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On the study of coenopopulations of the Fergana Valley of the Aegilops L. family

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Abstract---The article describes the geographical distribution, coenopopulations and species composition of the Aegilops L. family in the Fergana Valley. Based on the collected data, a GIS map was created. The morphological features of the species were studied. We observed that the distribution of Aegilops crassa Boiss in the Fergana Valley was somewhat limited. This tour occurs only in the Imam Ata hills of Khojabod district of Andijan region (940032'47.66 "N, 72036'21.8" E, at an altitude of h-807 m above sea level, in the latitude of 2010 in the south-west). The number of balls was small, 19 per 1 m².

Keywords---coenopopulatio, phytocenosis, GAT map, morphological features, distribution.

Introduction

Currently, the study of the current coenopopulation state of these plants in various natural zones of the Fergana Valley, the geographical distribution of the species (*Aegilops* L.) is being carried out to assess the current state of the valley and develop a strategy for restoring cenopopulations. In the eastern part of the country is the Fergana Valley, which is located in the tectonic basin between the mountains of Turkestan, Alay, Fergana, Chatkal, Qurama, which are part of the Western Tien Shan Mountains. Its geographical coordinates are 39042'-420 north latitudes and 69030'-74050' east longitudes. The total area of the valley is 78,000 km². The territory of Andijan, Namangan and Fergana regions of the republic is 19.3 thousand km².

The remaining areas are the Sogd region of Tajikistan in the west, Batken, Osh and Jalal-Abad regions of the Kyrgyz Republic in the south and southeast (Kholikov, 2020). Today, biomorphological and population studies are widely used in the world's leading research centers to address the issues of plant biodiversity conservation. Our research object is *Poaceae* Barnh. some species belonging to the family *Aegilops* L: *Aegilops trinucalis* L., *Aegilops cylindrica* Host., *Aegilops tauschii* Coss., *Aegilops crassa* Boiss. Representatives of the category Flora Uzbekistana (Drobov, 1941), International Plants Names Index (www.ipni.org), The Plant List (<http://www.theplantlist.org/>), Identified in comparison with the "Information System FLORAUZ" developed by the Central Herbarium of the Research Institute "Gene Fund of Flora and Fauna" of the Academy of Sciences of Uzbekistan and the samples stored in the herbarium.

The Fergana Valley has a unique climatic conditions, and the species we studied were identified in the desert (h-400 -500 m), hills (h-780-790 m) and mountainous (h-1160-1200 m) steep regions of the valley during 2020-2021. almost non-existent in the pasture region. Distribution points and samples of the representatives of the category were identified and collected using route and stationary (permanent) geobotanical methods of B.M. Mirkin (Mirkin et al., 1989) used by V.N. Tikhomirov (2006) (Tikhomirov, 2006). Coenopopulation analyzes Rabotnov T.A. (1981), Zlobin Yu.A. (1989, 2009) (Rabotnov, 1981; Zlobin, 1989; Zlobin, 2009).

