ГЕОГРАФИЯ И ГЕНЕЗИС ПОЧВ

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ENVIROMENTAL ASSESSMENT OF SOME AREAS OF SHEKI-ZAGATALA CADASTRAL REGION

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Abstract. The article describes the geographical location, topography, underlying rocks, climate and soils. Based on the physical, chemical, and physico-chemical parameters of the soils, the ecological state of the soils was characterized, and using setting scales, an ecological assessment of the soils was made. The selection of criteria for environmental assessment of soil conditions is determined by the specifics of their location, genesis, buffering, the diversity of their use and the consideration of areas with varying degrees of soil degradation.

Key words: soil, ecological evalution, degradation, fertility, granulometric composition, humus.

INTRODUCTION

Contrary to the so-called "soil ecology" training that examines the interaction between soil and the environment, the environmental assessment of lands based on the principles of quantitative expression of these interactions is also of great practical importance. According to him, after the evaluation of soils based on the soil diagnostics indicators, the next stage should be the environmental assessment of the lands and compiling the environmental price maps of the land.

It should be noted that the first doctoral dissertation, based on the theory and principles of the environmental assessment of the soil, belongs to S.Z. Mammadova [1, 2].

The Sheki-Zagatala cadastral region located on the southern slope of the Greater Caucasus includes the Balakan, Zagatala, Gakh, Sheki, Oguz and Gabala administrative districts and borders in the north along the Dividing Range of the Dagestan Autonomous Republic of the Russian Federation, in the west and south-west of the Georgian Republic, southeast Agdash and Goychay, and in the east Ismayilli regions. Balakan region, included in the Sheki-Zagatala cadastral region - alluvial-meadow forest, washed-mountain forest, typical mountain-forest slopes, clay-meadow soil types, plots, and sampling soil for appropriate genetic analysis The morphogenetic analysis of the profile was carried out: a map of the Institute of Soil origin and large-scale soil was used for the determination of soil types [3, 4].

Hasan Aliyev has been an invaluable service of in the study of the origin, geographical distribution, morphology and mapping of the southern, southeastern and northeast slopes of the Greater Caucasus [5-9].

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OBJECTS AND METHODS

The solution of the tasks was carried out by laying key areas on various types of soils included in the Sheki-Zagatala cadastral region

Initial land map 1: 100000 based on fund and map materials of the Institute of Soil Science and Agrochemistry in the Sheki-Zagatala cadastral region of the Republic of Azerbaijan has been prepared within the boundaries of the cadastral region [10]. According to the map, the

route scheme was developed and the field work was carried out. During the survey, the coordinates were recorded using GPS, which included cuts in the soil typical of the area. A number of indicators were then determined in laboratory conditions. Thus, the analysis of some indicators of the mountain-forest brown soils - Washed Mountain Forest and the typical mountain-forest brown species and the Wetlands of the Wetlands of Mountain-meadow soils. The granulometric composition is determined by Kachinsky method by pipette, general humus – of Tyurin method, Carbonate calcimeter, Ph reaction by potentiometer.

The price scale for the basic bonus and environmental parameters of the Shaki-Zagatala cadastral area of the Republic of Azerbaijan has been compiled.

In the modern era, there is a clear environmental focus on the conservation and use of natural resources, where the priority is given to environmental protection programs and projects for the efficient use of natural resources. The existing natural resources are linked to the biological landscapes of the forests, wetlands, humid tropical forests, coastal swamps and special landscapes.

At present, environmental degradation in the republic, reduction of forests, meadows, agricultural lands, complete destruction in some places, disturbance or reduction of the biodiversity of a number of plants and animals increases the relevance of ecology and environmental assessment.

In this regard, the analysis of the environmental situation by analyzing the environmental situation as a result of land reform in the republic, forest ecosystem coverage of Sheki-Zagatala cadastre, development of tourism in the region and exploitation of single polymetallic deposits in the Greater Caucasus (Filizchay, Balakan region), can be considered as a matter of time.

