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Habıtats Change ın Ceylanpınar State's Farm and the Dangerous Classes of Plants (Şanlıurfa-Turkey)

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Abstract: ***The natural flora of Ceylanpınar State Farm was studied in the years 2014 and 2015 before cultivation. During the floristic surveys, 146 species of 99 genera belonging to 18 families were recorded. 28 plant species among them are in threatened categories. Of these plants 13 are endemic and 15 are rare plants. However, the region of interest in this study has not been studied extensively and the habitats of this region have been constantly changing. In the natural flora of the region, rare and endemic plant species have been defined and their threat categories and the factors threatening these species have been determined.***

Keywords: Ceylanpınar State Farm, natural flora of Ceylanpınar,, rare and endemic plant species, threat categories of plants species

1. Introduction

Accelerated industrialization and rapid increase in human population have had adverse effects on natural environments. As a result, human beings as well as the other livings have been affected. Nowadays, the environmental issues are no longer confined in national borders but regarded in international platforms. The countries of the world have assembled in many occasions to discuss the issues on environmental problems. Representatives of Turkey have been actively involved in such international meetings.

Richness of flora is an important asset for a country besides its historical and cultural richness. Although Turkey has one-fifteenth of the total land covered by European countries, it has an overwhelming number of endemic species of which 2750 are endemic species. In Turkey, the number of species is estimated as 9000 and 3000 of them are endemic to Turkey.
Ceylanpınar State Farm is located in Şanlıurfa province in South-East Anatolia between 39°00'-40°10' East longitudes (Davis 1965-1985). It covers a total surface of 175,650 hectares, 71,230 of which are clear of the agricultural areas Adıgüzel & Aytaç (2001). In the farm, 8 stations are available. These are Gökçeçayır, Sarnıçtepe, Gümüşsu, Güzelyurt, Mehmetağa Ağılı, Güllegeç, Gürgürbaba, Beyazkule (Fig.1.). The farm is generally flat except for the three main stream valleys named Tufan, Şeyh Nasır, Büyük Çırçır and several other small streams. During summer, these streams are dry. Besides the cultivated lands, there are pastures, rocky, stony, and marginal lands. The altitude is between 370 and 560 m.

In the research area, steppe vegetation dominates. The most widespread families are *Fabaceae*, *Brassıcaceae*, *Asteracea*, *Poacea* and *Labiatae*, and the genera are as follows; *Astragalus*, *Bromus*, *Avena*, *Onobrychis*, *Trifolium*, *Salvia*, *Aegilops*, *Triticum*, *Hordeum*, *Anthemis*, *Achillea*, *Centaurea*, *Lathyrus*, *Trifoliu*m, and *Medicago*.

The first five families that have the highest number of species are *Fabacea* with 27 (18.7 %), *Asteracea* with 26 (18.1 %), *Poacea* with 26 (18.7 %), *Brassıcaceae* with 16 (11.1 %), *Labiatae* with 9 (6.2 %). The genera with the highest number of species are *Astragalus* 7, *Bromus* 5, *Avena* 5, *Onobrychis* 3, *Trifolium* 3 and *Salvia* 3 (Adigüzel et.al 2002).

