

Characterization of Groups to Matorral in the South-slope of Tlemcen (Western Algeria)

Belhacini Fatima¹, Meziane Hassiba², Anteur Djamel³ et Bouazza Mohamed²

¹University Hassiba Benbouali Chlef Algeria, Research laboratory Ecology and management of natural ecosystems. Tlemcen

²University Abou Bekr Belkaid, Research laboratory Ecology and management of natural ecosystems. Tlemcen

³Master Wizard A, University Molay Thar of Saïda geomatics laboratory and sustainable development (LGEO2D) University Ibn Khaldoun of Tiaret Alegria.

Received: September 16, 2016

Accepted: November 14, 2016

ABSTRACT

The present work has been done at the level of the Matorral of South East of Tlemcen Algerian Northwest, 150 surveys were carried out and localized by GPS system.

This study is for objective assessment and description of the status of different plant groups based on numerical analysis (AFC and CHA).

We identified five groups and also showed the relative weight of human impact in the structure and functioning of these formations in matorral which translates the frequent development of species theorphytic, spiny or toxic. Finally while based on the index of characterization in was able to appoint different plant groupings.

KEY WORDS: Matorral-floristic-anthropoc Action - Western Algeria - Tlemcen.

INTRODUCTION

The study presented is referred on knowledge of floristic composition and distinction of the vegetal groupings at the level of the western part of the Algeria Matorral.

The present vegetation is the result of the interaction of diverse factors, including topography, geology, climatology and especially by a long, deep action anthropozoogenic

Our study area suffers from this permanent pressure and the Matorral tend to turn into thorny species-rich lawn and or toxic.

Variations of many ecological factors on the one hand, and their combination on the other hand, determine the diversity of the various formations in Matorral, currently and in this area that presents an alternation of plains and mountain ranges, characterization, classification and conservation of different taxa is a scientific priority for the assessment and management of this biological heritage.

METHOD OF STUDY

With regard to our work, the method of study of formations to matorral in the southern slope of Tlemcen consists of the following steps:

- Harvest data and sampling.
- Data processing, the distinction of the different plant groups and implementing evidence of the ecological factors that govern the distribution and the distribution of the vegetation in these groups.
- Characterization of these groups

We were able to choose (03) stations representative (Figure.n°:1) (Ain - Tallout, Meurbah and Dermam).

*Corresponding Author: Dr. Belhacini Fatima, University Hassiba Benbouali Chlef Algeria, Research laboratory Ecology and management of natural ecosystems. Tlemcen. Email:eco_vert7@yahoo.fr

