American Journal of Engineering Research (AJER) 2018
American Journal of Engineering Research (AJER)
e-ISSN: 2320-0847 p-ISSN : 2320-0936
Volume-7, Issue-4, pp-189-193
www.ajer.org
Research Paper Open Access

Pasture-Meadow Areas andImportanceforBiological Diversity

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ABSTRACT:*Pasture-Meadow areas are one of the most important natural resources of a country. Plants in the pasture-meadow areas, where the crude need for animals is the cheapest, are protected from erosion by serving as shields on the soil. Other important features of these areas are to host a large number of plant and animal species, to be a source of genes for cultivated plants and to provide a place for wild animals. For this reason, their biological value is quite high and it is very important to protect biological diversity. Biological diversity refers to plants, animals and other organisms living in the world, the genetic information they contain and the ecosystem they live in. Every ecosystem on Earth has its own biological diversity. Biological diversity is a natural wealth and there are very large contributions of biodiversity in point of agriculture and technology in nowadays. People have used biological diversity in many areas (agriculture, pharmacy, medicine, animal husbandry, forestry, fisheries and industry) since old historical times and will continue to use them in the future. For this reason, it is very important that today's endangered biological diversity is protected and transferred to future generations. In this review, information has been given about importance ofpasture-meadow areas for biological diversity.*

Keywords*:Biological diversity, conservation, meadow, pasture, relation.*

Date of Submission: 05-04-2018 Date of acceptance: 20-04-2018

I. INTRODUCTION

The importance of animal products for human nutrition is an indisputable fact for a country's population. At the same time, in the development of the country's economy, high earnings in terms of unit investment is an important sector that provides employment opportunities at the lowest cost [1].Buttheproduction of livestock has seriousproblems in Turkey. Themostimportant of theseproblemsareinadequateproduction of roughage, lowquality of theproducedfeedandhighfeedcost[2].

The cheapest and easiest sources of high quality forage are forage crops and pastures-meadow area. Profitable and productive animal production is achieved only through quality and cheap roughage production. In animal production, 75-80% of the costs are feed inputs, and Turkey needs roughly 50 million tons of roughage feed which is equivalent to 11 million Animal Units equivalent of our animal existence [3].

As in all the countries of the world, pastures-meadows in Turkey also have great importance in terms of animal feeding and natural balance. Pasture lands have many benefits such as soil and water conservation, green space creation, being a place for leisure and relaxation, and being a natural habitat for the living [4].

II. DEFINITION OF PASTURE AND MEADOW

1.1. Pasture

The pastures have generally emerged from well-developed, dense, and tall plants formed in areas near flat and ground water, and the soil is always humid for most of the year in these areas. Because of the vegetation cover is frequent and tall, the pastures are usually evaluated by cutting [5].

1.2. Meadow

Meadows are area of feed that is formed by rare and short plants in hilly terrain with sloping, rough and ground water. Meadows can also be found in flat areas, depending on groundwater being in the deep. Plants are often sparse and short. For this reason, it is benefited especially by animal grazing[5].

III. PASTURE AND MEADOW ASSETS OF TURKEY

There are different data about pasture and meadow assets of Turkey. However, when TÜİK records are examined (Fig. 1), it is seen that there was a large loss (about two-third) in pasture and meadow areas from 1935 to today.

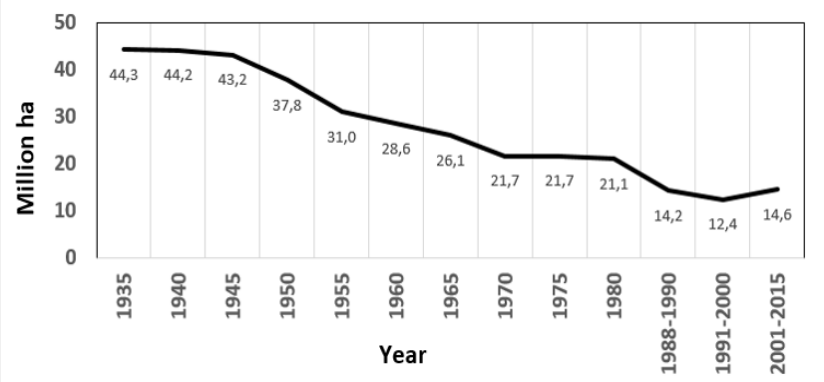

Figure 1. Pasture-meadow assets of Turkey by years (million ha)

Also, according to the table, while there was 14.2 million hectares of pasture and meadow area in Turkey in 1988-1990, this number decreased to 12.4 million hectares in 1991-2000 and increased to 14.6 million hectares between 2001-2015. It is thought that the difference in recent years is caused by the change of definition of pasture [6].

