

Phytocenosis Created by Leguminous Plants at Mil Steppe of Azerbaijan and Their Agricultural Importance

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ABSTRACT

At the result of conducted geobotanical researches the phytocenoses with dominance of leguminous plants founded at hole-meadow vegetation of Mil steppe of Azerbaijan Republic were studied. Their species content, structure, ecological-geobotanical parameters, agricultural importance, the effect of climate changes to them were investigated and classification scheme was prepared. It was determined that hole-meadow vegetation is formed by 1 type, 7 formation classes, 9 formation groups and 11 associations. At the result of researches it was defined that at hole-meadow vegetation the shrubby-different grassy-leguminous hole-meadows formation class is represented with more widely areal that the content of founded associations here are more richer with fodder leguminous plants.

Keywords: Phytocenosis, Formation, Hole-meadow, Dominant, Association.

INTRODUCTION

Azerbaijan Republic is rich with its natural resources. In this area the differences in climate and relief effect to richest of dendroflora as ecological factor. At the recent years in Azerbaijan Republic some important decisions have been accepted on protection of natural resources and their usage. Content of different meadow vegetation of Azerbaijan has a rich fodder importance and turf-forming cereal-grasses, particularly leguminous and different-grasses representatives are found here [1-3]. Richness of leguminous plants at phytocenological content of plants founded at hole-meadow vegetation of Mil steppe increases the feeding value and holding capacity of pastures and highfields. Leguminous plants in most cases are dominated at the content of cereals and different-grasses that are considered one of the leading cenoses. Exploiting of meadows for a long time, i.e., haymaking of grasses by men, pasturing of cattle influence to modern situation of meadow vegetation and at a result we cannot consider this situation satisfied [3,4]. Investigation of phytocenoses with dominance of leguminous plants at hole-meadow vegetation of the Mil steppe of Azerbaijan Republic and defining of their agricultural significance has a great importance.

MATERIALS AND METHODS

At geobotanical researches conducted during 2008-2016 years two times in a year at the winter pastures of the southern part of Mil steppe of Kura-Araks lowland (300 m above sea level) at gray-meadow soils the plant cover (with dominance of *Alhagi pseudoalhagi* (Bieb.) Fisch.) of Tamarixeta-Salsoletum-Alhagiosum formation was investigated. At the result of researches it was determined that shrubby-different-grassy leguminous hole-meadow formation class at hole-meadow vegetation has more widely areal and its taxonomy, structure, productivity, fodder quality and agricultural importance were studied by Prilipko [5], Isayev [6], Hajiyev and Musayev [7], Hajiyev and Yusifov [8], Shukurov [9], Bakhshiyev [10] and other botanists [11-13] gave information about hole-meadow vegetation in Azerbaijan. During researches the collected herbariums were identified on systematic taxons and classification scheme of the phytocenosis belonging to formation classes was compiled [14-19]. At this classification scheme formation groups, associations which belong to formation classes were displayed. One of the important problems in strengthening of fodder supplies is

improvement of cattle-breeding products [1,11,20]. From this point of view, especially in Azerbaijan where migratory cattle-breeding is well developed, the improvement of natural fodder areas has a great importance [3,21]. At the present time for studying of phytocenoses created by leguminous plants at the Mil steppe of Azerbaijan republic the conduction of geobotanical researches, renovation of pastures fertility, erosion protection, agricultural importance as well as rational usage of them are one of the actual problems.

RESULTS

During conducted researches the phytocenological structure of phytocenoses founded at hole-meadow vegetation with dominance of leguminous plants at Mil steppe of Azerbaijan Republic was investigated and classification scheme was compiled. Shrubby- different-grassy leguminous hole-meadows formation class recorded at hole-meadow vegetation has a wide areal. This formation class is represented at classification scheme as (Figures 1a and 1b).