The Sheki-Zagatala economic district, which is one of the richest regions of the Republic of Azerbaijan, is located in the north-western part of the Great Caucasus Mountains, covering the territory of the Balakan, Zagatala, Gakh, Sheki, Oguz, and Gabala administrative regions. In the north-west and south of the Alazan River, the Republic of Georgia, from the north to the southern slope of the Greater Caucasus, with the Dagestan MR, and the Alazan-Haftaran valley and the southern part of the Aghinohur It is bordered by Goychay regions.

Low and mid-mountainous areas are predominant in the districts included in this administrative area. The total area of Sheki-Zagatala region is 380.9 thousand hectares. Out of 188.6 thousand hectares of agricultural land, 116.8 thousand hectares are pastures. The region covers the southern slopes of the Greater Caucasus natural-agricultural region. Between the altitude points to the east (650 m) and to the west (550 m), the area covers an area of up to 2500 m. The relief is mainly mountainous [11-13]. The mountainous terrain itself is divided into high-altitude, medium-mountainous and lowland foot-hills. In the south the Alazan-Haftaran valley extends from west to east parallel to the foothills. Changes of relief conditions in the area in very complex and sharp vertical slopes have led to the formation of various climatic types. Thus, the semi-desert, dry gray and cold tundra climatic zones are distributed unevenly in connection with the elevation of the south-west to the north -east. The region is characterized by a very complex shape in the fragmented relief of the area, ranging from a distance of up to 4,480 m to the high Bazarduzu Mount, starting at approximately 100 meters from the coast of Acinohur Desert. Widespread erosion here also plays a major role in the relief. Frequent floods in the region are caused by the large river network and the slopes, as well as high rainfall. Sub-tropical

areas with altitudes ranging from 500 to 700 m above sea level, with mild, cool and cold climate prevailing above. The most arid area of the area is the area of Acinohur (300-350 mm) and the most humid places (1000-1300 mm) are moderately high mountainous areas. Mountain-meadow, mountain-meadow-forest, brown-mountain-forest, brown-mountain-forest, meadow-brown, gray-brown, mountain-chestnut, chestnut, gray, meadow-forest and grassland are widespread. The area is rich and has a unique landscape. The region is one of the most wooded areas of Azerbaijan [14, 15].

In the plains areas of the area there are plains forests of alfalfa, winged berries, pine nuts, hybrid pumpkins, and long oak. There are coniferous species, algae and Iberian oak forests in areas with brown grassland. Alpine rugs with low grasses are common on the Alpine (2600-3200 m). They include alpine chamomile, alpine fragrance, alpine mammals, Caucasian hills, alpine cliffs, and so on.

RESULTS AND DISCUSSION

It covers 883,500 hectares, or 10.2 % of the total territory of the republic, covering administrative districts Balakan, Zagatala, Gakh, Sheki, Oguz and Gabala. The relief is mainly mountainous. The mountainous terrain itself is divided into high-altitude, medium-mountainous and lowland foothills. In the south the Alazan-Haftaran valley extends from west to east parallel to the foothills. The valley plays an important role in the region's economy in terms of land resources suitable for agriculture. On the basis of cadastral area and stock materials, the composition of the soil cover was determined and the areas by type and subtype were calculated as % (%), (Table 1).

Table 1 -Composition of the soil cover of the region

№ N-Sİ	Type and subtypes	Area	
		ha	%
1	2	3	4
1	Primitive and peat-mountain meadow	37092	4,2
2	The grassy meadow	40778	4,6
4	Gray mountain meadow	12576	1,4
5	Meadows	5938	0,7
6	Typical brown mountain forest	153681	17,4
7	Partly brownish forest with carbonate residue	89506	10,1
12	Washed brown mountain forest	31472	3,6
13	Typical brown mountain forest	6606	0,7
14	Carbonated and partially brown forest	3394	0,4
15	Washed and typical mountain black	6872	0,8
16	Carbonated rock	22790	2,6
18	Light mountain gray-brown	18110	2,0
19	Dark and ordinary mountain chestnuts	6032	0,7
20	Partly rotten-sulfate (limestone) and underdeveloped mountain chestnut	7745	0,9
21	Typical and carbonate meadow-brown	41735	4,7
24	Dark and ordinary chestnut	23747	2,7
25	Partial residue was saline open chestnut	46979	5,3
29	Typical gray	4988	0,6
30	Light and primary gray	7375	0,8
34	Partly salty and salty gray and grayish	7002	0,8
35	Washed and carbonated meadow-forest	171138	19,4
36	Flood alluvial- grassland	69682	7,9
37	Marshy grassland and marsh	3944	0,4