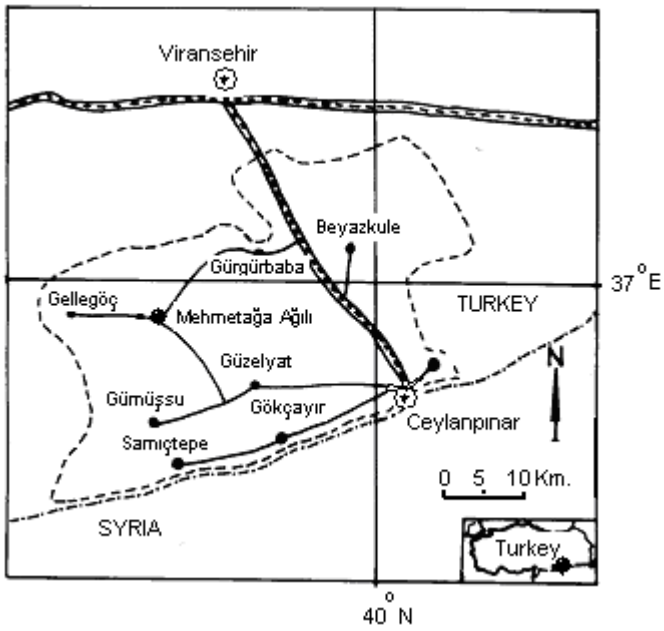

Figure 1: Geographical map of the region of interest

This research is based on the collections and the field observations carried out by the author in 2014 and 2015. All specimens were identified according to the flora of Turkey (Davis 1965-1985). During this study, 210 plant specimens are gathered. At the end of this floristic research, 144 species belonging to 99 genera of 17 families were determined. The farm is under pressure of over grazing. The area is one of the richest places for genetic resources of wheat and edible legumens.

The climate is characterized as arid Mediterranean climate. According to Emberger, the precipitation –temperature coefficient Q: is 28.02 Akman (1990). Annual mean temperature is 18.4 °C. The maximum mean temperature (M) is 41.1 °C in July. The minimum mean temperature (m) is 1.3 °C in January. Annual rainfall is about 330 mm and the seasonal precipitation regime is winter, spring, autumn and summer Meteorology Bulletin (1990). This is the first

variant of the East Mediterranean precipitation regime. The ombrothermic diagram shows dry and rainy period. (Fig. 2)

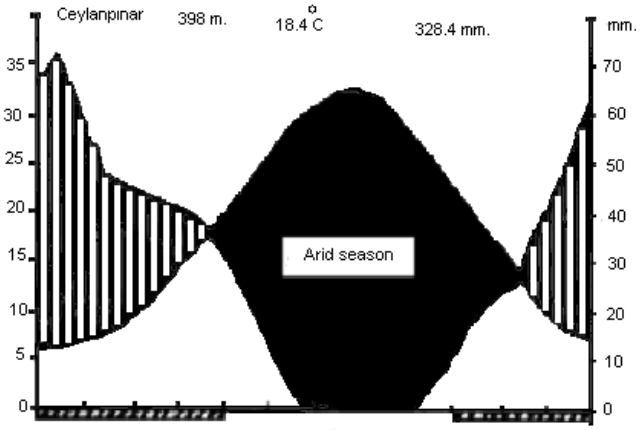

Fig. 2. Ombrothermic diağram of Ceylanpınar

In the farm, agriculture is based on cereal, essentially wheat and lentil, naked fallows. Besides, vegetables such as tomato, pepper, eggplant etc. are grown. In addition, pistachio is produced. Stock-breeding is also done. More importantly, gazelles are bred in a fenced area. Ceylanpınar town derives its name from Turkish word for gazelle.

Grasslands have always been in various large areas in Turkey. In some parts of Eastern Anatolia, the grasses of steppes are best suited as pastures for sheep and cattle. Sheep are species adapting itself to the heaths where short grasses grow in large areas. Sheep, being of slow gait, prefers flat or slightly undulating terrain rather than steppe slopes. It has been the ornament of green prairies and holds an important place in the economy of Ceylanpınar State Farm.Ceylanpınar State Agricultural Farms ranks first among Turkey's agricultural enterprises in terms of its land assets. With an area of one million 761 thousand decares, this area constitutes 48% of TİGEM's land and accounts for 4.5% of agricultural fields to be irrigated via GAP (Southeast Anatolia Project). Ceylanpınar Agricultural Enterprises houses field land of 983 thousand 241 decares, Garden land of 46 thousand 208 decares, pasture land of 481 thousand 80 decares, unused steps and vacant areas of 241 thousand 629 decades. Of these, only a total of 56 thousand 346 decares are currently irrigated. The number of beef cattle is 2 thousand 632, sheep number is 26 thousand 843, beehive number is 156 and number of celebs is 1726. In addition, a population of wild (nomadic) animals nearly as big as these tamed animals inhabit the area (Anonymous (1992).

This research has great importance for a better understanding of the floristic changes of the region for coming years. It was also aimed to emphasize the importance of existing plant species in the environmental impact assessment work which will be realized for irrigating and grazing.

