

Full Length Research Paper

Land uses and human pressure indicators in the Plain of Târgoviște (Romania)

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Land uses are closely connected to the favorableness of the natural factors, to their productive potential and to the ameliorative works. In the Plain of Târgoviște, in time, the structure and geographic repartition of the land uses categories have changed, especially in the sense of the increase of the agricultural areas through the valorization of the weakly productive or non-productive areas, the deforestation of certain areas that were once occupied by orchards and vineyards, and also in the sense of the shrinking of certain areas, due to economic transformations generated mainly by the extension of the constructible areas. Man's transformative activity has led, on the one hand, to the decrease of the forests' consistence until they sometimes became clearings - or until there appeared the first herbaceous formations with a secondary character - and also to the modification of the composition on species according to their different resistance to these actions. There occurred changes of the forest soil as well (by flattening, erosion etc.), which diminished the infiltration and consequently increased the runoff.

Key words: Agricultural lands, non-agricultural lands, agricultural land use, human pressure, land modifications, environment, the Plain of Târgoviște.

INTRODUCTION

Situated at the contact with two major physical-geographic units (Subcarpathians, the Gethian Plateau) the Plain of Târgoviște benefited of the natural and human resources provided by these two units and also by the presence of the rivers Ialomița and Dâmbovița. It is part of the Romanian Plain, where it occupies a boundary position, being limited in the south, south-west and south-east by the subsidence Plain of Titu-Sălcuța and in the east by the Piedmont Plain of Cricovul Dulce. From an administrative viewpoint, the Plain of Târgoviște is entirely included within the boundaries of Dâmbovița County - in its central-southern part. Its limits are considered interference areas which combine the morphological characters of the adjacent units, which leads to the definition of this plain as a set of forms with various altitudes and different development. Human activities exert a pressure on the environment, this pressure being different from one area to the next or from a society to the

next. In the area we have chosen for analysis, dominant are the agricultural activities and the rural zone, which imposes an examination of these activities with the components of the natural environment and of the environment in general. Agriculture represents an activity with impact on the environment through the human pressure exerted by different agricultural land uses, through the use of chemicals, through the triggering of land degradation processes, through the incorrect exploitation of the agricultural areas, through the fact that certain lands remain fallow (uncultivated).

METHODOLOGY

The data processed in this analysis were taken from the departmental statistic reports (on the level of the communes), concerning the structure of the land fund and of the population in the year 2008. After processing the data, we made a set of maps which clearly shows the repartition of the land use categories for the area to which we referred. Based on them and through the application of the formula established by FAO for the calculation of human pressure, from the analysis of the maps resulted, it becomes apparent that the entire Plain has been affected by anthropization, as the limit imposed by FAO has been overpassed (the limit for

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maintaining the environmental balance is 0.4 ha/inhabitant arable land). There was used also maps made in Corel Draw software, by calculating indices and calculations of statistical data provided by the Authority for Agriculture and Rural Development, Dâmbovița County. The formula applied by FAO (Food and Agriculture Organization of the United Nations) for the calculation of this indicator is:

$$P = \frac{S(\text{ha})}{N(\text{inh.})}$$

Where; P = human pressure, S = surface (area) under analysis, N = number of inhabitants in the area under analysis.

Using this formula, we calculated the human pressure on the environment through different land uses, namely: arable land, pastures, hay fields, vineyards, orchards, for the year 2008.

ENVIRONMENTAL MODIFICATIONS IN TIME

Between man and nature there are relations that can be regarded only from the viewpoint of ecology, on the grounds that, somatically, the human being is a product of matter, organized on a superior quality level. Simultaneously and objectively necessary, man has relations with the environment that have in view the human person as product and as member of a social collectivity. Based on their biological status, men live in certain environmental conditions, maintaining, like the other beings, vital interdependence relations with the physical, chemical and biological factors of the environment, without which their biological existence is not possible. As social individuality and subject of a human collectivity, based on social relations with a historical character, man, together with the group he belongs to, acts deliberately and with precise goals on certain environmental components, even being engaged in a constant fight against the whims of nature.

The interest concerning man's multiple possibilities of having a global influence on the development of the natural phenomena is not new in science. For instance, Simion Mehedinți, who can be considered a forerunner of today's global research through his conception of geography as science of the relation between the geospheres, approached in numerous works the issue of man's influence over nature. Based on an ample analysis of the complex influence that the anthropic activities have on the Earth, Simion Mehedinți highlighted, even since 1909, in his course of *Antropogeografie* (Anthropogeography), the fact that man can be considered "as one of the most active agents in the modification of the relation between the spheres and consequently as one of the crucial geographic factors" (Mehedinți, 1967). Concerning man's intervention on the environment, we can say that the Paleolithic man did not have significant interventions on it. Contenting themselves with the status of gatherers and hunters, handling primitive tools carved out of stone, wood or bone, the primitive men "picked" the products of nature. Not even for their dwellings did they produce environmental changes, as they contented themselves with living in caves or using the forest as natural shelter. The chase or the fishing practiced with simple tools did not produce visible effects. However, using fire, they managed to reduce the surface of the forests. The more obvious transformative effects, in point of intensity and size, significant for the area under analysis, were caused by the shepherds or the animal growers and then the land cultivators during the Neolithic period. The sedentary people (the archeological discoveries highlighted stable Neolithic settlements at Geangoiești, Brăteștii de Jos etc.), the tool builders, who handled them skillfully to enlarge their pastures and cultivated areas, to hunt and to practice their artisans' skills, exerted a pressure mainly on the forest and on the animals. The Neolithic population carries out a series of deforestations and following works to build their huts and

to extend their cultivated fields.

The manufacture of bronze and then iron tools provides opportunities, first to the Thracians and then to the Daco-Gethians to build a local civilization, yet with certain transformations of the environment (Foreign travelers' notes on the Romanian Countries, I-VII, 1971-1980). The increase of the population number, the extension of the exchange relations, the diversification of the trades, the appearance of centers and settlements called *davae* (the traces of such settlements have been found in Văcărești, Nucet, Viforata etc), the specific life of shepherds, hunters (a witness in this sense is the archeological discovery of the ceremonial arms treasury made of massive gold and silver from Pierșinari, the bronze sword from Valea Voievozilor), farmers, fishermen, miners and carpenters, all these determining a higher human pressure on the environmental factors (Ristache et al., 1980). The Roman colonization intensifies and amplifies these relations on a regional scale, leading to a progressive destruction of the forests, which are used for military constructions, mining, and bridge construction. The cattle herds modified the landscape as well and the agriculture took over a lot of the area once occupied by forests and natural lawns. The moving of flocks, with the roads that once crossed this Plain, leading to the Danube, accentuated the deforestation process, and the intensive grazing of the following centuries degraded the lawns and facilitated the soil degradation processes.

The feudal period is characterized, on the one hand, by the crystallization and maturation of the feudal productive relations and, on the other hand, by the formation of feudal states on the Romanian territories, as well as by deep political, economic and demographic changes. The artisans' trade development (as shown by the names of the villages situated nearby the town of Târgoviște, some of them disappeared today, such as: Cărbunari – related to coal mining, Olari – related to pottery making, Postăvari – related to cloth making, Cojocari – related to sheepskin coat making), the increase of the population in villages that were continually in a swarming process, the appearance and formation of markets, lead to a diversification and an intensification of the human pressure on the environmental factors. Dâmbovița – "the river with oaks", Ilfov – "the river with alder trees", as well as many other names with a forest resonance, confirm the fact that the population of this area lived under the protection of the forests. The development of the settlements is connected to a strong deforestation activity, obvious through the toponyms that denominate areas from where the forest has been removed, right around the town of Târgoviște - Lazuri – designating a recently cleared area, Prișeaca – denominating a bee garden (Pehoiu, 2003). The industrial period differs from the previous one through the very possibilities provided by the technique and the population increase to fill in the physical environment with social communities and economic units. The forest was exploited as fuel and raw matters source, as speed-reducing gear in the metallurgy of iron and steel, wood for mining, for oil derricks, for building etc.

During the "contemporary period" the environmental issue is closely connected to the demographic growth and the evolution of urbanization, to the level and the structure of consumption, to the level of the technical evolution, with all their extremes in point of value and with all their territorial disparities. The most serious problems have been delineated during the last decennia of the 20th century. Above all, they result from the high level of the energy and raw matter use, and from the waste depositing following an increased production and consumption. The use of the geographic area is closely connected to the favorableness of the natural factors, to their productive potential and to the ameliorative works (Stratégie de l'Union Européenne en faveur du développement durable, 2002). Beside their artisans' work and trading preoccupations, which constituted the main occupation of the population in the region, a part of the inhabitants also worked in agriculture, raised cattle or took care of vineyards, these being

some of the characteristics of the medieval Romanian towns. Being situated on a riverside, at the boundary between the Plain and the hill region, where the inhabitants of each of these regions came to exchange their goods, the town of Târgoviște witnessed a fast development and extension. Moreover, the town was crossed by the most important commercial road of those times, which connected Transylvania to the Danube, via Rucăr - Campulung - Târgoviște - Targșor - Brăila, with a road branch leading to București. The preoccupations of the people of this area are attested by numerous mills present in town, on Ialomița River, mills owned by the monasteries of Cobia, Gorgota and by the Metropolitan Church or by other owners. As far as the viticulture is concerned, it was practiced in the vineyards often mentioned by 16th and 17th century documents, when among their owners appear: the monasteries of Gorgota, Cobia, the Metropolitan Church, different tradesmen and, later on, Constantin Brancoveanu (Oproiu, 2005). Because the land represented a great treasure, the princely institution, the monasteries, the great boyars and the townsmen were careful to preserve the large vineyards. They were situated along the Valleys Voievozilor, Sașilor, Armenilor or on the hills of Târgoviște, Aninoasa, Răzvad, Săteni and Doicești.

Surrounded by fertile vineyards and Plains and having no walls, the town made the impression of a village to some foreigners that visited it. This is how the Italian Filippo Pigafetta (*Foreign travelers' notes on the Romanian Countries*, I-VII, 1971-1980; Oproiu, 2005) saw the Town of Târgoviște around 1595, when he participated to the battles fought against the Turks that year:

“This town is very large, open, rather like a village, but with very fertile Plains, with not too remote hills, which give very good wines and honey and very much wax and sheep and wool and all kind of fruits; and the Plains would be very fertile if they were tended; on them there are endless herds of big cattle (Stoicescu, 1983).”

At present, the agricultural area has shrunk due to the extension of the human settlements, of the transportation network, of certain industrial units and of the pollution caused by them.

The agricultural area, defined as an area of land exploited by cultivating plants, represents a component of the rural area, having certain limitations imposed by the relief and the pedoclimatic conditions. The main functions accomplished by the agricultural area are:

- 1) To produce alimentary raw matter and foods needed by the population;
- 2) To produce raw matter for the processing industry;
- 3) To preserve the soil and water resources, and also the ecosystems' balance.

