



EVOLUTION OF THE NUMBER OF INHABITANTS IN SOUTH OLTENIA AGROREGION AND THE IMPACT ON THE FOREST FUND

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SYNOPSIS

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South Oltenia Agroregion is one of the eight ecological regions of Romania, having a great human and agricultural potential. However, due to the less favourable climatic and soil conditions, forests do not thrive and do not cover an area large enough for the economic and ecologic needs. The present papers highlight the numerical evolution of the population during the period 1930 – 2006 and the impact on the forestry fund distribution.

INTRODUCTION

Located in the South-Western Romania, bordering Bulgaria and Serbia, the South Oltenia Agroregion is made up of Dolj, Mehedinți and Olt counties. It covers a surface area of 17,845 sq km (7.5% of the national territory) and it has 1,530,257 inhabitants (7.1% of Romania's population).

There have been favourable conditions for the existence of 1,136 settlements, which means 6.4 settlements/100 sq km (7.2 settlements/100 sq km in Mehedinți; 5.3 settlements/100 sq km in Dolj; 6.4 settlements/100 sq km in Olt).

From the territorial-administrative point of view, there are 287 units / 268 communes and 20 towns (7 of which are municipalities) (Iordache, 2006).

MATERIAL AND METHODS

In order to carry out the study, there were used statistical data and maps indicating the population number and the structure of land use, composition and distribution of forestry fund. The statistical data refer to the censuses carried out

during the period 1930-2006, with a special view for Dolj, Mehedinti and Olt counties. The data were provided by Dolj Regional Statistical Bureau and by the Agriculture Offices for rural development of the above-mentioned counties. The research methodology was based on the use of statistical-mathematical methods, statistical correlations, analysis and synthesis.

RESULTS AND DISCUSSIONS

In one form or another and in certain periods, between 1930 and 2006 (Fig.1a, 1b) population dynamics followed the demographic tendencies outlined at the national level. The analysis of the statistical data shows a positive evolution until the 1992 census, followed by a constant decline. Between the years 1930 and 1948, there was registered an addition of 204,109 inhabitants, with an average annual growth of more than 11,000 persons. There followed a stage characterized by a slower increase in population number; thus, an average annual increase of 5,321 inhabitants was registered between 1948 and 1956, while in the next interval, the increase was 7,522 persons. One should notice an important increase during the '60s and '70s, generated by the pronatalist policies and by the economic growth. Also, the 1992 census recorded a positive trend, but the dimension of the population growth was smaller. The last census points out a decrease of about 88,000 persons of the regions' demographical potential during only one decade. The demographical decline continues at higher levels, during only four years being registered a minus of more than 33,000 persons, as a consequence of the decrease in birth rate, growth rate and increase in the external migration rate.



Fig. 1a.
Evolution of the number of inhabitants in South Oltenia Agroregion (1930 – 2006)

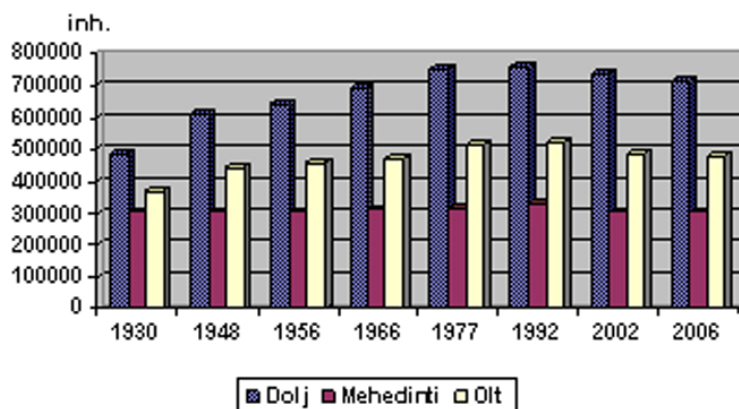


Fig. 1b.
Numerical
evolution of the
population by
counties (1930 –
2006)

The increasing of the inhabitant's number had a great impact upon the forestry of the studied region. It affected its area, the composition and the distribution of the forests.

So at the level of ecologic regions and provinces of the country one can observe that the South Oltenia Agroregion has the most reduced, dispersed and unstructured forests, as a combined result of the natural and anthropic causes that occurred in the past or that still occurs in the present time.