2. Materials and Methods

This study is based on collections and field observations carried out by the author in the years 20014 and 2015. Herbarium specimens were stored at the Herbarium of Harran University. All specimens were identified according to the Flora of Turkey Davis (1965-1985), Davis et al. (1988), Güner et al. (2000), Flora Palestine Zohary and Dothan (1966-1987), Flora, of Syria, Palestine and Sinai George and Post (1932) and Flora of Iraq Townsend and Guest (1966-1980). The authors are cited using Authors of Plant Names (Brummitt and Powell 1992).

2.1.Plants Species

A few stations have been determined for presentation of list and all taxa have been put in these stations. The first letters of similar taxa following each other and some often used terms were shortened. The plants were given according to the order in Davis' the flora of Turkey, with abbreviations of their habitats, locality and collector names. Floristical list of the area (Ceylanpınar State Farm) Table. 1.

Abbreviation:

Habitats:
a) Damp places (marshes, streams, waste places, wetlands)
b) Antropogenic steppes
c) Slopes and rocky areas (between the rocks and its open areas)
d) Pastureland and pasture (for grazing animals)
e) Roads and their sides

Others:
* : Endemic
M.A : Mustafa Aslan (who is the author)

The stations from where plants were gathered:
1. C7 Şanlıurfa : Ceylanpınar State Farm Gümüşsu, 400 m., 28.04.2015
2. C7 Şanlıurfa : Ceylanpınar State Farm Gökçayır, 350 m., 28.04.2015
3. C7 Şanlıurfa : Ceylanpınar State Farm Sarnıçtepe, 370 m., 19.05.2015
4. C7 Şanlıurfa : Ceylanpınar State Farm Güzelyat, 350 m., 19.05.2015
5. C7 Şanlıurfa : Ceylanpınar State Farm Akrepli, 400 m., 19.05.2015
6. C7 Şanlıurfa : Ceylanpınar State Farm Mehmet ağa ağılı, 420 m., 19.05.2015
7. C7 Şanlıurfa : Ceylanpınar State Farm Gellegöç, 560., 19.05.2015
8. C7 Şanlıurfa : Ceylanpınar State Farm Gürgürbaba, 550 m. 19.05.2015
9. C7 Şanlıurfa : Ceylanpınar State Farm Beyazkule, 500 m., 19.05.2015
10. C7 Şanlıurfa : Ceylanpınar State Farm Gümüşsu, 400 m., 25.04.2014
11. C7 Şanlıurfa : Ceylanpınar State Farm Gökçayır, 350 m., 30.06.2014
12. C7 Şanlıurfa : Ceylanpınar State Farm Sarnıçtepe, 370 m., 25.04.2014
13. C7 Şanlıurfa : Ceylanpınar State Farm Güzelyat, 350 m., 30.06.2014
14. C7 Şanlıurfa : Ceylanpınar State Farm Akrepli, 400 m., 30.06.2014
15. C7 Şanlıurfa : Ceylanpınar State Farm Mehmet ağa ağılı, 420 m., 25.04.2014

16. C7 Şanlıurfa : Ceylanpınar State Farm Gellegöç, 560., 25.04.2014
17. C7 Şanlıurfa : Ceylanpınar State Farm Gürgürbaba, 550 m. 25.05.2014
18. C7 Şanlıurfa : Ceylanpınar State Farm Beyazkule, 500 m., 25.05.2014
19. C7 Şanlıurfa : Ceylanpınar State Farm Mehmet ağa ağılı, 420 m., 19.05.2014
20. C7 Şanlıurfa : Ceylanpınar State Farm Gökçayır, 350 m., 28.04.2014
21. C7 Şanlıurfa : Ceylanpınar State Farm Gümüşsu, 400 m., 28.04.2014
22. C7 Şanlıurfa : Ceylanpınar State Farm Güzelyat, 350 m., 19.05.2014
23. C7 Şanlıurfa : Ceylanpınar State Farm Gellegöç, 560., 19.05.2014
24. C7 Şanlıurfa : Ceylanpınar State Farm Gürgürbaba, 550 m., 19.05.2014
25. C7 Şanlıurfa : Ceylanpınar State Farm Mehmet ağa ağılı, 420 m., 25.06.2014
26. C7 Şanlıurfa : Ceylanpınar State Farm Akrepli, 400 m., 19.06.2014
27. C7 Şanlıurfa : Ceylanpınar State Farm Sarnıçtepe, 370 m., 25.06.2014

Table 1: Floristical list of the area (Ceylanpınar State Farm)