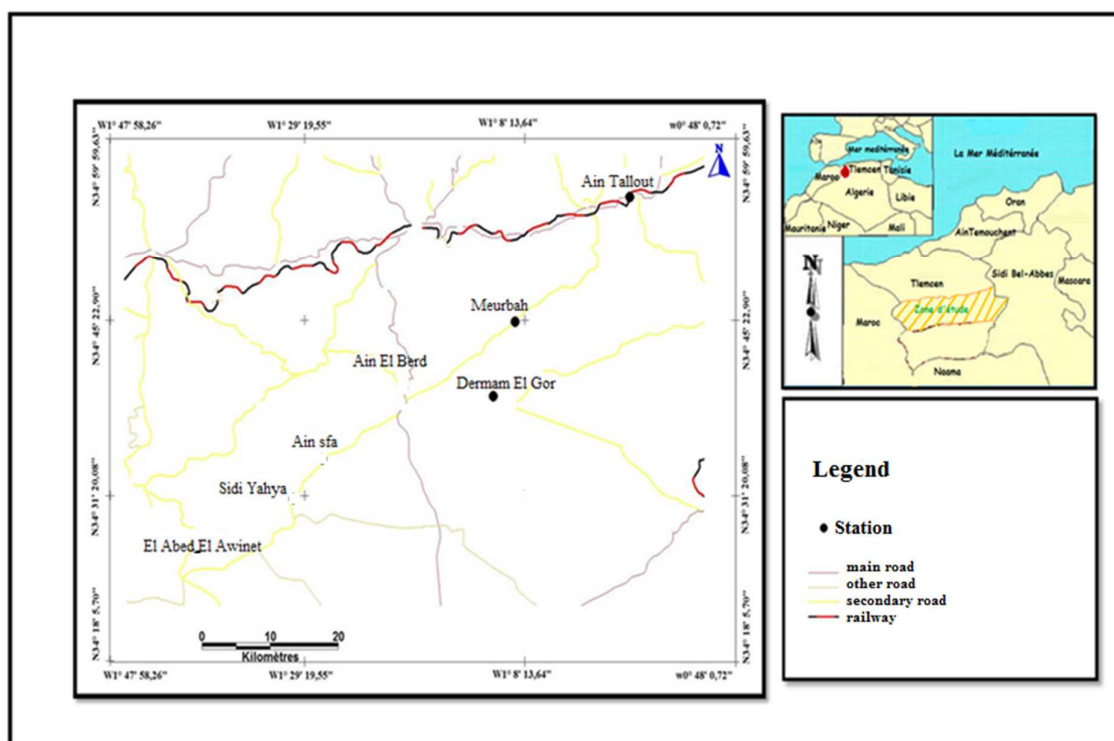


Figure N° 1: The location of the studied stations

Floristic surveys (150 in total) were conducted according to the method of Braun-Blanquet.

The choice of the location of our surveys is done in a way in compliance with the criterion of floristic structural homogeneity and ecological, in our case we have a minimum area equal to 100 m².

Data whole plant has been treated by factorial analysis of correspondence (AFC) combined with hierarchical classification ascending (CHA), which is the complement of any factorial analysis of correspondence. The purpose of these analyses is highlighting the relationship between the environment and vegetation as well as the distinction of plant groupings.

It is made from floristic tables [1,2] method, to identify the main types of groups present on the study area.

To be a species characteristic of the group to which it belongs, it is important that its general frequency (in reporting AFC) is equal to its frequency in the group, itself equal number of surveys forming this ensemble [3].

We have translated this by this report:

$$\text{Index of characterization (CI)} = 2 f(x) / (F(x) + N) \quad 7$$

Where: $f(x)$ = frequency of the species x in the Group

$F(x)$ = General frequency of species x in the AFC

N = number of statements of the Group

As such, this report tends to 1, more species x is "characteristic" of the group [3].

RESULTS AND DISCUSSION

Numerical analysis by the AFC:

From clouds of points obtained relating to species, identified and significant factorial axes, you can highlight the environmental gradients that Act on the distribution of plants and groups which are particularly in the Matorral from the southern slope is the region of Tlemcen.

A - Interpretation of factorial survey maps:

Examination of the factorial maps (fig. 1, 2 and 3) shows a separation of surveys in different groups.

We ruled out the following groupings: A1, A2 A3 A4 and A5 in the South East

All presented 5 groupings, it is high and well developed Matorral, indicates a considerable diversification slope South East of Tlemcen and the low formations largely degraded due to the action of man, marked by a spread of species of affinity steppique.

