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#### **RESEARCH ARTICLE**

# MORPHOMETRY OF SOME ANTHROPOZOIQUES SPECIES IN THE REGION OF TLEMCEN (ORANIE-ALGERIA)

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Abstract				
The present work is devoted to the study of the ecological groups outline physiognomic, dynamic and ecological groups of anthropozoiques species from the region of Tlemcen.				
Bioclimatic analysis confirms the installation of drought in this region with a predominance of spiny or toxic Agdal at the expense of sylvatic species species				
Morpho metric of a few species say anthropozoiques has enabled us to link any site ecological factor in direct relation with the parameters measured individuals.				

# INTRODUCTION

The anthropozoiques species range extends throughout the mountains of Tlemcen and their southwest side; particularly in our study area. This is reflect some recent work of the laboratory of ecology and management of natural ecosystems of the University of Tlemcen.

However, our exploration, at the level of the study area, has allowed us to know, at the end of occupation of the sward, anthropozoique species (Alcaraz, 1986), unquestionably playing a role more important in heavily exposed to grazing areas.

Man uses wood for its multiple uses, occupies land by cereal crops and put to pasture his sheep and goats.

All these actions have, over time, leads to a remarkable destruction of vegetation cover.

Under these ongoing pressures, the forests are transformed into Matorral. The Matorral are sparse and destroyed in turn to give way to the spiny or toxic species.

This anthropozoogenic pressure translates again and again by a significant regression of some taxa, or even the disappearance of some plant species.

The importance of the anthropozoogenic pressure associated with weather conditions necessarily translates into a depletion of the sward.

The most recent work on vegetation and the anthropozoic influence in the Oranie and Tlemcen region include those of: (Gaouar, 1980), (Alcaraz, 1986), (Benabdelli, 1983), (Bouabdellah, 1992), (Benabadji, 1995), (Bouazza, 1995), (Ainad Tabet, 1996), (Benabadji Nadjoua, 1998).

*Urginea maritima* and *Calycotome spinosa* achieve important development indicator of their ecological optima, and integrate with Dynamics anthropozoiques groups. This confirms observations on ground where we note that these species arrive in flowering phase and their coefficient of abundance – dominance reached 3 to 4 in the majority of the stations to

study.

## Materials and methods

Many studies use aerial biomass to characterize the importance, the force and the dynamics of the vegetation communities.

(Burgan and Rothemel 1984) use biomass of shrub to predict fire behavior, or to assess the combustibility of plant training.

The study area is characterized by a great floristic diversity which is related to the combination of ecological factors that are also very varied (bioclimatic change, Action anthropozoogenic).

For this study it has chosen 03 stations to study locating in the north western part of Algeria **Figure 1**. These are located to the South with a longitude of 1  $^{\circ}$  27 West and a latitude of 34  $^{\circ}$  North, limited 27

- In the North by the Mediterranean Sea
- In the South by the wilaya of Naama
- To the West by the Algerian-Moroccan border
- In the East by the wilaya of Sidi Bel abbes

These 03 different areas one another by: geographical position, climate, topography,

Soil conditions, plant diversity and anthropogenic factors.

Of this area, 03 study stations have been selected and which are an integral part of the Mansourah municipality.



Figure 1: Location of Stations to study

Site 1:

Located to the Northwest of the urban area of IRA, near Tlemcen University complex. It presents a slab of limestone, very superficial in places, with an altitude of 720 m and characterized by a relief rugged, dominated mainly by:

-Urginea maritima 3.3

-Calycotome spinosa 2.2

-Ulex boivinii 3.3

Site2:

Is located at 750 m altitude, with a more apparent than the first limestone

This station is marked by a recent deforestation and this is explained by the presence of the relics of species such as: -*Quercus ilex*1.1

-Pistacialentiscus +. +

-Oleaeuropaea +. +

Site 3:

It is located at the opposite of the first two stations; is located in a depression where it receives a sizeable water through orographic offsets

It is dominated by the following species:

-Urginea maritima 3.3

-Calycotome spinosa 2.2

-Ulex boivinii 3.3

-Olea europaea 2.2

-Quercus ilex + ... + in relic.