Today, the forests of the Plain of Târgoviște are but “remains of the forest of yore”, where the ligneous vegetation finds however good recovery conditions, occupying any time an uncultivated land. In the areas favorable to the development of the forests, the agricultural lands are preserved as such, only if man takes care of them. In case they are not taken care of for a few years in a row, the forest, as natural element characteristic of the area, returns, slowly occupying the land that has remained uncultivated. In order to preserve them in a condition of good productivity, the forest lands require special care. Naturally, the fertility of such lands is relatively low, especially from the viewpoint of the soils' features, yet the climatic conditions are, as a whole, favorable to the development of cultures specific for this region and especially of fodder plants. In this sense, it is necessary for the soils to be improved using fertilizer elements, to be amended in point of the soil acidity and in point of the aëro-hydric regime. In the agricultural land, the most significant proportion goes to the arable land (52,406 ha namely 83.15%); then follow the pastures (7,869 ha namely

12.49%), hay fields (1,076 ha namely 1.71) and in small proportions, only at the boundary with the Subcarpathians, one can identify orchards (1,579 ha namely 2.51%) and vineyards (97 ha namely 0.15%) (Authority for Agriculture and Rural Development - Dâmbovița, 2000-2008) (Figure 1). As for the arable lands, works have been carried out to allow the irrigation of some of them, and in the large areas have been created irrigation systems, in the villages and communes of the low Plain area, like for instance in the localities: Ulmi, Comișani, Băleni, Nucet, Cornățelu, Sălcioara, Dobra, Conțești. The largest irrigated areas used to be found in the area of the localities: Târgoviște (760 ha), Băleni (740 ha), Cojasca (250 ha), Comișani (990 ha), Dobra (226 ha). Today they function only partially.

In time, in the Plain of Târgoviște, in the structure and the geographic repartition of the land use categories occurred modifications, especially in the sense of the increase of the agricultural areas through the valorization of the weakly productive or non-productive areas, the deforestation of certain areas that were once occupied by orchards and vineyards, and also in the sense of the shrinking of certain areas, due to economic transformations generated mainly by the extension of the constructible areas. Beginning with the 19th century, we witnessed a land restructuring - determined by the population growth and by the growth of the interest for the exploitation of the land and by the creation of new settlements that met the community's economic interests better. The process of humanization of the Plain of Târgoviște was characterized along time by a progressive evolution, a fact reflected by the continual extension of the inhabited area, determined by a favorable geographic positioning, to which can be added the ground and underground resources. For instance, in the year 1838, one can notice a doubling of the population, which reaches over 25,000 inhabitants (Statistical Yearbook of Dâmbovița County, 2000-2008). In support of this statement comes a cartographic document of a special documentary value, namely the Russian map, drawn in 1835, which confirms the existence of over 60 localities out of the total of 295 of Dâmbovița County, in this area. The number of households mentioned by this document proves the great number of inhabitants included in these localities. The geological substratum constituted as well a favorable factor in the numerical increase of the population, due to certain underground resources. The coal, oil and natural gas exploitations situated near Târgoviște Town were among the first exploitations of their kind made in Romania. The oldest oil exploitation area in Dâmbovița county dates since the beginning of the 20th century and oil derricks were set up in Gura Ocniței, in 1901 (Moreni, 1903).

In time, they moved southwards along the Valley of Ialomița and into the south-east of the county to Bucșani, Bilciurești, Cojasca. After the year 1960, new exploitations were made and important oil fields were discovered, which were then exploited using modern methods (Titu, Corbii Mari, Broșteni, Cobia, Lungulețu, Costești din Vale) to which we should add the natural gas exploitations from Gura Șuții and Brăteștii de Jos. Important changes in the domain of agriculture occurred after 1989. Through the application of the Land Fund Law, significant changes appeared in the structure of the agricultural cultures. If, before 1989, culture rotation constituted a basic element, after the application of the above-mentioned law, the cultivation of the land occurred according to the interests of each land-owner. This has led to a decrease of the presence of the cereal cultures and an increase of the fodder ones - Spanish trefoil, trefoil (Sencovici, 2006). Another change is represented by the fact that certain lands remained uncultivated, the owners preferring to leave them so because of the high costs of the agricultural works.

TODAY'S AGRICULTURAL LAND FUND

Out of the total 98,737 ha of the land fund, 63,027 ha (namely 63.83%) are meant for agriculture. Out of the 22 administrative

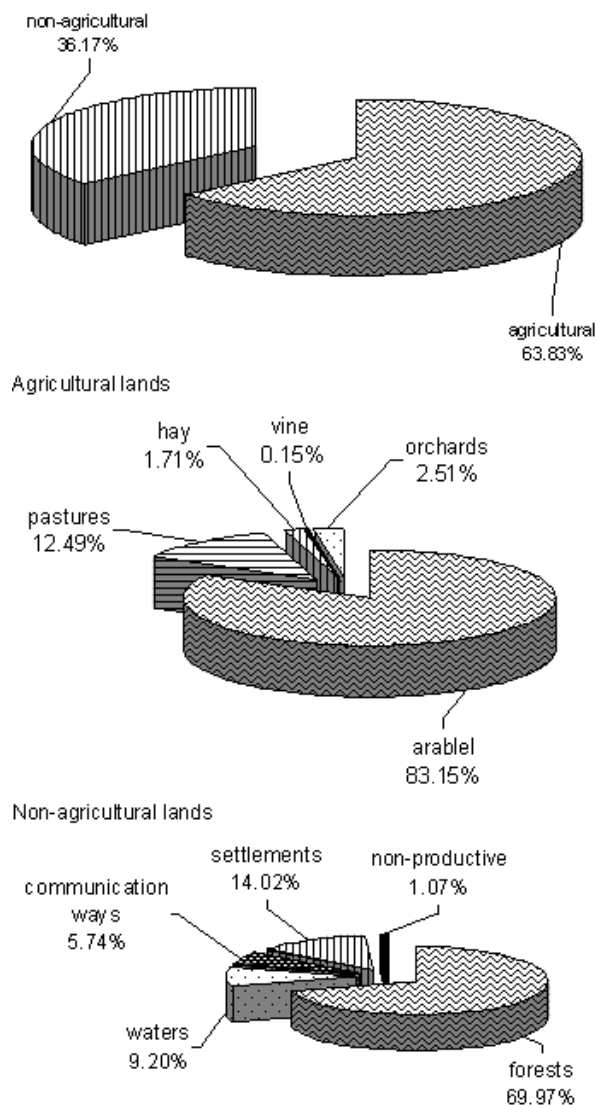


Figure 1. The Plain of Târgoviște - structure of the land fund, 2008.

units under analysis, 6 are between 1,001 and 2,000 ha, 8 between 2,001 and 3,000 ha, 4 between 3,001 and 4,000 ha and 4 over 4,000 ha (Authority for Agriculture and Rural Development, Dâmbovița County, for the period 2000 to 2008) (Table 1 and Figure 2).

Arable area

The arable area of the Plain of Târgoviște is at present 52,406 ha, containing most of the arable lands of Dâmbovița County (Figure 3). The significant presence of the arable lands in the Plain area is conditioned by 1) the most fertile soils, 2) the favorable climate and 3) the existence of ameliorative works. During the last few years, the arable area recorded a slight decrease following the extension of the oil and even gas exploitations in certain communes of the Plain. Simultaneously to this activity, there appeared the polluting factor for the soils of these zones. Another cause of decrease of the arable area would be that after the application of the Land Fund Law, some land-owners chose to change the destination of these

lands and turn them into zones that are part of the constructible area of the localities.

At the same time, the agricultural area was affected as well by the arrangement of the water courses, as for instance the storage lake from Văcărești, with an area of about 700 ha, as well as the reconstitution of the communal pastures.

Out of the 22 administrative units, 4 have under 1,000 ha arable land, 6 between 1,001 and 2,000 ha, 7 between 2,001 and 3,000 ha, 1 between 3,001 and 4,000 ha and 4 over 4,000 ha (Pehoiu, 2009). Out of the total of the Plain's arable lands (52,406 ha) the largest part is reserved for "cereal cultures", and within it, an important place is occupied by wheat and corn, cultivated mainly in the center and the south of the Plain of Târgoviște (for instance the communes Bucșani, Dobra, Sâlcioara, Cornățelu, Comișani, Dragodana). The lowest areas cultivated with corn and wheat are found in the communes Șotanga, Mănești, Aninoasa, Râzvad, where the dominant agricultural culture, determined by the pedoclimatic conditions, are not the cereals but the fruit-bearing trees. The "sun-flower and the sugar beet cultures" occupy small areas within the Plain, and the beet has even come to be no longer cultivated during the last few years, given the fact that the processing units are situated very far from the cultivated areas, which leads to high transportation costs. That is why it has been preferred to replace these two products with the cereal culture, which requires less works, these works being also less costly.

"The culture of vegetables" is well represented in this Plain unit, both in the communes and in the Municipality of Târgoviște (the Bulgarians' area, with plots of land in the riverside of Ialomița). The largest area cultivated with vegetables can be found in Băleni, where there are no cereals or industrial plants. The gardeners of Băleni and those situated near Târgoviște Town are well known on the markets of the big cities of București, Ploiești, Brașov.

The area occupied by pastures and hay fields

Animal growing (cattle, pigs, more rarely sheep) is one of the oldest occupations of the population, which has always had a significant significance in the agricultural economy of the area under analysis. The pastures occupy 7,869 ha, being encountered mainly in the riversides, and in the interfluves only in the areas that are not favorable to agriculture (Figure 4). Out of the 22 administrative units, 3 have under 200 ha pastures, 14 between 201 to 400 ha, 5 over 400 ha. They are represented by lawns of *Festuca valesiaca*, with different xerophile and xeromesophile species. In the riversides, one can find lawns of *Agrostis alba* and *Poa angustifolia*, with different mesophile and mesohygrophile species. Most of these lawns are used for grazing and can be seen in a degraded condition. Large areas of lawns of *F. valesiaca* have turned into lawns of *Poa bulbosa* with *Cynodon dactylon* following the intensive grazing. The most intensively used are the pastures (river coppices and riverside grazing fields, mainly along the riverbeds of Dâmbovița and Ialomița), due to the higher nutritional value and to the possibility of using them longer, even during the cold season.

The hay fields occupy only 1076 ha (Figure 5): out of the 22 administrative units, 17 have under 50 ha hay fields, 2 between 51 to 100 ha, 1 between 101 to 150 ha, 0 between 151 to 200 ha, 0 between 201 to 250 ha, 1 between 251 to 300 and 1 over 300 ha (Pehoiu, 2003; Sencovici, 2010).

The area occupied by orchards and vineyards

Fruit growing dominates mainly in the communes situated in the north of the Plain, at the boundary with the Subcarpathian hills. In this sense, the larger orchard areas can be found in the communes Aninoasa, Mănești, Dragomirești, Lucieni, the dominant species being the plum tree, the apple tree, the pear tree, the coing tree and the nut

Table 1. The Plain of Târgoviște - structure of the agricultural land fund on administrative units (2008).

