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RESEARCH ARTICLE

STUDY OF THREE STATIONS IN THE WINTERING SITE OF THE *GRUS GRUS* (LINNAEUS, 1758) (GRUIDAE) IN THE STEPPE REGION OF TLEMCEN ALGERIA

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ABSTRACT

Currently the steppe is a fragile area against degradation phenomena, knows a regressive evolution, reflecting mainly by anthropozoic effect. Today overexploitation of natural resources and a great tendency to degradation resulting in the reduction of the biological potential and rupture of the ecological balance. In this context comes the idea of assessing plant biodiversity of some steppe stations wintering site for the *Grus grus*.

INTRODUCTION

The Common Crane (*Grus grus*) is a sophisticated bird that can fly at high altitudes and long distances. It invariably follows the same route, a band of a hundred kilometers wide, which leads to the northern autumn of Europe to France, Spain and North Africa (Morocco, Tunisia and Algeria) and back in the spring by the same way. In the wintering grounds, the crane is threatened by habitat change, declining oak forests and vegetation primarily, as well as the continuation of the farmers due to crop damage. The study of vegetation, in our case, is a physiognomic investigation and survey of the main species in three stations where the vegetation is different: *Stipa tenacissima* steppe, *Artemisia herba alba* steppe, *Peganum harmala* steppe. Among the basic work on the vegetation of the Tlemcen region include those of Benabadji (1991, 1995) Bouazza (1991, 1995). This study allows to characterize the state of an ecosystem and to highlight its natural or induced changes because it is the best result of the climate and soils (Ozenda, 1964).

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MATERIALS AND METHODS

Material

A rope 100m, iron pickets, secateurs, plastic bag, newspaper for drying, spreading and the conservation of plant species and binoculars for common cranes.

Méthodes of vegetation survey

For the study of plant biodiversity, we conducted an extensive sampling to inventory all plant species that exist in the three stations in Aricha (alfa steppe , steppe *Artemisia*, *Peganum* steppe). Our objective floristic vegetation characterization stations studied, point of view biological, morphological and geographical.

RESULTS AND DISCUSSION

To better understand the dynamics and distribution of plant communities, the study is mainly based on the counting species with identifying their biological types, morphological and biogeographic three different stations.