Species	The stations from where plants were gathered	Habitats	Other
Famillies: *Papaveraceae*			
Papaver rhoes L.	17	d	M.A 3049
Papaver hybridum L.	27	a	M.A 3098
**Papaver clavatum* Boiss.&Hausskn. ex Boiss.	29	c	M.A 3050
Famillies: *Brassicaceace / Crucıferae*			
Arabis aucheri Boiss.	2	a	M.A 3000
Alyssum strictum M. Bieb.	1	b	M.A.2999
Alyssum hirsutum Willd.	3	b	M.A 3002
Erysimum hirschfeldioides Boiss.&Hauskn.ex Boiss.	2	a	M.A3004
Matthiola longipetale (Vent.) DC subsp.longipetale	11	a	M.A 3109
Erysimum hirschfeldies Boiss	26	d	M.A.3125
Sisymbrium septulatum DC.	25	e	M.A.3101
Sisymbrium altissimum L.	14	e	M.A 3100
Lepidium latifolium L.	13	d	M.A.3099
Chrisocamela velutina (DC.) Boiss.	14	d	M.A.3009
Capsella bursa-pastoris (L.) Medik	20	d	M.A.3045
Iberis acutiloba Bertol	19	a	M.A.3012
Sinapsis alba L.	10	e	M.A.3009
Sinapsis arvensis L.	15	d	M.A.3111
Clypeola jonthlaspi L.	23	a	M.A 3112
Sterigmostemum sulphureum Bornm.	22	b	M.A.3108
Famillies: Violaceae			
Viola pentadactyla Besser	10	a	M.A.3047
Famillies: Campanulaceae			
**Campanula saxonorum* Gand.	27	d	M.A 3129
Famillies: *Caryophyllaceae*			
Arenaria acerosa Boiss.	4	a	M.A.3007
Ankyropetalum gypsophiloides Fenzl	7	c	M.A.3028
Campanula saxonorum Gand	18	d	M.A.1089
Cerastium dichotomum L.	8	b	M.A.3027
Dianthus zonatus Fenzl	9	b	M.A.3038
Dianthus strichus Banks&sol.	21	c	M.A.3081
**Dianthus zederbaueri* Vierh.	12	c	M.A.3090
Gypsophila pilosa Huds.	26	e	M.A.3091
Famillies: *Chenopodiaceae*			
Salsola dendroides Pall.	27	a	M.A 3153
Famillies: *Geranıaceae*			
Erodium cicutarium (L.) L'Her. subsp. *cicutarium*	21	a	M.A.3011
Geranium rotundifolium L.	11	d	M.A. 3111
Famillies: *Hypericaceae / Guttiferaceae*			
**Hypericum capitatum* Robson var. *capitatum*	20	d	M.A.3084
Hypericum retusum Aucher	20	d	M.A.3080
Famillies: *Malvaceae*			
Alcea acularis (Cav.) Alef	27	c	M.A 3199
Famillies: *Linaceae*			
Linum mucronatum Bertol. subsp. *mucronatum*	19	b	M.A.3048
Linum peyronii Post	12	b	M.A. 3042
Famillies: *Leguminosae / Fabaceae*			
Alhagi mannifera Desv.	20	d	M.A.3077
Astragalus aduncus Willd.	17	b	M.A.3055
Astragalus allepicus Boiss.	16	c	M.A.3046