The changes that appeared in the forests fund of the South Oltenia Agroregion refer especially to the mutations that occurred in the last two-three decades in the structure and extension of the forests in this area. The forest fund in the south of Oltenia represents a total area of 264.105 ha, respectively 4,16% of the national forest fund, its spread in the three counties being represented in the following chart:

Table 1: The repartition of the forest fund within territorial-administrative units

County	Total area (ha)	Forest fund surface (ha)	The spread of the Forest surface (%)
Mehedinti	493300	137905	27.95
Dolj	741400	71980	9.70
Olt	549800	54220	9.86
Total	1784500	264105	17.79

Source: *Directia Silvica a judetelor Dolj, Olt, Mehedinti*

From the total surface of the forest fund of the South Oltenia Agroregion represented through 1.784,500 ha one can observe that the greatest part, namely 27.95% is within the county of Mehedinti, because the area with mountains is completely covered with forests. The counties Dolj and Olt are superposed to the area of field that is intensely put in use agriculturally speaking, fact that determines an extension of the forest fund under 10% in both cases.

The physiological decline of the trees is obvious through the high level of damage within the counties: Dolj (64.8%), Mehedinti (39.1%), less damaged trees

being in Olt (7.4%). The proportion of the damaged trees registers a reduction in concordance with the raise in altitude up to 1,500 m, where the conditions of vegetation become extreme.

The intervention of the anthropic factor in the forest biodiversity was exerted continuously, being demonstrated through a lot of destructive actions such like: massive land clearings, pollution, intense grazing, forest errors, etc.

The reduction of the forest fund in the south of Oltenia, according to the data obtained from the Forest Department from Dolj, Olt and Mehedinti, is mainly due to the land clearing almost complete in the Plain of Oltenia (with only 5.3% level of afforestation), as a consequence of the introduction of the forest lands in the agricultural circuit.

The land clearing of acacia plantations in the south of the county of Dolj has determined the reactivation of the process of sweeping the sand and implicitly the instability of the natural ecosystems situated on the sandy lands, taking into consideration the favourable role that the forest can have in fixing the dunes. The vast forest domains of acacia and poplar that once characterized the large meadows of the Danube, Olt, and Jiu has been reduced considerably, these remaining in their ordinary form on islands or along the dykes, in the protection area.

The areas in the floodable zones of the Danube meadows have been drastically reduced through *damming*. One can appreciate that the initial surface of the floodable zone, Cetate-Dabuleni, was halved, from this sector the pools (Nedeia, Carna, Desa, Balta Neagra), channels, brooks and the aquatic vegetation disappearing.

The population appropriation with forest lands determined a strong breaking up and reduction of these, due to the fact that many people treat the forest as a simple "estate" not as a national interest fund. The problem that is often raised is that not all farmers know what to betake up or clear in order to get new lands of plantations, thus determining the appearance of some ecological disorders.

Harvesting plants and hunting carried out above authorized levels had as a consequence the instability of the ecosystems. In Mehedinti, two examples are illuminative: the vandalism of the adder habitats and the collection of Herman tortoise for commercialization.

The unrestricted grazing "favoured" by governmental decisions affected the productivity and the quality of the forest. The construction of the Hydro-Energetic System Portile de Fier I and II and in the past years, the erection of numerous holiday inns has led to local modifications of natural habitats.

The deforestation is largely present in *polluted regions* also usually situated in the proximity of gas generating sources.

As a result of cumulative action of pollutants with humidity deficit, of the predators attack and intensive grazing the partial withering of the forest worsened.

In 2004, the surface of withered forests in Dolj was of 9,979 ha, 14.7% of the total county's forests. The largest region affected, namely of 7,807 ha can be found

among species like (durmast, oak-tree) followed by regions with acacia 1,372 ha, poplar 48 ha, ash 263 ha and pine 60 ha. The majority of the affected regions are in the southern part of the county, in the area of the Forest Departments Perisor and Craiova.

In Mehedinti out of the forest fund of 137,905 ha, 64,055 ha represent damaged regions, then affected by insects 46,987 ha, by plant parasites 74 ha, by mammals 54 ha, abiotic factors 17,020 ha and anthropic factors 10 ha.

