



Preliminary floristic range of Tehsil Takht-e-Nasrati Pakistan

Musharaf Khan^{1*}, Farrukh Hussain¹, Shahana Musharaf²

¹Department of Botany, University of Peshawar, Pakistan

²Department of Chemistry, Government Girls Degree College, Sheikh, Malton Mardan, Pakistan

Received: 21 November 2011

Revised: 27 November 2011

Accepted: 28 November 2011

Key words: Flora, habit, flowering periods, Takht-e-nasrati.

Abstract

In this cram we present a version of plant species in the Tehsil Takht-e-nasratti by way of further information on life cycle, light frequency, habit, flowering period and habitat. The Flora is interesting because of the existence of together hills and plains in the area. The hills in the majority part of the area seem to be barren but many are rich in grasses, *Rhazia stricta* etc. The most significant Agriculture crop is the wheat which is not so abundant, and mostly rain dependent. *Aloe barbadensis* is very common in grave yard. The weed like *Cirsium arvense*, *Asphodelus tenuifolius*, *Medicago liciniata* and *Silene conoidea* are very common in wheat crop. Among the Xerophyts, *Zizyphus* spp. *Calotropis procera*, *Acacia* spp. etc, are common in the area. Through this study, the 161 plant species were initiated in the area where 25 monocotyledonous and 136 dicotyledonous species belonging to 52 families were identified and listed from diverse places in the area. Along with these presented 23 trees, 23 shrubs, 103 herb, 9 grasses and 3 parasite species. Among 52 families, Poaceae was the dominant with 17 species then Asteraceae and Papilionaceae both by 13 species. The region is extremely prosperous in biodiversity. Many fruits, especially *Zizyphus* species, *Peganum hermala*, *Withania coagulans*, *Monothea buxifolia*, *Fagonia cretica* and *Acacia nilotica* are exhausted annually due to non-availability of marketplace. The market accessibility has fine outcome on plants and on natives.

*Corresponding Author: Musharaf Khan ✉ k.musharaf@gmail.com

Introduction

Taxonomists are naturally interested to record flora of certain geographical areas. Since very long time many attempts have been through by different workers in searching away Flora of our dear native soil, Pakistan. The effort of both Pakistani and Foreign Taxonomists is basic approach. Different workers have worked in different parts of Pakistan still when it was part of United India. The area under discussion is typically unfamiliar and very a small number of reports are originated. Hooker (1872-1907) has worked on the Flora of British India. Chughtai and Yousaf (1976) have worked on the vegetation of Kohat under the Title "The Ecology of native vegetation of Kohat" NWFP. Imperial Gazetteer of India, NWFP. (1979) has also pointed out some plant species from Kohat District. Khan (1993) has worked on the Flora of Tehsil Karak. Khan (2004) has effort on the flora of Tehsil Banda Daud Shah Karak, Khan (2007) has work on ethnobotany of Tehsil Karak and Khan et al., (2011), intentional the ethnobotany of halophyte of Tehsil Karak. Various floristic studies have been reported from different part of Pakistan. Sher and Khan (2007) recorded 222 plant species belonging to 88 families from Chagharzai Valley, District Buner. Of them 78 families were Dicots; 7 Monocots and 3 Pteridophytes. The floristic composition of Gorakh hill (Khirthar range) was reported by Parveen and Hussain (2007). They recorded 74 species belonging to 62 genera and 34 families. Qureshi, (2008) identified 120 plant species belonging to 84 genera and 39 families of Chotiari Wetland Complex, Nawab Shah, Sindh, Pakistan. Of them, 22 grasses (Poaceae family) have been identified. Besides, one pteridophyte and one gymnospermic species were also discovered. Hadi, *et al.*, (2009) reported 30 plant species belonging to 28 genera and 15 families in Brinjal, Okra, Maize, Pepper and Sunflower fields of Botanical Garden, Azakhel. Hussain, *et al.*, (2009) reported 62 species including 15 monocots and 01 pteridophyte of 24 families from Azakhel Botanical Garden, University of Peshawar. Marwat, *et al.*, (2009) investigated nodulated leguminous weed flora of Dera Ismail Khan, Pakistan. Muhammad, *et al.*,

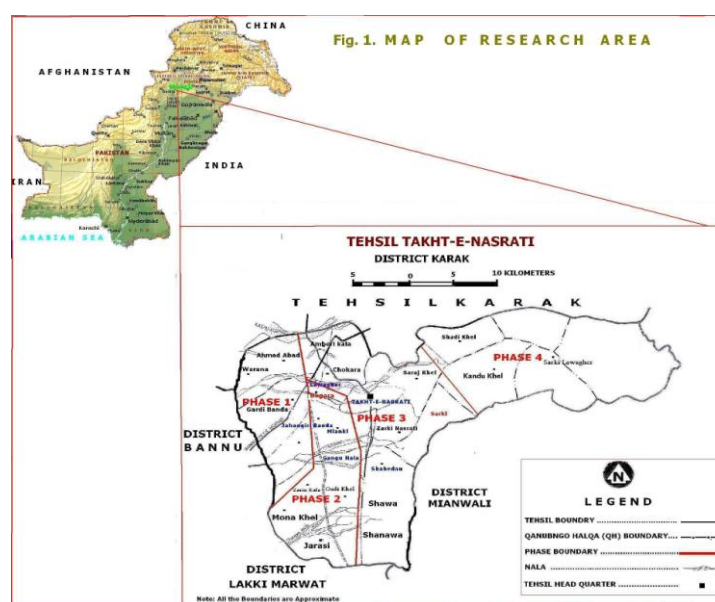
(2009) reported 67 weed species out of which 2 belonging to monocot families, and 27 to dicot families from wheat, maize and potato crop fields of Tehsil Gojra, District Toba Tek Singh, Punjab. Qureshi and Bhatti (2010) recorded 93 plant species belonging to 67 genera and 30 families of Pai forest, Nawab Shah, Sindh, Pakistan.