Astragalus ancistrocarpus Boiss.&Hausskn.	12	c	M.A.3039
**Astragalus elbistanicus Hub- Mor.& D.C.*	15	d	M.A.3042
Astragalus oocephalus Boiss.	23	b	M.A.3085
Astragalus lonigerus Desf.	24	c	M.A.3083
**Astragalus vexillaris* Boiss.	16	e	M.A.3029
Astragalus russelii Banks& Sol	13	d	M.A.3021
Hippocrepis unisilaquosa L. subsp. *unisilaquosa*	14	b	M.A.3043
Hymenocarpus circinatus (L.) Savi	21	c	M.A.3049
Lathyrus pseudo-cicera Pamp.	26	c	M.A.3074
Lathyrus blehariсarpus Boiss.	27	d	M.A.3118
Lens ervoides (Brign.) Grande	20	c	M.A.3072
Lens culinaris Medik.	13	c	M.A.3038
Medicago orbicularis (L.) Bart.	12	d	M.A.3030
Onobrychis crista-galli (L.) Lam.	11	e	M.A.3026
Onobrychis kotschyana Fenzl	9	c	M.A.3020
Onobrichis oxyodonta Boiss.	8	d	M.A.3018
Onobrychis ptolemaica (Del.) DC.	7	e	M.A.3015
Trifolium purpureum Loesel.var. purpureum	6	d	M.A.3011
Trifolium dasyurum C. Presl	5	e	M.A.3006
Trifolium resupinatum Zohary	7	d	M.A.3016
Trifolium sylvaticum Gerard ex Loisel	11	d	M.A.3012
Trigonella mesopotamica Hub.-Mor.	16	e	M.A.3071
Lotus aegaeus (Griseb.) Boiss.	13	d	M.A.3037
Vicia mollis Boiss.&Hausskn.	19	d	M.A.3067
Famillies: *Apiaceae / Umbelliferaceae*			
Bubleurum alleppicum Boiss.	1	b	M.A.2998
Pimpinella corybosa Boiss.	1	b	M.A.2997
Erygium billardieri Delarbre	2	d	MA.3005
Daucus guttatus Sm.	3	d	M.A.3014
Eryngium glomeratum Lam.	4	c	M.A.3029 *
Eryngium bithynicum Boiss.	9	d	M.A.3044
Scandix stellata Banks.& Sol.	9	d	M.A.3041
Hippomaranthum scabrum (Fenzl) Boiss.	10	d	M.A.3046
Oliviera decumbens Vent	18	b	M.A.3080
Famillies: *Asteraceae / Compositae*			
Achillea biebersteinii D.C	2	d	M.A.3003
Achillea wilhelmsii C. Koch	5	d	M.A.3010
Achillea oligocephala D.C.	6	e	M.A.3013
**Achillea goniocephala Boiss& Balansa*	27	e	M.A.3119
Crepis kotschyana (Boiss.) Boiss.	7	e	M.A.3019
Carlina lanata L.	9	d	M.A.3049
Filago vulgaris Lam	10	d	M.A.3028
Filago pyramidata L.	8	d	M.A.3022
Centaurea balsamita Lam.	11	e	M.A.3025
Centurea rigida Banks& Sol.	12	c	M.A.3026
Centaurea hyalolepis Boiss.	19	d	M.A.3059
Cousinia stenocephala Boiss.	25	d	M.A.3104
Gundelia tornefatti Freyn &sint.	27	c	M.A.3121
Anthemis austriaca Jacq.	26	d	M.A.3096
Echinops viscosus D.C.	21	d	M.A.3083
Echinops orientalis Trautv.	26	e	M.A.3093
Scorzonera pungens (Lam.)J.Gay	22	d	M.A.3076
Hedypnois cretica (L.) Dum. Cours.	9	c	M.A.3023
Crepis foetida (Spreng.) Babc.	19	d	M.A.3097
Carduus pycnocephalus (M.Bieb) Kazmi	20	d	M.A.3084
Scorzonera papposa DC.	20	d	M.A.3088
Trapagopon buphthalmoides (DC.) Boiss.	23	c	M.A.3097
Carthamus persicus Willd.	9	d	M.A.3036
Scorzonera kotschyi Boiss.	8	c	M.A.3033
Rhagadiolus angulosus (Jaub.) Kupicha	10	d	M.A.3049
Anthemis austraica Jacq.	11	c	M.A.3048
Famillies: Boraginaceae			
Anchusa azure Miller	27	d	M.A.3117
Buglossoides tenuiflora (L.f.) Johnston	20	e	M.A3062
Onosma allepicum Boiss.	21	d	M.A.3066
Alkana hirsutissima (Bertol.) DC.	22	d	M.A.3073
Heliotropium myosotoites Banks& Sol.	23	c	M.A.3093