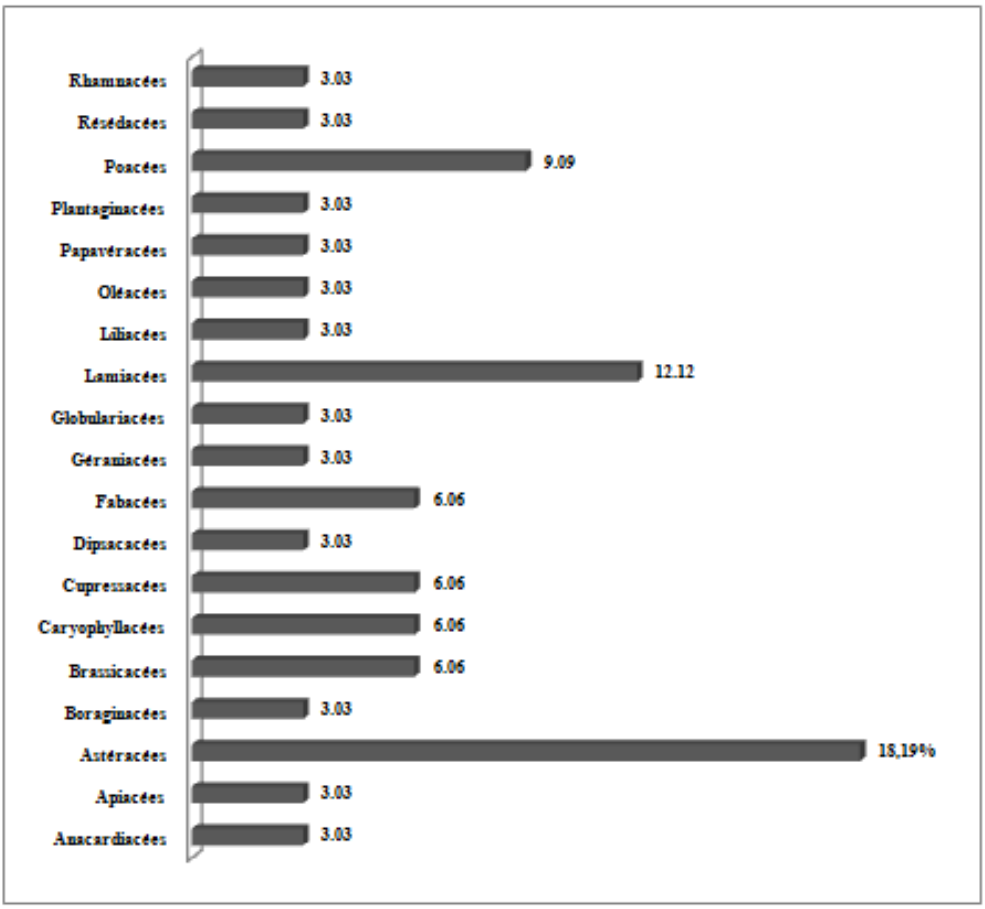


Figure 1. Floristic composition by family *Stipa tenacissima* steppe

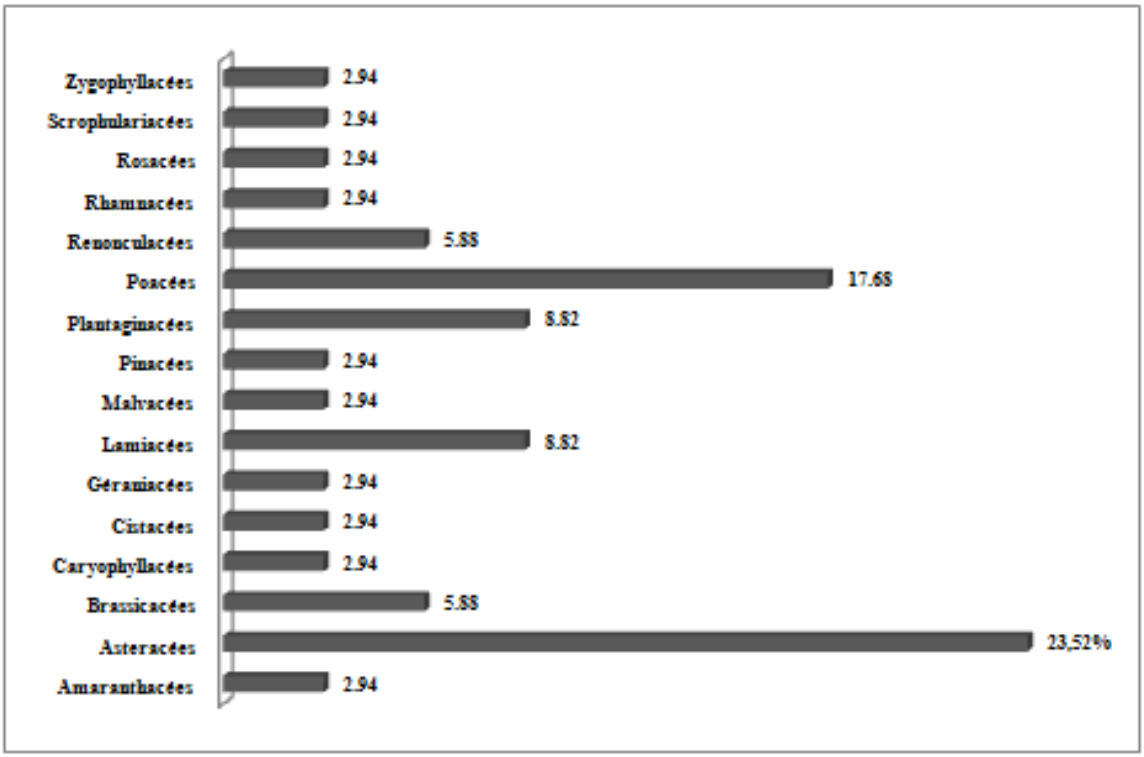


Figure 2. Floristic composition per family steppe *Artemisia herba alba*

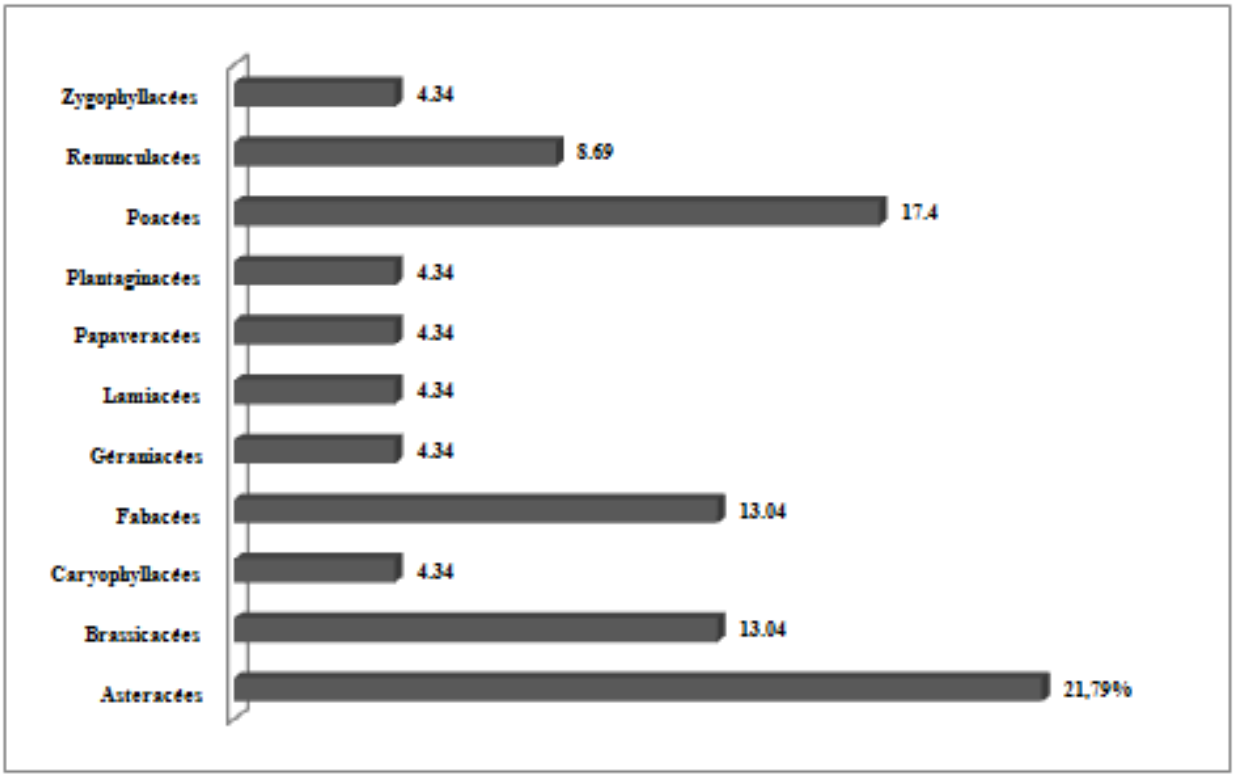


Figure 3. Floristic composition by family steppe *Peganum harmala*

Biological Types