Research area

The Tehsil Takht-e- Nasrati is situated at 32.47° to 33.28° North and 70.30 ° to 71.30° East. The research area is bounded by Tehsil Karak on the North East, District Mianwali on the East, District Lakki Marwat on the South West and Tribal area Adjoining District Bannu on the West (Fig. 1). The total area of Tehsil is about 613.66 Sq. kilometer. Majority of the area consists rigged dry hills and rough fields areas i.e. 323.97 Sq. kilometer. Agriculture land is about 289.7 Sq. kilometer. The major income source of the area is Agriculture, which is rain depended. Although the hills are dry residual exposes yet they contain precious minerals like coal, gypsum, uranium and gas etc. Takhti Nasratti is situated at 340 m above the sea level. The climate of the area is not markedly different from the other parts of the District Karak. The area is located in semi-arid climatic region, having hot summer and very cold winter. The rainfall is scanty and uncertain. Winter rains are generally of long duration and of low intensity. Summer monsoon rains are torrential in heavy shore intensity. In the year 2001 - 2010, 121.6mm of rainfall per 10 year was recorded on District level (Table 1). June and July are the hottest months, whereas December and January are the coldest months. In the year 2001 - 2010 the mean maximum temperature was 39.5° C, in the month of the June, where as the mean minimum temperature was as low as 4.26° C, in the month of January, recorded on District level (Table 1). The climate and weathers are also influenced by wind. In hottest months especially June swivel winds are developed on the plain area at after noon due to local heating and convectional uprising. Sometimes strong, dry and hot winds with huge dust enter the area from different sides.

Table 1. Climatic data of Tehsil Takht-e-Nasrati for the year 2001-2010.

Months	Temperature (C°)		Humidity (%)		Rainfall (mm)	Soil temperature (C°) Average	Wind speed (Km Per Hour)
	Max	Min	Max	Min			
January	19.18	4.26	75.80	35.24	27.43	7.03	2.9
February	21.69	7.29	77.39	42.23	37.72	9.14	3.2
March	28.20	12.06	75.38	35.23	37.17	13.89	3.5
April	34.74	17.94	66.12	29.42	36.54	19.02	5.2
May	38.32	22.33	59.66	30.73	31.6	21.87	5.4
June	39.50	25.9	59.96	32.89	74.24	25.78	5.5
July	38.44	25.76	73.33	38.76	121.6	26.77	5.2
August	36.66	25.29	75.68	42.61	108.3	26.37	4.1
September	35.47	21.95	77.21	39.29	61.58	23.49	3.7
October	32.33	16.79	71.55	35.51	15.13	20.09	3.5
November	26.71	10.01	71.56	36.66	5.80	14.10	3.2
December	21.93	5.67	75.20	35.90	15.38	8.96	3.1
Mean	31.1	16.27	71.57	36.21	47.71	18.04	4.04

**Fig. 1.** Map of Takht-E-Nasrati.

The area was patchy and could be separated into mountainous area, the plain and the small hillocks. The soil is generally clayey or sandy. The fertile loamy soil is very rarely found. There is no river in the neighborhood and that is why it is very dry and irregular, but streams of water that have the seasonal rainy water. Major streams of water were in the plain areas of Thall come from Sheen Ger Mountain. They are Lawagar, Algada Zarki Nasrati, Myanki stream and Shanawa stream. The

construction of small dam may raise the water table in the area. Oil seeps and gas resources have also been reported indicating geological environment conducive for the generation of hydrocarbons. Limestone, Sand stone and shals/clay are found in the hills in abundance and except shale/clay. The area also hosts some occurrences of calcium detonate and secondary uranium minerals but their evaluation has not yet yielded commercially exploitable reserve as in Shanawa.

Ecological Problems

Some series ecological operating problems faces to the area are as follow:

Cutting

A series ecologically operating problems is fast cutting of plants. (Fig. 2)

Grazing, Browsing and Trampling

Grazing, browsing, and trampling by domestic livelihood is serious problem in area. Grazing has caused the decline after the vegetation where palatable species have been reduced and non-palatable species become increased. (Fig. 3)



Fig. 2. Cutting of plants.

Materials and methods

Collection of the plants

Four distinct microhabitats such as 1) most lower altitude 340-399m 2) middle lower altitude 400-499m. middle high altitude 500-599m and 4)most high altitude 600=699m were delineated based on physiognomic features. The study was conducted by frequently surveying in winter, spring and summer during 2009 to 2010. Plants species were collected, preferably in duplicate or triplicate form. They were pressed, dried, preserved and mounted on herbarium sheets for identification (Fig. 7).

Shortage of water

Water shortage is the one most single threatening problem not for irrigation but for drinking also. (Fig. 4)

Salinity

Some part like Warana is facing salinity hazard due to which a large number of area is becoming uncultivated and the water is neither suitable for cultivation as nor for drinking.

Soil erosion

Soil erosion by the seasonal torrential stream water and in sloping area by the rainwater is also a threat to habitat in the area (Fig. 5).



Fig. 3. Grazing of plants.

Identification

Plants were identified with the help of available literature (Stewart, 1972; Nasir and Ali, 1971 to 1995) and voucher specimens have been deposited in herbarium, Department of Botany, University of Peshawar, Khyber Pakhton Khawa, Pakistan.

Description and illustration

The various identified taxa were checked from useful necessary literature. Their floral and other characteristic studied, using lenses etc. The description and illustration of various taxa presented over here are in accordance with the well-authenticated literature.



