prominence. In these studies, conserving small areas instead of large areas has taken over and concept of Important Plant Area has gained importance. Turkey is the first country to apply the criteria defined by Planta Europa Steering Committee and to complete a national inventory of Important Plant Areas.

1st Planta Europa Conference in 1995 was the milestone towards an attempt to establish "important plant regions" in Europe. It was the consensus of this conference that under the leadership of Plantlife in Great Britain, a "Planta Europa Network" was formed.

Numerous studies for establishing such regions in various European countries are underway Turkey is in compliance with the concept of "important plant regions" and their criterias imposed by Planta Europa Executive Committee; it has finished its own inventory. The European wide accepted concept of "important plant regions" defines them as natural or semi natural regions inhabiting the very rich populations of rare, under threat and /or endemic plant species, and /or containing plant cover, which is extraordinarily lush and/or extremely valuable (Ozhatay and Byfield, 2005).

There are three criterias in the establishment of a region as "important plant region", any one of these criterias must be met to assign a region as such.

A. The region must be inhabiting an important population of one or more crucial species

treated as under threat globally or in European scale.

B. The biogeographic belt, in which the region is placed in European scale, must have an extraordinarily lush flora.

C. The region, globally or in European scale, must have a striking sample of a habitat type in terms of plant conservation and botany.

Material and methods

This study based on 3600 herbarium speciemens collected from the study area between 2005 and 2009. These speciemens were identified with the help of the following literature; Davis (1965-1985), Davis et al. (1988), Güner et al. (2000), Ozhatay et al. (1994), Ozhatay et al. (1999), Ozhatay and Kulturlu (2006), Ozhatay et al. (2009), Duman (1994), Duman and Anderberg (1999), Duman (2001), Duman and Duran (2001). Akdag and Cebireis mountains were evaluated according to IPA criteria (Figure 1).

Results and discussion

There are three IPAs close to our study area. These area Geyik Mountain and Akdag, Gevne Valley, Gokbel Plateau, Kargı Cay Valley. Inside these IPAs, there are two flora studies done in Gevne Valley and plant diversity exhibited in the region. When we compare the results with other regions, the study area displays itself in terms of type of habitats, taxa which are under thread globally and European scale, the number of endemic taxa and the number of rare endemic plants (Table 1).

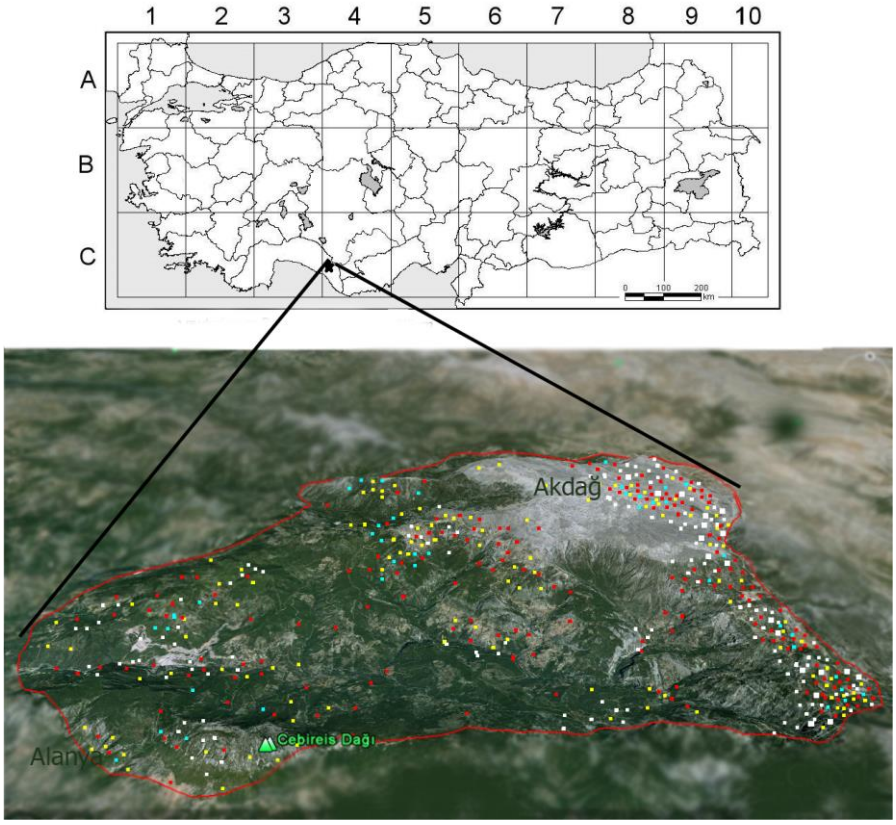

Figure 1. Map of the research area and endemic plants distribution.

According to Bern Convention, habitats which are endangered in our area as follows

42.1951 - West Toros Mountains *Abies cilicica* forests

42.6643 - Toros Mountains black pine forests

42.A52 - Toros Mountains *Juniperus drupacea* forest communities

42.B12 - Central Mountains cedar forests

The evaluation of the determined taxa depending on the above three criterias is as follows.

