

Appearance Biogeographique of Steppe Vegetation (Case of Brezina. El - Bayadh Southwest Algerian)

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ABSTRACT

This scientific article focuses on Brezina region located in the South West of the Algeria, the purpose of this article is to present the global biogeographic distribution as well as the degree of rarity of the vegetation of the steppe - sahara region Brezina el-Bayadh interface.

It is useful to establish a comprehensive inventory of all plant species encountered in field, the results show a dominance of the Mediterranean species on other types of distribution is (23.72%) then those of Mauritanian ibero with 8.47%. of the general distribution of the flora of the study area.

KEY WORDS: Steppe, Brezina, Southwest Algeria, biogeography , floristics.

INTRODUCTION

The steppe is this geographical set, whose boundaries are defined by the criterion of bioclimatic

According to [1], the term "steppe" evokes huge arid areas covered with low, sparse vegetation. These arid and semi-arid regions predominantly located by and on the other of the tropics are buffers between the relatively well-watered lands and deserts.

These regions have several decades of degradation which may lead to irreversible sterilization which the equation is simple: fragile natural environment + episodic drought and strong human pressure = desert

"The steppe areas are characterized by a climate of Mediterranean type, contrasted with a hot and dry summer, alternating with a winter rainy, cool or cold" [2].

The phytogeography studies the distribution of plant species on the surface of the globe according to [3].

From a purely biogeographic point of view the current Mediterranean flora corresponds to heterogeneous ensembles associated with the paleo-history of the region report [4].

The North African steppes in general and Algerian in particular are the Mauritanian-steppe flora domain defined by [5].

This area belongs to the Mediterranean floristic region, so in the holarctic Kingdom.

According [6], steppe vegetation is of very uneven value, both for its floristic composition by its density.

In order to better know the biogeographic distribution of Brezina South - Western Algeria, a floristic list has its vascular species is given according to statements distributed a little everywhere in the study area.

One of the main objectives of this study is to identify the biogeographic distribution of species characterizing the area studied, which will allow to better take into account the value of the phytodiversity in order to better preserve it and keep it.

1. Knowledge of the study area

The site is located in the steppe space extending Syncline of El Bayadh forming the flank to the North, Khang Larouia on the South side, forming a real physical barrier at the edge of the Sahara (Figure 1). It represents a unit water upstream of the dam of Brezina, located about 10 km north of "Brezina oasis". It is distinguished by a vulnerability of the watershed, marked by a sharp deterioration natural and anthropogenic, a rugged ground and a varied lithological mosaic.

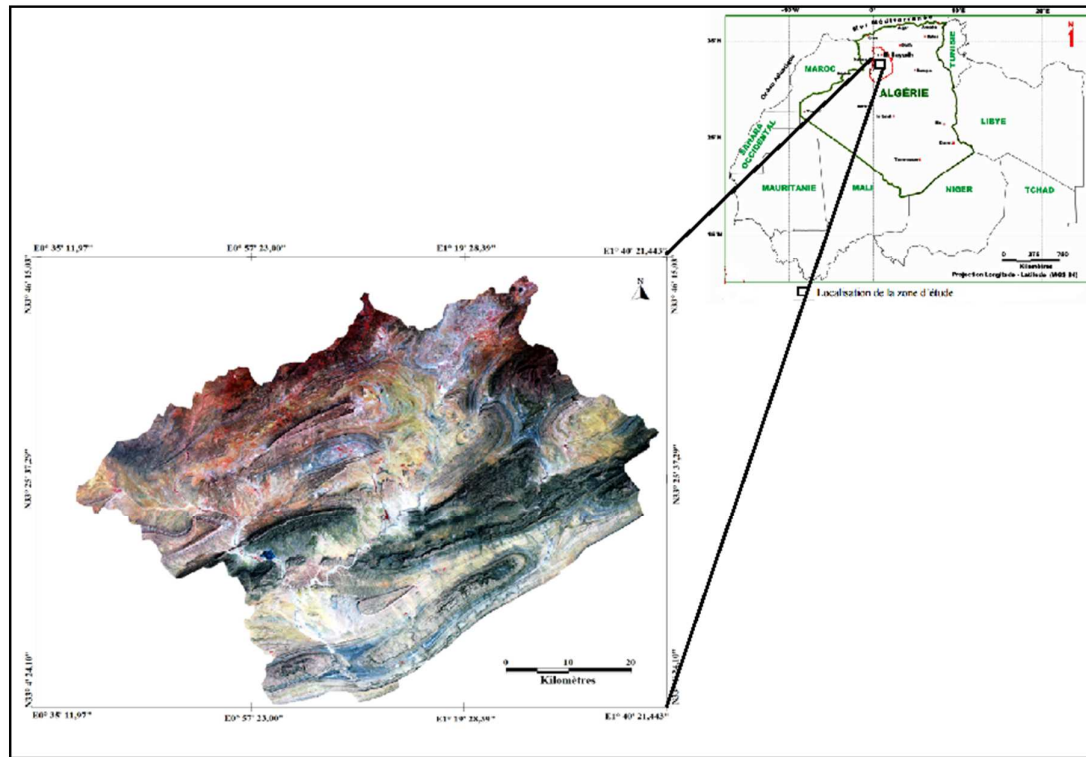


Fig N°. 1: The location of the study area

2. METHOD OF STUDY

Given the nature of the problem to be addressed, we found it useful to use the method developed by [7].