Fig 4. People bring water from remote area



Fig 5. Soil erosion a threat to habitat

Result

Field survey and collection of plants were completed for two year during 2009 -2010 in Tehsil Takht-e-Nasrati. The current result revealed that 161 plant species were initiate in the area where 25 monocotyledonous and 136 dicotyledonous species belonging to 52 families. Along with these presented 23 trees, 23 shrubs, 103 herb, 9 grasses and 3 parasite species. (Table 2). Poaceae was the dominant with 17 species then Asteraceae and Papilionaceae both by 13 species and Solanaceae by means of 8 species. Amaranthaceae and Brassicaceae had 7 species each. Cucurbitaceae and Lamiaceae had 6 species each one. Convolvulaceae, Liliaceae and Mimosaceae each and every one had 5 species. Euphorbiaceae and Malvaceae had 4 species each. Each of Boraginaceae, Cappariaceae, Chenopodiaceae, Rhamnaceae, Verbenaceae and Zygophyllaceae had 3 species. Two species were presented in Apiaceae, Asclepiadaceae, Cyperaceae, Fumaraceae, Moraceae,

Myrtaceae, Orobanchaceae, Plantaginaceae, Polygonaceae and Tamaricaceae had 2 species each. The remaining 23 families i.e. Aizoaceae, Apocynaceae, Cactaceae, Caryophyllaceae, Ceasalpiniaceae, Celastraceae, Geraniaceae, Meliaceae, Menispermaceae, Nyctaginaceae, Oxalidaceae, Palmae, Pedaliaceae, Primulaceae, Punicaceae, Ranunculaceae, Rosaceae, Salvadoraceae, Sapindaceae, Sapotaceae, Scrophulariaceae, Tiliaceae and Vitaceae had 1 specie each one (Table 2).

Among these 161 species 109 species were annual while perennial have 52 species. There were 142 deciduous and 19 species were evergreen. On the basis of light frequency the 155 species need light while 6 plant species needs shad and on the basis of moisture 6 plant species were laying in water while 155 plants species were present in dry condition (Fig. 6).

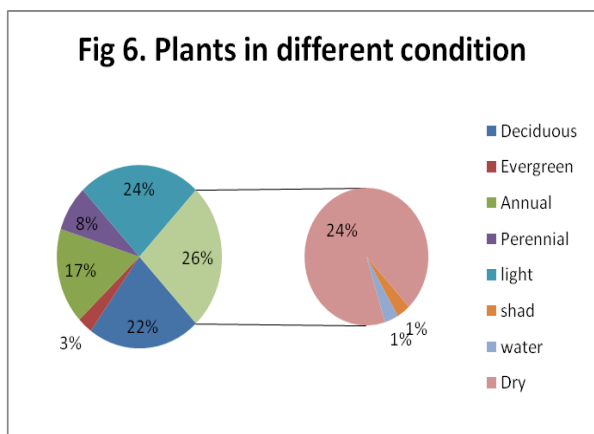


Fig 7. Preparation of herbarium sheet

Table 2. Floristic list of Tehsil Takht-e-Nasrati.