According to the classification of (**Debrach, 1953**), the thermal amplitude (M - m) is between 25°C and 35 ° C, it is semi-continental type. January is the coldest month (5.4 ° C), and July the hottest month (30.5 ° C). Finally Climagram Pluviothermic of (**Emberger, 1952**) places the region of Tlemcen in semi-arid temperate winter upstairs.

Group's anthropozoogenic lead us to study biomass (aerial part) of vegetation and especially the phytomass of species that characterize this grouping, in order to compare the types of relationship between the different parameters measured.

Ten individuals of two anthropozoiques species were randomly taken. Most of the measures are made on the ground in the months of March and April, in full vegetation for the species.

- Calycotome spinosa
- Urginea maritima

In light of the difficulties we have had, we have taken measurable parameters on the ground and which are:

-Height of individuals (in cm)

- -Number of sheets
- -Diameter of the foliage.

The values are reported in tables 1, 2 and figures 2, 3 below.

In order to analyse the results on the growth of these species, we correlated height and diameter, height and the number of inflorescence on the one hand and the diameter and the number of inflorescence on the other hand.

Pairs of data from each of the 10 individuals were represented graphically in figures (1, 2); in order to explain their correlations and propose a general model of regression, (Millier, 1982).

Based on these couples, could calculate, by computer, the correlation coefficient (R) and bring out the regression equations.

#### Table 1: Results of the biometric study of Urginea maritima from the study sites Site1 Site2 Site3 Urginea maritima Individuals Y Ζ Х Y Ζ Х Y Ζ Х 16.5

## **Results and discussion**

Correlations	(X, Y) ; <b>R= 0,64</b>	(X, Y) ; <b>R= 0,69</b>	(X, Y) ; R= 0,862		
	Y=1,06x- 7,73	Y=0,907x-2,81	Y=0,94x-6,20		
	(X, Z) ;R= 0,0875	(X, Z); R= 0,0212	(X, Z) ; <b>R= 0,575</b>		
	Z= 0,013+ 7,03	Z= -5,63x+ 8,67	Z= -0,158x+1,385		
	(Y, Z) ; R=0,214	(Y, Z); R= 0,032	(Y,Z) ; <b>R= 0,489</b>		
	Y=0,49z+8,55	Y= 1,2z+ 15,30	Y= 2,7z+4,24		

X: height of the individual.

-Y: the diameter of the individual.

-Z: the number of sheets

Table 2: Results of the biometric stu	ly of Calycotome s	<i>pinosa</i> of the study sites
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Site1				Site2			Site3		
Calycotome spinosa									
Individuals	Х	Y	Ζ	Х	Y	Ζ	Х	Y	Ζ
1	43	120	00	61	158	45	69	125	00
2	22,5	42	00	61	156	35	47	107	00
3	62	118	00	50	155	66	48	120	00
4	41,5	105	00	57	217	00	34	76	00
5	28,5	103	00	69	164	00	38,5	78	00
6	70	201	00	71	152	00	35	98	00
7	51,5	96,5	00	71	116	27	46,5	70	00
8	52	113	00	85	147	00	26	49	00
9	44,5	89	00	87	79	98	34,5	102	00
10	51	73	00	44	144	00	46,5	99	00
Correlations	(X, Y) ; <b>R= 0.737</b> Y=2,213x+7,00			(X, Y); R= 0,524 Y=1,32x+235,6 (X, Z); R= 0,197 Z= 0,488x- 4,949 (Y, Z); R= 0,378 Y= 0,6227z- 165,8		(X, Y); <b>R= 0,715</b> Y=1,43x+31,52			

In the first station, there is a good correlation between the height of Urginea maritima and its diameter 0.640.

The established correlation between the number of leaves and height remains extremely low 0.087.

At the level of the second station and for the same species, the correlation between the height and the diameter is still going strong: 0,690. On the other hand, the relationship between the height and the number of sheets has a negative value:-0.212 (low Correlation).

The results of the correlation between height and diameter on the station 3 individuals are still very strong with a value of 0.862, then the relationship between the height and the number of sheets is average: 0.575.

Concerning the relationship between the diameter and the number of sheets remain consistently low for the three stations to study.

For the species *Calycotome spinosa*, the correlation between the height and the diameter of the tuft at the level of the Workstation1, remains very good: 0.737.