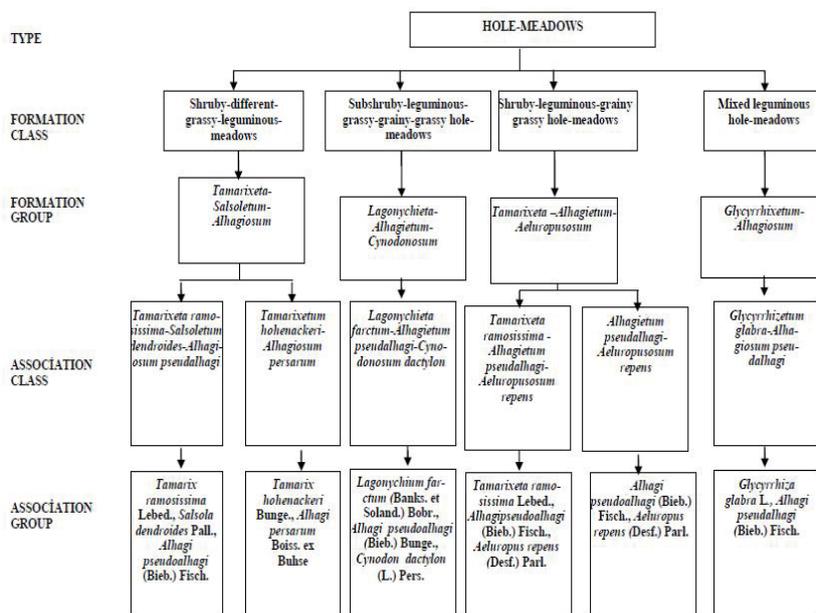


Figure 1a: Classification scheme.

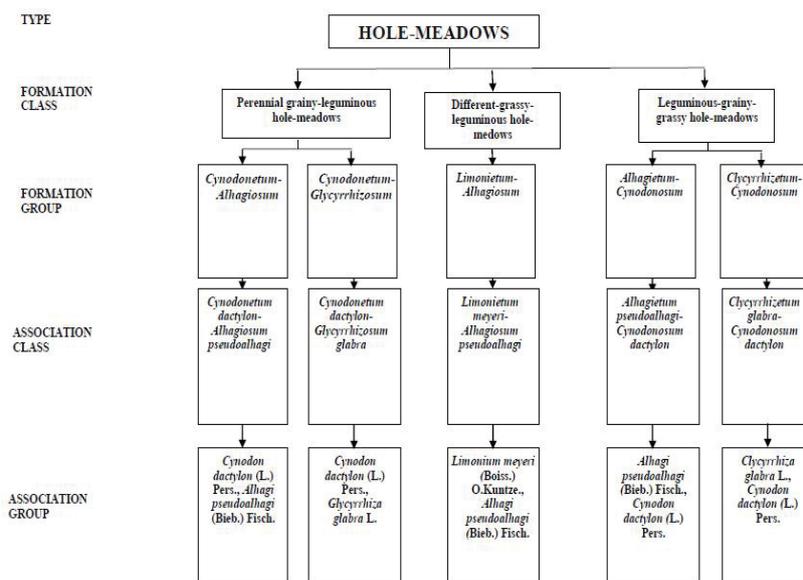


Figure 1b: Continuation of classification scheme.

It was determined that it consists of *Tamarixeta-Salsoletum-Alhagiosum* formation group and *Tamarixeta ramosissima-Salsoletum dendroides-Alhagiosum pseudoalhagi* and *Tamarixetum hohenackeri-Alhagiosum persarum* association classes.

As it mentioned above *Tamarixeta-Salsoletum-Alhagiosum* formation group with dominance of *Alhagi pseudoalhagi* (Bieb.) Fisch. which defined at shrubby- different-grassy- leguminous hole-meadow formation class is represented at 300 m above sea level and in the southern part of Mil steppe at gray-meadow soils of winter pastures. Species content and structure of *Tamarixeta-Salsoletum-Alhagiosum* formation with dominance of *Alhagi pseudoalhagi* (Bieb.) is represented at geobotanical description (Table 1).