S.N	Botanical Name	Families	F.P	Ha	longevit				Life cycle		Light		Habitat	
					y	De	Ev	An	Pe	light	shad	water	Dry	
1	<i>Aerua persica</i> (Burm.f.) Merrill.	Amaranthaceae	April – May	H	+	-	+	-	+	-	-	-	+	
2	<i>Daucus carota</i> L.	Apiaceae	Spring	H	+	-	+	-	+	-	-	-	+	
3	<i>Abelmoschus esculentus</i> (L.) Moench.	Malvaceae	March – May	H	+	-	+	-	+	-	-	-	+	
4	<i>Acacia modesta</i> Wall.	Mimosaceae	March – April	T	-	+		+	+	-	-	-	+	
5	<i>Acacia nilotica</i> (L) Delice. ssp. nilotica.	Mimosaceae	April – May	T	+	-	-	+	+	-	-	-	+	
6	<i>Achyranthus aspera</i> L.	Amaranthaceae	March - May	H	+	-	+	-	+	-	-	-	+	
7	<i>Ajuga bracteosa</i> Wall.ex Benth.	Lamiaceae	Spring	H	+	-	+	-	+	-	-	-	+	
8	<i>Albizia lebbeck</i> (L.) Benth.	Mimosaceae	April – May	T	+	-	-	+	+	-	-	-	+	
9	<i>Alhagi maurorum</i> Medic.	Papilionaceae	March – May	S	-	+	-	+	+	-	-	+	-	
10	<i>Allium cepa</i> L.	Alliaceae	May – July	H	+	-	+	-	+	-	-	-	+	
11	<i>Allium sativum</i> L.	Alliaceae	April – May	H	+	-	+	-	+	-	-	-	+	
12	<i>Aloe barbadensis</i> Mill.	Aloaceae	July – Sept	H	-	+		+	+	-	-	-	+	
13	<i>Alternanthera pungens</i> Kunth.	Amaranthaceae	Sept – Oct	H	+	-	+	-	+	-	-	-	+	
14	<i>Amaranthus viridis</i> L.	Amaranthaceae	Spring and Summer	H	+	-	+	-	+	-	-	-	+	
15	<i>Anagalis arvensis</i> L.	Primulaceae	March – April	H	+	-	+	-	+	-	-	-	+	
16	<i>Arachis hypogaea</i> L.	Papilionaceae	July – Sept	H	+	-	+	-	+	-	-	-	+	
17	<i>Asparagus gracilis</i> Royle.	Asparagaceae	Spring	H	+	-	+	-	+	-	-	-	+	
18	<i>Asphodelous tenuifolius</i> Cavan.	Asphodelaceae	Feb – March	H	+	-	+	-	+	-	-	-	+	
19	<i>Astragalus hamosus</i> L.	Papilionaceae	March – April	H	+	-	+	-	+	-	-	-	+	
20	<i>Astragalus psilocentros</i> Fisch.	Papilionaceae	July – Sept	S	+	-		+	+	-	-	-	+	
21	<i>Avena sativa</i> L.	Poaceae	March – April	H	+	-	+	-	+	-	-	-	+	
22	<i>Boerhaavia diffusa</i> auct plur.	Nyctaginaceae	Aug – Sept	H	+	-	+	-	+	-	-	-	+	
23	<i>Brassica rapa</i> L.	Brassicaceae	March – April	H	+	-	+	-	+	-	-	-	+	
24	<i>Calendula arvenis</i> L.	Asteraceae	Spring	H	+	-	+	-	+	-	-	-	+	
25	<i>Calligonum polygonoides</i> L.	Polygonaceae	March – April	S	+	-	-	+	+	-	-	-	+	
26	<i>Calotropis procera</i> (Wild) R.Br.	Asclepiadaceae	Throughout the year	S	+	-	-	+	+	-	-	-	+	
27	<i>Capparis decidus</i> (Forssk). Edgeworth.	Capparidiaceae	July – Sept	T	-	+	-	+	+	-	-	-	+	
28	<i>Capparis spinosa</i> L.	Capparidiaceae	May – Sept	S	-	+	-	+	-	+	-	-	+	
29	<i>Capsicum annum</i> L.	Solanaceae	March – April	H	+	-	+	-	+	-	-	-	+	
30	<i>Carthamus oxycantha</i> Bieb	Asteraceae	April – May	H	+	-	+	-	+	-	-	-	+	
31	<i>Celosia argentea</i> L.	Amaranthaceae	July – Sept	H	+	-	+	-	+	-	-	-	+	
32	<i>Cenchrus biflorus</i> Hook. f.,	Poaceae	July – Sept	G	+	-	+	-	+	-	-	-	+	
33	<i>Cenchrus ciliaris</i> L.	Poaceae	Nov – Dec	G	+	-	+	-	+	-	-	-	+	
34	<i>Centaurea iberica</i> Trev.Ex. Spreng.	Asteraceae	April – May	H	+	-	+	-	+	-	-	-	+	
35	<i>Chenopodium album</i> L.	Chenopodiaceae	Throughout the year	H	+	-	+	-	+	-	-	-	+	
36	<i>Chenopodium murale</i> L.	Chenopodiaceae	Throughout year	H	+	-	+	-	+	-	-	-	+	
37	<i>Chrozophora oblique</i> (Vahl) A. Juss.	Euphorbiaceae	May – July	H	+	-	+	-	+	-	-	-	+	
38	<i>Cicer arietinum</i> L.	Papilionaceae	March – April	H	+	-	+	-	+	-	-	-	+	
39	<i>Cistanche tubulosa</i> (Schenk) Wight.	Orobanchaceae	Feb – March	P	+	-	+	-	+	-	-	-	+	