For the second and the third station, the correlation between the height and the diameter of the tuft measured, remains average.

On the other hand, the relationship between the height and the number of inflorescence of the second station is low: 0.197.

*Urginea maritima* species presents good correlations between height and diameter. The height of individuals is not a significant effect on the number of sheets for the two stations. With the exception of the third station, where the correlation between the height of individuals and the number of sheets is 0.575.

There is a general tendency to the decrease in the number of sheets with the height of individuals. This slight decrease can be explained by exposure South-West of station3 as well as by the low slope (1 to 5%).

Furthermore, we note that tussocks diameter increases with height for the three stations. *Calycotome spinosa* presents good correlations between height and the diameter of the clump for the three stations to study.

Finally, we note that the diameter of the clump increases with height.









Figure 2: Results of the biometric study of Urginea maritima





Figure 3: Results of the biometric study of Calycotome spinosa

### Conclusion

A biometric study of two species -Urginea maritima -Calycotome spinosa Noua has shown that there is a close relationship between the height and the diameter for the three stations in our area. However a new relationship appears for the *Urginea maritima* species which characterizes station 3 for the number of leaves and height: R = 0.575.

This relationship can be explained by exposure and low slope that represents this station.

The remarkable point is the result of the phenomenon of compensation that allows Urginea maritima

To get the most out of the effects of stations including precipitation.

Generally, significant relationships carry many on the height and the diameter of the two species on the height and number of leaves.

We can say that positive relationships expressed by various people, all held especially at the compensation phenomena that remain very significant at the level of these stations to study.

The combination of these two environmental factors (slope-exhibition) facilitates the growth of the height of the species and the number of sheets of *Urginea maritima*.

### **BIBLIOGRAPHIC REFERENCES**

AINAD TABET M., 1996. Analyses éco floristiques des grandes structures de végétation dans les monts de Tlemcen (Approche phyto-écologique). Thèse Mag. ISN., Univ.Tlemcen. 111 p.

ALCARAZ C., 1982. La végétation de l'Ouest algérien. Thèse d'état, Univ. Perpignan, 415 p + annexes

**BENABADJI N., 1995.** Etude phyto-écologique des steppes à Artemisia herba-alba Asso. etSalsolavermiculata L. ausud ouest de Sebdou (Oranie-Algérie). Thèse doct. Es-Sci.Univ.Tlemcen. 225 p.

**BENABADJI NADJOUA, 1998.** Contribution à une étude phyto-écologique des Thero-brachypodietea dans la région de Tlemcen. Mém. Ing. Ecol. Univ. Tlemcen. 109 p.

**BENABDELLI K., 1983**. Mise au point d'une méthodologie d'appréciation de la pression anthropozoogéne sur la végétation de la région de Telagh (Algérie). Thèse doct. Spéc.Ecol. Fac. Sci. Techn. St Jérôme, Marseille, 185 p.

**BOUABDELLAH H., 1992**. Dégradation du couvert vegetal steppique de la zone sud ouest oranais, cas d'El-Aricha. Thèse M agistère. Inst. Géo. Amén. Terri. Univ. Oran, 222 p.

**BOUAZZA M.**, 1995. Etude phyto-écologique des steppes à *Stipa tenacissima L. et Lygeum spartum L.* au sud ouest de Sebdou (Oranie- Algérie). Thèse doctorat. Es-Science. Univ.Tlemcen. 220p.

**Burgan .R and Rothemel. R., 1984**–Behave, fire behavior prediction and fuel modeling system. Gen. Tec. Rep. INT. 167, U.S.D.A. Forest service Ogden.

DEBRACH J, 1953. Notes sur le climat du Maroc Occidental. Maroc médical, 32 : 1122-1134.

EMBERGER L., 1952- Sur le Quotient Pluviothermique. C.R. Science ; n°234. : 2508 –2511- Paris.

GAOUAR A., 1980. Hypothèses et réflexions sur la dégradation des écosystèmes forestiers dans la région de Tlemcen(Algérie). Revue. For. Méd. Tome 2, Marseille, pp- 131-146.

Millier C., 1982 – courbes de réponses in : Modèles dynamiques déterministes en Biologie.(J.D. LEBRETON, C. 36- MILLIER, EDS) pp. 51-170, Masson, Paris..