



## **EVALUATION OF ANTHROPOGENIC PLANT TRANSFORMATION IN THE FERGANA VALLEY (on the example of the northern regions)**

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### **ABSTRACT**

*This article is devoted to the assessment of anthropogenic transformation of vegetation cover in the northern part of the Fergana valley on administrative territories. The process of anthropogenic transformation in the vegetation cover took place in 19 existing contours on the map of Yangikurgan district. The vegetation cover of Yangikurgan district is considered to be strongly changed. According to the vegetation map of Chust district, strong influence of anthropogenic transformation was observed in 12 contours.*

**KEYWORDS:** *vegetation cover, anthropogenic transformation, types, formation, association, rare, endemic, population, degeneration, degradation, relief map, herbarium, tree, bush*

### **INTRODUCTION**

In order to assess the anthropogenic transformation of vegetation in the northern part of the Fergana Valley, comparative analysis of herbariums collected as a result of reference maps and studies prepared by T. Rakhimova, R. Vernik (1971, 1977) has been made. As mentioned above, only "vegetation cover" maps of Yangikurgan and Chust districts of the object were made (T. Rakhimova, R. Vernik) [1,2].

Maps were used as the first valuable resource, although there was some confusion in the old format or in the identification of plant species.

The contours of Yangikurgan district were dominated by 2 types: *Sogdian wormwood formation of xerophilous-semi-shrub type, thin-leaved wormwood formations, Wheat formation* of various grassy dry steppe type and *andiz formations* (Table 1)

[1]. Currently, the region is dominated by *ephemeral-wormwood, annual-saline-ephemeral, milky-sage-wormwood* associations, which are part of the ephemeral-wormwood association of small sandy-gravel gray soils of the middle hill.

### **MATERIAL AND METHODS**

In-depth analysis of herbariums and geobotanical researches collected during the research and kept in the Herbarium of the Institute of Botany of the Academy of Sciences of the Republic of Uzbekistan showed that anthropogenic transformation took place in 19 existing contours on the map of Yangikurgan district. Based on in-depth research and data collected, it can be said that the vegetation cover of Yangikurgan district has been strongly altered (50-75%) [3].



**Table 1**  
**Assessment of anthropogenic transformation on the basis of the map "Vegetation cover" of Yangikurgan district (1971) (Kotelnikov, 1950)**

Contour №	The name of the contours	Vegetation cover degradation	Transformation rate
1	<b>Type 1 XEROFIL-SEMI-SHRUB</b> <i>Sogdian wormwood formation</i> <b>1-group. Ephemeral-wormwood association of fine sandy-gravel gray soil of the Middle Hill</b> Ephemeroid-wormwood	25-50 %	moderately changed
2	Ephemeral-wormwood	25-50 %	moderately changed
3	Ephemeral-salty - wormwood	50-75%	strongly changed
4	Scattered wormwood	25-50 %	moderately changed
5	Ephemeral	25-50 %	moderately changed
6	Annual-saline-ephemeral	50-75%	strongly changed
7	<b>2- group. Association of Mediterranean Hill with stony-gray soils and semi-shrubs</b> Acantholimon-ephemeral - wormwood	50-75%	strongly changed
8	Acantholimon-scaly-ceratoides-wormwood	50-75%	strongly changed
9	Paniculate thistle - bean caper -wormwood	50-75%	strongly changed
10	Ephemeral-shrub-wormwood	50-75%	strongly changed
11	Salsala orientalis-wormwood	50-75%	strongly changed
12	<b>Thin-leaved wormwood formation</b> <b>3- group. A diverse herbaceous-shrub-wormwood association of the Upper Hill</b> Milky-juicy-wormwood	25-50 %	moderately changed
13	Dodartia – Ceratoides wormwood	25-50 %	moderately changed
14	Milky-juicy -shrub- wormwood	25-50 %	moderately changed
15	A variety of herbaceous-milky-juicy	50-75%	moderately changed
16	<b>Type 2. A DIFFERENT WEED DRY FIELD</b> <b>Wheat formation</b> A variety of grasses and shrubs	50-75%	moderately changed
17	<b>Andiz formation</b> Wheat-shrub-andiz	50-75%	strongly changed
18	Irrigated lands	100%	Fully changed
19	Crops lands	100%	Fully changed
	<b>AVERAGE</b>	<b>50-75%</b>	<b>strongly changed</b>

The map of Chust district shows that 2 types, namely, xerophilous-semi-shrub type *Sogdian wormwood formation*, *thin-leaved wormwood formations*, different grassland dry steppe type *Wheat formation and andiz formations* dominated (Table 2.3.2.) [2]. Nowadays, due to the change of the

xerophilous-semi-shrub type, the composition of trees and shrubs, i.e. *Rosa canina* L., *Atraphaxis seravschanica* Pavlov, is dominated by plant communities.