No	Name of Biomorphic Species	Ecological Groups	Abundance (With Point)	Middle Height (With sm)	Phenological Phases
1	2	3	4	5	6
Shrubs					
1.	<i>Tamarix ramosissima</i> Ledeb.	Mesoxerophyte	2	I (150)	Flowering
2.	<i>Elaeagnus angustifolia</i> L.	Xerophyte	1-2	I (100)	Vegetation-Flowering
Subshrubs					
3.	<i>Salsola dendroides</i> Pall.	Mesoxerophyte	2-3	II (60)	Vegetation
Perennial herbs					
4.	<i>Alhagi pseudoalhagi</i> (Bieb.) Fisch.	Mesoxerophyte	3-4	II (50)	Vegetation
5.	<i>Limonium meyeri</i> (Boiss.) O.Kuntze.	Halophyte	1-2	II (40)	Flowering
6.	<i>Cynodon dactylon</i> (L.) Pers.	Mesophyte	1-2	III (30)	Flowering
7.	<i>Aeluropus littoralis</i> (Gouan.) Pall.	Halophyte	1-2	III (10)	Flowering
8.	<i>Phragmites australis</i> (Cav.) Trin. ex Steud.	Hydrophyte	1	II (90)	Vegetation
9.	<i>Artemisia szowitziana</i> (Bess.) Grossh.	Mesophyte	1	II (70)	Vegetation
10.	<i>Centaurea iberica</i> Trev. ex Spreng.	Xerophyte	1	II (45)	Flowering
11.	<i>Plantago lanceolata</i> L.	Mesophyte	1	II (40)	Flowering
12.	<i>Convolvulus arvensis</i> L.	Mesoxerophyte	1	II (35)	Vegetation
Biennial herbs					
13.	<i>Carduus seminudus</i> Bieb.	Mesophyte	1-2	II (60)	Flowering
14.	<i>Melilotus officinalis</i> (L.) Pall.	Mesophyte	1	I (80)	Flowering
Annual herbs					
15.	<i>Hordeum leporinum</i> Link.	Xerophyte	1-2	III (30)	Flowering
16.	<i>Lolium rigidum</i> Gaudin.	Xerophyte	1-2	III (25)	Flowering
17.	<i>Phalaris minor</i> Retz.	Xerophyte	1-2	III (20)	Flowering
18.	<i>Chenopodium album</i> L.	Halophyte	1-2	III (15)	Vegetation
19.	<i>Trifolium angustifolium</i> L.	Mesophyte	1	III (30)	
20.	<i>Erodium cicutarium</i> (L.) L'Her.	Mesoxerophyte	1	III (20)	Flowering
21.	<i>Sonchys oleraceus</i> L.	Mesoxerophyte	1	III (15)	Flowering
22.	<i>Capsella bursa pastoris</i> (L.) Medik.	Mesophyte	1	III (10)	Flowering
23.	<i>Medicago minima</i> (L.) Bartalini	Xerophyte	1	III (5)	Legume Maturing
Total project cover is 60-75%.					

Table 1: Species content and structure of *Tamarixeta-Salsoletum-Alhagiosum* formation.

Species content of phytocenosis consist of 23 species that 2 of them are shrubs (8,7 %), 1 species is subshrub (4,4%), 9 species are (39,1%) perennial, 2 species are (8,7%) biennials and 9 species are annuals (39,1%). Analysis on ecological groups shows that 6 species are xerophytes (26,1%), 3 species are (13,1%) halophytes, 6 species (26,1%) are mesoxerophytes, 7 species (30,4%) are mesophytes and 1 species (4,3%) is hydrophyte.

It was determined that dominant of this formation is *Alhagi pseudoalhagi* (Bieb.) Fisch. that abundance is 3-4 points subdominant is *Salsola dendroides* Pall, abundance is 2-3 points and *Tamarix ramosissima* Ledeb.), abundance is 2 points. On structure analysis of phytocenosis *Tamarix ramosissima* and *Elaeagnus angustifolia* L. are found at I layer (height is 150-200 cm); at II layer- *Phragmites australis* (Cav.) Trin. ex Steud.) *Melilotus officinalis* (L.) Pall, *Artemisia szowitziana* (Bess.) Grossh., *Salsola dendroides* Pall., *Alhagi pseudoalhagi* (Bieb) Fisch. (height is 90-30 cm), at III layer- *Cynodon dactylon* (L.) Pers. (height is 30-10 cm) etc. Total projective cover is between 60-80%.

It is important to note that *Alhagi pseudoalhagi* (Bieb) Fisch. which found at the content of *Tamarixeta-Salsoletum-Alhagiosum* formation is widely spread at hole-meadow semidesert and seaside sandy salty deserts of Absheron

peninsula and lowland regions of Azerbaijan. This plant is eaten by livestock at winter pastures and country-side pastures after snowing till growing of saltworts. It shows that founded formation with dominance of leguminous plants at hole-meadow vegetation of Mil steppe has a great importance in development of agriculture and cattle-breeding.

DISCUSSION

Basing of above-mentioned geobotanical researches during studying of the species content and structure of founded phytocenoses with dominance of leguminous plants at hole-meadow vegetation of Mil steppe of Azerbaijan it was determined that it is possible to enrich the grass cover concerning of leguminous plants with high fodder capacity. It has a significant importance in strengthening of fodder base at summer and winter pastures at researched area. During researches from leguminous plants with high feeding capacity the endemic species belonging to *Medicago L*, *Trifolium L* etc. genera were determined, and measures on conservation of them were recommended [14,22-25].

CONCLUSION

Global-ecological changes occurring in the World influence to Azerbaijan flora also. It is also influences to phytocenoses founded in Azerbaijan flora as well as to fodder, medicinal dye plants and to rare and endangered plants. As the result of researchers conducted at the phytocenoses of mil steppe with dominance of leguminous plants the conservation of phytocenosis and studying of the effect of climate changes has an important role in strengthening of food reserve at summer and winter pastures as well as in improving of livestock.

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