Pasture-meadow losses in Turkey have different causes. The most important of these reasons is the expansion of the use of the tractor in agriculture in the second half of the twentieth century and the opening of new farming areas in order to meet the increasing food demand in parallel with the population growth rate. In addition, factors such as the loss of the qualities of the intra-forestmeadow as a result of the destruction of forests, dense and untimely grazing and erosion are among the reasons of this decrease [7]. Also the wrong agricultural policies implemented after the 1950s are another reason for the reduction [8].

IV. THE IMPORTANCE OF PASTURE-MEADOW IN ANIMAL FEEDING

Turkey has significant problems in animal husbandry. One of the most important of these problems is the inability to regularly meet the need for quality, cheap and abundant food [9].In order to achieve the desired level of productivity and profitability in animal husbandry, besides the important factors such as quality breeder, favorable environmental conditions, product evaluation and marketing, it is necessary that large scale quality roughage production is also adequate [10]. If the profitability of livestock enterprises is to be increased, the costs of roughage (hay, green feeds and silo feeds) should be reduced absolutely [9].

One of the easiest ways to reduce roughage costs in livestock is the use of pasture and meadow. These areas, which are one of the most important natural resources of an country, are not only the cheapest place for animals to meet their crude needs but also create biodiversity, become a source of genetic resources for cultivated plants, provide shelter for wild animals and protect them against erosion [11, 12].

V. DEFINATION OF BIOLOGICAL DIVERSITY

Biological diversity “or Biodiversity” is a term that expresses the inter-species diversity among species, marine, water resources and their constituent ecosystems and organisms, the differences between living things, and their relation to each other, which constitute life on Earth. In short, biological diversityconstitutes the ecosystem in which plants, animals, and microorganisms live in the genes and living organisms they possess [13].

Although biodiversity has been used in the book "A Different Kind of Country" written by Raymond F. Dasmann, scientist and environmentalist for the first time at the beginning of 1968, its widespread use by science circles dates back to the early 1980s [14]. The increasing use of the term biological diversity in today's environmental management is widespread in scientific literature and international, national and local politics [15]. Biological diversity consists of three important parts: diversity of ecosystem, species diversity and genetic diversity [16, 17].

VI. THE IMPORTANCE OF BIOLOGICAL DIVERSITY

The benefits and importance of biological diversity can be classified into two groups. The first is the benefits that are not tangible and concrete to everyone. The second group are economic and social benefits that can be measured and easily perceived (Çepel, 1997).

When the first group of benefits is examined, it appears that there are complex multifaceted relationships between biological diversity and ecosystem functions (energy flow, matter circulation, nutrition, migration, development, etc.). Ecological processes such as ecological cycles, energy flow and matter circulation in the ecosystem are vital events and there are very important constructive and directive effects of biological diversity on these events [18].

When the material benefits of biological diversity are examined, it is seen that many areas (nutrient and genetic resources, medicine, pharmacy and industry, ecological value production and environmental health, aesthetic recreation and education, sustainable development) are needed and widely used [18]. According to research results, species have an important role in the development of the country and this role is expected to increase [19].

Despite the contribution of biological diversity to many areas of public health, unfortunately it is not well known in society. For this reason, there is a need for a knowledge-conscious collection of biological diversity aware of the importance of biological diversity in all matters and sensitive to the conservation of biological diversity. In this respect, it is necessary to increase the number of training activities in order to train sensitive individuals and ensure a sustainable future [20].

VII. BIOLOGICAL DIVERSITY IN THE WORLD AND TURKEY

It was estimated that the number of species living in the world for a very short period of time was approximately 1.5 to 2 million. However, studies have shown that the number of species in the world is much higher than predicted. Although studies on mammals, birds and seedlings have been carried out very well, only about 150 mammal species have been identified between 1985 and 1995, and 11 of them have been identified as new primate species. It is reported that the number of living species recorded in the world up to this date is 1.75 million and the number of species estimated to be on the earth in recent years is between 10 and 30 million together with new corrections [21].

Turkey is one of the rich geographies of the world in terms of plant and animal diversity because it is located at the intersection point of Asia, Europe and Africa and has three biogeographical regions in Europe-Siberia, Mediterranean and Iran-Turan[22]. Turkey has different climate types due to both its geographical location and geomorphological features[23]. As a result of different climates, it is home to a wide variety of vegetation and animal communities. Many species of plants and animals live only in Turkey. This is expressed as endemism [24].

As a result of the work done up to the nowadays, 8897 flowering plants and fern species were defined in Turkey. This number reaches 10765 when the number of taxa, subspecies, varieties and hybrids are added. The 3504 of these plants are endemic to Turkey. It is estimated that approximately 12000 plant species have grown in the entire continent of Europe and only 2, 500 of them are endemic. In this respect, Turkey's floristic richness easier to understand. Considering only the number of species, endemism rate in Turkey is 34.4%, but when all taxa are taken into consideration, this rate is 32.55% [25].