In Olt, the healthiness of the trees has been visually appreciated in 30 points of observation with the help of two index numbers which in 2004 had the following values: defoliation 6-8%, discoloration 4-12% due to abiotic factors. Worrying is the fact that many of the secular structures have been destroyed, only a few patches existing today, the forest soil samples being able to compete with the image of forest areas in historical past. *Overall, the health condition of the forests from Olt is considered to be good.*

The pressure of the anthropic factor continues through illegal deforestations, abusive grazing, and disposed garbage. According to specialists in the light of inspections/examinations of the publicly owned forests more than 7000 m³ has been illegally cut down.

Out of the leafy class, the most affected species are: Hungarian oak 40.3%, acacia 29.9%, the xerophyte oak 28.5%, the pedunculate oak 20.5%, durmast 16.9%.

Other malfunctions of the forest fund in the South Oltenia Agroregion are as it follows:

- disordering of the structure of age groups by exploiting huge quantities of ligneous stock, the mature forests being more reduced than normal;
- the small percentage of forestations unequally distributed over the three geographical levels;
- formation of gaps between the high potential of resorts and low productivity of existing rammels;
- the enforced deforestations in rammels incompletely regenerated;
- use of non-ecological methods which cause damage to trees.

The impact of the forest fund reduction in the South Oltenia Agroregion is worth considering on a practical and scientific level from three points of view:

The influence over the climate

Deforestation of acacia forests in Dabuleni, Desa, Ciuperceni regions correlated with drainage in the area led to the extinction of a local wind named Baltaretul, bringing rain and implicitly fertility. The prolonged droughts occurring with higher frequency than in the last 10-12 years, together with warm and dry winds such as suhovei, led to the intensification of transpiration, the reduction of the soil and air humidity and as a consequence, *to the intensification of the depletion in South*

Oltenia. The highest level of droughty years in Oltenia was in Craiova 47%, Drobeta Turnu Severin 45% and Caracal 41%- urban regions with few/reduced forestry areas and intensive pollution. The depletion of forestry vegetation had consequences on the increase in the average annual temperature to above 11°C in many towns in south of Oltenia, on the growing intensity of the solar radiation to over 125kcal/cm²/yr and carbon density and also on the reduction of the oxygen emitted in the atmosphere. The effects of the drought and dryness intensification have unequivocally appeared: the steppes conditions and the forest steppes stretched in the forestry plains and hills territory.

The influence over the soil

Under the excessive climatic conditions from South Oltenia, the degradation of the vegetation and erosion take place in an alert rhythm and they become irreversible (eg. Areas heavily affected by erosion on the Olt and Jiu river valley). On the plains where winds blow heavily or occasional storms take place, the process of aeolian erosion appears through which the most fruitful part of the soil is rotten off.

The deforestation of acacia forest from the south-west of Oltenia reactivated the erosion process of the soil and led to the mobility of the dunes.

The erosion on soils without vegetation is of 145-750m²/yr/ha (Rambu et al., 1984).

The physical modifications of the soil by intensive agricultural use are various, the most important of which being the slump.

The influence on the water

The forest ecosystem plays a crucial role in *water conservation*, and water retention in the ground is conditioned by its organic content. There is a strong interrelationship between the erosion and torrential process: the torrential process determines the erosion process and the erosion supplies the rivers with deposits of mud amplifying the destructive effects of the torrents. The unbalanced regions triggered floods in the Danube meadow and other interior rivers in 1994, 1995, 1997-2005 with the possibility of annual repetition.

The bedding completes the hydrologic role of the forest; for example, the beech rammel on a ground with 33% slope retained more deposits of mud than a ground without vegetation of approx 80 times bigger. By destroying the bedding, abusive grazing and inappropriate exploitation of the wood strong erosion processes are produced.

The deforestations from the last decades affected a great quality of this forest, *autopurification of the infected waters* which is incomparably better than the technical methods used by man.

Thus it becomes imposing to protect and conserve the forestry resources in accordance with the principles of sustainable development.

The forests apart from being the only source of wood stuck, represents also the sustainable and unparalleled *biological means of protection and conservation of the environment*. (Table no 2) Therefore, the forest should be rationally cultivated and evaluated but especially protected and preserved for the future.

