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ROLE OF THE RELIEF AND CLIMATE FACTORS IN FORMATION OF SOIL AND PLANT COVER IN THE MUGAN-SALYAN CADASTRE REGION

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РОЛЬ РЕЛЬЕФНО-КЛИМАТИЧЕСКИХ ФАКТОРОВ В ФОРМИРОВАНИИ ПОЧВЕННОГО И РАСТИТЕЛЬНОГО ПОКРОВА МУГАН-САЛЬЯНСКОГО КАДАСТРОВОГО РАЙОНА

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Abstract. Collected and analyzed data on soil, ecological, climatic and relief conditions of the Mugan-Salyan cadastre region. The study of relief-climatic factors in the formation of soil and vegetation was carried out on the basis of both literary sources and our own research.

Аннотация. Собраны и проанализированы данные о почвенных, экологических, климатических и рельефных условиях Муган-Сальянского кадастрового района. Изучение рельефно-климатических факторов в формировании почвенного и растительного покрова, проводилось на основании, как литературных источников, так и собственных исследований.

Keywords: relief, climate, vegetation cover, soil, cadastre.

Ключевые слова: рельеф, климат, растительный покров, почва, кадастр.

Introduction

A relief of the zone plays an important role in soil cover formation, participates as a main factor in distribution of the sun radiation depending on appearanceness and inclination of the slopes, and affects the hydrothermal regime, oxidation-reduction processes and salt regimes of soil. The plain relief of Mugan-Salyan, cadastral region created a good condition for intensification wind erosion deflation process. From this point of view participated as an evolution factor in formation of relief, soil and plant cover.

Results and Discussions

A general inclination of the cadaster region directs to the south-eastern profile and it is weakly noticeable. An important impact of the Kur River is clear in formation of the modern relief, and this is noticeable with the presence of micro and macro depressions, and sometimes stagnates in some places. These zones are formed in the central part of the zone. These zones are represented with the presence ponds in the areas having 15–23 m hypsometric level.

The groundwater's are located near the surface in connection with the relief lower than sea level, as a result most soil types formed in the zone create serious problems in assimilation of the salinized soils. The mead owing and swamping processes occur intensively in the negative relief forms. The north and north-eastern part of the zone has a high relief.

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The river valleys, the irrigation canals cause relief fragmentation. The relief rises towards north; this is clearly noticeable in the float cones area of the rivers. The small holes are found in some places though the zone is plain. The negative relief was created as the Kur River overflowed for centuries and had opened a new river-bed for itself [1, 5].

A climate of the Mugan-Salyan cadastral region belongs to semi desert and dry field type. This climate type is characterized with less and weaker moist, mild in winter, dry and hot in summer. There is coldest months are January, February and but the hottest months are July and August. The hot and dry summer negatively affected plant cover and soil forming process.

An annual temperature of the weather is 14,6 °C. An average monthly temperature of the hottest month (July-August) is 26,2–26 °C an average monthly temperature of the coldest month (January-February) is 2,2–4,0 °C. An average perennial precipitation quantity in the Salyan is 200–400 mm. Most parts of the precipitations are in spring, but minimum indicators are in summer months.

The climate indicators of the vegetation period in the Mugan-Salyan Cadaste region give a chance for planting of temperate annual subtropical plants. Since most of the sunlight falls in the half of summer, it allows the plants to fully mature in early autumn. Lack of climate changes which will damage hot-loving plants in agricultural period stimulate successfully growing of annual hot-loving plants.

The climate characters of the winter period restrict opportunities of perennial subtropical plant-growing application in connection with the change of temperature; the vegetation of frosty-resistant can be possible. A climate state of the winter period gives an opportunity to hibernate subtropics plant-growing as fig, bay, cypress and pomegranate. But these plants periodically suffer from frost in the Mugan-Salyan massive [2, 4, 8].

The plant-cover of the research zone was studied by Grossheim and others for the first time in 1929. A main plant-growing period is calculated from the time of maximum precipitation in spring. The spring vegetation period of plant cover ends in April, annual and cereals begin to wither in early May, perennials take advantage, and three main plant-growing types appear: wormwood, saline grass and swamp [3].