The fact that Turkey is located especially between Asia and the European continent ensures that it has a flora and a wide variety of animal species and therefore a rich fauna. In addition, Turkey, which has geographical regions with different climate characteristics, has a richer plant cover compared to other Middle East and European countries. This provides a favorable environment for animal species in Turkey that needs different climate and nutrients. So far, 160 of mammals, 418 birds, 120 reptiles, 22 frogs, 127 freshwater fish, including around 1230 a total of 384 vertebrate species of marine fish have been identified in Turkey's fauna. However, studies show that some of these species are about to be completely exhausted and others are in danger [26].

VIII. MAIN THREATS TO BIOLOGICAL DIVERSITY

Biological diversity, which provides essential products and services for human life and plays an important role in ensuring the sustainability of ecosystems, has unfortunately been threatened by the pressures caused by human-induced changes despite the increase in awareness about it and today biological diversity protection is an important issue for both the world and Turkey. It has become a problem.The primary cause of this problem is the population increase and environmental damage caused by this increase. In addition, biological diversity is at great risk as a consequence of the deterioration of natural habitats [27].

The main threats to biological diversity are listed below [28].

A- Over consumption,
B- Soil, water and air pollution,
C- Introduction of alien species,
D- Climatic changes at global level,
E- Industrial agriculture and industrial forestry
F- Partitioning and / or degradation of habitats inhabited by living species

One of the most important habitats inhabited by living species in Turkey and in the world ispasture and meadow fields that contain a large number of plant and animal species.

IX. THE IMPORTANCE OF PASTURE-MEADOW AREAS IN CONSERVATION OF BIOLOGICAL DIVERSITY

Genetic resources are vital for agricultural production. Breeders need a broad gene source in nature to improve their crops.Increasing food demand in parallel with the increase in the world population makes it necessary to use and protect plant genetic resources [29].Genotypes found in natural flora; is crucial for the development of new varieties of culture and for the elimination of deficiencies in today's and future prospective needs.These genotypes are a potential resource for breeding studies, such as resistance to pesticides, diseases and stress conditions [30].

The plants found in the meadows and the meadows are exposed to different conditions (drought, fire, grazing etc.) and are adhered to the environments they are in and they are durable. This situation creates a great biological diversity.It has recently been observed that biological diversity has become a very important issue especially in arid and semi-arid ecosystems and meadows, and the protection of these systems is more important in terms of species richness. There are important reserves for genetic resources and biological diversity in pasture and meadow areas with many different plant and animal species as well as other organisms [29].

Pasture and meadow areas are place of shelter for many animal and plant species facing the danger of extinction. Many plant species found in these areas have great prospects as a source of genes for the cultivation of cultured cultivated plants [31]

Wild species of forage crops and legumes are common in many areas as well as in many areas.Because pasture and meadow areas exhibit high genetic diversity, populations of ecological grassland pasture plants are emerging in these areas.Genes of the species that make up these populations can be transferred to commercial culture plants by selection and breeding.Today, however, many of these species are faced with the threat of genetic erosion as a result of misapplication (extreme and untimely grazing, destruction of land, erosion, etc.) [32].

Experts report that there is a complex relationship between grazing and biological diversity in meadows. Grazing is an important process in many pasture ecosystems.There are both positive and negative effects of grazing on biological diversity and other pasture factors.The effect of grazing on plant diversity depend on the grazing intensity, the evolutionary history of the area, and climate [33].

In case of continuous heavy grazing in meadows, plants are intensively grazed and crushed by the animals and rare plant species are adversely affected.The indirect effects of heavy grazing processes may be important for some groups of wild animals. Because the disappearance of a group of plants in a land can cause disappear animal groups which fed with that plant group [33]. For this reason, grazing can affect the fauna as well as affecting the flora in the meadows.

On the other hand, some species found in pastures and meadows positively affected by grazing .The animals in meadows graze plants which they like, firstly. During the grazing, other plants are crushed and thus, to completely covered of area by ungrazed plants is prevented. Moderate grazing and crushing usually contribute to increasing plant diversity by reducing the ability of any plant species to become dominant [33].Thus, crops that are grazed and trampled and oppressed can compete again on equal terms, avoiding the invasion of the area by only a few plant species.

Grazing also creates gaps in plant communities. This situation allows the plants to get better light and make the moisture and nutrients more usable. Thus, plants are healthier and therefore more durable. In non-grazing areas, the number of species may increase initially, but in the long periods, biological diversity suffers because of the dominant species will cover the area and species that can’t compete with these species disappear[33].

X. CONCLUSION

Pasture and meadow areas are one of the greatest riches of a country in terms of animal husbandry. These areas, which have a large pre-requisite for animal nutrition, also contribute to the conservation of biological diversity by hosting many plant and animal species. However, in recent years, misapplications in pasture and meadows areas (continuous and heavy grazing, plowing of meadows and convert to field, environmental pollution, etc.) have led to the decrease of these areas and therefore the disappearance of many plant and animal species. The protection of pasture and meadow areas which are very important for our animal husbandry, will also contribute to the preservation of biological diversity as it will increase our animal production.

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