Among the main biological types defined Raunchier, 1904. We can mention the following categories: CH: Chamaephytes GE Geophytes HE: Hemicryptophytes PH: Phanerophytes TH: Therophytes These life forms are considered the result of adaptive vegetation to environmental conditions

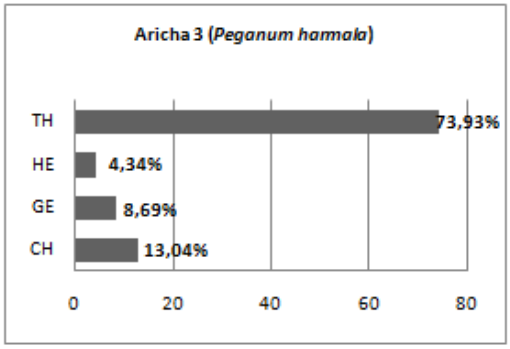
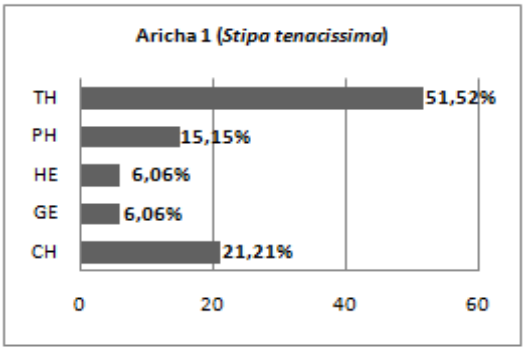
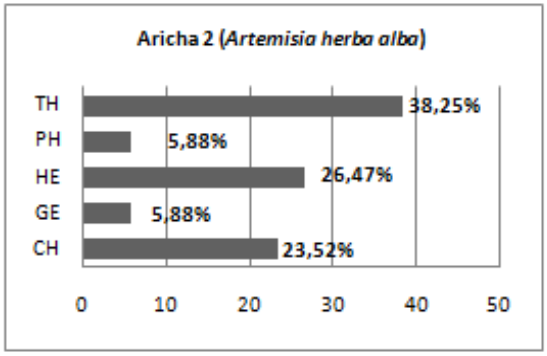