Materials and Methods

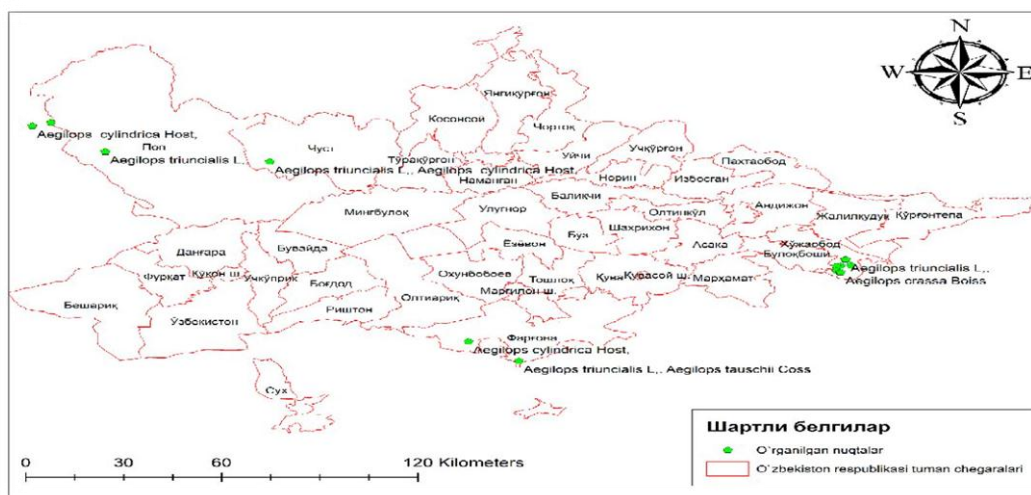


Figure 1. Mashurut map of intelligence research

In 3 territories of Andijan region (in Imam ota hills of Khodjabod district and in Karnaychi village; In the hills of Teshikdash village of Jalal-Abad district). Occurred in Fergana district of Fergana region (Upper Vadil village and Upper Chimgan hills). In Namangan region, we observed the distribution in the foothills of Chusttumani (Chust hills) and Pop district (in the foothills of Kizilsuv and Kamchiksay) (Figure 1).

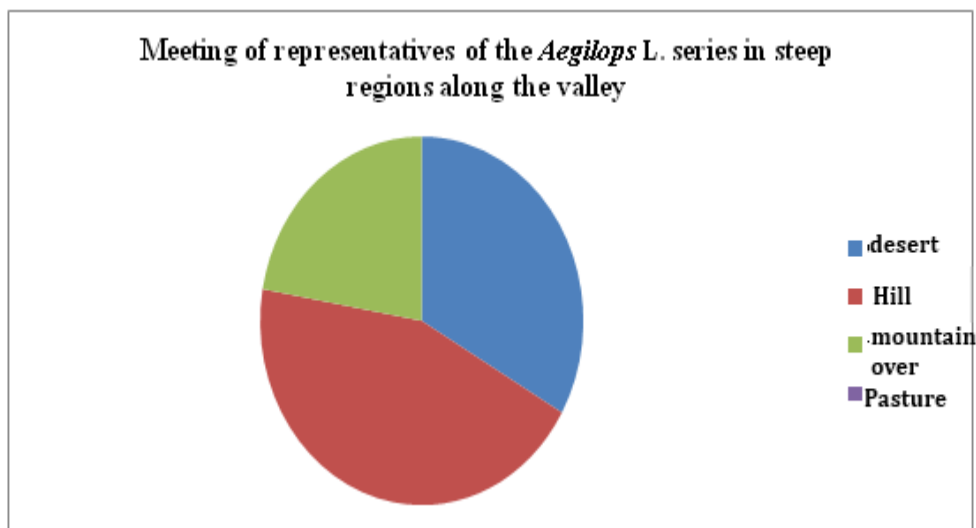


Figure 2. *Aegilops* L. meeting of representatives of the series on vertical regions

1. Fergana region (desert) -*Aegilops triuncialis* L., *Ae.cylindrica* Host., *Aegilops tauschii* Coss.,
2. Andijan region (hill)-*Aegilops triuncialis* L., *Ae.cylindrica* Host., *Aegilops tauschii* Coss., *Aegilops crassa* Boiss.
3. Namangan region (foothills) -*Aegilops triuncialis* L.,*Ae.cylindrica* Host. The meeting of representatives of the *Aegilops* L. series by vertical regions is shown in Table 2, where we can see that the hills of Andijan region are richer in species of the series than in other regions. This is due to the fact that this area has some favorable environmental factors for the reproductive development of the species. The geographical coordinates of the representatives of the category, the degree of surface cover, the dominant species in the cenopopulation are given in Table 1, a detailed description of which is given below.

Coenopopulation of *Aegilops triuncialis* L.

CP1. Khojabod district of Andijan region (Imam ota adirliklari) 40032'48.908 "N, 72036'24.47" E, kovulli - ephemeral – grassland. To the northeast of this land, at 72° latitudes, we saw a large population of *Aegilops triuncialis* L. (26.5.2021). Coverage rate - 100%. The soil is fine sand - soil. The plant community consisted of 13 species. Kovulli - corn - shrub. From a height of 242 m above sea level, the species began to occur. At an altitude of h-780-790 m, we observed that the representatives of the genus are more rapidly developed, thickly covered, the species is at the stage of fruit ripening. At altitudes above 800 m, the species is sparse and semi-shrubs are dominant. The height of *Aegilops triuncialis* L is also lower in this section (15-20 cm). In the upper layer, these species are rare, and their height is lower than in the middle layer. No species were found in the top layer, where semi-shrubs were observed to be dominant. During our observations, *Ae. triuncialis* and *Ae.cylindrica* have always been found together in many places,

but in this population *Ae.cylndrica* is very sparsely distributed in the marginal parts.