Table 1 -Composition of the soil cover of the region (Continued)

1	2	3	4
38	Solonotz (deluvial aluvial and handle)	6795	0,8
43	Crushed-stone river basin	23981	2,7
44	Bare rocks and various rocks on the surface	33533	3,8
	Total	883491	100

The following 5 types (typical mountain-brown, carbonated mountain-forest brown, crushed carbonate mountain -brown, washed-mountain brown, typical mountain-forest brown for grading for the first half year - the generalization stage is completed. The optimum parameters are selected and, accordingly, the phase of the basic bonitet scale has begun, reaching 0–20,0–50,0–100 cm (Table 2).

In order to compile the basic bonitet scale of the Shaki-Zagatala cadastral lands, some of the soils taken in previous years were analyzed and mathematical statistical analysis was conducted on fertility parameters (Table 3, 4).

Table 2 - Ecological Evaluation Scale of Sheki-Zagatala Cadastral District

The name of the soils	Height, m	Slope, °	Temperature°C	Luquid, mm	Md	Boitet score of the land	pH	<0,01 mm,%	Ecological score
typical mountain forest brown	1500-2000 / 100	16-20 / 58	6,5 / 90	1000-1200 / 100	0,45-0.50 / 90	100	6,6 / 100	40,32 / 100	92
mountain forest brown carbonate	1300-1700 / 100	14-18 / 65	6,5 / 90	800-1000 / 80	0,35-0,45 / 100	86	7,4 / 80	42,54 / 90	88
mountain brown carbonated steppe	/ 100	14-18 / 65	8,5 / 100	600-900 / 80	0,35-0,45 / 100	70	7,5 / 80	45,18 / 90	85
mountain forest leached brown	1000-1500 / 90	10-15 / 70	8,5 / 90	600-800 / 100	0,25-0,35 / 90	96	6,9 / 100	40,0 / 100	91
mountain forest brown typical	1000-1200 / 90	10-15 / 70	10,4 / 100	600-800 / 100	0,25-0,35 / 90	90	7,0 / 100	43,16 / 100	80

CONCLUSION

The following 5 types (mountain forest brown carbonate, typical mountain-forest brown, mountain forest brown typical, mountain forest leached brown, steppe carbonate mountain forest browns) are summarized for the first half-year the stage is completed. The optimum parameters were selected and adjusted to the depths of 0-20, 0-50, 0-100 cm, and the basic bonitet scale phase was initiated, and the basic bonitet scale was drawn up. typical mountain forest brown - bonitet scale of the soils were taken by 100 points and were evaluated accordingly with mountain forest brown carbonate - 86, steppe carbonate mountain forest browns - 70, mountain forest leached brown - 96, mountain forest brown typical - 90 points. Criteria for the environmental assessment of the 5 soil types of the Shaki-Zagatala cadastral district were selected and the evaluation criteria were developed. These criteria are as follows. An environmental assessment scale has been compiled according to parameters of height (m), Temperature 0^0 C, precipitation mm, Md, pH, granulometric composition < 0.01 mm %.

Ecological scores were obtained for the typical mountain-forest brown - 92, mountain forest brown carbonate - 88, mountain brown carbonated steppe - 85, mountain forest leached brown - 91, and mountain forest brown typical - 80 points.

Table 3 - Results of mathematical analysis of fertility indicators of cadastral lands of Sheki-Zagatala