Figure 4. Types of biological study sites





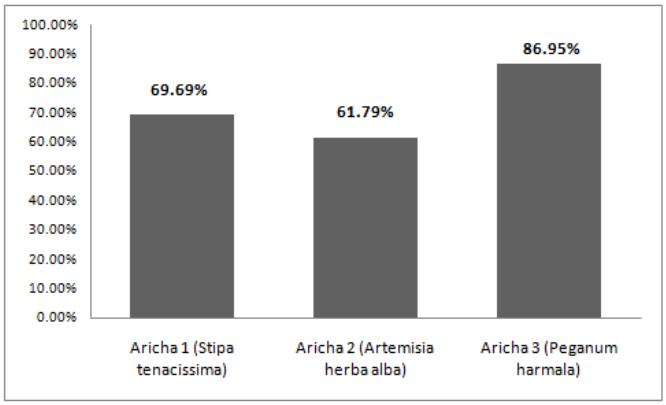


Figure 05. Disturbance Index plants studied

The disturbance index

The sharp deterioration caused by human action is clearly visible (clearing, fire, grazing and urbanization). In this context, Barbero et *al*. (1990**)** report that the disruption caused by man, and his cattle are numerous and correspond to two situations increasingly severe ranging from matorralisation to desertification through the steppe.

The importance of disturbance index is proportional to the dominance of therophytes who find here their favorable environment for their development (poverty organic matter); which also reflects a more open environment. This index shows the therophytisation of the area following a steppe which is considered the ultimate stage of deterioration of different ecosystems with the dominance of sub-nitrophilous species linked to overgrazing (Barbero *et al.,* 1990)

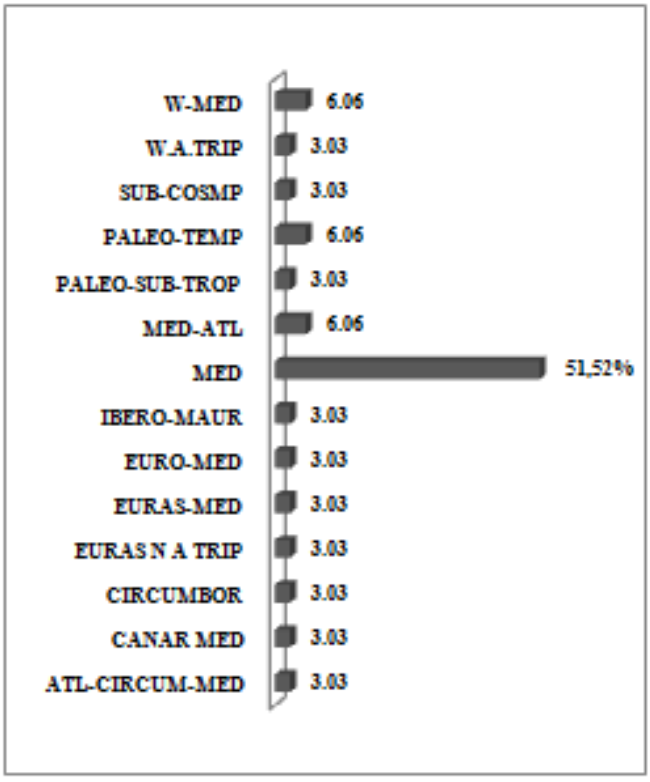


Figure 6. Biogeographic types of *Stipa tenacissima* steppe

Biogeographic Types

The distribution of taxa inventory is determined from the flora of Algeria and Quezel and Santa, 1962-1963**.** On the phytogeographic map, vegetation of the study area consists of a heterogeneous set of various origins (Mediterranean, Northern and Southern). The analysis of the following figure shows the predominance of Mediterranean biogeographical type species with a variable percentage