No.	Locality	Total agricultural land (ha)	Arable		Pastures		Hay fields		Vineyards		Orchards	
			(ha)	(%)	(ha)	(%)	(ha)	(%)	(ha)	(%)	(ha)	(%)
1	Aninoasa	1629	568	34.87	633	38.86	137	8.41	0	0.00	291	17.86
2	Baleni	4444	4052	91.18	390	8.78	0	0.00	0	0.00	2	0.05
3	Bucșani	3223	2747	85.23	447	13.87	5	0.16	24	0.74	0	0.00
4	Cobia	1355	796	58.75	357	26.35	73	5.39	0	0.00	129	9.52
5	Comisani	2915	2748	94.27	167	5.73	0	0.00	0	0.00	0	0.00
6	Cornățelu	4873	4517	92.69	354	7.26	0	0.00	0	0.00	2	0.04
7	Dobra	3902	3587	91.93	315	8.07	0	0.00	0	0.00	0	0.00
8	Dragodana	4919	4433	90.12	396	8.05	25	0.51	0	0.00	65	1.32
9	Dragomirești	2740	1929	70.40	484	17.66	61	2.23	1	0.04	265	9.67
10	Gura Ocniței	2242	1604	71.54	457	20.38	44	1.96	3	0.13	134	5.98
11	Gura Suii	2940	2574	87.55	361	12.28	1	0.03	4	0.14	0	0.00
12	Lucieni	1481	1105	74.61	167	11.28	30	2.03	1	0.07	178	12.02
13	Manești	1267	531	41.91	334	26.36	17	1.34	0	0.00	385	30.39
14	Matasaru	3238	2848	87.96	347	10.72	16	0.49	2	0.06	25	0.77
15	Nucet	1941	1714	88.30	219	11.28	0	0.00	5	0.26	3	0.15
16	Produlești	2639	2347	88.94	274	10.38	0	0.00	1	0.04	17	0.64
17	Răzvad	2737	1553	56.74	744	27.18	368	13.45	33	1.21	39	1.42
18	Salcioara	4905	4558	92.93	346	7.05	0	0.00	0	0.00	1	0.02
19	Sotanga	1276	667	52.27	306	23.98	270	21.16	3	0.24	30	2.35
20	Târgoviște	2135	1958	91.71	154	7.21	20	0.94	0	0.00	3	0.14
21	Ulmi	3278	2980	90.91	279	8.51	9	0.27	0	0.00	10	0.31
22	Vacaresti	2948	2590	87.86	338	11.47	0	0.00	20	0.68	0	0.00
	Total	63,027	52,406	83.15	7,869	12.49	1,076	1.71	97	0.15	1,579	2.51

Source: Authority for Agriculture and Rural Development - Dâmbovița, 2008.

tree. Smaller orchard areas can be found as well in the center south of the Plain, namely in the localities Nucet, Comișani, Gura Șuții, Dobra, which mainly produce cereals. At present the area occupied by orchards is 1,579 ha. Out of the 22 administrative units, 5 have no orchards, 11 have between 1 to 75 ha orchards, 2 between 76 to 150 ha, 1 between 151 to 225 ha, 2 between 226 to 300 ha and 1 over 300 ha (Figure 6).

Vineyards cover a much lower area compared to the area occupied by orchards, namely 97 ha. Out of the 22 administrative units, 11 have no vineyards, 8 have between 1 to 5 ha vineyards, 1 between 16 to 20 ha, 1 between 21 to 25 and 1 over 25 ha (Figure 7). Larger areas with vineyards can be found in the communes Răzvad and Bucșani. The rest of the communes usually have small and very small vineyard areas, with the exception of the communes Băleni, Cobia, Cornățelu, Comișani, Mănești, Sălcioara, Ulmi, which have no land destined for this culture.

THE NON-AGRICULTURAL FUND OF THE PLAIN

Out of the total area of 98,737 ha of the land fund, 35,710 ha belong to the non-agricultural fund (36.17% of the total area) (Table 2, Figure 8). Out of the 22 administrative units, 5 comprise under 1000 ha, 10 between 1001 to 2000 ha, 6 between 2001 to 3000, 1 over 3000 ha (Pehoiu, 2003; Sencovici, 2010).

The area occupied by the settlements and the population

The total number of dwellings in the Plain of Târgoviște is of

71,701, most of them being situated in the municipality of Târgoviște (32,716), Răzvad (2936), Gura Ocniței (2581), being located towards the contact with the Subcarpathian hills. The largest inhabitable areas are in Târgoviște (1,147,000 m²), Răzvad (102,000 m²), Văcărești (94,000 m²), Gura Ocniței (90,000 m²), Băleni (89,000 m²) (Table 3 and Figure 9). The economic activities, the setting, the mixed occupations of the inhabitants led to the formation of large settlements. The only urban settlement in this Plain area is the town of Târgoviște. Present for the first time in the historical documents in the year 1396, in the "Travel Diary" of Johannes Schiltberger, Târgoviște underwent a special development being for a long while the capital of the Romanian Countries and then administrative center of the county; in the 20th century it also became the center of the oil exploitations of this area (Oproiu, 2005).

Developed at the crossroads of some important roads, the municipality of Târgoviște has a radial structure, sending out road branches from the civic center to the main directions: București in the south, Găești - Pitești in the south-west, Campulung in the north-west and Sinaia in the north-east. The total area of the municipality is 4,681 ha, of which the part included in the constructible area amounts to 1248 ha. Out of the 22 administrative units, 2 comprise less than 100 ha, 12 between 101 to 200, 7 between 201 to 300 and 1 over 300 ha (Târgoviște) (Pehoiu, 2009; Sencovici, 2010).

The area covered by forests

In the past, in the Plain of Târgoviște there were many oak forests,

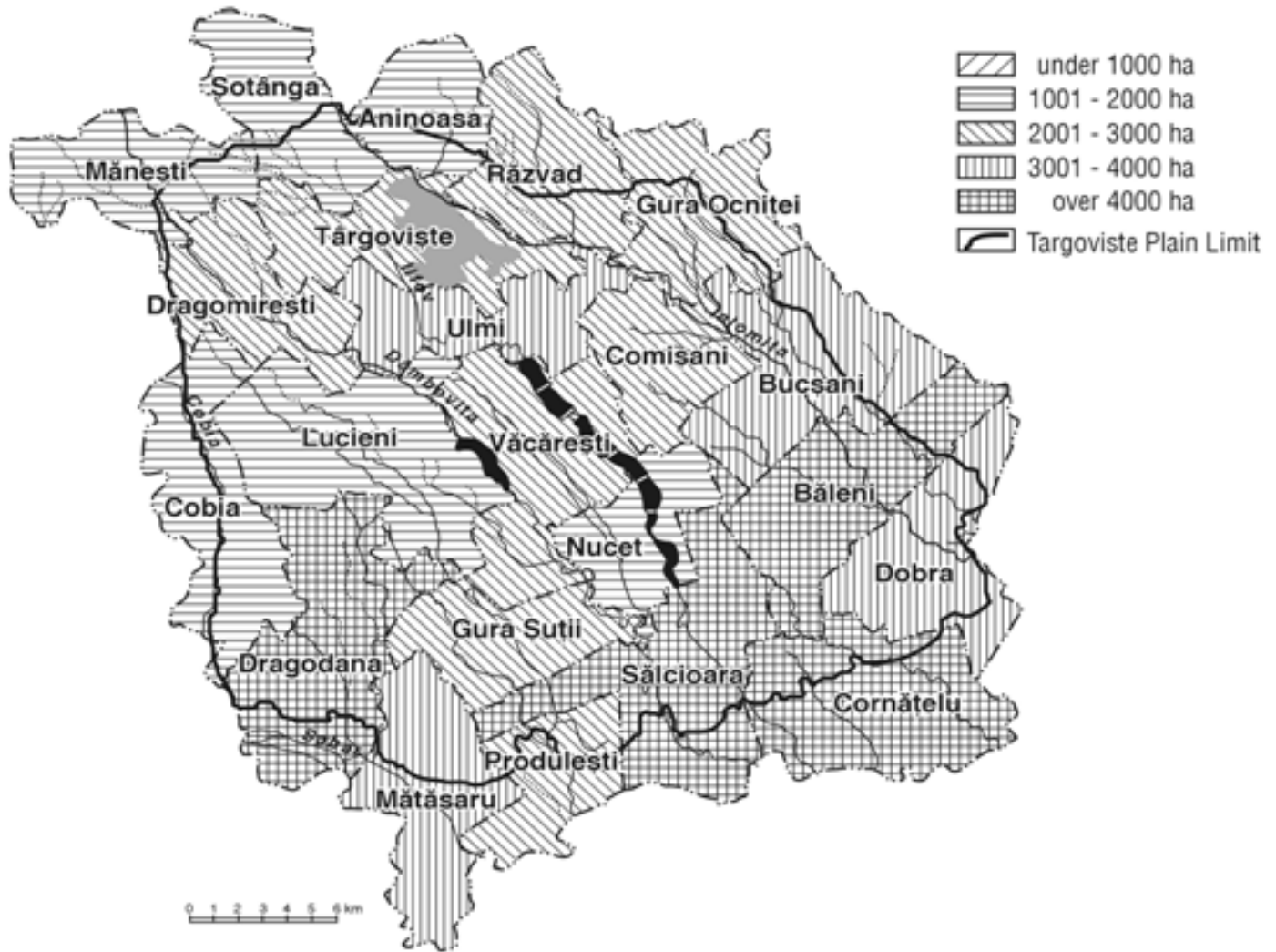


Figure 2. The Plain of Târgoviște - agricultural area.

because of the favorable conditions provided by the phreatic layer close to the surface and the plane relief. The forests were sensibly modified by the anthropic activity, also on the level of the lower floors: shrubs, herbaceous layer and forest margin. Sometimes the shrubs shrink a lot, especially because of today's forest management, while in other situations they develop very abundantly. Out of the 22 administrative units under analysis, 5 have less than 500 ha forests, 5 between 501 to 1,000 ha, 6 between 1,001 to 1,500 ha, 3 between 1.501 to 2000 and 3 over 2,000 ha (Pehoiu, 2003; Sencovici, 2010) (Figure 10).

The area occupied by the hydrographic network

In the area we have referred to, the lithology and the relief grafted on it, the precipitations regime and the vegetal layer are the main factors that determine the features of the ground and underground waters. The hydrographic arteries belonging to two major basins of the Romanian territory, namely Dâmbovița - a tributary of Argeș - and Ialomița are situated almost in parallel in the north and slightly divergently in the south of the Plain; the western extremity is included in the drainage basin of Sabar. The three rivers, with their

respective tributaries in the Plain area are presented in Table 4. The lakes are represented by natural and anthropic lakes. The natural ones are those formed in the riverside of the main rivers, Dâmbovița and Ialomița, as well as of their tributaries; some of them appear in the summer, when the local rivers (Dragodana and Siliștea) have a very low liquid flow and turn into lacustrine depressions (Figure 11 and Table 5).

Out of the total area of the piedmont Plain of 98,737 ha, 3,285 ha (9.2% of the non-agricultural area) are covered by waters. Out of the 22 administrative units, 3 have under 50 ha, 5 between 51 to 100 ha, 6 between 101 to 150, 3 between 151 to 200, 1 between 201 to 250, and 3 over 250. The largest area covered by water is situated Văcărești Commune (532 ha) following the presence of the storage lakes (Agency for Environment Protection - Dâmbovița, 2000-2008).