Indicators	Depth, cm	Average price, M,%	Average square deviation, %	Changing coefficient, C,%	Average error, m,%	Accuracy, indicas P,%	Reliability, Level , t	Quantity observe,n
1	2	3	4	5	6	7	8	9
Typical brown mountain forest								
Humus, %	0-20	5,09	0,9	17,6	0,28	5,5	18,18	10
	0-50	3,59	1,01	28,1	0,32	8,91	11,2	10
Nitrogen , %	0-20	0,30	0,04	13,3	0,01	3,3	30,0	10
	0-50	0,21	0,02	9,5	0,007	3,33	30,0	10
Phosphorus , %	0-20	0,21	0,026	12,3	0,008	3,8	26,25	10
	0-50	0,19	0,027	14,2	0,008	4,21	23,75	10
Potassium ,%	0-20	4,23	0,09	2,12	0,05	1,18	84,6	4
	0-50	4,19	0,08	1,91	0,05	1,19	83,8	4
Sum abserved base - ekv/100 qr.of soils	0-20	31,07	5,8	18,6	1,82	5,85	17,07	10
	0-50	28,24	5,15	18,2	1,62	5,73	17,4	10
Carbonated mountain forest brown								
Humus, %	0-20	4,11	0,58	17,11	0,18	4,37	22,8	10
	0-50	3,15	0,64	20,31	0,20	6,34	15,75	10
	0-100	2,36	0,26	11,01	0,09	3,81	26,22	7
Nitrogen , %	0-20	0,27	0,06	22,2	0,018	6,7	15,0	10
	0-50	0,21	0,036	17,14	0,01	4,76	21,0	10
Phosphorus , %	0-20	0,20	0,017	8,5	0,005	2,5	40,0	10
	0-50	0,17	0,023	13,5	0,007	4,11	24,2	10
Potassium ,%	0-20	2,88	0,38	13,19	0,21	7,29	14,0	4
	0-50	2,76	0,42	8,69	0,24	15,21	11,5	4
Sum abserved base - ekv/100 qr.of soils	0-20	38,01	4,4	11,57	1,39	3,65	27,3	10
	0-50	35,3	7,5	21,24	2,37	6,71	14,89	10

Table 3 - Results of mathematical analysis of fertility indicators of cadastral lands of Sheki-Zagatala(Continued)

1	2	3	4	5	6	7	8	9
Steppe carbonate mountain brown								
Humus, %	0-20	3,23	0,57	11,5	0,18	5,57	18,0	10
	0-50	2,63	0,30	11,4	0,09	3,42	29,2	10
	0-100	1,60	0,36	22,5	0,13	8,12	12,3	7
Nitrogen , %	0-20	0,24	0,027	11,25	0,009	3,75	27,0	10
	0-50	0,19	0,021	11,0	0,0075	3,94	25,3	10
Phosphorus , %	0-20	0,19	0,031	16,3	0,01	5,26	19,0	8
	0-50	0,16	0,027	16,87	0,009	5,62	18,0	8
Potassium ,%	0-20	2,71	0,12	4,42	0,06	2,21	45,1	4
	0-50	2,52	0,05	1,98	0,035	1,02	84,0	4
Sum abserved base - ekv/100 qr. Of soils	0-20	29,95	3,35	11,1	1,06	3,53	28,2	10
	0-50	22,09	2,59	11,7	0,81	3,66	21,28	10
Washed mountain brown								
Humus, %	0-20	4,43	1,03	23,25	0,29	6,54	15,27	12
	0-50	2,54	0,53	20,8	0,15	5,96	17,0	12
	0-100	1,93	0,41	21,2	0,14	7.25	14,0	8
Nitrogen , %	0-20	0,26	0,05	11,5	0,009	3,46	29,0	10
	0-50	0,19	0,034	17,8	0,01	5,26	19,0	10
Phosphorus , %	0-20	0,23	0,03	13,0	0,009	3,91	25,5	10
	0-50	0,20	0,026	13,0	0,008	4,0	25,0	10
Potassium ,%	0-20	4,23	0,09	0,05	2,13	1,18	85,0	4
	0-50	4,13	0,09	0,05	1,94	1,21	83,0	4
Sum abserved base - ekv/100 qr. Of soils	0-20	24,72	5,73	23,17	1,73	6,99	14,2	11
	0-50	20,11	2,7	13,42	1,0	4,97	20,11	11

Table 3 - Results of mathematical analysis of fertility indicators of cadastral lands of Sheki-Zagatala (Continued)