Table

THE CLIMATE INDICATORS OF THE MUGAN-SALYAN CADASTRE REGION

Indicators	*Months*												*Annual*
	1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	
Temperature	2.2	4.0	7.4	12.4	19.4	23.4	26.4	26.2	22.2	16.4	10.2	5.2	14.6
Relative humid, %	81	82	79	75	66	62	62	64	68	77	80	81	74
Precipitation, mm	22	21	31	35	13	12	9	6	13	27	28	19	236
Wind velocity	2.4	3.1	2.9	2.4	2.7	2.6	3.0	3.2	2.6	2.9	2.0	2.3	2.67
Moisture, %	3.5	2.2	3.3	4.1	10.8	11.0	12.2	11.2	9.7	6.0	2.2	1.5	6.47
Evaporation of the watersurface, mm	25	29	36	59	86	115	124	130	82	53	27	20	786
Total evaporation, mm	13	13	43	71	108	148	164	139	108	63	32	27	929

As it is seen from the table evaporation changes for a year in the Mugan-Salyan cadastre region. An evaporation ability decreases in winter, gradually rises in spring, but it reaches the highest level in the middle of the summer. The coldest month is in winter, the hottest one is in July and in August.

The vegetation of the zone is conditionally divided into the following groups according to the research consequences:

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1. Halophyte plants are salt-resistant, they are dominant in plant formation. These plants are available in virgin and boharic areas during all the vegetation's period. Some of halophyte plants wide-spread in the desert and semidesert natural zones, saline soils where the ground water is near the surface, but the other part is distributed in the zones which are located in the deeper layers. We can show tamarisk and others as an example.

2. Xerophyte plants. These plants don't surround large zones resistant to drought, weakly participate in soilforming process. These are: lucerne and others. Xerophyte plants are considered invaluable food base livestock.

3. Ephemers. These plants begin to shoot after the first precipitations in early spring. They don't also cover a large zone. They expand in plants a local form.

4. Hydrophil plants: These plants are green all year round and develop in the surplus moisture condition. Hydrophiles around the rivers, stagnant and lakes. They are canes and others.

As a result of the long researches the soils of the Mugan-Salyan cadaster region are; meadow-grey grey-meadow, meadow-swamp, highly humic grey-meadow, medium and little humic grey-meadow; partial solonetzification and saline greyish and grey-cinnamon, meadow swamp, salines (deluvial and alluvial), takyr, knotted hilly sand, they are divided into various type sand subtypes [6, 7].

The soils including in open and primitive grey subtype spread in the younger elements of the relief. These soils are related to dry-hot climate condition and soilforming process occurs in the water regime condition (not washing). It is located in the north western and eastern part of the zone the relief is plain, the soilforming rocks consist of sea sediments of the IV period. These soils are used under grain, barley, lucerne and cotton. Its color is bright-grey and yellowish towards lower layers. Meadow-grey soil type widespreads in the Mugan-Salyan cadastre region (in the north and south-western part). These soils are characteristic for transition-type, develop in dryer condition, they spread as a stripe, and they are used in irrigation agriculture.

The meadow-grey soils aren't salinized and distribute equally along the profile. The meadow-grey soils are formed in the good humid condition especially under the lucerne-ephemer cenoses. There are considerably soluble salts in composition of meadow-grey soils. A total amount of the salts rises towards depth. The salt composition of soils is sulphate-chloride. A color of the noted soils in upper layer is light-grey, but becomes very light towards depth.

The groundwater is weakly mineralized in the main parts the zones where the meadow-swampy soils spread. The ground water with coarse composition in some areas significantly affects the physic-chemical features of soils. These soils are formed in the low and depression elements of relief. These soils spread as spots in the various parts of the Mugan-Salyan cadaster region and they are intended for pastures.

Conclusion

According to the results of the research, the terrain played an important role in the formation of the soil cover, depending on the visibility and inclination of the slopes, it acted as a key factor in the distribution of solar radiation to the earth's surface. The soils of the Mugan-Salyan cadastre region are meadow-gray, gray-meadow, meadow-marsh, high-humus gray-meadow, medium- and low-humus gray-meadow, partially saline gray-brown, divided into knotty hilly sands, which in turn were divided into different types and subtypes.

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