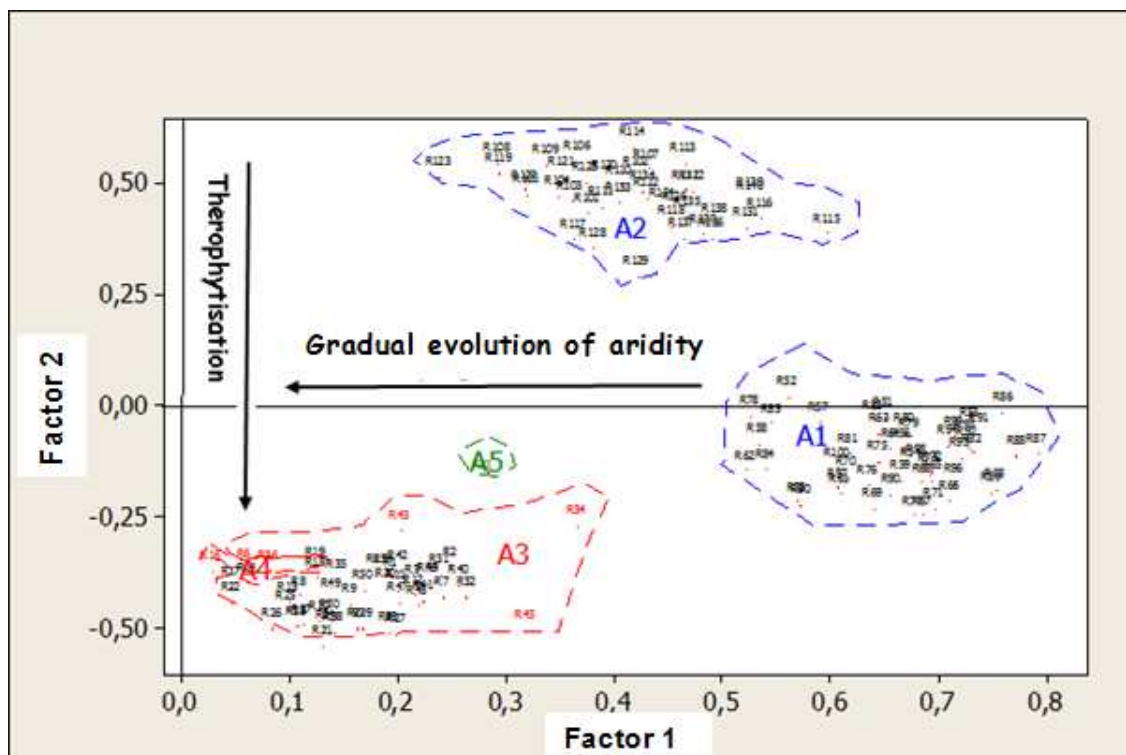


Figure .n°2: Application of the AFC to 150 surveys and 145 species

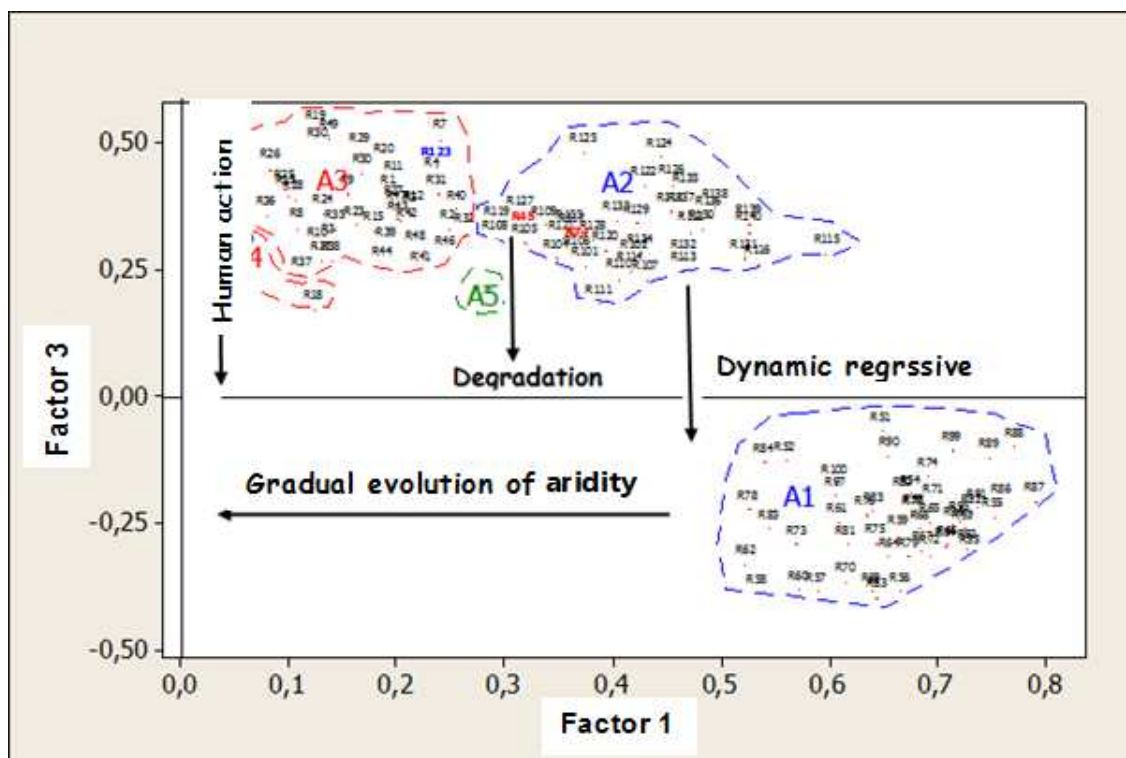


Figure .n° 3: Application of the AFC to 150 surveys and 145 species

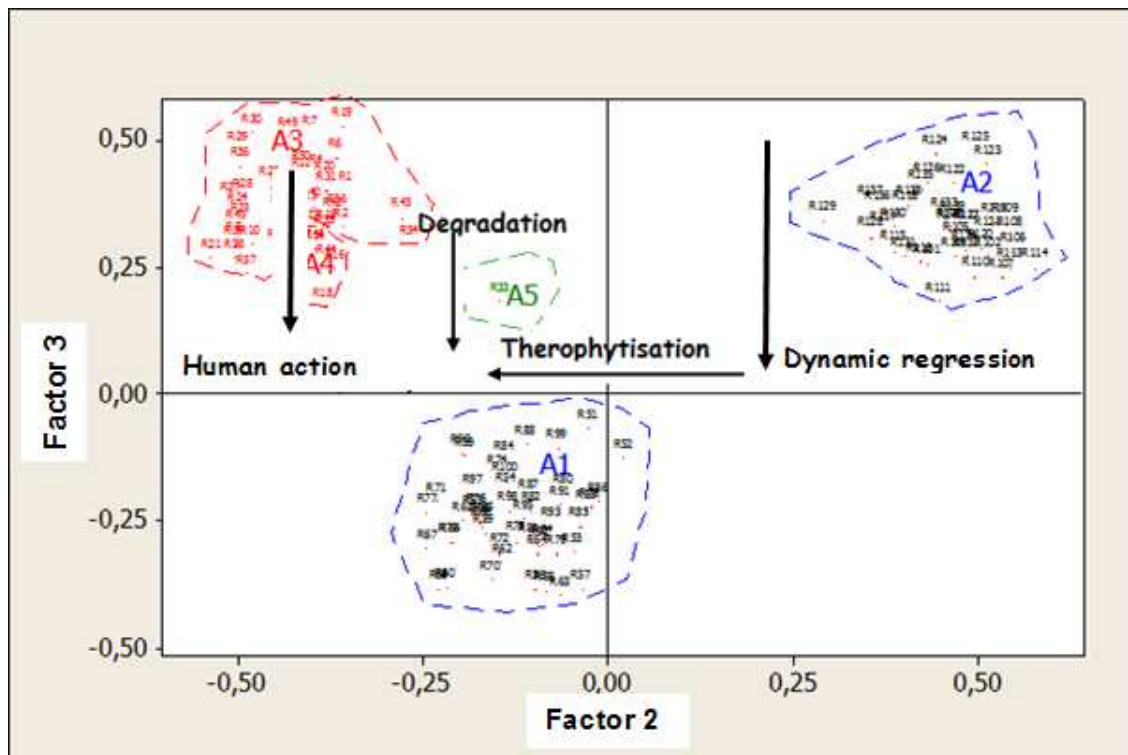


Figure .n° 4: Application of the AFC to 150 surveys and 145 species

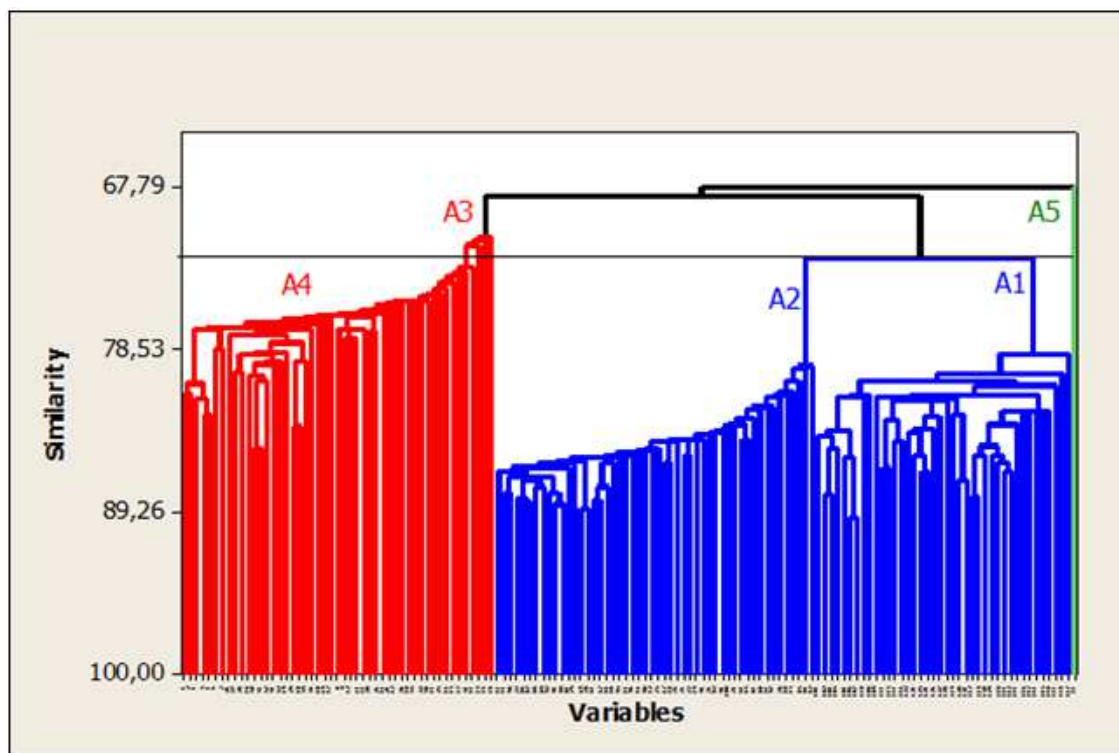


Figure. N°. 5: All identified A Dendrogram

B - Characterization of groups:

From the point of view characterization, each group takes the name of the species the most dominant, frequent and characteristic:

Group A1: grouping in *Quercus ilex*

Group A2: grouping in *Juniperus oxycedrus*

Group A3 et A4 : grouping in *Calycotome intermedia*

Group A5 : the group name to *Stipa tenacissima*, *Chamaerops humilis*, *Rosmarinus officinalis* and *Thymus ciliatus* according to the dominance of these abundance.