CP2. In the village of Yukori Vodil, Fergana district, Fergana region, near the river 40010'34.43 "N, 71043'55.8" E, saline - glazed- grassland (29.05.2021). Coverage rate is 75%. The soil is rocky gravel, fine sandy soil. The plant community consisted of 7 species. *Aegilops triuncialis* 32.

CP3. Around Kamchiksay of Pop district of Namangan region 41° 08' 21.08" N, 70° 23'32.97" E, h-1160, 180° latitude bush-eyed-mixed grass-head (21.05.2021). The soil is rocky and fine soil. The projective coverage rate of the cenopopulation was 100%. The species composition of the plant community was 11. *Aegilops triuncialis* 178.

Coenopopulation of *Ae.cylndrica* Host

CP1. Khojabod district of Andijan region (Imam ota hills), 40032'22.28 "N, 72037'03.53" E. coordination (26.5.2021). Mountain barley-large grass-grassland at an altitude of h-847 m above sea level. The soil is fine-gravel and fine soil. The vegetation cover of the surface is 100%. The plant community consisted of 8 species. *Ae. cylndrica* 67. Anthropogenic factors in the region have led to an uneven distribution of the species. This is because the area where the species is distributed is shrinking as a result of harvesting before the development phase is complete.

CP2. Pop district of Namangan region, Kamchiksay area 41° 08' 21.08" N, 70° 23'32.97" E, h-1160 m, 180° m wide mixed grassland. The soil is rocky and fine soil. The projective coverage rate of the cenopopulation was 100%. The species composition of the plant community was 11. *Aegilops cylindrica*.

Coenopopulation of *Aegilops tauschii* Coss

Cp1. The diversity of the representatives of the group increased as they walked along the road up from the Imam ota hills of Khojabod district of Andijan region (26.5.2021). *Aegilops tauschii* Coss along the road. In the coordination of 40032'22.28 "N, 72037'03.53" E there was a grass-mixed grassland. Soil - fine sandy loam soil. Vegetation coverage was 94% .The species composition was 13. The number was 112 *Aegilops tauschii*.

Cp2. The village of Yukori Vodil, Fergana district, Fergana region, is separated from the banks of the river 40010'34.43 "N, 71043'55.8" E, saline - glazed-cosmopolitan (29.05.2021). The vegetation coverage of the coenopopulation is 52%. The soil is rocky, fine sandy loam. The plant community consisted of 4 species. *Aegilops tauschii* 13.

Coenopopulation of *Aegilops crassa* Boiss

Cp1. *Aegilops crassa* Boiss 40032'47.66 "N, 72036'21.8" E, at an altitude of h-807 m above sea level, in the latitude of 2010 in the south-west, was separated from the large herbaceous-poplar population in the Imam Ata hills of Khojabod district

of Andijan region (8.06.2021). Soil - fine sandy loam soil. The vegetation cover of the coenopopulation is 94% .The species composition was 9. The number was 19 of *Aegilops crassa* Boiss..

Table 1.
Coenopopulation of representatives of the genus *Aegilops* L.