**Table 2.4.2. Assessment of anthropogenic transformation on the basis of the map "Vegetation cover" of Chust district (1977) (Kotelnikov, 1950)**

Contour №	The name of the contours	Vegetation cover degradation	Transformation rate
	<b>Type 1 MOUNTAIN SIDE AND MOUNTAIN XEROPHIL-SEMI-SHUT PLANT COVER</b> <i>Sogdian wormwood formation</i> <b>1-group. Rock-gravel bush-wormwood association of the upper hill</b> Ephemeral-Salsola orientalis-wormwood		
1		25-50 %	moderately changed
2	Scattered - Salsola orientalis-wormwood	25-50 %	moderately changed
3	Anabasis salsa - Salsola orientalis-wormwood	50-75%	strongly changed
4	Ephemeral-Acantholimon wormwood	50-75%	strongly changed
5	Anabasis salsa - wormwood	50-75%	strongly changed
6	Ephemeral- wormwood-Salsola orientalis	25-50 %	moderately changed
	<b>2- group. Annual herbaceous-wormwood association</b>		moderately changed
7	Ephemeral sage-wormwood	25-50 %	
8	Ephemeral- sage -wormwood	50-75%	strongly changed
9	Ephemeral - sage ebelak- wormwood	50-75%	strongly changed
10	Ephemeral - sage - wormwood	50-75%	strongly changed
	<b>3- group. Ephemeral wormwood association fine-grained rocky-gravel soil</b>		oderately changed
11	Ephemeral - wormwood	25-50 %	
12	Ephemeral -juicy- wormwood	50-75%	moderately changed
13	Ephemeral-juicy-salvia- wormwood	50-75%	strongly changed
14	Ephemeral -Scutellaria- wormwood	50-75%	strongly changed
	<b>2-formation. Fine-grained wormwood association fine sand</b>		moderately changed
15	Shrub-Kochia- wormwood	25-50 %	
16	Shrub - wormwood -juicy- Ephemeral	50-75%	strongly changed
	<b>Fertile formation, fine sandy soil</b>		strongly changed
17	Shrub - Ephemeral -Iris	50-75%	
	<b>Type 3 Spruce forest</b>		
	<b>4- Zaravshan spruce formation, fine brown soil</b>		strongly changed
18	Ephemeral -shrub- Spruce forest	50-75%	
19	Unusable lands	Up to 25%	changed
20	Irrigated lands	100 %	Fully changed
	<b>AVERAGE</b>	<b>50-75%</b>	<b>strongly changed</b>

## RESULTS

№5- Anabasis salsa - Salsola orientalis-wormwood, №4- Ephemeral-Acantholimon wormwood, №5- Anabasis salsa - wormwood, №8- Ephemeral- sage -wormwood, №9- Ephemeral - sage ebelak- wormwood, №10- Ephemeral - sage - wormwood associations In the Sogdian wormwood formation, which form the mountain slopes and

foothills xerophilous-semi-shrub vegetation cover, have now reached a level of homogeneity, that is, only Ephemeral-wormwood associations currently dominate the above contours. №13- Ephemeral-juicy-salvia-wormwood, №16- Shrub - wormwood -juicy-Ephemeral, №18 Ephemeral -shrub- Spruce forest belonging to the group of fine-grained, stony-gravelly soils have changed and *Mogoltavia*



*sewerzowii* (Regel) Korovin, *Dorema microcarpum* Korovin, *Jurinea winklerii* Iljin rare and endemic species decreased. The area of plant communities, especially in the lower hills, has been reduced, and most of them have been used for housing, recreation, and the development of fruit and vegetable growing and viticulture. In particular, the complete disappearance of communities dominated by the er17-Shrub-Ephemeral-Iris Association *Iris songarica* Schrenk (*Iris falcifolia*) reflected on the rapper map indicates that the process of anthropogenic transformation is accelerating in the region. It should be noted that floristic and geobotanical studies have shown that the floristic composition of all the contours reflected on the map has almost changed by now.