40	<i>Citrullus colocynthis</i> L. Schrad.	Cucurbitaceae	Nov – Dec	H	+	-	+	-	+	-	-	+
41	<i>Cleome viscosa</i> L.	Capparidiaceae	Aug – Sept	H	+	-	+		+	-	-	+
42	<i>Cocculus pendulus</i> (Forst) Diels	Menispermaceae	Nov – Dec	S	+	-	-	+	+	-	-	+
43	<i>Convolvulus arvensis</i> L.	Convolvulaceae	Feb – March	H	+	-	+	-	+	-	-	+
44	<i>Convolvulus pluricaulis</i> Choisy	Convolvulaceae	Feb – March	H	+	-	+	-		+	-	+
45	<i>Corechorus trilocularis</i> L.	Tiliaceae	July – Sept	H	+	-	+	-	+	-	-	+
46	<i>Coriandrum sativum</i> L.	Apiaceae	Feb – March	H	+	-	+	-	+	-	-	+
47	<i>Coronopus didymus</i> (L) Smith.	Brassicaceae	March – May	H	+	-	+	-	+	-	-	+
48	<i>Crotalaria medicaginea</i> Lam.	Papilionaceae	Nov – Dec	H	+	-	+	-	+	-	-	+
49	<i>Cucurbita maxima</i> Duchesne.	Cucurbitaceae	July – Sept	H	+	-	+	-	+	-	-	+
50	<i>Cucurbita pepo</i> L.	Cucurbitaceae	July – Sept	H	+	-	+	-	+	-	-	+
51	<i>Cuscuta reflexa</i> Roxb.	Cuscutaceae	Feb – March	P	+	-	+	-	+	-	-	+
52	<i>Cymbopogon jwarancusa</i> (Jones) Schult.	Poaceae	July – Sept	G	+	-		+	+	-	-	+
53	<i>Cynodon dactylon</i> (L) Pers.	Poaceae	Throughout the year	G	+	-		+	+	-	-	+
54	<i>Cyperus rotundus</i> L.	Cyperaceae	May – Oct	H	+	-	+		+	-	-	+
55	<i>Cyperus scarlosus</i> R.Br.	Cyperaceae	May – Oct	H	+	-	+		+	-	-	+
56	<i>Dalbergia sissoo</i> Roxb.	Papilionaceae	Spring	T	+	-		+	+	-	-	+
57	<i>Datura metel</i> L.	Solanaceae	Throughout the year	S	+	-	+	-	+	-	-	+
58	<i>Descurainia Sophia</i> (L.) Webb.	Brassicaceae	April – May	H	+	-	+	-	+	-	-	+
59	<i>Desmostachya bipinnata</i> (L) Stapf.	Poaceae	Sept – Oct	G	+	-	+	-	+	-	-	+
60	<i>Dichanthium annulatum</i> (Forsk) Staph.	Poaceae	Spring and Summer	G	+	-	+	-	+	-	-	+
61	<i>Digera muricata</i> (L). Mart.	Amaranthaceae	Spring	H	+	-	+	-	+	-	-	+
62	<i>Dodonaea viscosa</i> L.	Sapindaceae	Spring	S	-	+	-	+	+	-	-	+
63	<i>Echinochloa colonum</i> (L) Link.	Poaceae	Sept – Oct	G	+	-	+	-	+	-	-	+
64	<i>Echinops echinatus</i> D.C	Asteraceae	Spring	H	+	-	+	-	+	-	-	+
65	<i>Eragrostis poaoides</i> Beauv.	Poaceae	Throughout year	G	+	-	-	+	+	-	-	+
66	<i>Erodium malacoides</i> Willd	Geraniaceae	Spring weed	H	+	-	+	-	+	-	-	+
67	<i>Eruca sativa</i> Millel.	Brassicaceae	March – May	H	+	-	+	-	+	-	-	+
68	<i>Eucalyptus globules</i> L.	Myrtaceae	April-May	T	+	-	-	+	+	-	-	+
69	<i>Eucalyptus lanceolatus</i> L	Myrtaceae	April-May	T	-	+	-	+	+	-	-	+
70	<i>Euphorbia helioscopia</i> L.	Euphorbiaceae	Spring	H	+	-	+	-	+	-	-	+
71	<i>Euphorbia prostrata</i> Ait.	Euphorbiaceae	Spring weed	H	+	-	+	-	+	-	-	+
72	<i>Evolvulus alsinoides</i> L.	Convolvulaceae	July – Sept	H	+	-	+	-	+	-	-	+
73	<i>Fagonia cretica</i> L.	Zygophyllaceae	Feb – March	H	+	-	+	-	+	-	-	+
74	<i>Fumaria indica</i> (Haussk.) Pugsley.	Fumaraceae	March – April	H	+	-	+	-	+	-	-	+
75	<i>Gymnosporia royleana</i> Wall.	Celastraceae	April- May	T	+	-		+	+	-	-	+
76	<i>Helianthus annus</i> L.	Asteraceae	Nov – Dec	H	+	-	+	-	+	-	-	+
77	<i>Heliotropium europaeum</i> L.	Boraginaceae	May – Sept	H	+	-	+	-	+	-	-	+
78	<i>Heliotropium strigosum</i> Willd.	Boraginaceae	May – Sept	H	+	-	+	-	+	-	-	+
79	<i>Hordeum vulgare</i> L.	Poaceae	March – April	H	+	-	+	-	+	-	-	+
80	<i>Hypericum pendulum</i> L.	Hypericaceae	Spring	H	+	-	+	-	+	-	-	+
81	<i>Ifloga fontanesii</i> Cass.	Asteraceae	Feb – March	H	+	-	+	-	+	-	-	+