Cp	The area where the coenopopulations are located		The degree of vegetation cover of the land surface (%)	Plant community	Dominant species
	Geographical coordinates	Geographical or administrative names			
<i>Aegilops trinucalis</i> L.					
1	N40°32'48.908 E 72°36'24.47	Khojabod district of Andijan region (Imam ota hills))	100	Kovulli ephemeral-grassland	<i>Aegilops trinucalis</i> L., <i>Aegilops cylindrica</i> Host., <i>Bromus</i> , <i>Poa bulbosa</i> L., <i>Hordum bulbosum</i> L., <i>Acroptilon repens</i> (L) DC., <i>Cappais</i> , <i>Artemisia</i> sp.
2	N 40°10'34.43 E 71°43'55.8	The village of Yukori Vodil, Fergana district, Fergana region, near the river	75	salty-shiny-grassland	<i>Aegilops trinucalis</i> L., <i>Aegilops cylindrica</i> Host., <i>Chenopodium album</i> , <i>Poa bulbosa</i> L, <i>Artemisia</i> sp.
3	N41° 08' 21.08" E70° 23'32.97"	Kamchiksay foothills of Pop district of Namangan region	100	bushy-mixed-grass-corn	<i>Aegilops trinucalis</i> L., <i>Aegilops cylindrica</i> Host., <i>Hordum bulbosum</i> L., <i>Convolvulus arvensis</i> L.,
<i>Aegilops cylindrica</i> Host.					
1	N40°32'22.28 E72°37'03.53	Khojabod district of Andijan region (Imam ota hills)	100	mountain barley-large grass-grassland	<i>Aegilops cylindrica</i> Host., <i>Hordeum</i> , <i>Bromus</i> , <i>Cynodon dactylon</i> (L) Pers.,
2	N41° 08' 21.08" E70° 23'32.97"	Around Kamchiksay of Pop district of Namangan region	100	mixed grass corn	<i>Aegilops cylindrica</i> Host., <i>Aegilops trinucalis</i> L., <i>Convolvulus arvensis</i> L.,
<i>Aegilops tauschii</i> Coss.					
1	N40°32'22.28 E72°37'03.53	Hills of Khojabod district (Imam ota) of Andijan region	94	grassy-mixed grassy-grassland	<i>Aegilops tauschii</i> Coss., <i>Aegilops cylindrica</i> Host., <i>Aegilops trinucalis</i> L., <i>Cynodon dactylon</i>

					(L) Pers., <i>Phleum paniclatum</i> , <i>Avena trichophylla</i> C.Koch., <i>Hordeum bulbosum</i> ., <i>Convolvulus arvensis</i> L., <i>Artemisia</i> sp.
2	N40°10'34.43 E71°43'55.8	The banks of the river in the village of Yukori Vodil, Fergana district, Fergana region	52	salty-shiny-grassland	<i>Aegilops tauschii</i> Coss., <i>Aegilops trinucalis</i> L., <i>Artemisia</i> sp., <i>Bromus</i> sp.
<i>Aegilops crassa</i> Boiss.					
1	N40°32'47.66 E72°36'21.8	In Imam ota hills of Khojabod district of Andijan region	94	large herbaceous - cornfield	<i>Aegilops crassa</i> Boiss., <i>Aegilops trinucalis</i> L., <i>Convolvulus arvensis</i> L., <i>Artemisia</i> sp., <i>Chenopodium</i> L.

Results and Discussions

Morphological characteristics of the species were determined on the basis of samples collected during field studies. *Aegilops triuncialis* L.- annual grass. This plant grows on hills, roadsides, rocky soils. Length 35-60 cm. Leaves 5-10 cm long; Width 3-7 cm. The surface of the leaves is hairless, sometimes finely hairy. The spikes are 3-6 cm long; the length of the spikes is 1-2 cm, each spike has 3 - 6 fertile spikes. The spikes are hard or brittle. The spikelets are 0.5-1.5 cm long, with 2-3 spikes (3-6 cm), the outer flower petals are slightly thinner and the spikes are slightly shorter (0.3-0.5 cm). Grain length 7.06 ± 0.1 (CP 1) - 7.52 ± 0.1 (CP 3) mm; and the width is in the range of 2.33 ± 0.1 (CP 2) to 2.83 ± 0.1 (CP 3) mm (Fig. 3). The spikes fall completely. Weight of 1000 seeds is 7.6 (CP 2) - 8.9 (CP 3) gr.