The reasons for this choice are various:

- It provides an overview of the different types of a given plant formation at small and medium scale
- The results of this method can serve as a basis for any basic or applied specific study.
- It involves every plant species whatever are their biological aspects, thus allowing a complete study of the vegetation and floristic enrichment (species ecological distribution).

All of the authors [8,9,10], agrees that the minimum area ranging from 50 m² a 100 is sufficiently representative in Mediterranean formations such as ours and thus define a floristiquement surface that contains most of the species of the stand.

In our case we took a 100 m² minimum area.

3. RESULTS AND DISCUSSION

3.1 The floristic composition of the scrubland of the southern slopes of Tlemcen

There are many indicators of the deterioration of plant resources (climate change, poverty of vegetation, the advance of the desert and the extension of xerophytic species).

They occur mainly through the decrease in the rate of recovery and the change of the floristic cortege by the decrease in productive perennial species for the benefit of annual species at low biomass. The observation to do is that the largest share of the steppe route is either degraded, or in an advanced state of degradation.

Table 1. Comprehensive inventory

Taxa	Biogeographical type	Family
<i>Anacyclus clavatus</i>	Eur Med	Asteraceae
<i>Anacyclus cyrtolepidioides</i>	End N.A	Asteraceae
<i>Artemisia herba-alba</i>	Esp des canaries à l'Egypt Asie Occ	Asteraceae
<i>Arthrophytum schmittianum</i>	Sah	Chenopodiaceae
<i>Arthrophytum scoparium</i>	Sah –Med	Chenopodiaceae
<i>Asteriscus pygmaeus</i>	Sah sind	Asteraceae
<i>Astragalus cruciatus</i>	Med Sah	Fabaceae
<i>Astragalus gombo</i>	End .N.sah	Fabaceae

<i>Astragalus reinii</i>	End G Atls Oursenis	Fabaceae
<i>Astragalus Incanus</i>	W.Med	Fabaceae
<i>Atractylis gummifera</i>	Med	Asteraceae
<i>Atractylis humilis</i>	Ibero.Maur	Asteraceae
<i>Atractylis serratuloides</i>	Sah	Asteraceae
<i>Atriplex canescens</i>	/	Chenopodiaceae
<i>Atriplex glauca</i>	Sah.Med	Chenopodiaceae
<i>Bassia muricata</i>	Sah	Chenopodiaceae
<i>Bromus rubens</i>	Paleo Subtrop	Poaceae
<i>Calendula aegyptiaca</i>	Med	Asteraceae
<i>Carduncellus rhapsodicoides</i>	Alg Mar	Asteraceae
<i>Cleome arabica</i>	Sah.Sind	Capparidaceae
<i>Convolvulus supinus</i>	End N.Sah	Convolvulaceae
<i>Cutandia dichotoma</i>	Med	Poaceae
<i>Daphne gnidium</i>	Med	Thymelaeaceae
<i>Echium pycnanthum</i>	Med	Boraginaceae
<i>Erodium glaucophyllum</i>	E Med	Geraniaceae
<i>Eruca vesicaria</i>	Med	Brassicaceae
<i>Euphorbia calyptata</i>	End Sah	Euphorbiaceae
<i>Filago duriaei</i>	Mar	Asteraceae
<i>Hedypnois rhagadioloides</i>	Med	Asteraceae
<i>Helianthemum apertum</i>	End N.A	Cistaceae
<i>Helianthemum hirtum</i>	NA	Cistaceae
<i>Herniaria hirsuta</i>	Pléo Temp	Caryophyllaceae
<i>Hordeum murinum</i>	Circumbor	Poaceae
<i>Iris sisyrinchium</i>	Paléo sub trop	Iridaceae
<i>Launaea resedifolia</i>	Med .Sah.Sind	Asteraceae
<i>Lygeum spartum</i>	W Med	Poaceae
<i>Malva aegyptiaca</i>	Sah.Sind.Med	Malvaceae
<i>Medicago litoralis</i>	Med	Fabaceae
<i>Medicago minima</i>	Eur Med	Fabaceae
<i>Medicago truncatula</i>	Med	Fabaceae
<i>Melilotus sulcata</i>	Med	Fabaceae
<i>Noaea mucronata</i>	Sah	Chenopodiaceae
<i>Onopordon arenarium</i>	NA	Asteraceae
<i>Peganum harmala</i>	Irano Tour Eur	Zygophyllaceae
<i>Plantago albicans</i>	Med	Plantaginaceae
<i>Psoralea bituminosa</i>	Med	Fabaceae
<i>Retama retam</i>	Ibéro-Maur	Fabaceae
<i>Salvia verbenaca</i>	Méd Atl	Lamiaceae
<i>Schismus barbatus</i>	Macar Méd	Poaceae
<i>Scorzonera laciniata</i>	Sub Med Sib	Asteraceae
<i>Silene secundiflora</i>	Ibero Maur	Caryophyllaceae
<i>Stipa barbata</i>	W.Med	Poaceae
<i>Stipa tenacissima</i>	Ibéro Maur	Poaceae
<i>Suaeda fruticosa</i>	Cosmo	Amaranthaceae
<i>Thapsia garganica</i>	Méd	Apiaceae
<i>Thymelaea microphylla</i>	End NA	Thymelaeaceae
<i>Thymus ciliatus</i>	End NA	Lamiaceae
<i>Thymus hirtus</i>	Ibéro Maur	Lamiaceae
<i>Xeranthemum inapertum</i>	Euras NA	Asteraceae
<i>Zizyphus lotus</i>	Méd	Rhamnaceae