The area occupied by means of communication

The national, departmental and communal roads, which together make up the road network of the Plain of Târgoviște, assure a good connection between it and the rest of the county, with the adjacent

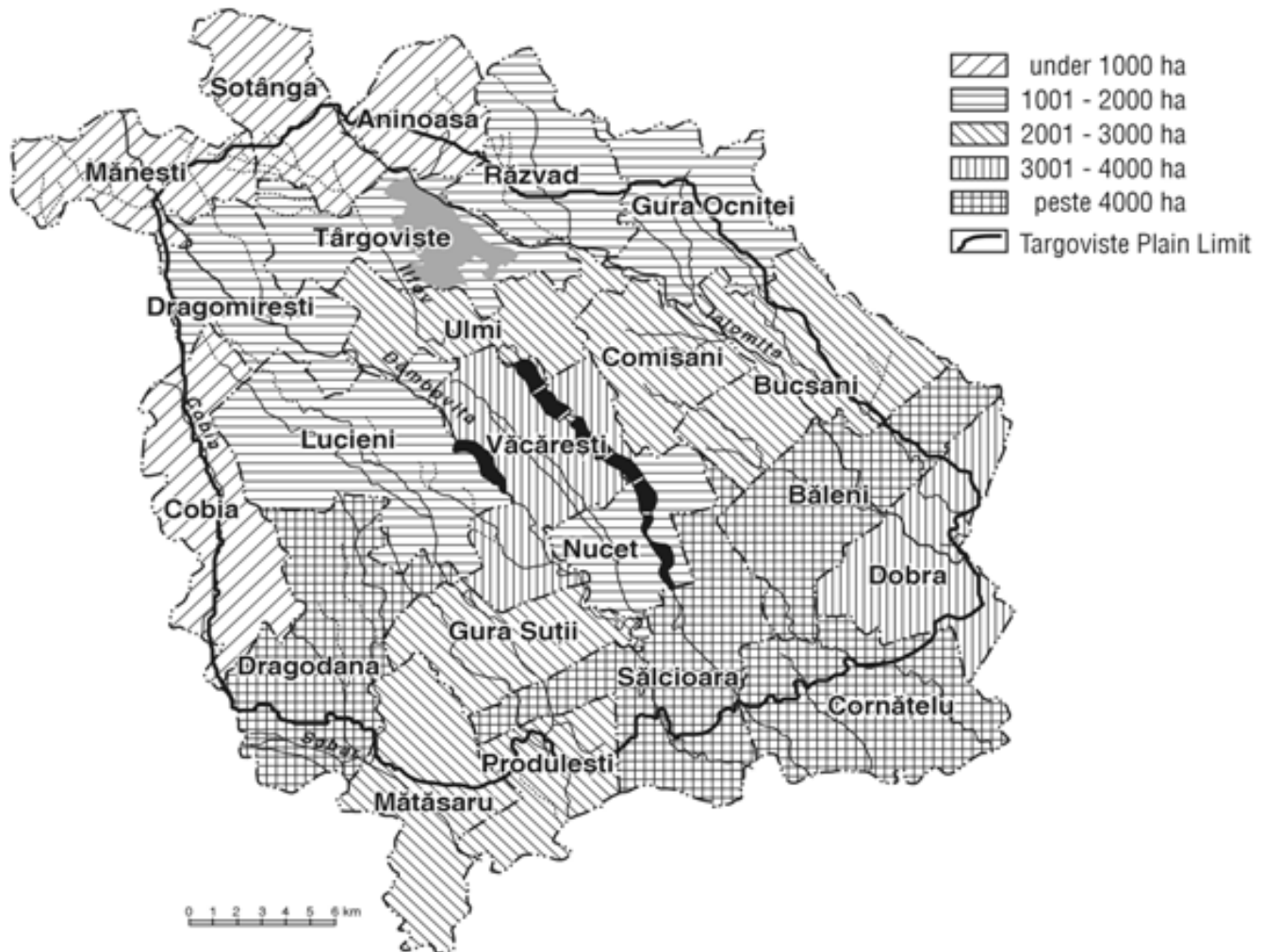


Figure 3. The Plain of Târgoviște - arable area.

counties, and an adequate circulation inside its own territory. The national roads constitute the basic structure of the road network inside the Plain and generally follow the configuration of the relief and of the major hydrographic network. The municipality of Târgoviște is situated at the crossroads of four national roads:

- 1) DN 71 (București - Răcari - Ulmi - Târgoviște - Fieni - Sinaia), which unfolds along Dâmbovița River up to Cuza Vodă, then crosses the interfluvium between Dâmbovița and Ialomița and gets to Târgoviște, then moves on along Ialomița River to Fieni, then again along this river to the north of Moroieni and then over Păduchiosu Mountains to Sinaia. DN 71 is 70 km long in the area of the Plain.
- 2) DN 72 (Ploiești - Târgoviște - Găești) which crosses the interfluvium between Dâmbovița and Ialomița and between Dâmbovița and Argeș; DN 72 is 85 km long in the area of the Plain.
- 3) DN 72A, (Târgoviște - Campulung), which starts from Târgoviște goes along Dâmbovița, through Prișeaca to Voinești, Malu cu Flori, from where it passes into Argeș county and reaches Campulung; DN 72A is 33 km long.
- 4) DN 1A (Târgoviște - Ulmi - Comisani - Dobra - Bîlcirești - București) moves along Ialomița, on its right side. DN 1A is 72 km long in the area of the Plain.

The following category is that of the departmental roads which

assures the connection between a more important settlement or group of settlements and the urban centers, as well as between the main trajectories of the national roads.

- 1) The departmental road Târgoviște - Văcărești - Gura Șuții - Produlești - Titu, which crosses the river Dâmbovița at Pierșinari.
- 2) The departmental road Târgoviște - Răzvad - Gura Ocniței - Bucșani - Finta on the left side of Ialomița.
- 3) The departmental road Târgoviște - Răzvad with two ramifications, one towards Moroieni and the other one towards Dărmănești.

The communal roads complete the picture of the road network, having the role of assuring the connection between the communes, between the villages of a commune and between villages from adjacent communes. The railroads that go through and serve the area under analysis comprise 3 railroad lines:

- 1) Titu - Târgoviște - Pietroșița
- 2) Ploiești - Răzvad - Târgoviște
- 3) București - Mătășaru - Găești - Pitești (County Institute of Statistics - Dâmbovița, 2000-2008).

The total area occupied by the means of communication is of 2049 ha,

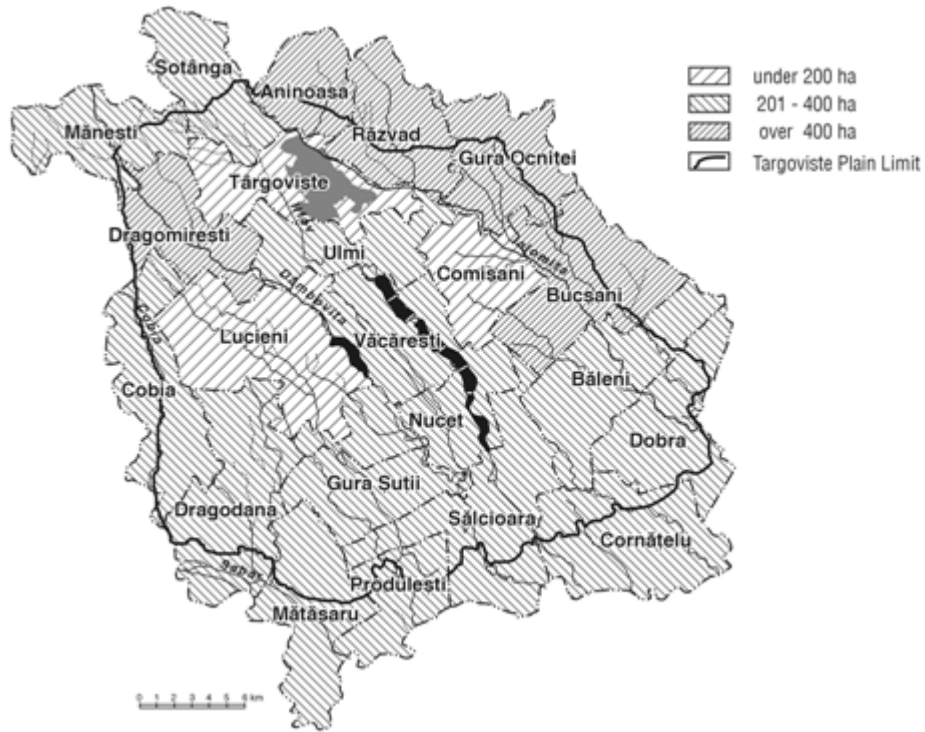


Figure 4. The Plain of Târgoviște – the area occupied by pastures.

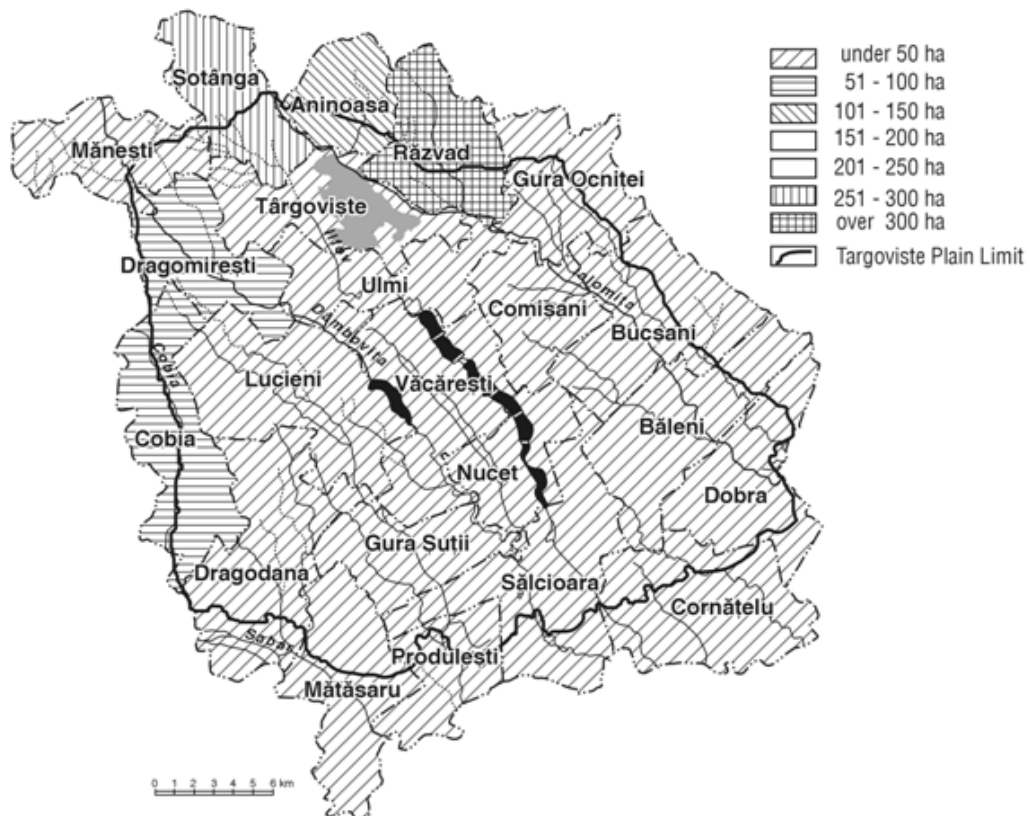


Figure 5. The Plain of Târgoviște - the area occupied by hay fields.

