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Evaluation of plant diversity of the steppe interface, Sahara (Case of Brezina, El-Bayadh Algeria Southwest)

Anteur Djamel*[1], Mederbal-Regagba Zineb[1], Baghdadi Djilali[2], Gourari Bariza[3]

[1] *Geomatics Laboratory and Sustainable Development (LGEO2D), University Ibn Khaldoun, Tiaret, Algeria*

[2]*Department of Agricultural Sciences, University of Abedelhamid Ben Badis, Mostaganem, Algeria*

[3]*Faculty of Science, Department of Biology, Ferhat Abbas University, El Bez, Setif, Algeria*

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Abstract

The present work was carried out at the level of the steppe region of Brezina in the Algerian South-west, the objective of this study were the assessment and the description of the state of the ground vegetation based on the plant ecology. Floristic inventory counts more than 60 taxa, divided into 21 families usually returns to the Asteraceae and Fabaceae. The passage of the steppes of Alfa to other formations as sagebrush or Spart (*Lygeum spartum*) possible show that ecological conditions have really changed. This change is closely related to the pressure enthropozoogenic, translates to the common development of the Therophytiques, spiny or/and toxic and Sahara species. Their dominance remains an explanatory element of this advance of the desert.

* **Corresponding Author:** Anteur Djamel ✉ anteurdjamel@yahoo.fr

Introduction

Vegetation cover is one of the main components of the natural environment, plays a fundamental role in the structure and functioning of the ecosystem of which it is Algerian south-west fits steppe in a remarkable regressive dynamic series as a result of the interaction of diverse factors, particular climatology, and especially the deep action anthropozoogenic the intense degration of this fragile environment (Silting, wind erosion, overgrazing, deforestation, salinization). Translates the passage of the steppes of Alfa to other formations such as the sagebrush (*Artemisia herbaalba*) or Sparte (*Lygeum spartum*).

Study the preservation of floristic biodiversity in the region of Brezina where the encounter of the steppe and the desert is of great interest. This summary phytoecologique leads us to the best possible deepen our knowledge of composition and the richness of the floristic bottom their characterization on the phytoecologique map, biological and biogeographic; but also to highlight their floristic originality. Their state of conservation, and consequently their heritage value. The vegetation is used as the reflection of the site conditions. It is the synthetic according Beguin (Beguin *et al.*, 1979). Biodiversity at the level of a landscape is therefore the result of disturbance processes succession and the spatial organization of environmental gradients in decoule (Froise, 1999).

Materiel and methods

Study area

The site is located in the steppe space extending Syncline of El-Bayadh forming the flank to the Norht, Khang Larouia on the South side, forming a real physical barrie rat the edge of the Shara (Fig. 1). It represents a hydrological unit upstream of the dam of Brezina ‘’Brezina oasis”. Located 10 km north. It is distinguished by a vulnerability of the watershed, marked by a strong natural and anthropogenic degradation soil a rugged and varied lithological mosaic.

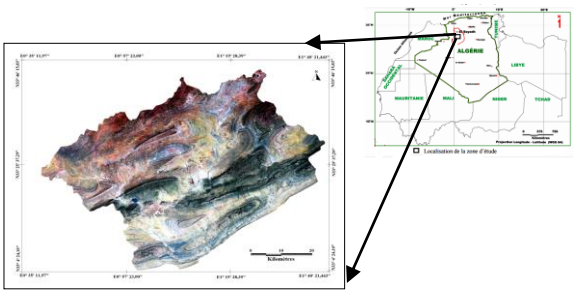

Fig. 1. Location of the study area.

Methodology

The minimum area plays a role first-order in the floristic comparison of the identified. It is known that this minimum area varies depending on each plant group.

(Ozenda, 1982). Indicates that the value of the minimum area is assessed enough easily ; It is relatively constant, for surveys of a group determined, but varies greatly from one group to another.

In arid zone floristic richness depends essentially on the number of annual species present at the time of the statement. Them and, by way of consequences, the minimum area will depend also the vagaries of rainfall. And the conditions of the exploitation according to DJEBAILI (1984).

The choice of the location of our reading made subjectively by ensuring compliance with the requirement of floristic and ecological structural homogeneity. So we did 16 readings that are represented in the map below.

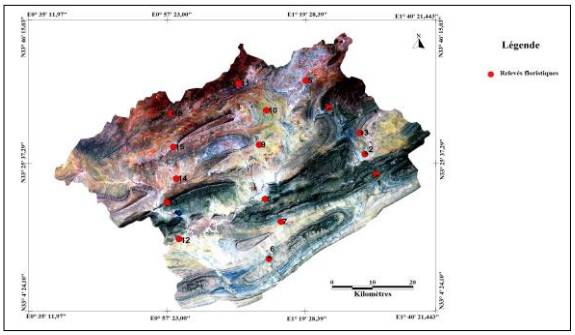

Fig. 2. Location of floristic surveys in the study area.

Results and discussion

Composition Systématics Families, genera, and species

From 16 surveys carried out on the ground, we were able to identify 60 plant species. That these are generally distributed in small number. And their recovery is negligible with a presence of individuals isolated one to on other. In number of species shows us that there is a very heterogeneous variety, with a dominant *Arthrophytum scoparium*.