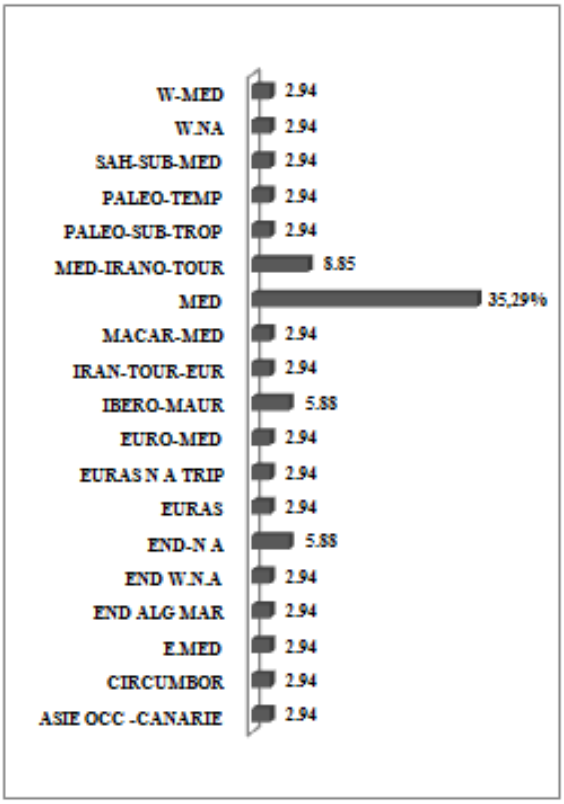


Figure 7. Biogeographic types of steppe *Artemisia herba alba*

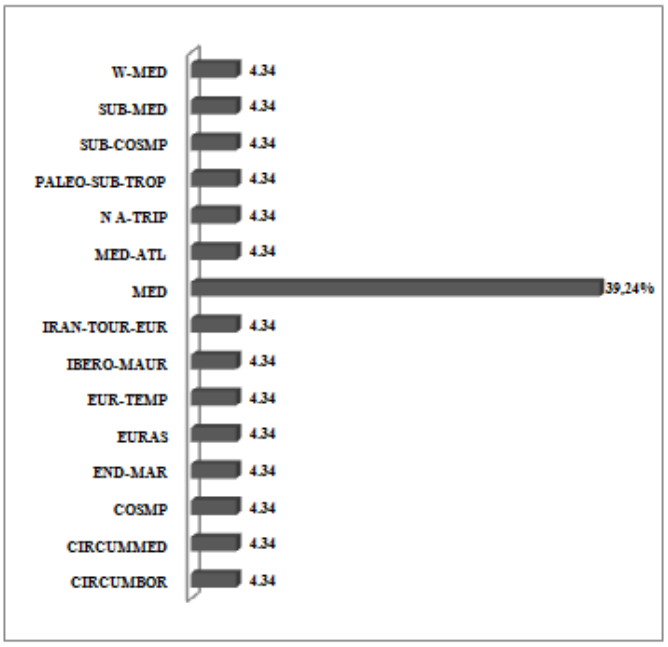


Figure 8. Biogeographic types of steppe *Peganum harmala*

DISCUSSION

All over the world, diachronic studies demonstrate the loss of biodiversity, including vegetable.

The variety of species is only part of biological diversity; diversity within species (genetic and behavioral diversity) is another important factor in biodiversity, as well as the diversity of ecosystems, the distribution of living beings on the planet, the functional with species interactions and the role of different functional groups in the functioning of the ecosystem are essential elements to characterize biodiversity. From large because of loss of diversity of plant species is the degradation of species habitats, manifesting through their disappearance and fragmentation (Barbault 1995; Pimm and Raven, 2000).

Take for example the stations Aricha including low soil organic matter, very low rainfall, strong winds are the causes of poverty in this environment floristically. At stations studied it was found that human activities can be seen as creating a landscape mosaic, since they are initiators of plant succession. In addition to the physical and disruption of natural origin that are insignificant in these highly anthropic landscape. A wide biogeographic territory on which we work, all coexisting species with similar ranges, any time we note the dominance of the Mediterranean type.

One can call these stations as an open biotope, characterized by sun-loving plants, annual and perennial herbaceous or woody bass. These characteristics that just make the cited study sites as a good habitat home to many animal species. The crane there is abundant food, made from plant materials, seeds of all kinds but especially Poaceae, roots, and stems of plants confirmed by the results of Couzi and Petit, 2005; Le Roy, 2006. The acorns are also part of his regime, especially in November and December. It also feeds on insects, molluscs and occasionally, it will capture small terrestrial rodents.

Conclusion

Dominance therophytisation character is related to the invasion of annual species, spread by cattle especially in the study area In this regard, Barbero *et al.* (1990) explain the therophytisation the final stage of ecosystem degradation with sub-nitrophilous species linked to overgrazing Also, the biogeographical distribution shows the dominance of Mediterranean elements, which exceeds 20 % in all stations. The common crane has been disrupted by the destruction or alteration of habitat on the wintering grounds Human disturbance are all threats to this species because it is nourished in freshly sown fields barley, peas.

Proposed solutions for the preservation of the crane on the wintering grounds

Following the significant use of pesticides and ingestion of seeds coated with poisons that are to be feared because of the impact on their physiology and notably on future fertility couples.

The growing impact of the common crane on crops , especially on seedlings of cereals, leads to conflicts with farmers and implies ever increasing disturbances in full migration period , when birds need to eat and to rest before continuing on their way. It is advisable to book an international budget that protects and ensures the cost of feeding the common crane on wintering sites. It is necessary to create tourism observatories charge at the wintering sites in order to supply a portion of the budget.

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