THE EFFECT OF THE ZOO-ANTHROPOGENOUS IMPACT IN RAST LOCALITY, COUNTY DOLJ, ROMANIA

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Abstract. *In this paper we present the consequences of the irrational action exerted by man upon certain areas within the locality of Rast. The main directions where the zoo-anthropogenous impact is exerted upon the nature in the researched territory are the following: the modification of the natural area of some vegetative and animal species, the change of the ecosystems' structure up to the limit which exceeds the recover ability of nature, the climate becoming arid due to the elimination of the forests from large areas of land and so on.*

Keywords: *zooanthropogenous impact, Rast locality, Romania.*

Rezumat. Efectul impactului zooantropogen în localitatea Rast, județul Dolj, România. *În această lucrare prezentăm consecințele acțiunii iraționale exercitate de om asupra unor suprafețe din perimetrul localității Rast. Principalele direcții unde se exercită impactul zooantropogen asupra naturii în teritoriul cercetat sunt următoarele: modificarea arealului natural a unor specii vegetale şi animale, schimbarea structurii ecosistemelor până la limita ce depăşeşte puterea de refacere a naturii, aridizarea climei datorită eliminării pădurilor de pe mari suprafețe de teren etc.*

Cuvinte cheie: *impact zooantropogen, localitatea Rast, România.*

INTRODUCTION

The term of impact is used in this case with the meaning of depreciation of phytocoenosis nature and stability. Along with the growth of the anthropogenic impact there takes place a decrease of the naturalist grade.

The alteration of the quality of the environment factors following the direct or indirect influence of human activities or of natural factors occurs by the appearance of some more or less serious ecological disequilibria (CIPLEA & CIPLEA, 1978).

Since the oldest times, man has tried to shape the nature to his benefit. For ages, he admitted his dependence on nature, whose harsh laws had to be followed in order to survive. Over the last two centuries, man tried to dominate nature by conduct and conception using all its natural resources in the real way.

Rast locality belongs, from the administrative point of view, to Dolj county. It has an area of over 85 sq km. With these dimensions, Rast is one of the largest settlements from the country. It is located at $43^0$50' North latitude and $23^0$30' East longitude.

Related to the country's territory, Rast is located in the South part, on the Danube's bank, and within the county, it is in its southwestern part, south of Bailesti town and east of Calafat town.

Within the physical-geographical units, this settlement is located in the South of the Oltenia Plain, at the contact between the South of Bailesti Plain and the Danube's bank.

Through its position in the southwestern part of the country, namely in the west of the large Carpathian-Balkan depression, the territory undergoes the influences of the Mediterranean maritime air masses and of the wet oceanic ones, as well as the influences of the east warm air masses, which are dry continental. Along the Danube's terraces and floodplain, there can be felt the föhn effects, which take place during the western and southwestern invasions.

From the point of view of the soils, chernozems are widely spread within the territory of the settlement; calcareous chernozems cover the terrace area located north of the village precincts, while west of the precincts, on small surfaces from the lower terrace, there appear cambic and degraded chernozems.

MATERIAL AND METHODS

The work method has consisted in field trips, at regular time intervals, for observing the modifications induced by people and domestic animals in the semi-natural ecosystems from the researched territory. Previously, it has been achieved a bibliographic documentation regarding the existing data about this zone.

There have been noted all the modifications appeared in the studied phytocoenosis with the purpose of being compared with the phytocoenosis in which the influence of the zoo-anthropogenous factor is absent or insignificant.

RESULTS AND DISCUSSIONS

The effects of the anthropogenic impact upon the natural forest ecosystems are manifested under several aspects to a local level, where they still remain hard to quantify, predict and control.

Through his direct or indirect activities, man has caused changes in the structure of phytocoenoses by land clearing in order to extend the agricultural areas or to use wood as fuel, the irrational grazing, all these having serious consequences in the structure and dynamics of phytocoenoses.

Forest exploitation has to rely on limited-impact technologies in order to serve the aims of sustainable development (BĂDESCU, 1972).