82	<i>Indigofera linifolia</i> (L.f.) Rets.	Papilionaceae	July – Sept	H	+	-	+	-	+	-	-	+
83	<i>Ipomoea hederacea</i> (L.) Jack.	Convolvulaceae	Sept – Oct	H	+	-	+	-	+	-	-	+
84	<i>Kickxia ramosissima</i> (Wall) Jan.	Scrophulariaceae	Feb – March	H	+	-		+		+	+	
85	<i>Lactuca sativa</i> L.	Asteraceae	July – Sept	H	+	-	+	-	+	-	-	+
86	<i>Lactuca serriola</i> L.	Asteraceae	July – Sept	H	+	-	+	-	+	-	-	+
87	<i>Launaea procumbens</i> (Roxb.) Ramayya & Rajgopal.	Asteraceae	April – May	H	+	-	+	-	+	-	-	+
88	<i>Lens culinaris</i> Medic.	Papilionaceae	Aug – Sept	H	+	-	+	-	+	-	-	+
89	<i>Lippia nodiflora</i> (L.) L.C. Rich.ex. Michaux.	Verbenaceae	April – May	H	+	-	+	-	+	-	-	+
90	<i>Lithospermum arvense</i> L.	Boraginaceae	Spring	H	+	-	+	-	+	-	-	+
91	<i>Luffa acutangula</i> Roxb.	Cucurbitaceae	Nov –Dec	H	+	-	+	-	+	-	-	+
92	<i>Luffa aegyptiaca</i> (L) M.J.Rocm.	Cucurbitaceae	Nov –Dec	H	+	-	+	-	+	-	-	+
93	<i>Lycopersicon esculentum</i> Mill.	Solanaceae	March – April	H	+	-	+	-	+	-	-	+
94	<i>Malcolmia africana</i> (L) R.Br.	Brassicaceae	Spring	H	+	-	+	-	+	-	-	+
95	<i>Malva neglecta</i> Wallr.	Malvaceae	Feb – March	H	+	-	+	-	+	-	-	+
96	<i>Malva parviflora</i> L.	Malvaceae	Feb – March	H	+	-	+	-	+	-	-	+
97	<i>Malvastrum coromandelianum</i> (L.) Gareke.	Malvaceae	Nov –Dec	H	+	-	+	-	+	-	-	+
98	<i>Medicago laciniata</i> (L.) Mill.	Papilionaceae	March – April	H	+	-	+		+	-	-	+
99	<i>Melia azedarach</i> L.	Meliaceae	March – April	T	-	+		+	+	-	-	+
100	<i>Melilotus indicus</i> (L.) All.	Papilionaceae	Feb – March	H	+	-	+	-	+	-	-	+
101	<i>Mentha arvensis</i> L.	Lamiaceae	Feb – March	H	+	-	+	-	+	-	+	
102	<i>Micromeria biflora</i> (Buchi .Ham exD. DonBenth).	Lamiaceae	Spring	H	+	-	+	-	+	-	-	+
103	<i>Momordica charantia</i> L.	Cucurbitaceae	Nov –Dec	H	+	-	+	-	+	-	-	+
104	<i>Monothea buxifolia</i> (falk) A.DC.	Sapotaceae	March – April	T	-	+	-	+	+	-	-	+
105	<i>Morus alba</i> L.	Moraceae	March - April	T	+		-	+	+	-	-	+
106	<i>Morus nigra</i> L.	Moraceae	March- April	T	+	-	-	+	+	-	-	+
107	<i>Ocimum basilicum</i> L.	Lamiaceae	Nov –Dec	S	+	-	+		+	-	-	+
108	<i>Opuntia ficus indica</i> (L.) Mill	Cactaceae	Feb – March	S	-	+		+	+	-	-	+
109	<i>Orobanche ramosa</i> L.	Orobanchaceae	Feb – March	P	+	-	+			+	-	+
110	<i>Otostegia limbata</i> (Benth.) Boiss.	Lamiaceae	March – May	S	+	-		+	+		-	+
111	<i>Oxalis corniculata</i> L.	Oxalidaceae	March - May	H	+	-	+	-		+	-	+
112	<i>Parkinsonia aculeata</i> L.	Ceasalpinaceae	April - May	T	-	+	-	+	+	-	-	+
113	<i>Peganum harmala</i> L	Zygophyllaceae	Nov –Dec	H	+	-	-	+	+	-	-	+
114	<i>Pennisetum typhoideum</i> (Burm) Stapf.	Poaceae	Aug – Sept	H	+	-	+		+	-	-	+
115	<i>Periploca aphylla</i> Decne.	Asclepiadaceae	March – May	S	-	+	-	+	+	-	-	+
116	<i>Phoenix dactylifera</i> L.	Arecaceae	March – May	T		+	-	+	+	-	-	+
117	<i>Phragmites karka</i> (Retz) Trin . Ex. Steud.	Poaceae	Nov –Dec	H	+	-	-	+	+	-	+	-
118	<i>Plantago ciliata</i> Desf.	Plantaginaceae	March – May	H	+	-	+		+	-	-	+
119	<i>Plantago ovata</i> Forsk.	Plantaginaceae	March – May	H	+	-	+		+	-	-	+
120	<i>Prosopis farcta</i> (Banks & Sol.) J.F. Macbr.	Mimosaceae	March – May	T	-	+		+	+	-	-	+
121	<i>Prosopis juliflora</i> (Sw.) DC.	Mimosaceae	March – May	T	-	+		+	+	-	-	+
122	<i>Punica granatum</i> L.	Punicaceae	March – May	T	-	+		+	+	-	-	+

123	<i>Pupalia lappacea</i> (L.) Juss.	Amaranthaceae	Nov – Dec	H	+	+	-	+	-	-	+	
124	<i>Ranunculus muricatus</i> L.	Ranunculaceae	March – May	H	+	-	+	-	+	-	+	
125	<i>Raphanus sativus</i> L.	Brassicaceae	March – May	H	+	-	+	-	+	-	+	
126	<i>Rhazya stricta</i> Dcne.	Apocynaceae	March – April	S	+	-		+	+	-	+	
127	<i>Ricinus communis</i> L.	Euphorbiaceae	March – April	S	+	-	+	-	+	-	+	
128	<i>Rosa indica</i> L.	Rosaceae	Throughout the year	S	-	+	-	+	+	-	+	
129	<i>Rumex dentatus</i> L.	Polygonaceae	Aug – Sept	H	+	-	+	-	+	-	+	
130	<i>Saccharum bengalense</i> Retz	Poaceae	Nov – Dec	S	+	-	-	+	+	-	+	
131	<i>Saccharum spontaneum</i> L.	Poaceae	Sept – Oct	S	+	-	-	+	+	-	+	
132	<i>Salvadora oleoides</i> Decne.	Salvadoraceae	Feb – March	T	-	+	-	+	+	-	+	
133	<i>Salvia moorcroftiana</i> Wall	Lamiaceae	March – April	H	+	-	+	-	+	-	+	
134	<i>Saussurea heteromalla</i> (D.Don) Hand.	Asteraceae	Aug – Sept	H	+	-	+	-	+	-	+	
135	<i>Sesamum indicum</i> L.	Pedaliaceae	Sept – Oct	H	+	-	+	-	+	-	+	
136	<i>Silene conoidea</i> L.	Caryophyllaceae	Spring	H	+		+		+	-	+	
137	<i>Sissymbrium irrio</i> L.	Brassicaceae	Feb – March	H	+	-	+		+	-	+	
138	<i>Solanum incanum</i> L.	Solanaceae	Feb – March	H	+	-	+	-	+	-	+	
139	<i>Solanum nigrum</i> L.	Solanaceae	Throughout year	H	+	-	+	-	+	-	+	
140	<i>Solanum surattense</i> Burm.f	Solanaceae	Throughout the year	H	+	-	-	+	+	-	+	
141	<i>Sonchus asper</i> (L) Hill.	Asteraceae	March – April	H	+	-	+		+	-	+	
142	<i>Sorghum vulgare</i> (L.) Pers.	Poaceae	July – Sept	G	+	-	-	+	+	-	+	
143	<i>Spinacia oleraceae</i> L.	Chenopodiaceae	March - May	H	+	-	+		+	-	+	
144	<i>Tamarix aphylla</i> (L.) Karst.	Tamaricaceae	May – Sept	T	+	-	-	+	+	-	+	
145	<i>Tamarix decidua</i> Roxb.	Tamaricaceae	May - Sept	T	+	-	-	+	+	-	+	
146	<i>Taraxacum officinale</i> Weber.	Asteraceae	March – May	H	+	-	+	-	+	-	+	
147	<i>Trianthema portulacastrum</i> L.	Aizoaceae	March – May	H	+	-	+	-	+	-	+	
148	<i>Tribulus terrestris</i> L.	Zygophyllaceae	Aug – Sept	H	+	-		+	+	-	+	
149	<i>Trifolium alexandrianum</i> L.	Papilionaceae	Spring	H	+	-	+	-	+	-	+	
150	<i>Triticum aestivum</i> L.	Poaceae	Feb – March	H	+	-	+	-	+	-	+	
151	<i>Vicia sativa</i> L.	Papilionaceae	March – April	H	+	-	+	-	+	-	+	
152	<i>Vites vinifera</i> L.	Vitaceae	Feb – March	S	+	-	-	+	+	-	+	
153	<i>Vitex negundo</i> L.	Verbenaceae	Aug – Sept	S	+	-	-	+	+	-	+	
154	<i>Vitex trifolia</i> L.	Verbenaceae	Aug – Sept	S	+	-	-	+	+	-	+	
155	<i>Withania coagulans</i> Dunal.	Solanaceae	Spring	S	-	+	-	+	+	-	+	
156	<i>Withania somnifera</i> (L) Dunal.	Solanaceae	Throughout the year	S	+	-	-	+	-	+	+	
157	<i>Xanthium strumarium</i> L.	Asteraceae	July – Sept	H	+	-	+		+	-	+	
158	<i>Zea mays</i> L.	Poaceae	July – Sept	H	+	-	+		+	-	+	
159	<i>Zizyphus maurtiana</i> Lam	Rhamnaceae	Spring	T	+	-	-	+	+	-	+	
160	<i>Zizyphus nummularia</i> (Burm.f) W.&A.	Rhamnaceae	Spring	S	+	-	-	+	+	-	+	
161	<i>Zizyphus oxyphylla</i> Edgew	Rhamnaceae	Spring	T	+	-	-	+	+	-	+	
					142	19	109	52	155	6	6	155