C.Description the groups:

The theory of ecological groups arose as a result of the work of Duchaufour and Emberger in France of DuVigneaud in Belgium, Ellenberg in Germany.

A large part of the study area is mainly occupied by sclerophyll, thorny and sparse vegetation: *Quercus ilex*, *Juniperus oxycedrus*, *Genista tricuspidata*, *Thymus ciliatus subsp coloratus* and *Calycotome intermedia*.

Group A1: grouping in *Quercus ilex*

The holm oak (*Quercus ilex*) is the most remarkable sclerophyllous oak, occupies large areas; its stands are invaded by matorral species more heliolerophiles and better adapted to eroded soils (broom: *Juniperus oxycedrus*.)

According [4] *Quercus ilex* (*Q.rotundifolia*) occupies a large part of the Mediterranean basin, plastic, and robust species adapting to different types of climates, supporting as many cold winter than summer droughts

Group A2: grouping with *Juniperus oxycedrus*

Species the highly significant of these groupings are *Ferula communis* and *Genista tricuspidata*, overall floristic composition translated faithfully the dynamics caused by the anthropogenic action, we have Juniper (*Juniperus oxycedrus*) taxon Mediterranean awl, prickly-leaved, widespread where it can mix with feet of holm oak *Quercus ilex*.

Group A3 and A4: *Calycotome intermedia* groups

These two groups paired at the level of the southwestern side; grows in semi-arid environments dominated by *Calycotome intermedia*, *Arisarum vulgare*, *Anagallis arvensis* and *Urginea maritima*

According to [5] *Calycotome* and *Urginea maritima* are linked to the Matorral, [6]. *Urginea maritima* ruderal group and overgrazing.