Famillies: *Scrophulariaceae*			
Verbascum alepense Benth.	18	d	M.A.3059 *
**Verbascum stepporum Hub-Mor.*	19	b	M.A.3030
**Verbascum anastasii* Nabelek	23	c	M.A.3040
**Verbascum diversifolium Hochst.*	8	c	M.A.3020
Veronica arvensis L.	9	a	M.A.3031
Famillies: *Convolvulaceae*			
Cressa cretica L.	27	a	M.A 3151
Convolvulus arvensis L.	27	a	M.A 3152
Famillies: *Lamiaceae / Labiatae*			
**Arenaria acerosa* Boiss.	27	d	M.A.3127
Phlomis kurdica Rench.f.	26	e	M.A.3110
**Phlomis armeniaca Willd.*	27	d	M.A3122
Phlomis bruguieri Desf.	24	a	M.A.3103
Teucrium pruninosum Boiss.	25	d	M.A.3115
Salvia ceratophylla L.	24	d	M.A.3105
Salvia palaestine Benth	23	c	M.A.3092
Salvia branchyantha (Bordz.) Pobed.	21	d	M.A.3077
Ziziphora capitata L.	20	e	M.A.3087
Teucrium polium L.	27	d	M.A.3129
Famillies: *Euphorbiaceae*			
Euphorbia sintenisii Boiss.ex Freyn	27	d	M.A.3130
Famillies: *Gramineae / Poaceae*			
Aegilops speltoides Tauscch	23	d	M.A.3112
Aegilops crassa Boiss. subsp. crassa	24	e	M.A.3098
Aegilops tauschii Cooss. subsp. tauschii	27	d	M.A.3119
Alopecurus myosuroides Hudson var. myosuroides	27	a	M.A.3110
Avena barbata Pott ex Link subsp.barbata	28	d	M.A.3117
Avena eriantha Durieu	8	d	M.A.3019
Avena sterilis L.subsp.ludoviciana Gillet & Magne	13	b	M.A.3008
Avena sativa L.	16	d	M.A.3029
Avena wiestii Steud	17	c	M.A.3011
Bromus madritensis L.	22	d	M.A.3112
Bromus pumilio (Trin.) P.M.Sm.	7	c	M.A.3019
Bromus suquarrosus L.	18	d	M.A.3045
Bromus tectorum L.	20	a	M.A.3102
Criphopsis delileana (Shultes) Roshev.	19	c	M.A.3105
Cynodon dactylon (L.) pers. var. dactylon	27	a	M.A3114
Hordeum murinum L. subsp. glaucum Tzvelev	21	a	M.A.3107
Hordeum geniculatum All.	27	c	M.A.3113
Hordeum spontaneum C. Koch	26	d	M.A.3114
Poa bulbosa L.	25	c	M.A.3092
Aegilops biuncialis Vis.	27	d	M.A.3113
Alopecurus utriculatus Sol. subsp. utriculatus	26	d	M.A.3085.
Phalaris paradoxa L.	21	d	M.A.3079
Phragmites australis (Cav.)Trin.	27	a	M.A3150
Vulpia persica (Boiss) V.F.Kecz.& Bobrov	28	c	M.A.3099
Lolium rigidum Gaudin var. rigidum	27	a	M.A.3115
Rostraria cristata (L.)Tzvelev var.glabriflora	25	d	M.A.3092
Sorgum halepense (L.) Pers. var. halepense	27	d	M.A. 3116

2.2 Hazard classes of plants and threatening factors

Threatened categories are proposed for endemic and rare taxa in the studying area according to IUCN risk categories (Ekim et.al. 2000; IUCN 2001). The following abbreviations are used; EN, Endangered; VU, Vulnerable; LC, Least concern; NT, Near threatened Table 2.