Ha: Habit, H: Herb, S: Shrub, T: Tree, F.P: Flowering period, An: Annual, Pe: Perennial.

Discussion

The work will unquestionably present much help out to future human resources trying in this field in this area. The area consists of both hills and plains, differing much in floristic composition. Irrigation facilities are very less in the area, depending on rainfall. Due to lack of irrigation conveniences the Flora, particularly cultivated Flora has much difference from highly irrigated areas of Khyber Pakhton Khawa. No fruit orchards have been seen in the visited area. The chief Agriculture crops are Wheat, different legumes, fodder crops and barely, grown with the help of tube well system but mostly rain dependant. On hills different grasses, *Monotheca buxifolia*, *Acacia modesta*, *Rzhazia stricta*, and *Capparis decidus*, *Calligonum polygonoides*, *Vitex trifolia* etc are commonly found.

Mostly of the Xerophytes such as *Temarix aphylla*, *Calotropis procera*, *Zizyphus* spp. and *Acacia nilotica* are found on road sides while *Capparis decidua* and *Salvadora oleoides* are commonly found in Grave-yards *Aloe vera* is also very common in Grave-yards. Most of the floral elements of the area are found as weeds in cultivated crops, for example, in Wheat crops different weeds such as *Silene conoidea*, *Melilotus indicus*,

Anagalis arvensis, *Echinops echinatus*, *Asphodelus tenuifolius* and *Cronopous didymus* etc are very common.

With the passage of time, there is an increase in the population, so as a outcome natural habitats are in the same way declining. The natural wealth are being over-used, distorted and mess up. One factor, of natural habitats declining and over-used is the raise in the require of amenities in the culture.

Almost 40% area is hilly and 60% plain. The Tube wells and other wells irrigate a few of the plain area but in a slight area the water be full of high salt contents such as Warana. Due to the high salinity in these areas the majority area becomes barren. Small Dams are also shaped in the area such as Sarki Lawager (Fig 8), which participate significant function in irrigation and drinking water of various area. Mainly of the people alive in the area are deprived and depend on farming and domestic animals. They also collect medicinal plants, fodder, fuel wood and timber.



Fig 8. Small Dame play important role in irrigation and drinking water in future



Fig 9. Shrubby structure due to grazing

The key plants used for ornamental purposes in the area are *Albezzia lebbeck*, *Capparis deciduas*, *Cynodon dactylon*, *Dodonaea viscosa* and *Rosa indica* etc. *Capparis deciduas*, *Salvadora oleoides* and *Aloe*

barbadensis etc are cultivated in the area of graveyard to increase the good looks of the area. Similarly other plants used for miscellaneous purposes in the area are *Acacia nilotica*, *Acacia modesta*, *Saccharum manja*,

Capparis deciduas, *Dalbergia sissoo*, *Tamarix aphylla*, *Zizyphus* species and *Monothea buxifolia* etc. An ecologically operating problem of the area is grazing, browsing, and trampling by domestic animals. These elements cause species not to reach its climax stage (Fig 9). Grazing is one of the depressing aspects, which has caused the eliminated in vegetation. In these processes the palatable species are selected and these make the non-palatable species to increase. This can be noticeably



Fig 10. Dry Well due to low water table

The most important factors disturbing the Flora of area are light, temperature, humidity, soil conditions, topography, elevation from sea level, rain fall and other forms of precipitation. On soil having high Nitrogen content are found *Malva neglecta*, *Chenopodium album* etc, as occurring near human duellings, on compost heaps and in back yards. The finding is similar with that of Rehman (1982) and Khan (2004). The medicinal plants like *Withania coagulans*, *Aloe vera* and *Peganum hermala* are very common in the area. The fruit of *Zizyphus spp* is transported to other parts of the country.