Taxons which are under threat globally:
Acer hyrcanum Fisch. & Mey. ssp. *sphaerocaryum* Yalt., *Alkanna macrosiphon* Boiss. & Heldr., *Alkanna macrophylla* Boiss. & Heldr., *Arenaria pamphylica* Boiss. & Heldr. ssp. *alpestris* (McNeill) McNeill, *Arenaria pamphylica* Boiss. & Heldr. ssp. *pamphylica* var. *pamphylica, Colchicum balansae* Planchon, *Cyclamen cilicium* Boiss. & Heldr. var. *cilicium, Lathyrus lycicus* Boiss., *Muscari rasemosum* Mill. (=*Muscari muscarimi* (L.) Medik.), *Velezia pseudorigida* Hub. – Mor., *Velezia tunicoides* Davis.

Species under threat in European scale:
Acer hyrcanum Fisch. & Mey. ssp. *sphaerocaryum* Yalt., *Achilllea formosa* (Boiss.) Sch.Bip. ssp. *amanica* (Rech. f.) Ehrend. & Y.P.Guo (=*Leucocyclus formosus* Boiss. ssp. *amanicus* (Rech. Fil.) Hub.-Mor. & Grierson), *Aethionema alanyae* H. Duman, *Ae. cordatum* (Desf.) Boiss., *Ae. subulatum* (Boiss. & Heldr.) Boiss., *Alkanna macrosiphon* Boiss. & Heldr., *Alkanna macrophylla* Boiss. & Heldr., *A. verecunda* Hub.-Mor., *Allium enginii* N. Özhatay & B. Mathew, *A. koyuncui* H. Duman & N. Özhatay, *A. phanerantherum* Boiss. & Hausskn. ssp. *phanerantherum, Alyssum argyrophyllum* Schott & Kotschy, *Alyssum mouradicum* Boiss. & Bal., *A. praecox* Boiss. & Bal., *Anemone blanda* Schott & Kotschy, *A. coronaria* L., *Anthemis pauciloba* Boiss. var. *sieheana* (Eig) Grierson, *Cota pestalozzae* Boiss. (=*A. pestalozzae* Boiss.), *Arabis alanyensis* H. Duman, *A. androsacea* Fenzl, *Arenaria pamphylica* Boiss. & Heldr. ssp. *pamphylica* var. *pamphylica, A. pamphylica* Boiss. & Heldr. ssp. *alpestris (*McNeill) McNeill, *Aristolochia lycica* P.H. Davis & M.S. Khan, *Arnebia purpurea* S. Erik & H. Sümbül, *Arum dioscoridis* Sm. var. *dioscoridis* (=*Arum dioscoridis* Sm. var. *luschanii* R. Mill), *Asperula brevifolia* Vent., *A. cilicica* Hausskn. ex Ehrend., *Astragalus dipodurus* Bunge, *Asyneuma compactum* (Boiss. & Heldr.) Damboldt var. *compactum, Bubleurum subuniflorum* Boiss. & Heldr., *Calamintha pamphylica* Boiss. & Heldr. ssp. *pamphylica, Campanula davisii* Turrill, *C. trachyphylla* Schott & Kotschy ex Boiss., *Carex flacca* Schreber ssp. *erythrostachys* (Hoppe) Holub (=*Carex flacca* Schreber ssp. *serrulata* (Biv.) Greuter), *Centaurea cariensis* Boiss. ssp. *maculiceps* (O. Schwarz) Wagenitz, *C. solstitialis* L. ssp. *pyracantha* (Boiss.) Wagenitz, *C. kotschyi* (Boiss.) Hayek var. *kotschyi*, *Cyanus bourgaei* (Boiss.) Wagenitz & Greuter (*C. bourgaei* Boiss.), *C. drabifolia* Sibth. & Sm. ssp. *austro-occidentalis* Wagenitz, *Cephalaria isaurica* Matthews, *C. lycica* Matthews, *C. gazipashaensis* H. Sümbül, *Cerastium macranthum* Boiss., *Chrysophthalmum gueneri* Aytaç & Anderb., *Cicer isauricum* P. H. Davis, *Clypeola ciliata* Boiss., *Colchicum balansae* Planchon, *Conringia grandiflora* Boiss. & Heldr., *Cyclamen graecum* Link, *C. cilicium* Boiss. & Heldr. var. *cilicium, Dactylorhiza osmanica* (Klinge) P.H. Hunt & Summerh. var. *anatolica* (Nelson) Renz & Taub., *Dianthus elegans* d'Urv. var. *elegans, D. elegans* d'Urv. var. *cous* (Boiss.) Reeve, *Doronicum orientale* Hoffm., *D. cacaliifolium* Boiss. & Heldr., *Eranthis hyemalis* (L.) Salisb., *Erodium cedrorum* Schott ssp. *salmoneum* (Davis & Roberts) Davis, *Erodium palmito* Boiss. & Heldr., *Euphorbia davisii* M.S. Khan, *Ferulago isaurica* Peşmen, *Fritillaria acmopetala* Boiss. ssp. *wendelboi* Rix, *F. acmopetala* Boiss. ssp. *acmopetala, F. whittallii* Baker, *Geranium glaberrimum* Boiss. & Heldr., *Gypsophila curvifolia* Fenzl, *Iberis carnosa* Willd. (=*Iberis spruneri* Jord.), *I. carica* Bornm., *Kitaibelia balansae* Boiss., *Lamium eriocephalum* Bentham (=*Lamium eriocephalum* Bentham ssp. *glandulosidens* (Hub.-Mur.) R. Mill), *Lathyrus lycicus* Boiss., *Marrubium globosum* Montbret & Aucher ex Benth. ssp. *micranthum* (Boiss. & Heldr.) P.H. Davis, *Medicago praecox* DC., *Minuartia umbellulifera* (Boiss.) McNeill ssp. *umbellulifera* var. *umbellulifera, Muscari rasemosum* Mill (*Muscari muscarimi* Medik.), *Nepeta pilinux* P. H. Davis, *N. nuda* L. ssp. *glandulifera* Hub.-Mor. & Davis, *Ophyrs argolica* Fleischm., *Origanum saccatum* P.H. Davis, *O. husnucan-baseri* H. Duman, Aytaç & A. Duran, *O. bilgeri* P.H. Davis, *Paronychia argyroloba* Stapf, *P. lycica* Chaudhri, *Petrorhagia peroninii* (Boiss.) Ball &