Group A5: grouping *Stipa tenacissima*, *Chamaerops humilis*, *Rosmarinus officinalis*, and *Thymus ciliatus*: this group consists of a single particular survey who isolates himself, with characteristic species of the steppe environment [7] shows that *Chamaerops humilis* form the 4th stage of degradation after Cedar attributed to groups anthropozogenes [8,4] *Stipa tenacissima*, species ibero-Mauritanian according [9] in the oranie, is very invasive in woodlands and shrub land with holes and clear; He pointed out the areas where annual rainfall reached 810 mm and where the elevation is 1400 m in the Tlemcen mountains. For [8], *Stipa tenacissima* is bounded to the South by the drought; so for an annual rainfall of 150mm.

Conclusion:

The gradual increase of population and livestock in the study area led to a regression of the area covered by holm-oak and the rapid development of therophytes but also toxic and thorny species such as (*Calycotome intermedia*, *Urginea maritima*, *Genista tricuspidata*, *Asphodelus microcarpus*, and *Atractylis humilis*).

In this regard [10] says that if land use planning are not suitable, it may in some cases see, within a few decades, deserts of anthropogenic origin whose evolution will be hardly reversible.

The transition from the high to the low degraded shrubs shrubs is an option whose structure is remodeled with sometimes the disappearance of the original species and their replacement by anthropogenic species.

Human and animal pressure acting on the environment are often unfavourable to development and an optimal evolution. Thus, they impose a structure and a particular woody vegetation physiognomy and inventoried species clearly confirm...

Indeed, these plant formations suffer degradation, from which the observation of a change in a forestry training in pre-forestiere training and matorral.

In Mediterranean ecosystems, southern areas are objects of high degradation risks, including our study area, is produced by the phenomenon of "matorralisation" management of natural areas and especially for the maintenance of biological diversity must certainly be addressed and studied objectively.

Before the growing concern of the phenomena of anthropisations awareness leads organizations and the Government to reflect on the actions of conservation and preservation of this ecosystem. However, for efficiently, these goals the knowledge of the ecology of these Matorral of their biological diversity and its evaluation is required to establish farms, of protection or conservation programs.

So it's now clear to everyone that the nature is a ' well global audience "whose management is everyone's business.

REFERENCES

Journal paper:

2.Ward. J –H., 1963 . Hierachical grouping to optimize an objective function Journal of the American Statistical Association. Vol. 58. pp 238-244.

10. Le Houérou.H.N., 1991 , the Mediterranean in the year 2050: respective impacts of possible climate change and demography on vegetation. Ecosystems and land use: prospective study. Meteorology. 1991 VII series, 36: 4-37.

Report :

1.Cibois, P., 1987 . The factorial analysis. Paris, PUF.

5.Kadik, B., 1983. Contribution to the study of the Aleppo Pine (*Pinus haiepensis* Mill.) in Algeria. Ecology, mensuration, morphology. O.P.U. Alger. 581 p.

Thesis :

3.Vedrenne, G., 1982. Multi variable analysis and highlighting of biological indicators, Application Mediterranean calcareous Provence upstairs. Doctoral thesis

University of law, economics and science of aix-marseille. 110 p

4.Dahmani, M ., 1984. Contribution to the study of groups to Holm oak (*q. rotundifolia* Lank) of the mountains of TLEMEN (Western Algeria). Approach phytoecologique and phytosociological. Doctorate 3rd cycle. U.S.T.H.B., Algiers. 238 p. + annexes .

6.Kadik ,L., 2005. phytosociological study and phytoecological formations to pine of Aleppo (*Pinus alepensis* Mill) of bioclimatic upstairs semi arid Algerian. Thesis PhD, USTHB, Algiers

7.Alcaraz, C., 1969 . study geobotany of pine of Aleppo in the Tell Oranian. Th. Doct. 3ecycle. FAC. Sci. Montpellier. 183 p.

8.Achour ,H ., 1983 . study training at alfa (*Stipa tenacissima* L.) phytoecologique of the South oranian - Wilaya of Saïda. Thèse Doct. 3rd Cycle, Univ., H.BOUUMEDIENE, Algiers, 216 p + ann.

9.Alcaraz, V., 1982 . the vegetation of Western Algeria. Theory of State, University Perpignan, 415 p + annex.