Conclusion

The region is extremely prosperous in biodiversity. The halophyte should be initiated in saline region. There is necessitating of organization of Tube well scheme on high scales in this area, which will bring Agriculture mutiny in the area. Many fruits, especially *Zizyphus* species, *Peganum hermala*, *Withania coagulans*,

seen in many places, which results in stunting growth and not reaching to flowering stage: so these are a danger of their extinction. According to locals, the water level of the area was very high 15-20 years back range was 15- 20 feet. (Fig. 10). The people of the area grow those plant species, which are nowadays not grown in the area such as *Nicotiaa tabacum* and *Solanum tuberosum* etc due to the low water table.



Fig 11. *Kickxia ramosissima* (Wall) Jan. present in shady places

Monothea buxifolia, *Fagonia cretica* and *Acacia nilotica* are exhausted annually due to non-availability of marketplace. The market accessibility has fine outcome on plants and on nation. Medicinal farm should be set up in the study area to endorse the essential significance of the plants and its conservation.

Acknowledgements

The paper is a fraction of PhD thesis published as a mandatory towards the award of PhD degree. Authors are grateful to the local people of area who have revealed the precious information about plant species and assistance. We cannot forget all our class fellows and friends for all support they accorded us during the period we carried out this study.

References

Ahmad K, Khan MA, Ahmad M, Zafar M, Arshad M, Ahmad F. 2009. Taxonomic diversity of stomata in

dicot flora of a district tank (N.W.F.P.) in Pakistan. African Journal of Biotechnology **8 (6)**, 1052-1055.

Hadi F, Naseem M, Shah SM, Asadullah, Hussain F. 2009. Prevalence and ecological characteristics of summer weeds in crop and vegetable fields of Botanical Garden Azakhel, University Of Peshawar, Pakistan. Pak. J. Pl. Sci. **15 (2)**, 101-105.

Hussain F, Shah SM, Hadi F, Asadullah. 2009. Diversity and ecological characteristics of weeds of wheat fields of University of Peshawar Botanical Garden at Azakhel, District Nowshera, Pakistan. Pak. J. Weed Sci. Res. **15(4)**, 283-294.

Khan M, Musharaf S, Shinwari ZK. 2011. Ethnobotanical importance of halophytes of Noshpho salts mine, District Karak, Pakistan. Research In Pharmaceutical Biotechnology. **3(4)**: 46-52.

Khan M. 2004. A fraction of Angiosperm of Tehsil Banda Daud Shah, NWFP, Pakistan. MSc. Thesis. Gomal University D.I.Khan. Khyber Pakhton Khawa, Pakistan.

Khan M. 2007. Ethnobotany of Tehsil Karak NWFP PAKISTAN. M.Phil Thesis. Kohat University of Science and Technology, Kohat, Khyber Pakhton Khawa, Pakistan.

Marwat SK, Khan MA. 2009. Taxonomy of Nodulated Leguminous Flora of Dera Ismail Khan North-Western Pakistan. Pak. J. Weed Sci. Res. **15(4)**, 295-307.

Marwat SK, Khan MA, Ahmad M, Zafar M, Ahmad F, Nazir A. 2009. Taxonomic studies of nodulated leguminous weeds from the flora of North Western part (Dera Ismail Khan) of Pakistan. African Journal of Biotechnology, **8 (10)**, 2163-2168.

Muhammad S, Khan Z, Cheema TA. 2009. Distribution Of Weeds In Wheat, Maize And Potato Fields Of Tehsil Gojra, District Toba Tek Singh, Pakistan. Pak. J. Weed Sci. Res. **15(1)**: 91-105.

Nazar R, Begum S, Naz A, Qureshi R, Memon RA, Chaudhry AK, Akram Z. 2008. Weed Flora Of Pir Mehr Ali Shah Arid Agriculture University Rawalpindi: Winter Aspect. Pak. J. Weed Sci. Res., **14(1-2)**, 55-72.

Qureshi R. 2008. Preliminary floristic list of chotiari wetland complex, Nawab Shah, Sindh, Pakistan. Pak. J. Bot., **40(6)**: 2281-2288.

Qureshi R, Bhatti GR. 2010. Floristic Inventory of Pai Forest, Nawab Shah, Sindh, Pakistan. Pak. J. Bot. **42 (4)**, 2215-2224.

Rahim SMA, Hasnain S, Shamsi RA, Jabeen F. 2011. The phytosociological analysis of saline area of Tehsil Ferozewala, District Sheikhpura (Punjab), Pakistan. African Journal of Environmental Science and Technology, **5(4)**, 316-326.

Sher Z, Khan Z. 2007. Floristic Composition, Life Form and Leaf Spectra of the vegetation of Chagharzai Valley, District Buner. Pak. J. Pl. Sci., **13 (1)**: 57-66.

Tahira JJ, Khan SN, Suliman R, Anwar W. 2010. Weed Flora of *Curcuma longa* Fields of District Kasur, Pakistan. Pak. J. Weed Sci. Res., **16 (2)**, 241-246.

Yavari A. 2010. Floristic study of Khan-Gormaz protected area in Hamadan province, Iran. International Journal of Agriculture and Biology **12 (2)**, 271-275.