Table 2: The threatened flora of studying area and its IUCN Date list categories

Species	Conservation status	Environmental factors
Endemic species		
Verbascum stepporum	EN (B1 a,b and B2 a,b)	Farming
Dianthus zederbaueri	LC	Farming
Astragalus elbistanicus	NT	Excessive irrigating
Hypericum capitatum var. capitatum	VU (B1 a,b and B2 a,b)	Overgrazing
Verbascum diversifolium	VU (B1 a,b and B2 a,b)	Excessive irrigating
Verbascum anastasii	VU (B1 a,b and B2 a,b)	Farming
Achillea goniocephala	LC	Farming
Arenaria acerosa	LC	Burning of stubble
Astragalus vexillaris	LC	Burning of stubble
Campanula saxonorum	LC	Farming
Eryngium bithynicum	LC	Burning of stubble
Papaver clavatum	LC	Farming
Phlomis armeniaca	LC	Farming
Rare species		
Onobrychis ptolemaica	EN (B1 a,b and B2 a,b)	Overgrazing
Achillea oligocephala	VU (B1 a,b and B2 a,b)	Overgrazing
Aegilops crassa subsp. crassa	VU (B1 a,b and B2 a,b)	Overgrazing
Aegilops tauschii subsp. tauschii	VU (B1 a,b and B2 a,b)	Overgrazing
Alhagi mannifera	VU (B1 a,b and B2 a,b)	Excessive irrigating
Astragalus ancistrocarpus	VU (B1 a,b and B2 a,b)	Farming
Astragalus russelii	VU (B1 a,b and B2 a,b)	Farming
Criphopsis delileana	VU (B1 a,b and B2 a,b)	Burning of stubble
Euphorbia sintenisii	VU (B1 a,b and B2 a,b)	Farming
Heliotropium myosoites	VU (B1 a,b and B2 a,b)	Farming
Hippomaranthum scabrum	VU (B1 a,b and B2 a,b)	Excessive irrigating
Linum peyranii	VU (B1 a,b and B2 a,b)	Excessive irrigating
Oliviera decumbens	VU (B1 a,b and B2 a,b)	Excessive irrigating
Viola pentadactyla	VU (B1 a,b and B2 a,b)	Farming
Alcea acutularis	CR (B1 a,b and B2 a,b)	Farming

3. Result and Discussion

During the floristic study, nearly 210 plant specimens have been collected and 18 families, 146 species belong to 99 genera were determined. A total of 26 species that are all endemic and rare were evaluated according to IUCN risk categories (Ekim et al. 2000; IUCN 2001). The results were summarized in Table 2. The distribution of the threat categories of these taxa is as follows: 2 taxa EN, 18 taxa VU, 6 taxa LC , 1 taxon NT and 1 taxon CR. According to the latest IUCN risk categories (IUCN 2001), Onobrychis ptolemaica and Verbascum stepporum are Endangered [EN (B1 a, b and B2 a,b): extent of occurrence less than 100 km^2; area of occupancy less than 10 km^2; known to exist at only a single location; inferred decline in the area, extent and / or quality of habitat]. Alcea aculalis is Critically Endangered [CR (B1 a, b and B2 a,b): extent of occurrence less than 5000 km^2 ; area of occupancy less than 500 km^2; known at no more than five locations; inferred decline in the area, extent and / or quality of habitat].

Hypericum capitatum var. *capitatum*, *Verbascum diversifolium*, *Verbascum anastasii*, *Achillea oligocephala*, *Aegilops crassa* subsp. *crassa*, *Aegilops tauschii* subsp. *tauschii*, *Alhagi mannifera*, *Astragalus ancistrocarpus*, *Astragalus russelii*, *Criphopsis delileana*, *Euphorbia sintenisii*, *Heliotropium myosoites*, *Hippomaranthum scabrum*, *Linum peyranii*, *Oliviera decumbens* and *Viola pentadactyla* are Vulnerable [VU (B1 a,b and B2 a,b): extent of occurrence less than 20.000 km^2 ; area of occupancy less than 2000 km^2 known at no more than 10 locations; inferred decline in the area, extent and / or quality of habitat].

Losing of habitats, clearing of the natural vegetation for cultivation, overgrazing, and burning of stubble are the main causes of threats in the study area. These endangered species and natural vegetation cover will not fully become extinct in the world because of the Converting to field. But their restricted life areas will become more restricted and also some aquatic species will spread to new occurring habitats in the area.

As a result of the halophytication in the region, at the end of over and uncontrolled irrigation , many plant types such as Salsola dendroides, Cressa cretica, Phragmites australis etc. have migrated into the region and many plant types have migrated from the region as a result of the salting in the region, in last few years Whereas the areal of many species have been restricted with halophytication in the region, some other species (Cressa cretica, Cynodon dactylon var. dactylon , Alopecurus myosuroides var. myosuroides) have recorded as widespread. As a result of over and disorganized grazing, the step vegetation has been formed from the primary to the secondary condition and to the half-desert and desert type ecosystems have occurred.

As a result of this study, it can be expected that gradually the important floristic changes will especially take place at the irrigation canals banks due to the changing of environmental conditions when excessive irrigating will be completed.

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