If from the theoretical point of view these aspects are clarified, putting into practice, in the researched territory, becomes extremely complex due to various factors of influence among which the most important ones are the poor education of the labour force in the ecologic spirit. Unfortunately, the continuous wish to minimize the exploiting costs leads to anti-ecological methods, like collecting the trees put down by dragging, without any previous method to fragment the trunk. This phenomenon can be observed in the coppice within the Danube's floodplain.

The repeated visits of the tourists into the forests. From a simple transit and up to camping, tourists leave evident "marks" in the highly frequented forests (deep paths, fire camps, wastes and so on). These contribute to the modification of the floral composition of the forest phytocoenosis.

To the human impact, it is also added the premature drying phenomenon of the poplars due to drought, pollution, ecological catastrophes and thunderstorms, which by their violence provoked great damages. Although these falls down are often considered natural catastrophes, in fact they remain the consequence of some anthropogenic impacts, which lead to equinizing of the structures of some forest plantations. Of all types of forests met by now, the meadow forest is the most strongly influenced by the zoo-anthropogenous factor. It is partly recovered in certain areas by measures that respect the structure of the few fragments which are left along the Danube.

To a large scale, the effects of the zoo-anthropogenous impact upon the forest phytocoenosis from the investigated area is translated by their synatropization. This one is defined by replacing the characteristic species with the cosmopolitan ones, of the autochthonous species by the allochthonous ones, of the stenotopic ones by the eurytopic ones, meaning that at last, by the substitution of the primary forest phytocoenosis, which have a high level of homeostasis, with secondary phytocoenosis with low stability.

In the presents the meadows from the investigated areas occupy the lands from the Danube's riverside or places which were fallow lands a few years ago.

The important issue is not grazing itself but infringing certain rules in its organization. Excessive grazing associated with prolonged drought have modified the physiognomy and the continuity of the grass and have weakened the capacity of the meadows to support feeding the herbivorous animals. This fact can be noticed on certain fields from the investigated areas, where grazing the meadows on certain areas for a long time lead to evident modifications in the floral composition and indirectly to their fauna. The valuable plants from nutritional point of view have been replaced by plants with a low nutritional value and which are rejected by the animals. Through the abusive grazing the plants' resistance to frost weakens and consequently, the vegetative cover degrades, becoming fewer, which favours the erosional action exerted by wind and water upon the soil.

Most of the cases, in the investigated area, the herbs are grazed up to the soil's level, these ones becoming weak and less resistant to drought. That is why the meadows that are irrationally grazed, become more vulnerable to drought in comparison to the ones grazed rationally.

On the other side, the repeated grass cutting in certain areas leads to the elimination of the plants with late flourishing, to the modification of the floral composition of the grasslands and in the end to the biodiversity drop.

The biocoenosis of the useful plants is a very anthropized, modified, semi-natural one and it is represented by all agricultural crops and organisms (soil's microorganisms, diseases, and so on), which live in trophic correlations (RESMERIȚĂ & TEXTER 1956). This biocoenosis is simpler than the natural biocoenosis (forest, meadow and so on) due to the fact that it has in its composition a single primary producer (useful plants for the alimentation). It displays a more reduced stability and complexity than the natural biocoenosis.

Man, through his activities, evaluates and improves the environment conditions in order to establish a permanent concordance with the requests of the useful plants and to avoid the disturbance agroecosystems.

A large part of the cultivated surfaces are left as fallow lands either due to the lack of financial support for growing new crops or to let the soil "rest" because of a low fertility.

Although these lands are left to "rest" they still produce a large quantity of green mass made of weeds.

A part of the plants identified in the investigated area become invasive. There are also included in this category the adventitious plants, which usually grow in anthropogenic habitats (cultivated fields and/or ruderal areas). From the invasive taxa identified in the area, we mention: *Amorpha fruticosa* L. - (Fabaceae), *Ambrosia artemisiifolia* L. (Asteraceae), *Calamagrostis epigejos* ROTH. - Wood Small-reed (Poaceae), *Cardaria draba* (L.) DESV. - Whitetop (Brassicaceae), *Cirsium arvense* (L.) SCOP. - Cursed Thistle (Asteraceae), *Conium maculatum* L. - Poison hemlock (Apiaceae), *Conyza canadensis* (L.) CRONQUIST - Horseweed (Asteraceae), *Hordeum murinum* L. - Wall Barley (Poaceae), *Matricaria perforata* MÉRAT - Scentless Mayweed (Asteraceae), *Onopordum acanthium* L. - (Asteraceae), *Polygonum aviculare* L. s.l. - Common Knotgrass (Polygonaceae), *Sambucus ebulus* L. - Danewort (Caprifoliaceae), *Xanthium italicum* MORETTI – *X. strumarium* (Asteráceae).