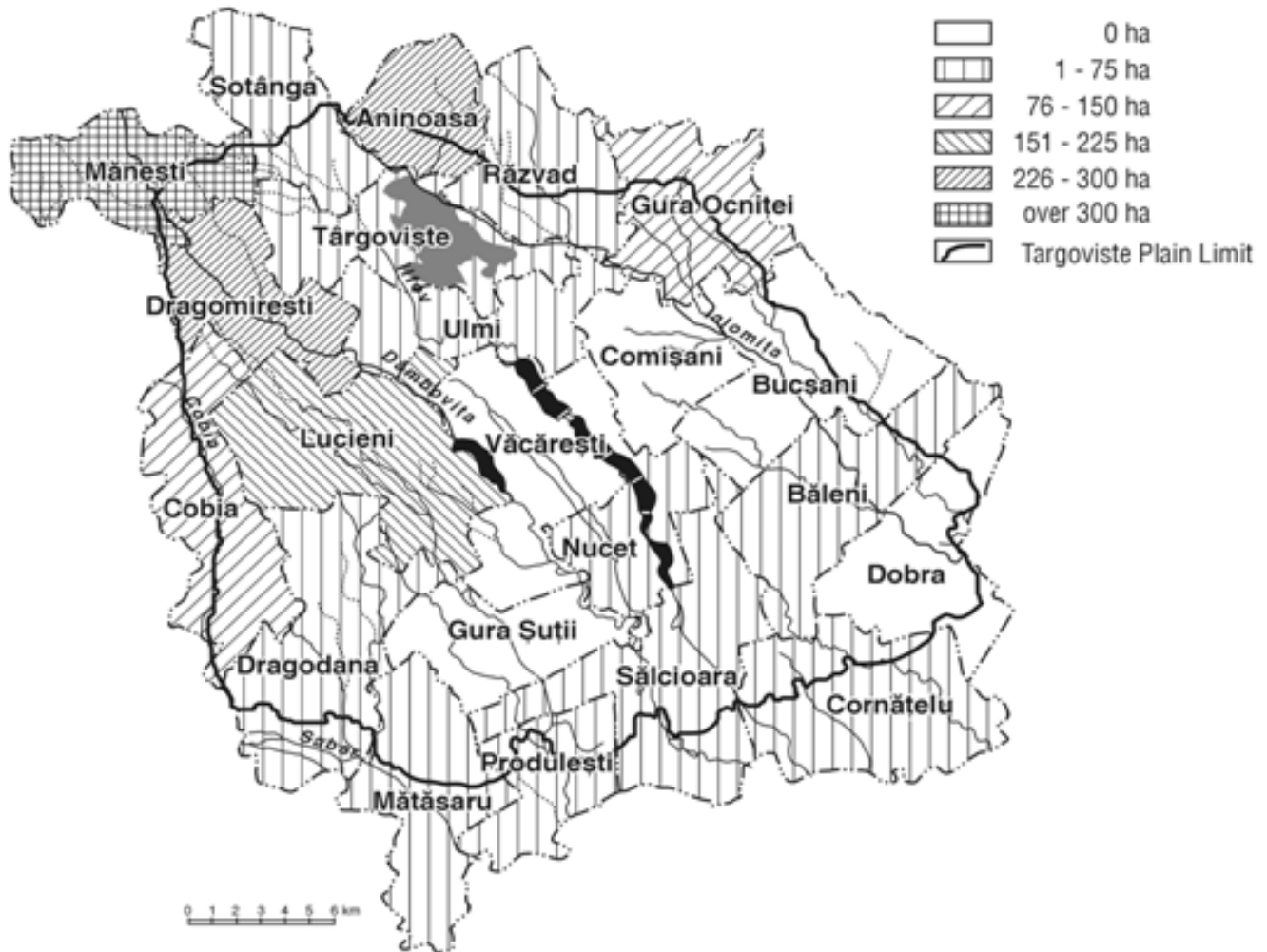


Figure 6. The Plain of Târgoviște – the area occupied by orchards.

namely 5.74% of the total non-agricultural area. Out of the 22 administrative units, 2 comprise less than 50 ha, 3 between 51 to 75 ha, 9 between 76 to 100 ha, 6 between 101 to 125 and 1 over 125 ha, just like the town of Târgoviște which has 153 ha occupied by the means of communication (Agency for Environment Protection - Dâmbovița, 2000-2008) (Figure 12).

The area occupied by the unproductive lands

The area occupied by the unproductive lands is generally situated outside the constructible zone of the localities. Following this study concerning the Plain of Târgoviște, we determined an area of 383 ha of unproductive land, representing 1.07% of the non-agricultural area (Figure 13). Among the reasons that determine the appearance of degraded and even unproductive lands there are:

- 1) Leaks from the pipes transporting oil;
- 2) Unrecoverable solid wastes, resulted following technological processes (steel works slag, debris and fragments of refractory bricks, deposited in the slag waste dumps from Udrești and Lucieni);
- 3) Lands affected through excavation due to the presence of sand exploitations (Nucet, Văcărești);
- 4) Inadequately stored domestic waste or wastes deposited outside

the established area (Aninoasa); many rural localities do not yet have domestic waste depositing areas.

Among the industrial waste deposits, we would like to mention those belonging to:

- 1) S.C. Mechel S.A, Târgoviște (the slag waste dumps from Udrești - 4.2 ha and Lucieni - 8 ha; decantation pond - 0.9 ha)
- 2) S.C. OTEL INOX S.A., Târgoviște (chemical waste deposit - 0.96 ha)
- 3) S.C. ROMLUX S.A., Târgoviște (galvanization waste deposit - 0.003 ha)
- 4) S.C. UPET S.A., Târgoviște (phosphatization waste deposit)
- 5) Șotanga (sterile waste dump - 3.5 ha)

Out of the 22 administrative units, 15 have under 10 ha unproductive lands, 3 have 11 to 20 ha, 2 have 21 to 30 ha, 0 have 31 to 40 ha, 0 have 41 to 50 ha, 1 has 51 to 60 ha, 1 has over 60 ha (Table 2 and Figure 13). It can be noticed that the largest unproductive land areas are in the localities: *Aninoasa* (superficial erosions affect large areas situated east of the commune, the reasons being the water, the type of rock and the land slope - 20 ha, of which some are situated in the Plain of Târgoviște and some in the Subcarpathian area); *Mătășaru* (30 ha - due to oil exploitations

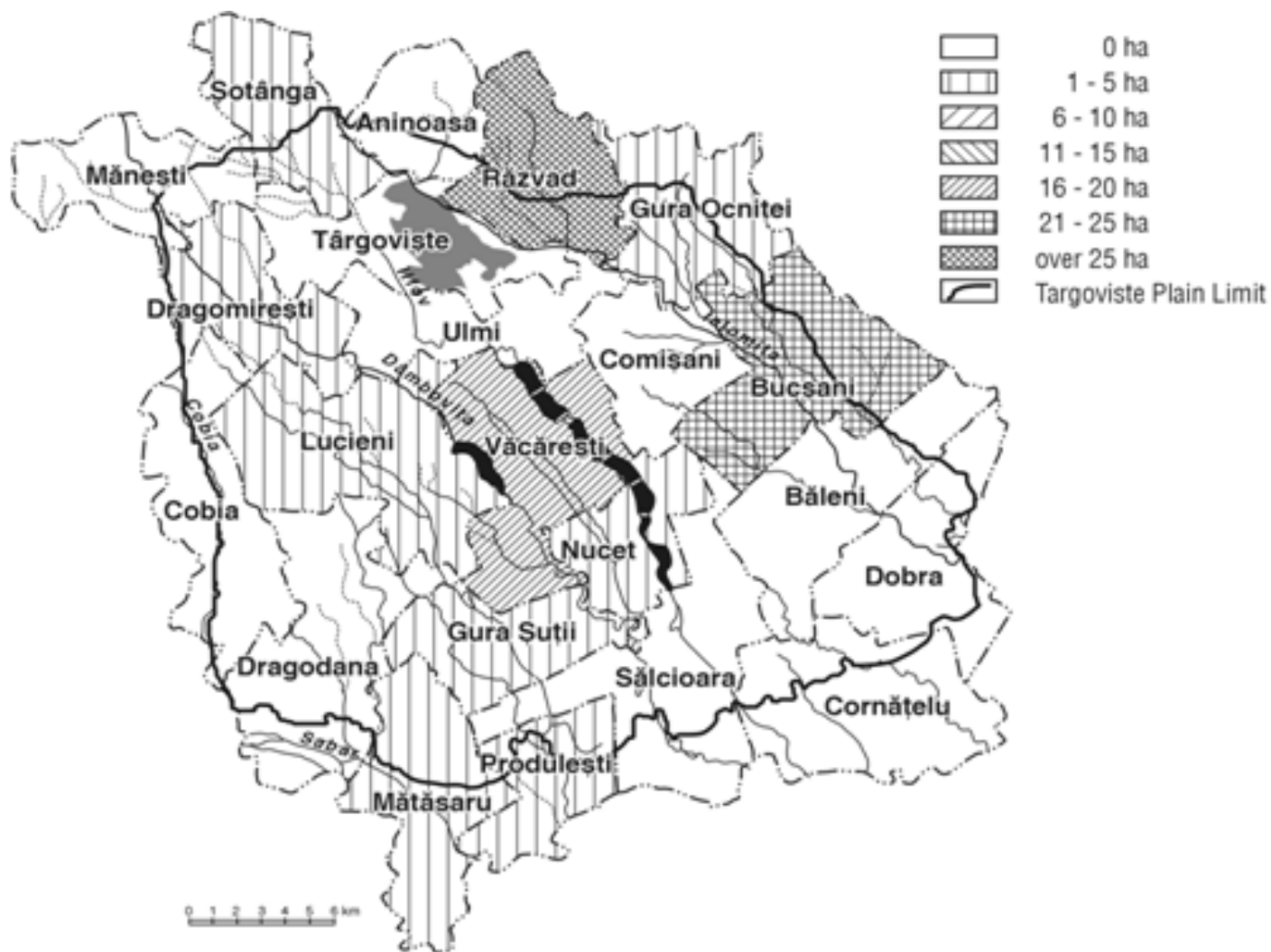


Figure 7. The Plain of Târgoviște - the area occupied by vineyards.

and to the existence here of 58 economic units, in different activity domains, producing inadequately deposited waste); *Bucșani* (59 ha - acid, salty lands, caused especially by the underground waters affected by oil exploitation; the degradation of the land is significant, affecting the flora, the fauna, and also the potable water needed in the area); *Șotanga* (174 ha - because of coal and oil exploitations, sterile waste dumps from the thermo-electric power station Doicești, deposited in the north-west of Teiș). The area of the lands that have been degraded in the Plain of Târgoviște is much higher, yet following certain ameliorative works, they might be used for agriculture and forestry, which would leave only 383 ha unproductive land.

RESULTS

Application of the human pressure indicators to the lands in the Plain of Târgoviște

The influence of the human pressure on the geographic landscape is ample, complex and has various effects

depending on the local concrete conditions, opening a large field of observation for the geographic research. By using the lands according to his various interests, man has triggered on the one hand the reduction of the areas occupied by natural vegetal formations, (replaced by agricultural cultures, secondary vegetal formations or even lands that have become unproductive due to their degradation), and on the other hand to more or less significant modifications in the composition and structure of the vegetal layer in the areas where the natural vegetation has been preserved. These things, in their turn, influence the hydrological regime, the actual modeling processes, the quality of the soil etc., leading to general modifications in the structure of the geographic landscape (Bălțeanu, 1996, 2002). Man's transformative activity has also led to the decrease of the forests' consistency, until they became clearings, namely until there appeared the first herbaceous formations with a secondary character - and also to the modification of the composition on species

Table 2. The Plain of Târgoviște – structure of the non-agricultural land fund on administrative units (2008).

No.	Locality	Non-agricultural land (ha)	Forests		Waters		Means of communication		Settlements		Unproductive land	
			(ha)	(%)	(ha)	(%)	(ha)	(%)	(ha)	(%)	(ha)	(%)
1	Aninoasa	1,137	731	64.29	38	3.34	88	7.74	260	22.87	20	1.76
2	Baleni	1,663	1104	66.39	304	18.28	86	5.17	169	10.16	0	0.00
3	Bucșani	2,586	1992	77.03	202	7.81	100	3.87	233	9.01	59	2.28
4	Cobia	3,921	3642	92.88	34	0.87	115	2.93	125	3.19	5	0.13
5	Comișani	549	115	20.95	200	36.43	44	8.01	184	33.52	6	1.09
6	Cornățelu	1,513	1219	80.57	56	3.70	102	6.74	136	8.99	0	0.00
7	Dobra	1,076	659	61.25	170	15.80	77	7.16	169	15.71	1	0.09
8	Dragodana	1,658	1165	70.27	55	3.32	139	8.38	297	17.91	2	0.12
9	Dragomirești	1,079	596	55.24	200	18.54	84	7.78	192	17.79	7	0.65
10	Gura Ocnitei	2,254	1753	77.77	111	4.92	96	4.26	284	12.60	10	0.44
11	Gura Sutei	480	226	47.08	60	12.50	40	8.33	154	32.08	0	0.00
12	Lucieni	2,957	2658	89.89	134	4.53	106	3.58	49	1.66	10	0.34
13	Manești	2,528	2160	85.44	120	4.75	88	3.48	158	6.25	2	0.08
14	Matasaru	1,876	1372	73.13	112	5.97	124	6.61	238	12.69	30	1.60
15	Nucet	1,321	721	54.58	359	27.18	77	5.83	164	12.41	0	0.00
16	Produlcești	316	125	39.56	49	15.51	72	22.78	70	22.15	0	0.00
17	Răzvad	1,449	1011	69.77	80	5.52	121	8.35	236	16.29	1	0.07
18	Salcioara	1,007	572	56.80	157	15.59	87	8.64	164	16.29	27	2.68
19	Sotanga	2,239	1806	80.66	80	3.57	63	2.81	116	5.18	174	7.77
20	Târgoviște	2,546	1035	40.65	102	4.01	153	6.01	1254	49.25	2	0.08
21	Ulmi	682	236	34.60	130	19.06	69	10.12	233	34.16	14	2.05
22	Vacaresti	873	88	10.08	532	60.94	118	13.52	122	13.97	13	1.49
	Total	35,710	24,986	69.97	3,285	9.20	2,049	5.74	5007	14.02	383	1.07

Source: Authority for Agriculture and Rural Development - Dâmbovița.

the composition on species according to the different resistance to these actions. There occurred changes of the forest soil as well (by flattening, erosion etc.), which diminished the infiltration and consequently increased the runoff. Through the change of the destination of the former communal pastures (often used as arable land after the collectivization), the area occupied by grazing lands considerably diminished, and the extensive pressure on those that have been preserved triggered the continual deterioration of their quality.