Table 2. Family/species compositions of the flora in the study area

Families	Species	(%)
Asteraceae	15	25
Poaceae	7	11,66
Lamiaceae	3	5
Fabaceae	10	16,66
Brassicaceae	1	1,66
Apiaceae	1	1,66
Caryophyllaceae	2	3,33
Cistaceae	2	3,33
Iridaceae	1	1,66
Euphorbiaceae	1	1,66
Plantaginaceae	1	1,66
Thymelaeaceae	2	3,33
Boraginaceae	1	1,66

Chenopodiaceae	6	10
Convolvulaceae	1	1,66
Capparidaceae	1	1,66
Boraginaceae	1	1,66
Zygophyllaceae	1	1,66
Geraniaceae	1	1,66
Malvaceae	1	1,66
Plantaginaceae	1	1,66
Amaranthaceae	1	1,66
Rhamnaceae	1	1,66

The wealth of the region study 60 species returns to the Asteraceae, the Poaceae, the Lamiaceae and Fabaceae recognized by their resistance and to the harsh climatic conditions.

3.2. Biogeographical type:

The biogeographic spectrum, based on the overall floristic list of the territory, highlights the various elements (Tab. n° 1 and Fig. n° 2).

From the chorologique point of view, the percentage of taxa to Mediterranean distribution is quite high, namely 23,72% of the total. This result is in agreement with that obtained on all of the flora of the majority of the Algerian regions. [11,12,13].

The taxa of Iberian-Moroccan origin; endemic North African and Saharan, occupy a significant place in the study area, are respectively 8.47%, and 6.77% of the overall workforce (Tab. n° 3).

Quezel [14] explains the importance of biogeographic diversity of Mediterranean Africa by climate change suffered severely in this region since the resulting Miocene of migration of tropical flora. This same author emphasizes that a phytogeographic study constitutes an essential basis to any attempt of biodiversity conservation.

Table 3. Distribution of biogeography type

Biogeographical Type	Number	%
Eur méd	2	3,38
End N.A	4	6,77
Esp des Canaries à l'egyptAsie Occ	1	1,69
Sah	4	6,77
Sah Méd	3	5,08
Sah Sind	2	3,38
End Nord Sah	2	3,38
End G Atlas	1	1,69
Méd	14	23,72
Ibero Maur	5	8,47
Pléo sub trop	2	3,38
Alg Mar	1	1,69
End Sah	1	1,69
E Méd	1	1,69
Mar	1	1,69
N A	2	3,38
Paléo temp	1	1,69
Sah sind Méd	2	3,38
Tran Tour Eur	1	1,69
Méd Atl	1	1,69
Macar Méd	1	1,69
Sub Med Sib	1	1,69
Cosm	1	1,69
Euras N A	1	1,69
Circumbor	1	1,69
W Méd	3	5,08

3.3. Espece and endemism:

The phytogeographes and botanists were always concerned about the endemic, either for their rarity, or for the interest they take in the vegetation.

We could identify 13.55% of endemic species in the region of Brezina.

The results show that North African endemic species are:

- * *Thymelaea microphylla*
- * *Thymus ciliatus*
- * *Anacyclus cyrtolepidioides*

** Helianthemum apertum*

It adds 4 endemic including 2 Saharan North endemic species (Astragalus okra, Convolvulus supinus) a G Atlantic (Astragalus reinii) endemic species and a species endemic Saharan (Euphorbia calyptata)

3.4.Global biogeographic distribution on the rarity of the species:

About 60 species, 10 species is 16.94% of the inventoried list tend to dwindle [15],even if some of them are locally abundant.