From the total surface of South Oltenia Agroregion of 1.784,500 ha, 71,397 ha represents the protected forest area, that is 4.03%. The protected forest areas are up to 32 as number, out of which: 19 in Dolj, 8 in Mehedinti, 5 in Olt. The largest protected forest area, 682,172 ha is in Mehedinti, because the complex reservations such like Cazanele Mari, Cazanele Mici, the karstic complex of Ponoare, the Natural Park Portile de Fier and the National Park Domogled - the Cerna Valley are covered almost completely with forests.

The protected forests areas in Dolj and Olt are more reduced: 2,806 ha and respectively 598.8 ha due to the plain and low hills topography.

Table 2: Protected forest areas in the South Oltenia Agroregion.

Nr. crt.	The name of the protected area	The type of the area	Surface (ha)	Observations
Dolj County				
1	Zaval Forest	Reservation	351	HG 2151/2004
2	Lunca Jiului Forest	Forestry	300	HCJ 26/1994
3	Cosoveni-Lumasu Forest	Forestry	220	HCJ 26/1994
4	Malu Mare Forest	Forestry	110	HCJ 26/1994
5	Braniste Bistret Forest	Forestry	200	HCJ 26/1994
6	Izvoare Forest	Forestry	100	HCJ 26/1994
7	Tufa Barzei Forest	Forestry	160	HCJ 26/1994
8	Rebegi Forest	Forestry	180	HCJ 26/1994
9	Valea Stanului-Farcasu	Forestry	40	HCJ 26/1994
10	Stiubei-Velea Forest	Forestry	150	HCJ 26/1994
11	"Galbena" Forest Stefanel Icoana Gogosu	Forestry	60	HCJ 26/1994
12	Ciurumela-Tunari Forest	Forestry	80	HCJ 26/1994
13	Nisipeni-Ciuperceni	Forestry	150	HCJ 26/1994
14	"Nisipuri"-Bailesti Forest	Forestry	50	HCJ 26/1994
15	Cioace-Desa Forest	Forestry	210	HCJ 26/1994
16	Verbita Forest	Forestry	5	HCJ 26/1994
17	Radovan Forest	Forestry	350	HCJ 26/1994
18	Bascov-Calafat Forest	Forestry	40	HCJ 26/1994
19	Bucovat-Leamna Forest	Forestry	250	HCJ 26/1994
Mehedinti County				
20	Lunca Vanjului Forest	Forestry	50	1980
21	Borovat Forest	Forestry	30	1980
22	Bunget Forest	Forestry	18,20	1980
23	Starmina Forest	Forestry	314	1980

24	Cazanele Mari and Cazanele Mici-PN-D	Complex	215	1980
25	Ponoare Karst Complex	Complex	100	1980
26	Portile de Fier Natural Park	Natural Park	59 585	1990
27	Domogled-Valea Cernei Natural Park	National Park	8 220	1990
Olt County				
28	Seaca-Optasi Forest	Forestry	135	5/2000 Law
29	Branistea Catarilor Forest	Forestry	301,3	5/2000 Law
30	Calugareasca Forest	Forestry	40	5/2000 Law
31	Potelu Forest	Forestry	1,5	5/2000 Law
32	Poboru Forest	Forestry	121	5/2000 Law

Source: Directia Silvica a judetelor Dolj, Olt, Mehedinti.