In the Plain of Târgoviște, the lawn vegetation generally has a secondary character, appearing after man's removal of the concurrent wood vegetation. The composition of the flora varies in agreement to the concrete habitation conditions and, at the same time, it has been deeply modified, which has led to the thriving of different poor quality species. In the untended lawns, as for instance those around the locality of Prișeaca, one can notice the setting in the shrubs and the young trees, as a developmental stage towards the stage of forest. The value of the human pressure through the way the land is used in agriculture is a synthetic indicator allowing an evaluation of the impact of the anthropic activity on the environment, and highlighting the degree of artificialization

of the vegetal layer in the area under analysis. Based on the aforementioned formula, we have calculated the human pressure on the environment through different agricultural land uses, namely: arable, pastures, hay fields, vineyards, orchards, for the year 2008 (Table 6). The human pressure on the environment was calculated taking into account the agricultural land uses, as the agricultural landscape has been the one that underwent the most significant modifications. Actually, the agricultural landscape is dominant in the area we refer to, representing 63.83% of the total area of the unit under analysis. The arable lands occupy 83.15% of the agricultural area (Figure 14).

In the evaluation of the human pressure on the land through arable areas, we have taken into account the value of 0.4 ha/inh, established by FAO as limit for maintaining the natural balance among the environmental components. In the Plain of Târgoviște, the anthropic pressure through arable lands has values oscillating between 0.09 for the locality of Aninoasa and 2.83 for Cornățelu. A relatively stable balance corresponds, with few exceptions, to the localities of the northern half of the area: Șotanga (0.09 ha/inh.), Aninoasa (0.09 ha/inh.), Mănești (0.11 ha/inh.), Răzvad (0.18 ha/inh.), localities

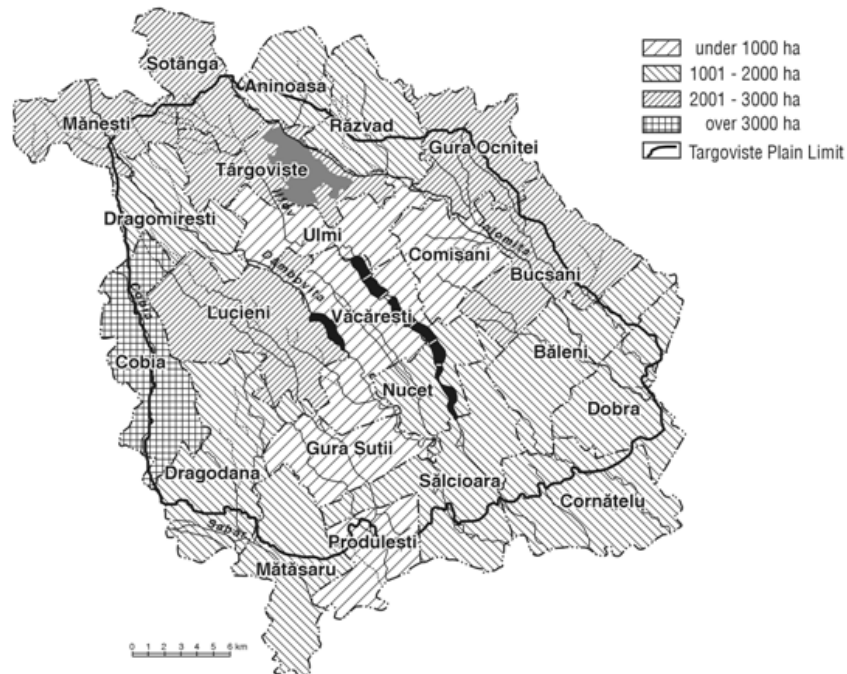


Figure 8. The Plain of Târgoviște - non-agricultural area.

Table 3. Dwelling fund in the Plain of Târgoviște (2008).

Locality	Housing					
	Total	Inhabitable area (thousands m ²)	Number of rooms			
			Total	1 room	2 rooms	≥3 rooms
Târgoviște	32716	1147	80910	6423	39646	34841
Aninoasa	1936	68	5322	254	1951	3117
Băleni	2132	89	7046	206	1921	4919
Bucșani	2222	80	6493	583	1947	3963
Cobia	1254	39	3272	319	1308	1645
Comișani	1679	64	5325	104	2019	3202
Cornățelu	1058	32	2921	58	1003	1860
Dobra	1465	51	4178	211	1096	2871
Dragodana	2183	69	5672	601	1931	3140
Dragomirești	2333	71	5844	98	2508	3238
Gura Ocniței	2581	90	6789	63	1506	5220
Gura Șuții	1726	62	4970	202	1250	3518
Lucieni	2255	78	6363	591	2101	3671
Mănești	1436	45	3501	165	792	2544
Mătăsaru	1770	62	5015	106	1231	3678
Nucet	1305	45	3767	63	1312	2392
Produlești	1232	46	3726	305	1106	2315
Răzvad	2936	102	7845	352	2216	5277
Sălchioara	1572	52	4432	146	1920	2366
Șotanga	2155	73	5932	308	2926	2698
Ulmi	1295	43	3475	170	1621	1684
Văcărești	2460	94	7559	62	2016	5481
Total	71,701	2,502	190,357	11,390	75,327	103,640

Source: Statistics Department of Dâmbovița County.

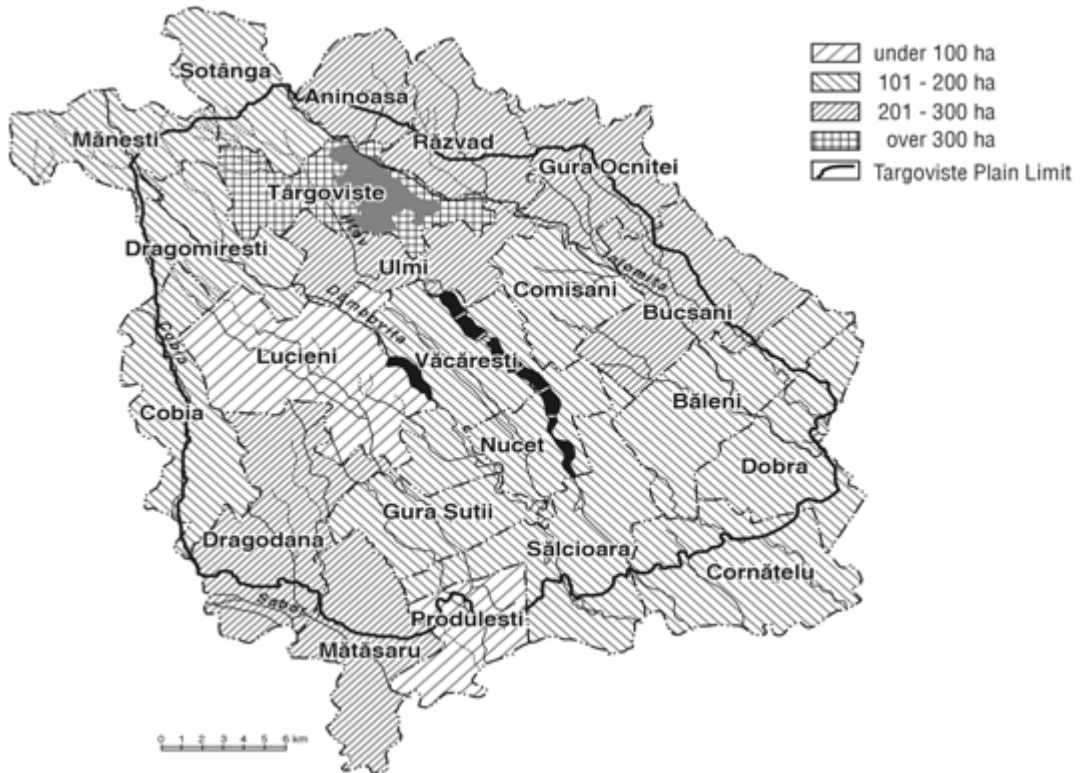


Figure 9. The Plain of Târgoviște – the area occupied by settlements.

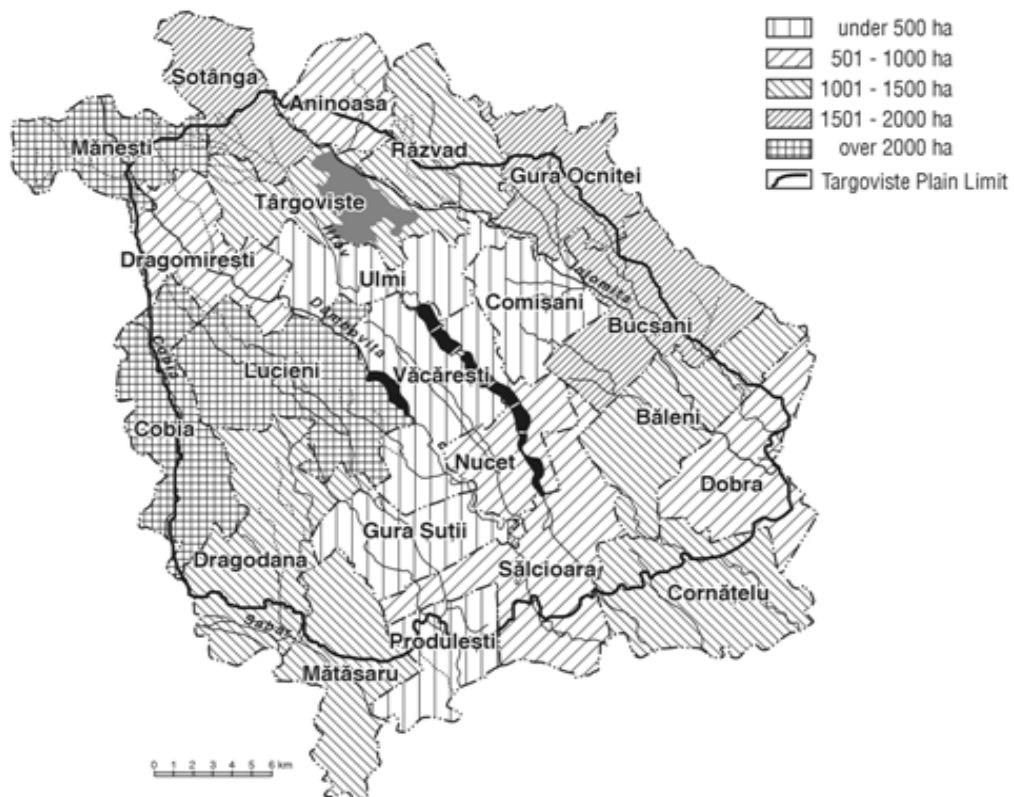


Figure 10. The Plain of Târgoviște – the area occupied by forests.