1	2	3	4	5	6	7	8	9
Typical mountain brown								
Humus, %	0-20	4,06	1,09	27,0	0,34	8,37	12,0	10
	0-50	2,57	0,29	11,2	0,09	3,5	28,5	10
	0-100	1,79	0,26	14,5	0,08	4,46	22,37	10
Nitrogen , %	0-20	0,22	0,032	14,5	0,01	4,54	22,0	10
	0-50	0,16	0,017	10,62	0,005	3,12	32,0	10
Phosphorus , %	0-20	0,19	0,027	14,21	0,01	5,26	19,0	7
	0-50	0,17	0,02	11,76	0,007	4,11	24,28	7
Potassium ,%	0-20	4,01	0,15	3,74	0,075	1,87	53,46	4
	0-50	3,78	0,125	3,3	0,06	1,58	63,0	4
Sum observed base - mq-ekv.100 qr.of soils	0-20	33,35	5,34	16,01	1,68	5,03	20,0	10
	0-50	29,89	6,48	22,0	2,05	6,85	14,5	10

Table 4 - The basic bonitet scale of the Shaki-Zagatala cadastral district

The name of solis	Humus, t/ha scale			Nitrogen, t/ ha scale		Phosphorus , t/ha scale		Potassium, t/ ha scale		Sum observed base, mq-ekv.		0-20 sm	0-50 sm	0-100 sm	Bonitet scale
	0-20	0-50	0-100	0-20	0-50	0-20	0-50	0-20	0-50	0-20	0-50				
mountain forest brown carbonate	83,84 81	176.40 87	264.95 75	5.51 90	11.76 100	4.08 95	9,52 89	58,75 68	154.56 65	38,01 122	35,30 125	91	93	75	86
typical mountain forest brown	103,84 100	201.04 100	287.92 100	6.12 100	11,76 100	4.28 100	10,64 100	86,29 100	234.64 100	31,07 100	28,24 100	100	100	100	100
mountain forest brown typical	95,82 91	160.63 79	227.33 79	5.19 84	10,00 85	4.48 104	10,62 99	94,64 109	236.25 100	33,35 107	29,89 105	99	94	79	90
mountain forest leached brown	104,55 100	158.75 79	245.11 85	6.14 100	11,88 101	5.43 126	12,50 117	99,83 115	258.12 110	24,72 79	20,11 105	104	100	85	96
steppe carbonate mountain forest browns	76,46 74	133.75 66	205.74 71	4.25 69	8.13 69	3.30 77	7,50 70	55,93 64	142.50 60	26,65 85	23,02 71	74	67	71	70

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ТҮЙІН

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ШЕКА-ЗАКАТАЛ КАДАСТРЛЫҚ АЙМАҒЫНЫҢ КЕЙБІР АУДАНДАРЫН ЭКОЛОГИЯЛЫҚ БАҒАЛАУ

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Мақалада географиялық орналасуы, топография, төселетін жыныстар, климат және топырақ сипатталған. Топырақтың физикалық және химиялық параметрлерінің негізінде топырақтың экологиялық жағдайы сипатталды және орнату шкалаларын пайдалана отырып, топырақты экологиялық бағалау жүргізілді. Топырақ жағдайларын экологиялық бағалау критерийлерін таңдау олардың орналасу ерекшеліктерімен, генезисімен, буферизациялануымен, әр түрлілігімен, топырақтың азып-тозуының әр түрлі дәрежесімен алқаптарды пайдалану және есепке алумен анықталады.

Түйінді сөздер: топырақ, экологиялық бағалау, тозу, құнарлылық, гранулометриялық құрам, гумус.

РЕЗЮМЕ

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ЭКОЛОГИЧЕСКАЯ ОЦЕНКА НЕКОТОРЫХ РАЙОНОВ ШЕКИ-ЗАКАТАЛЬСКОГО КАДАСТРАЛЬНОГО РЕГИОНА

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В статье описывается географическое положение, топография, подстилающие породы, климат и почвы. На основании физических, химических параметров почв было охарактеризовано экологическое состояние почв, и с использованием установочных шкал, проведена экологическая их оценка. Выбор критериев экологической оценки почвенных условий определяется особенностями их расположения, генезиса, буферизации, разнообразия, использования и учета площадей с различной степенью деградации почвы.

Ключевые слова: почва, экологическая оценка, деградация, плодородие, гранулометрический состав, гумус