Heywood, *Phlomis monocephala* P.H. Davis, *Pinguicula crystallina* Sm., *Poa speluncarum* J.R. Edm., *Potentilla isaurica* (Davis) B. Pawl., *Prangos ferulacea* (L.) Lindl., *Rhamnus pyrella* O. Schwarz, *Rumex acuteatus* L. var. *angustifolius* Boiss., *Scorzonera suberosa* K. Koch ssp. *cariensis* (Boiss.) D.F.Chamb., *S. violacea* D.F. Chamb., *Turanecio bulghardaghensis* (Soldano) Hamzaoğlu (=*Senecio farfarifolius* Boiss. & Kotschy), *Sideritis libanotica* Labill. ssp. *violascens* (P.H. Davis) P.H. Davis, *S. erythrantha* Boiss. & Heldr. var. *cedretorum* (P.H. Davis) H. Duman, *S. argyrea* P.H. Davis, *Silene caramanica* Boiss. & Heldr. var. *ilarslanii* Aytaç & Dural, *S. anatolica* Melzheimer & A. Baytop, *S. armena* Boiss. var. *armena, S. ermenekensis* Vural & Kit Tan, *Teucrium lamiifolium* d'Urv ssp. *lamiifolium*, *Thymbra sintenisii* Bornm. & Aznav. ssp. *isaurica* P.H. Davis, *Trigonella cephalotes* Boiss. & Bal., *Medicago pamphylica* (Huber-Morath & Širj.) E. Small habitat under threat.

(=*Trigonella pamphylica* Hub.-Mor. & Sirj.), *Velezia pseudorigida* Hub. – Mor., *V. tunicoides* Davis, *Verbascum levanticum* I.K.Ferguson, *V. nudatum* Murb. var. *nudatum*, *Veronica macrostachya* Vahl ssp. *sorgerae* M.A. Fischer.

Rare species in natural scale:

Anemone blanda Schott & Kotschy, *A. coronaria* L., *Ruscus aculeatus* L. (=*Ruscus aculeatus* L. var. *angustifolius* Boiss.), *Iberis carnosa* Willd. (=*Iberis spruneri* Jord.), *Eranthis hyemalis* (L.) Salisb., *Doronicum orientale* Hoffm., *Cyclamen graecum* Link, *Medicago praecox* DC., *Fritillaria acmopetala* Boiss. ssp. *acmopetala*, *Dianthus elegans* d'Urv. var. *cous* (Boiss.) Reeve, *Verbascum levanticum* I.K. Ferguson, *Trifolium purpureum* Lois. var. *pamphylicum* (Boiss. & Heldr.) Zoh., *Galanthus elwesii* Hooker fil. var. *monostictus* P.D.Sell, *Arabis alpina* L. ssp. *alpina*, *Campanula davisii* Turrill.

Table 1. The comparison of study region and the surrounding "important plant regions. ETS: The number of endemic taxon, K: Species under threat globally, A: Species under threat in European scale, U: Rare species in natural scale, TH: Natural

IPA	ETS	K	A	U	TH
Study Region	208	11	108	15	4
Geyik Mountain and Akdag	----	1	44	4	3
Gevne Valley, Gokbel Plateau	115	4	67	3	3
Kargı Cay Valley	---	2	23	1	4

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