The floods registered in the spring of 2006 fully contributed to the modification of the floral and fauna composition from the area, as well as to the change of Rast locality physiognomy. These are the consequences of man's activity upon nature.

The defence barrage near the localities of Rast and Nedeia collapsed and the area was filled with water. The whole locality was flooded (Fig. 1). Over 2000 houses were affected only in Dolj county. A third of these cases was recorded in Rast locality (Figs. 2-4), presently known as Rastu Vechi.

Figure 1. Image from the periphery of Rast locality during the floods.
Figura 1. Imagine de la periferia localității Rast în timpul inundațiilor.

The deluge started on the 16th of April 2006, when Rast and Negoi villages were flooded by the Danube through the breach made by the authorities in the near barrage several days before. Over 100 persons were immediately evacuated, while the houses were collapsing due to the water infiltrated into the walls. Until the second day, 115 houses had collapsed and the water was of 2 meters height in other 700. 800 people were evacuated by the authorities and other 3,000 inhabitants left being afraid of the waters. In a couple of days a real camp of improvised shelters and army tents was founded. The distressed people spent the Resurrection night here to an improvised church, also taking benefit of all the help received as food or clothes.

Figure 2. Image of a house affected by floods in Rast locality.
Figura 2. Imagine cu casă afectată de inundații din localitatea Rast.

In order to support the distressed people, both private persons and different ONG came there.

Meanwhile the corps of the animals left behind by the withdrawing waters, became a real pest hole, and for a short period the locality was in quarantine.

After the water withdrew, it was decided for the village to be moved on another area with a level quota of around 6 meters higher, 6 km north from the old area.

During the floods of April-December 2006, the population lived in the distressed people camp, first in tents from ISU Dolj and from the Red Cross and after that in the 500 modular houses brought by the Government.

In the summer of 2006, there arrived the first materials in order to re-build the locality. With the help of the state authorities, until December 2006, there were build 300 houses in Rast, 140 of which are founded on wood structures and 160 of carrying capacity masonry.

In 2007, after the floods, 72 people died, most of them due to a stroke or of high blood pressure, in comparison with only 17 births.

Catastrophic floods such as those of 2006 from the Danube's floodplain could be avoided. The Ministry of Environment started a cartography program of river and its riparian areas. The specialists will fly over the area in order

to achieve a digital map on the base of which they shall be able to establish what are the areas vulnerable to floods and what measures should be taken.

Figure 3. A household affected by floods in Rast locality.
Figura 3. Gospodărie afectată de inundații în localitatea Rast.

Figure 4. A whole image to notice that the entire village is affected by floods.
Figura 4. Imagine de ansamblu în care se observă că întreg satul este afectat de inundații.

The specialists will transform the images from the plane into a digital dummy of the field, which hydrologists will analyze in order to estimate the floods risk.

The floods from 2006 still show their consequences, the houses, lands and agricultural crops being affected even after the water withdrew.

A special effect from the social point of view is represented by the inhabitants who were physically and morally affected, who found themselves into the situation of moving into a new place after watching how their lifetime fortune or even back-generations one was swallowed by the waters.

CONCLUSIONS

People have inhabited the investigated territory since old times. Human settlements are generally located at the contact between different landforms, for example the contact area between the floodplain and river terraces.

Most of the inhabitants of this territory have a poor education regarding ecology. The education concerning the environment must develop at the entire level of human kind, and we aim here at the attitude of respect and responsibility towards the natural resources in order to protect them.

During the trips in the area, there has been tried to infuse the people with the concept that man, as a biological species, depends on nature and cannot live without it.

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