Table 4. The Plain of Târgoviște – the rivers length.

No.	River, rivulet and basin	Length (km)	
		Total	Plain
Sabar			
1	Cobia	24	21
2	Dragodana	8.5	7.5
3	Cuparu	14	13
a	Mănăstirea	-	-
b	Silișteea	9.5	9.5
4	Mătăsar	20	9
5	Frasin	8	3.5
6	Hotarului	10.5	3.5
7	Șuța	36	26.5
a	Ursoaia	10	10
b	Valea Seacă	-	-
c	Șuța Seacă	36	26.5
d	Perșinari	22	11
Dâmbovița			
8	Dâmbovița	237	50
9	Valea Satului	14	14
10	Ilfov	12	12
a	Mierea - Rădăcina	17	16
11	Colentina	30	2
a	Baranga	20	14
b	Crevedia	30	1
Ialomița			
12	Ialomița	400	42
13	Izvoarele	3	3
14	Racovița	11	11
15	Brazilor	20	6
16	Slănicul de Sus	16	4
17	Slănicul de Jos	22	9
a	Răzvădeanca	7	7
18	Pascov	100	24

with an ecological potential that is less favorable for agriculture and has larger forests areas. Concerning the municipality of Târgoviște, the value of 0.02 ha/inh. is not significant, as here, the anthropic pressure is determined by the industrial activities. The areas whose balance has been strongly affected by the human pressure area present in the center and the south of the Plain (where the maximum limit established by FAO was overpassed even 4 to 5 times), namely: Ulmi (0.72 ha/inh.), Dobra (0.96 ha/inh.), Sălcioara (1.13 ha/inh.), Cornățelu (2.83 ha/inh.). The vineyards are less representative, as size, for the Plain of Târgoviște (Table 7). The largest vineyards are situated in the north-east of the unit under analysis, and the most frequently cultivated varieties are those used to make wine. They represent 80% of the total of the production,

the rest of 20% constituting varieties of grapes used for being eaten unprocessed.

The change in the ownership of the land has led to a decrease of the human pressure expressed through this land use type; the difficulties of maintenance, the production costs, the costs of the insecticides and the difficulties encountered in selling the products favored the transformation of the vineyards into agricultural cultures, pastures, hay fields. The orchards are located on sloping lands, which are less productive for other cultures. The highest pressure is recorded in the communes of Aninoasa and Mănești, where a large area of the territory is situated outside the Plain boundaries and in the communes of Dragomirești and Lucieni situated in the north-west of the unit under analysis (Table 8 and

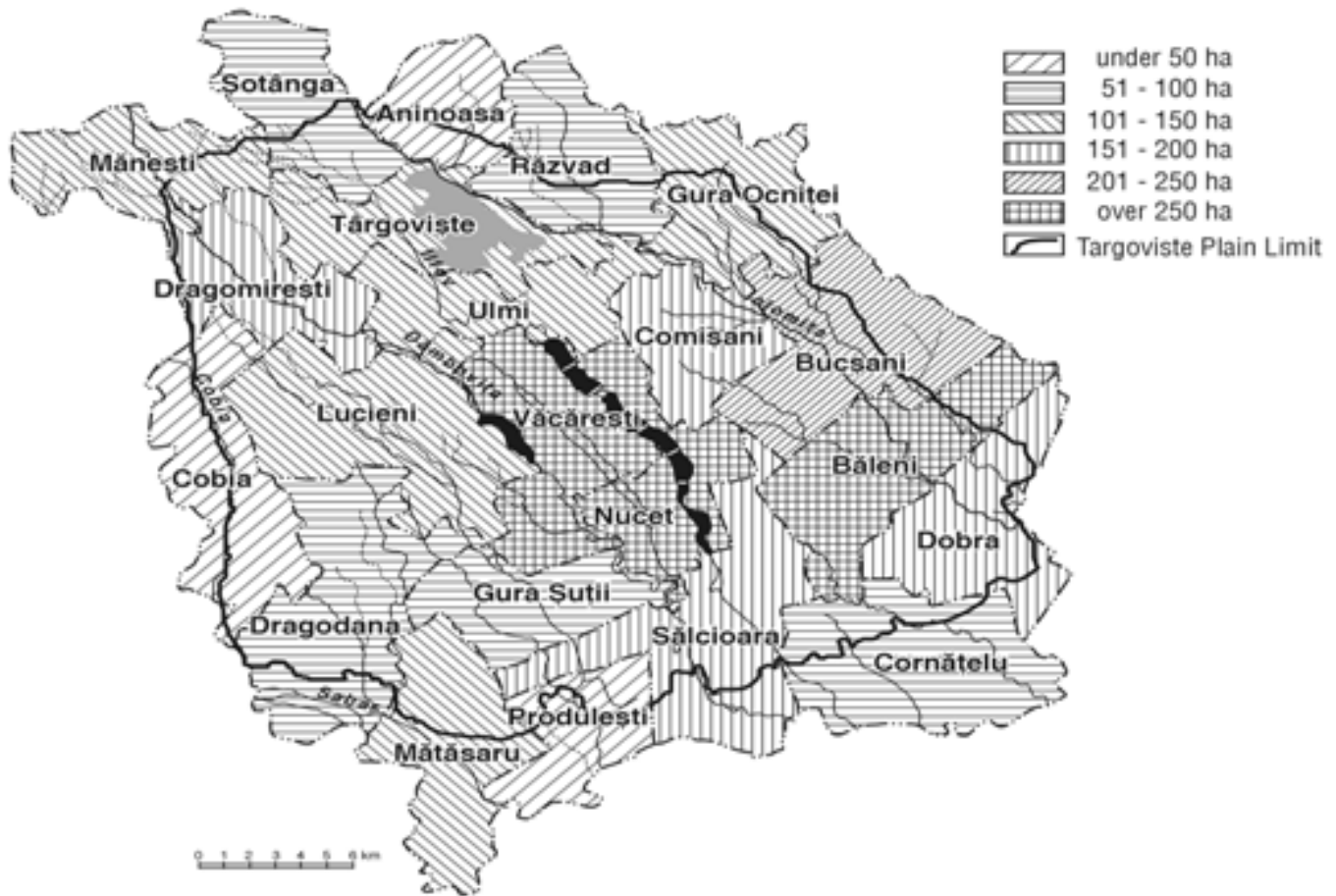


Figure 11. The Plain of Târgoviște – the area occupied by rivers and lakes.

Table 5. The Plain of Târgoviște – anthropic lakes (2008).

No.	Reservoir	Area (ha)	Localization	
			Locality	River
1	Văcărești	234	Văcărești/Văcărești	Dâmbovița
2	Udrești	61	Văcărești/Udrești	Ilfov
3	Bungetu 1	93	Văcărești/Bungetu	Ilfov
4	Bungetu 2	91	Văcărești/Bungetu	Ilfov
5	Brătești	97	Văcărești/Bungetu	Ilfov
6	Adunați	96	Nucet/Ilfoveni	Ilfov
7	Ilfoveni	104	Nucet/Ilfoveni	Ilfov
8	Priseaca	5.5	Târgoviște/Priseaca	Mioara

Figure 15). The human pressure exerted through pastures and hay fields records higher values in the north of the Plain towards the contact with the Subcarpathian hills, where the lands are less favorable for cultivating cereals and vegetables. The highest values expressed in this sense are, as one can see on the map, those pertaining to the communes: Aninoasa, Cobia, Răzvad

(Table 9 and Figure 16).

In the unit under analysis, the largest area is occupied by pastures, grazing fields situated in the interfluvies and on riversides, mainly along the riverbeds of Dâmbovița and Ialomița and on the upper course of Ilfov; they have been preserved in a high proportion because of their higher nutritional value and of the longer duration of use.

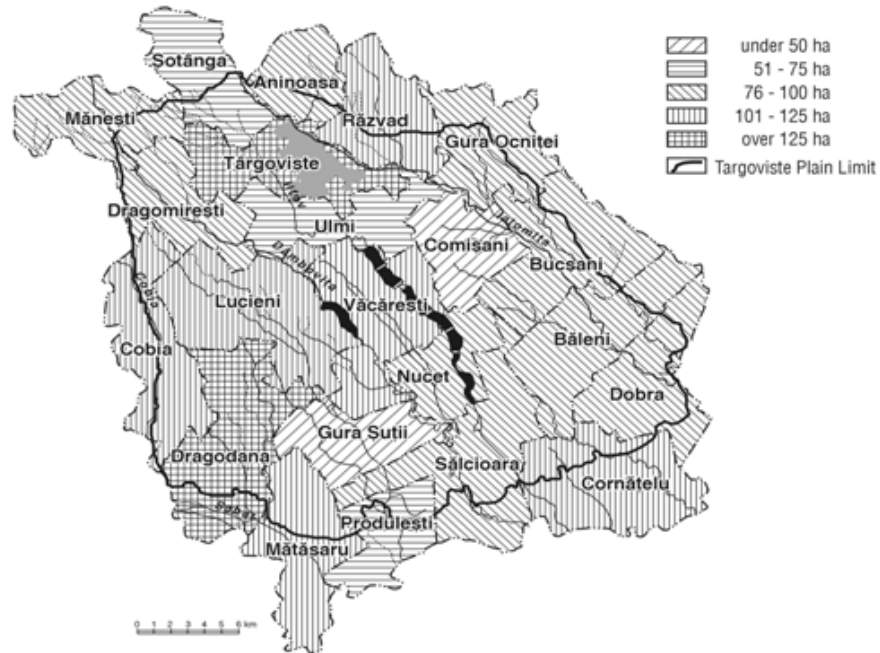


Figure 12. The Plain of Târgoviște – area occupied by the means of communication.

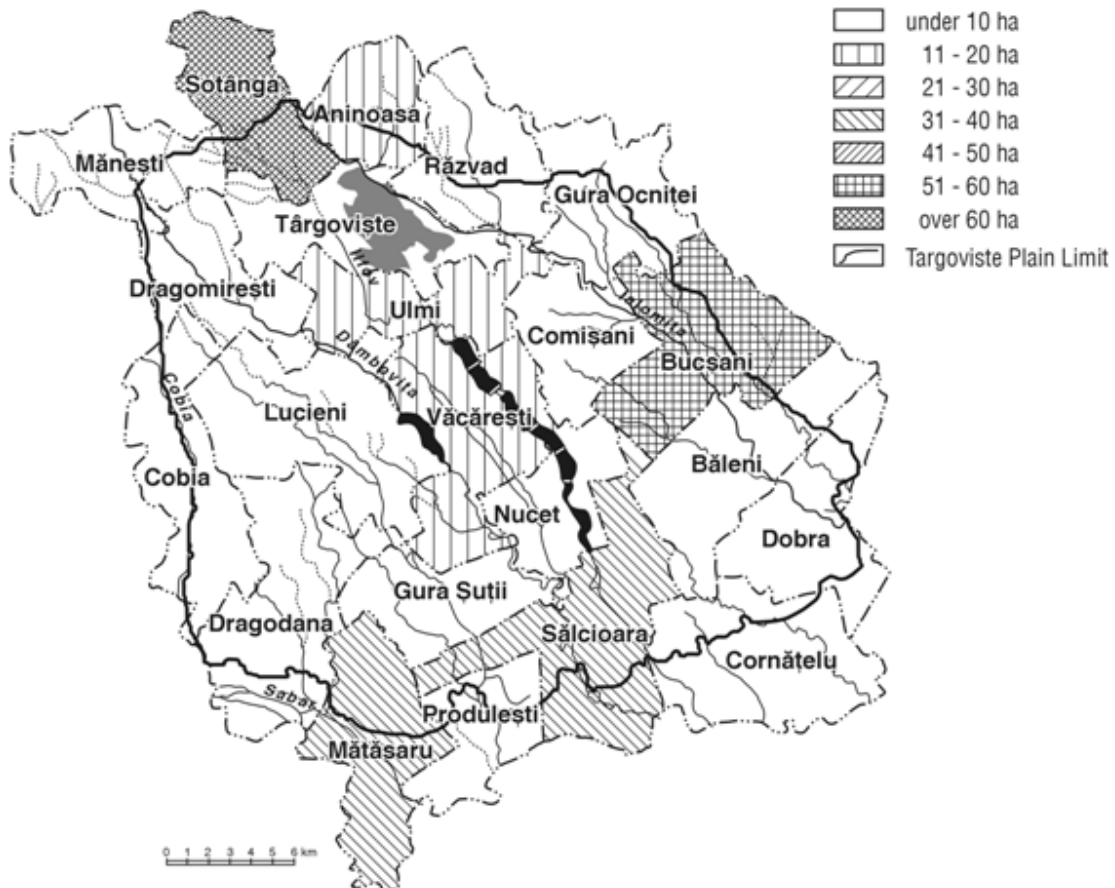


Figure 13. The Plain of Târgoviște - the area occupied by unproductive lands.