Figure 3. *Aegilops triuncialis* L. of spike, little spike, spike sawdust, outer flower sawdust, fruit

Aegilops cylindrica Host. - annual grass. Length 20-70 cm. The leaves are 4-12 (-20) cm long and 2-5 (-10) cm wide. The surface of the leaves is hairless or fine, less hairy. Spike length is 10-14 cm, the number of spikes in each spike is 5-8. Spike length 9-12 mm, spikes cylindrical, seeds lanceolate. The spikelets are 1-1.2 cm long, with 2 axils (3-5 cm), the outer flower petals are slightly thinner and axillary. Grain length 7.03 ± 0.1 (CP 1) - 7.08 ± 0.1 (CP 2) mm; and the width is in the range of 2.2 ± 0.1 (CP 2) to 2.8 ± 0.1 (CP 1) mm (Fig. 4). The spikes are very brittle and they are easily separated from each other. Weight of 1000 seeds is 8.2 (CP 1) - 8.7 (CP 2) gr.



Figure 4. *Aegilops cylindrica* Host. of spike, little spike, spike sawdust, outer flower sawdust, fruit

Aegilops tauschii Coss. – annual grass. The stem is erect. Length 25-60 cm. Leaves 8-17 cm long; width 3-5 cm. The number of spikes in the ear is 9-13. The spikes are brittle and shed intact. Spike length 10-14 cm. The length of the spike is 10-15 mm. The length of the spike is 0.7-1 cm, the upper part is flat, without a blade, the outer flower petal is slightly thinner, with 1-2 spikes (1.5-2.5 cm). Grain length 5.67 ± 0.09 (CP 1) - 7.11 ± 0.1 (CP 2) mm, width 2.3 ± 0.1 (CP 2) - 2.58 ± 0.1 (CP 1) mm (Figure 5). Weight of 1000 seeds is 7 (TsP 1) - 8.6 (CP 2) gr.



Figure 5. *Aegilops tauschii* Coss. of spike, little spike, spike sawdust, outer flower sawdust, fruit

Aegilops crassa Boiss.— annual grass. Length 35-60 cm. The leaves are 8- (15) - 20 cm long and 4-10 mm wide. The surface of the leaves is flat, covered with feathers on both sides. The number of spikes is 6-8. Spike joints are brittle. The spikes are lateral compressed. Spike length 10-15 mm. The whole spills. The length of the spike is 0.9 to 1.3 cm, without a blade, with 2 teeth. The outer flower petals are slightly thin, with 1 stalk (5-6 cm). The grain length was 7.31 ± 0.1 (CP 1) mm and the width was 2.64 ± 0.1 (CP 2) mm (Fig. 6). 1000 seed weight 9.2 (CP 1) gr.



Figure 6. *Aegilops crassa* Boiss. of spike, little spike, spike sawdust, outer flower sawdust, fruit

Seed morphometric indices in *Aegilops triuncialis* ranged from cenopopulations studied in the range of 7.06 to 7.52 mm in length and 2.33 to 2.83 mm in width. The highest morphometric values of CP 3 seeds were observed. The highest rate of seeds in *Ae.cylindrica* was observed at CP 2 (7.08 mm) in length and CP 1 (2.8 mm) in width. As a result of the studies, the morphometric characteristics of the seeds in *Aegilops tauschii* showed a length of 5.67-7.11 mm and a width of 2.3-2.58 mm. It was observed that the length was higher in CP 2 and the width was higher in CP 1. *Aegilops crassa* at 7.31 and 2.64 mm, respectively. The morphological characteristics of the seeds depend on the amount of precipitation, humidity and temperature, and in a favorable ecological-phytocenotic environment, the reproductive performance of the population increases.

Conclusion

1. In the Fergana region (desert)- *Aegilops triuncialis* L., *Ae.cylindrica* Host., *Aegilops tauschii* Coss.; In the Andijan region (hill)- *Aegilops triuncialis* L., *Ae.cylindrica* Host., *Aegilops tauschii* Coss., *Aegilops crassa* Boiss.; In the Namangan region - *Aegilops triuncialis* L., *Ae.cylindrica* Host. species encountered.
2. The distribution of *Aegilops crassa* Boiss in the Fergana Valley is somewhat limited, and this species is found only in the Imam Ata hills of Khojabod district of Andijan region (940032'47.66 "N, 72036'21.8" E, h-807 m above sea level, latitude 2010 in the southwest). The number of tree was small, 19 per 1 m².

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