The research showed that the strong impact of anthropogenic transformation is observed in 12 contours on the map of vegetation cover of the territory of Chust district. Although contours 1, 2, 6, 7, 11, 15 were moderately modified (25-50%), signs of change in contour 19 were less common, the negative impact of anthropogenic factors on

vegetation was observed in processes such as industrial and domestic waste disposal, quarrying.

Assessment of anthropogenic transformation of vegetation cover in the northern part of the Fergana Valley was also carried out for administrative districts without reference maps (Table 2.4.3). Herbarium samples kept at the Institute of Botany of the Academy of Sciences of the Republic of Uzbekistan and herbariums collected in field research were taken as a basis. Accordingly, the degree of transformation of changes in vegetation cover in Pop, Kosonsoy and Chartak districts, which are administrative territories of Namangan region, was assessed as “moderately changed”. In terms of vegetation degradation, Chust and Yangikurgan districts account for 50-75%, Pop and Chartak districts for 25-50%, and Kosonsoy district for up to 25%. It should be noted that natural areas are pastures and hayfields, which consist mainly of useful plant communities with rich biodiversity. However, issues such as the reduction of natural areas from year to year, the need to introduce legal norms in relation to it, in turn, are important from a botanical point of view.

**Table 2.4.3. Scale for assessing the anthropogenic transformation of vegetation cover in the northern part of the Fergana Valley (Kotelnikov, 1950)**

№	Administrative territories	Area of natural areas (pastures, hayfields, etc.)% чис.	Vegetation cover degradation	Transformation rate
1	Pop	77,3	25-50 %	moderately changed
2	Chust	17,6	50-75%	strongly changed
3	Kosonsoy	34,1	25 % гача	not strongly changed
4	Yangikurgan	29,1	50-75%	strongly changed
5	Chartak	30,8	25-50 %	moderately changed

## CONCLUSION

In conclusion we can say that ecosystems with relatively low anthropogenic transformation throughout the Fergana Valley are preserved only in the highlands of the Qurama Range (northern part of the valley), on the northern slopes of the Alay Range in the Shohimardon administrative enclave, and only in the foothills- in strictly guarded border areas. Growth sites of a number of rare and endemic species at risk of extinction have been identified in these areas. The ongoing anthropogenic transformation process is leading to significant changes in plant cover, i.e. the complete extinction of fodder, medicinal, dyeing and other economically important plant species. This, in turn, requires the identification of measures to protect natural landscapes, as well as regular scientific research in this area.

## REFERENCES

1. Vernik R.S., Raximova T. Schematic map of the New-Kurgan region of Namangan region of the UzSSR [Map]. Scale 1: 100,000. - Tashkent, 1971
2. Vernik R.S., Raximova T. Map of vegetation of Chust district of Namangan region of UzSSR [Map]. Scale 1: 100,000. - Tashkent, 1977.
3. Ibroximova G.A. Anthropogenic transformation of vegetation cover in the northern part of the Fergana Valley. // -Namangan. Dis. ... Phd. biol. 03.00.05, -P. 176.
4. Ibroximova G.A.. The current state of endemic and rare species in the northern part of the Fergana Valley // Bulletin of the Khorezm Mamun Academy. - Khiva, 2019. - №2. - P. 19-22.
5. Ibroximova G.A. A modern state of and populations of rare and endemic species of the northern part of Fergana valley // European Science Review. – Austria, Vienna, 2018. – №



- 11–12 November – December Vol. 2. – P. 18-24.
6. Matasoliev S.T. *The soil algae of urban ecosystems (on the example of Andijan).*- Наманган. дис. ... Phd. биол. : 03.00.05, -P. 201.
  7. Норалиева Н.М., Тожибоев К.Ш., Иброхимова Г.А. К изучению рода *Lamugorarris* Knorring & Tamatsch. во флоре Ферганской долины // Научный вестник – Андижон, – №2. 2018. – P. 47-49.
  8. Tojibaev K.Sh. *Vegetation and meadows of Chodaksay basin: dissertation, candidate of biological sciences.* –Tashkent: 2002p. – P. 134.