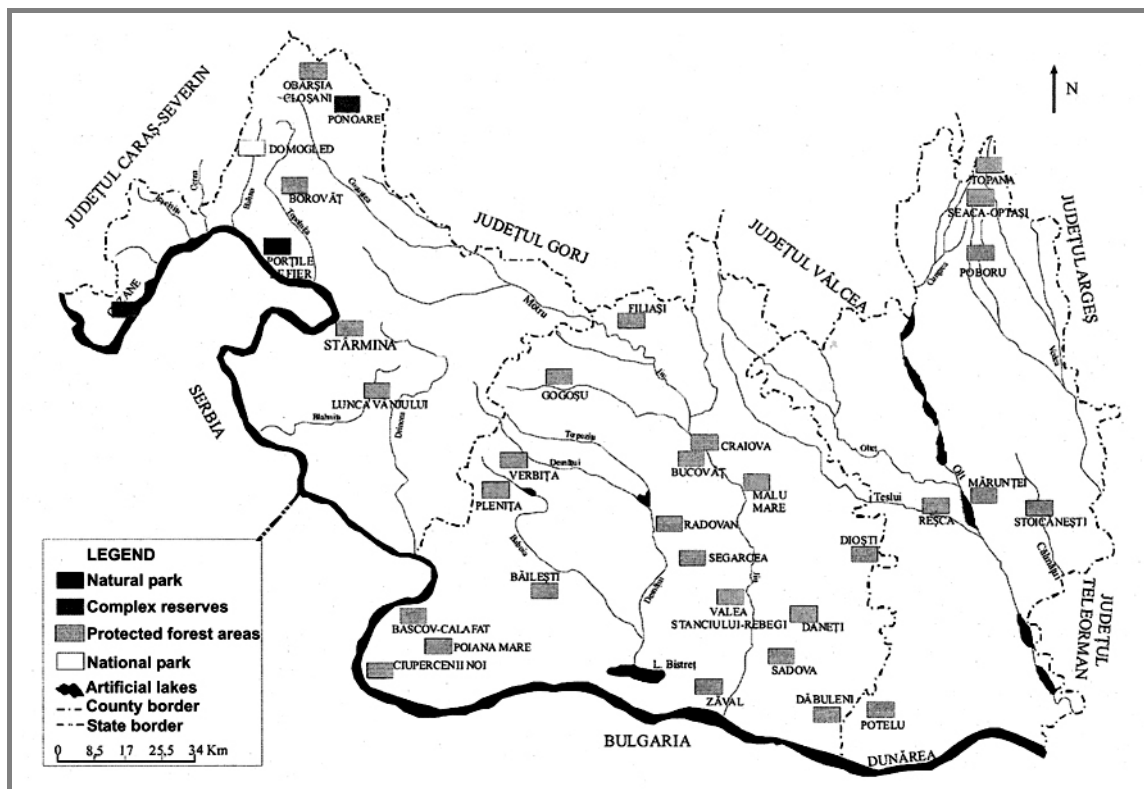


Fig. 2. Protected forest areas in the south Oltenia Agregion
(after Tanasescu ST., 2006, p. 23)

CONCLUSIONS

The increasing of the population had a great impact upon the forest fund of the South Oltenia Agroregion.

The mutations characteristic for the South Oltenia Agroregion refer to the changes that occurred in the structure and repartition of the forest fund due to the natural and anthropic factors. The mutations are affected on a large scale by the arid climate, the extension of the deforested areas, determining negative effects to the environment.

These mutations have impact on climate, soil and the resources of water, that's why the forest fund must be protected and conserved in accordance with the concept of durable development.

REFERENCES:

- BADEA L., GHENOVICI ALEXANDRA, 1974: Judetul Dolj. - *Didactica si Pedagogica*, Bucuresti, 125pp.
- CIOBANU N., FLORICA N., 2003: Padurile Judetului Olt. - *Alutus*, Slatina, 270pp.
- COTET P., URUCU VESELINA, 1975: Judetul Olt. - *Academiei R.S.R*, Bucuresti, 165pp.
- IORDACHE COSTELA, 2002: Geografia Mediului. Poluare si protectie. -*Universitaria*, Craiova, 302pp.
- IORDACHE COSTELA, 2006: The demographic size and the density of the rural habitat within South Oltenia Agroregion. – *Forum Geografic*, Craiova, 5:184-191.
- RAMBU AL., ARMASESCU S., TANASESCU ST., 1984: Padurile Doljului si gospodaria lor eficienta. - *Scrisul Romanesc*, Craiova, 240pp.
- TANASESCU ST., 2006 : Padurile din Oltenia, - *Sitech*, Craiova, 197pp.
- *** 1980: Monografia judetului Mehedinti. - *Academiei R.S.R.*, Bucuresti, 130pp.
- *** 1981: Monografia judetului Dolj. - *Sport-Turism*, Bucuresti, 155pp.
- *** 1983: Geografia Romaniei, vol. I. - *Academiei R.S.R*, Bucuresti, 425pp.
- *** 2007: Date de la Directia de Silvicultura a judetelor Dolj, Olt, Mehedinti, Craiova, Slatina, Drobeta Turnu Severin.

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