The rest consists of common species. Thus, analysis of our results shows that there are rare species in 9 distributions biogeographical soit34.61% of the biogeographic distribution of the shrubs to the South side of the region of Brezina.

The particular case of the species originally endemic G Atlantic oursenis, Algerien Moroccan Saharan endemic, Moroccan and Circumboreal is 100% (see table no.: 4).

50% of the Paleo-subtropical species, Saharan, sahoro sindiennes are mentioned as rare to very rare by [15] .

Distribution biogeographic Mauritanian ibero has a degree of rarity low to very low with 20%.

Table 4. The scarcity degree rate in key biogeographical distributions according to Quezel et Santa [15]

Origines Biogéographiques	Nombre d'espèces totales	Degré de Rareté	
		Total des Espèces AR, R, RR, RRR.	Taux en (%)
Sah Sind	2	1	50%
End G Atls oursenis	1	1	100%
Sah	4	2	50%
Paleo sub trop	2	1	50%
Alg Mar	1	1	100%
And Sah	1	1	100%
Mar	1	1	100%
Circumbor	1	1	100%
Ibero Maur	5	1	20%

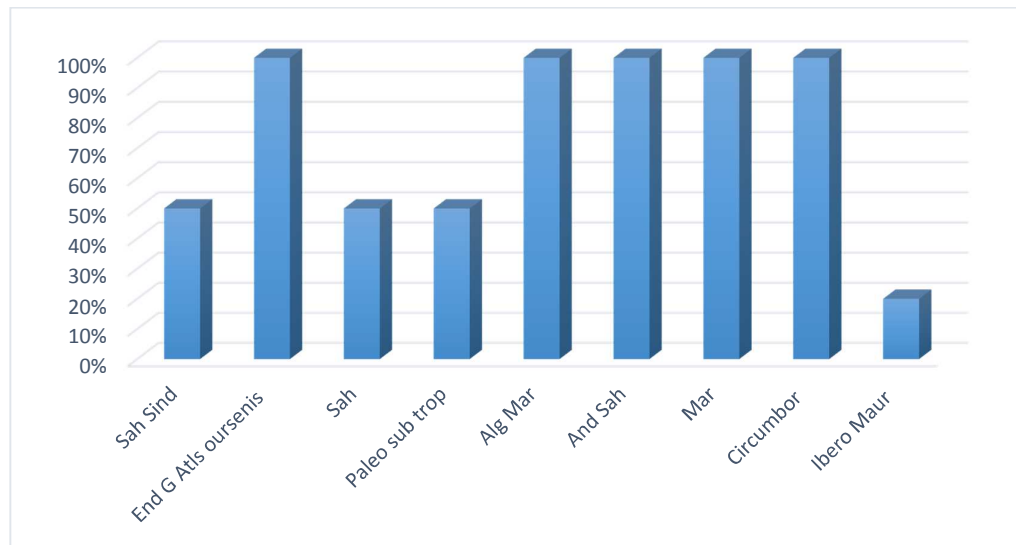


Fig. 2. Scarcity degree of in key biogeographical distributions according to Quezel and Santa [15]

General conclusion:

Djebailli[10], notes that the steppe is composed mainly of a quite varied herbaceous stratum of perennial and ephemeral species.

The floristic region of Brezina complexity appears as the result of the anthropoclimatiques effects that have occurred there since 20 years.

On the ground this translates into significant changes of floristic composition; changing thus the landscape by imposing a xerophilic and Saharan vegetation such as:

Arthrophytum schmittianum , *Noaea mucronata* et *Atractylis serratuloides*.

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Abréviations :

Eur méd : European Mediterranean

End N.A : Endemic North African

Esp des Canaries à l'égypte **Occ** : Spain from the canaries to the re Western Asia

Sah : Saharan

Sah Méd : Saharan-Mediterranean

Sah Sind : Saharan Sindien

End Nord Sah : Endemic North Saharan

End G Atla : endemic Gattefossé atlantic

Med : mediterranean

Ibero Maur : Ibero Mauritanian

Paléo sub trop :paleo tropical sub

Alg Mar : Algiers Morocco

End Sah :Endemic Saharan

E Méd : East Mediterranean

Mar :Morocco

N A : North Africa

Paleo temp : Tropical Paleo

Sah sind Méd : Sahara Mediterranean indien

Iran Tour Eur : European touranien Iranian

Méd Atl : Mediterranean Atlantic

Circumbor : Boreal circum

W Méd : Mediterranean West

Euras N A : Eurasian North Africa

Cosm : Cosmopolitan

Sub Med Sib : Mediterranean Sub sib

Macar Méd : Mediterranean Macaronisien