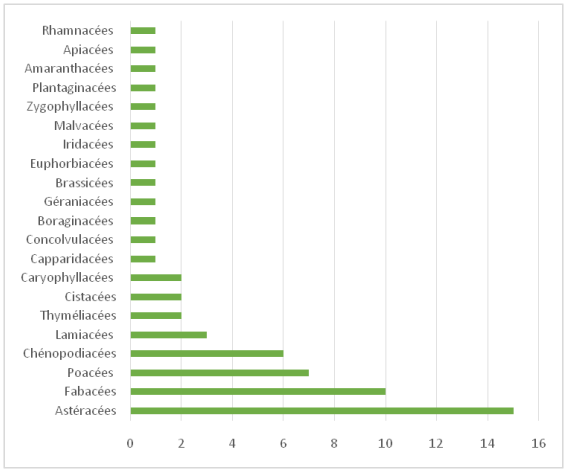

Fig. 3. Families, genera and species composition.

The floristic richness of Brezina has 60 taxa belonging to 47 genera and 21 families with the predominance of certain families namely: *Asteraceae* by number of 15 species, followed the family of Poaceae with 7 species, Fabaceae by a number of 10 species in suite Chenopodiaceae with 6 species and the Lamiaceae by a number of 3, followed by the Thymeleacea, Cistaceae and Caryophyllaceae by 2 species each.

The rest of the families; (Capparidaceae, Convolvulaceae, Borraginaceae, Geraniaceae, Brassicaceae, Euphorbiaceae, Iridaceae, Malvaceae, Zygophylla-ceae, Plantaginaceae, Amarantaceae, Apiaceae and Rhamnaceae), are mono specific and sometimes mono generic.

Biological Characters

The membership of the species surveyed in the various categories of biological types is represented in the figure below:

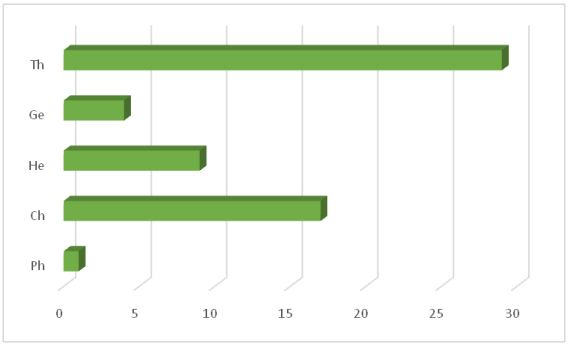

Fig. 4. Percentage of biological types.

The distribution of the biological types in the area is heterogeneous, it follows the schema :

TH > CH > HE > GE > PH. The steppe of Brizina is marked by a high percentage of the Therophytes and are the most dominant with more than 48% Daget (Daget., 1980). Think that the rate of Therophytes is bound, regardless of the scale of analysis and the level of perception at the opening of the vegetation and overall moisture from the environment. Then come the Chamaephytes with a 28% percentage this group of species remains better adapted to low temperatures and aridity. The Hemicryptophytes are of lesser importance (15%) this can be explained by the poverty of the soil in organic matter; (Barbero.,1988). Geophytes present (7%) are represented by *Iris sisyrinchium, Atractylis humilis, Lygeum spartum, Stipa tenacissima*. Finally the Phanerophytes are the least represented, reflect the changes of state of the environment under the action of ecological and especially anthropozoiques.

Biogeographical Characters

The study of types biogeographical, established according to the overall floristic list of the study area, highlights the various elements.

Biogeographically, the vegetation consists of a heterogeneous set of elements. It was noted that the study area is dominated by the Mediterranean element followed by the presence in second places of the North African endemic element and the Mauritanian Ibero element then the Sahara elements Saraha Mediterranean and Saharan Indien. The rest represents an average to low turnout, but contributes to the diversity and richness of the region.

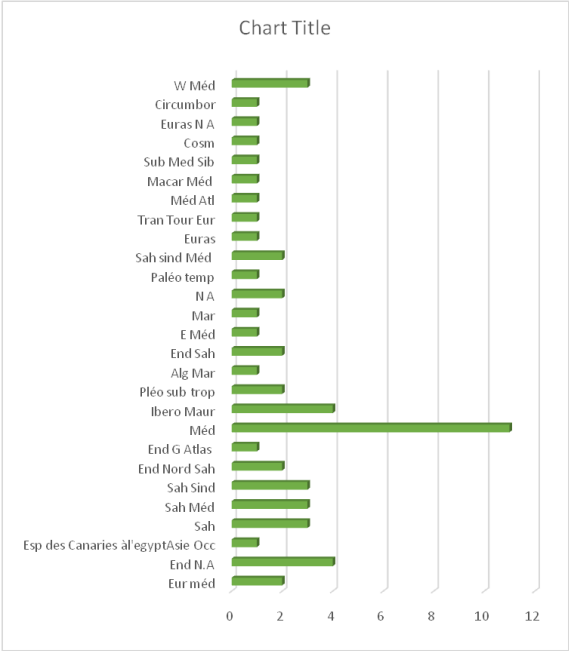

Fig. 5. Biogeographic characterization.

Conclusion

In addition to these static data it is essential to ensure the follow-up and monitoring of the steppe dynamics due to the change in vegetation is operating under the influence of several factors: soil degradation, overgrazing, population change, introduction of a mechanized cultivation, industrial and household of the rejuvenated plant, etc. This heavy pressure on resources requires planning of vegetation on the territory based on a clearer understanding of the processes of degradation of vegetation cover. It is therefore vital to develop monitoring environmental management strategies. Should not forget the impact of the bioclimatic criteria: rate of precipitation, increase in temperatures and lengthening of the summer drought period reflected on the ground by an adaptation of plants (and/or) the elimination of other plants. Also significant changes in floristic composition necessary using scrublands vegetation more adapted to environmental stress is growing.

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