Table 6. The Plain of Târgoviște - the anthropic pressure on administrative units (2008).

No.	Locality	Agricultural land (ha)	Arable land (ha)	Number of inhabitants	Anthropic pressure (ha/inh.)	
					Agriculture	Arable
1	Aninoasa	1629	568	6001	0.27	0.09
2	Băleni	4444	4052	8607	0.52	0.47
3	Bucșani	3223	2747	6840	0.47	0.40
4	Cobia	1355	796	3183	0.43	0.25
5	Comișani	2915	2748	5283	0.55	0.52
6	Cornățelu	4873	4517	1595	3.06	2.83
7	Dobra	3902	3587	3755	1.04	0.96
8	Dragodana	4919	4433	6919	0.71	0.64
9	Dragomirești	2740	1929	8514	0.32	0.23
10	Gura Ocniței	2242	1604	7694	0.29	0.21
11	Gura Șuții	2940	2574	5344	0.55	0.48
12	Lucieni	1481	1105	2926	0.51	0.38
13	Mănești	1267	531	4870	0.26	0.11
14	Mătășaru	3238	2848	5588	0.58	0.51
15	Nucet	1941	1714	4265	0.46	0.40
16	Produlești	2639	2347	3401	0.78	0.69
17	Râzvad	2737	1553	8777	0.31	0.18
18	Sălcioara	4905	4558	4039	1.21	1.13
19	Șotanga	1276	667	7141	0.18	0.09
20	Târgoviște	2135	1958	89225	0.02	0.02
21	Ulmi	3278	2980	4153	0.79	0.72
22	Văcărești	2948	2590	5115	0.58	0.51
	Total	63,027	52,406	203,235	0.31	0.26

Source: Authority for Agriculture and Rural Development - Dâmbovița.

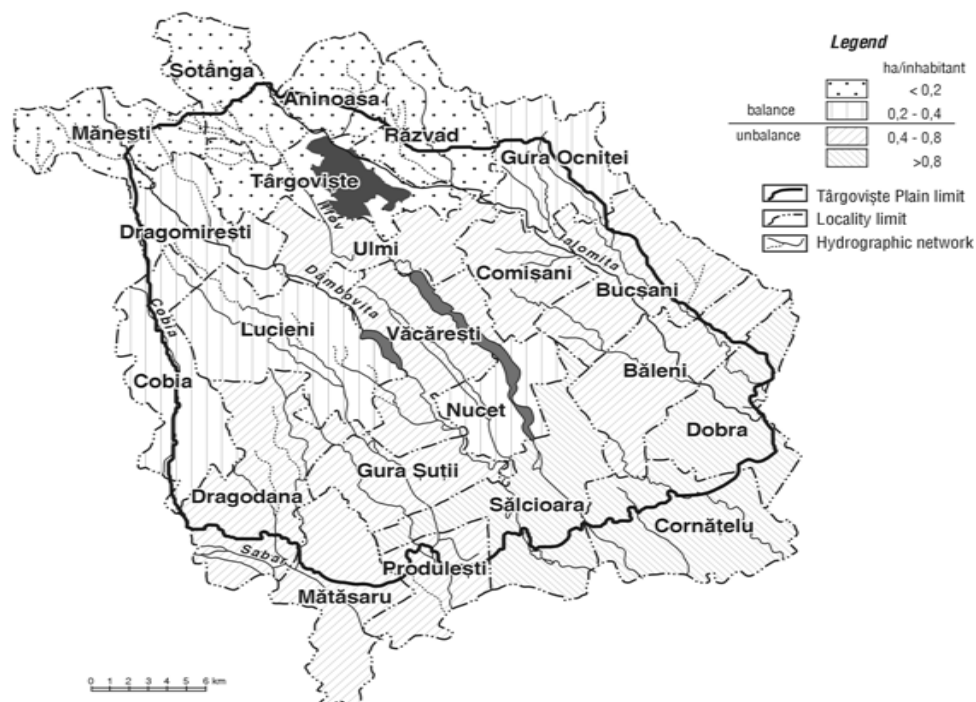
**Figure 14.** The Plain of Târgoviște - human pressure through arable areas.

Table 7. The Plain of Târgoviște – anthropic pressure on the environment through vineyards (2008).

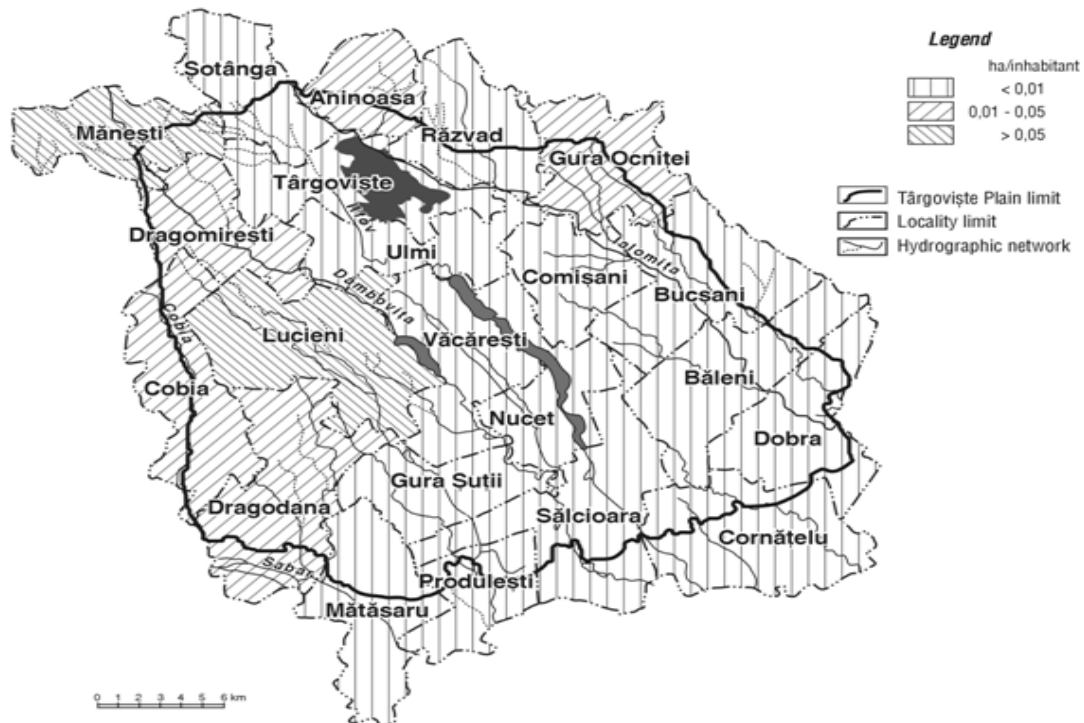
No.	Locality	Vineyards (ha)	No. of inhabitants	Anthropic pressure (ha/inh.)
				Vineyard
1	Aninoasa	40	5982	0.01
2	Băleni	0	8324	0
3	Bucșani	24	6882	0
4	Cobia	0	3467	0
5	Comișani	0	5448	0
6	Cornățelu	0	1767	0
7	Dobra	5	3853	0
8	Dragodana	14	6972	0
9	Dragomirești	1	8273	0
10	Gura Ocniței	14	7965	0
11	Gura Șuții	4	5400	0
12	Lucieni	11	6392	0
13	Mănești	0	4669	0
14	Mătășaru	14	5751	0
15	Nucet	15	4404	0
16	Produlești	1	3576	0
17	Răzvad	60	8409	0.01
18	Sălcioara	0	4178	0
19	Șotanga	4	7015	0
20	Târgoviște	3	89930	0
21	ulmi	0	3944	0
22	Văcărești	13	7884	0
	Total	223	210,485	0

Table 8. The Plain of Târgoviște – anthropic pressure on the environment through orchards (2008).

No.	Locality	Orchards (ha)	No. of inhabitants	Anthropic pressure (ha/inh.)
				Orchards
1	Aninoasa	291	6001	0.05
2	Băleni	2	8607	0.00
3	Bucșani	0	6840	0.00
4	Cobia	129	3183	0.04
5	Comișani	0	5283	0.00
6	Cornățelu	2	1595	0.00
7	Dobra	0	3755	0.00
8	Dragodana	65	6919	0.01
9	Dragomirești	265	8514	0.03
10	Gura Ocniței	134	7694	0.02
11	Gura Șuții	0	5344	0.00
12	Lucieni	178	2926	0.06
13	Mănești	385	4870	0.08
14	Mătășaru	25	5588	0.00
15	Nucet	3	4265	0.00
16	Produlești	17	3401	0.00
17	Răzvad	39	8777	0.00
18	Sălcioara	1	4039	0.00
19	Șotanga	30	7141	0.00

Table 8. Contd.

20	Târgoviște	3	89225	0.00
21	Ulmi	10	4153	0.00
22	Văcărești	0	5115	0.00
	Total	1,579	203,235	0.01

**Figure 15.** The Plain of Târgoviște - Anthropic pressure on the environment through orchards.**Table 9.** The Plain of Târgoviște – anthropic pressure on the environment through pastures and hay fields (2008).

No.	Locality	Pastures and hay fields (ha)	No. of inhabitants	Anthropic pressure (ha/inh.)
				Pastures and hay fields
1	Aninoasa	770	6001	0.13
2	Băleni	390	8607	0.05
3	Bucșani	452	6840	0.07
4	Cobia	430	3183	0.14
5	Comișani	167	5283	0.03
6	Cornățelu	354	1595	0.22
7	Dobra	315	3755	0.08
8	Dragodana	421	6919	0.06
9	Dragomirești	545	8514	0.06
10	Gura Ocnitei	501	7694	0.07
11	Gura Șuții	362	5344	0.07
12	Lucieni	197	2926	0.07
13	Mănești	351	4870	0.07
14	Mătășaru	363	5588	0.06
15	Nucet	219	4265	0.05

Table 9. Contd.

16	Produlești	274	3401	0.08
17	Răzvad	1112	8777	0.13
18	Sălcioara	346	4039	0.09
19	Șotanga	576	7141	0.08
20	Târgoviște	174	89225	0.00
21	Ulmi	288	4153	0.07
22	Văcărești	338	5115	0.07
	Total	8945	203235	0.04

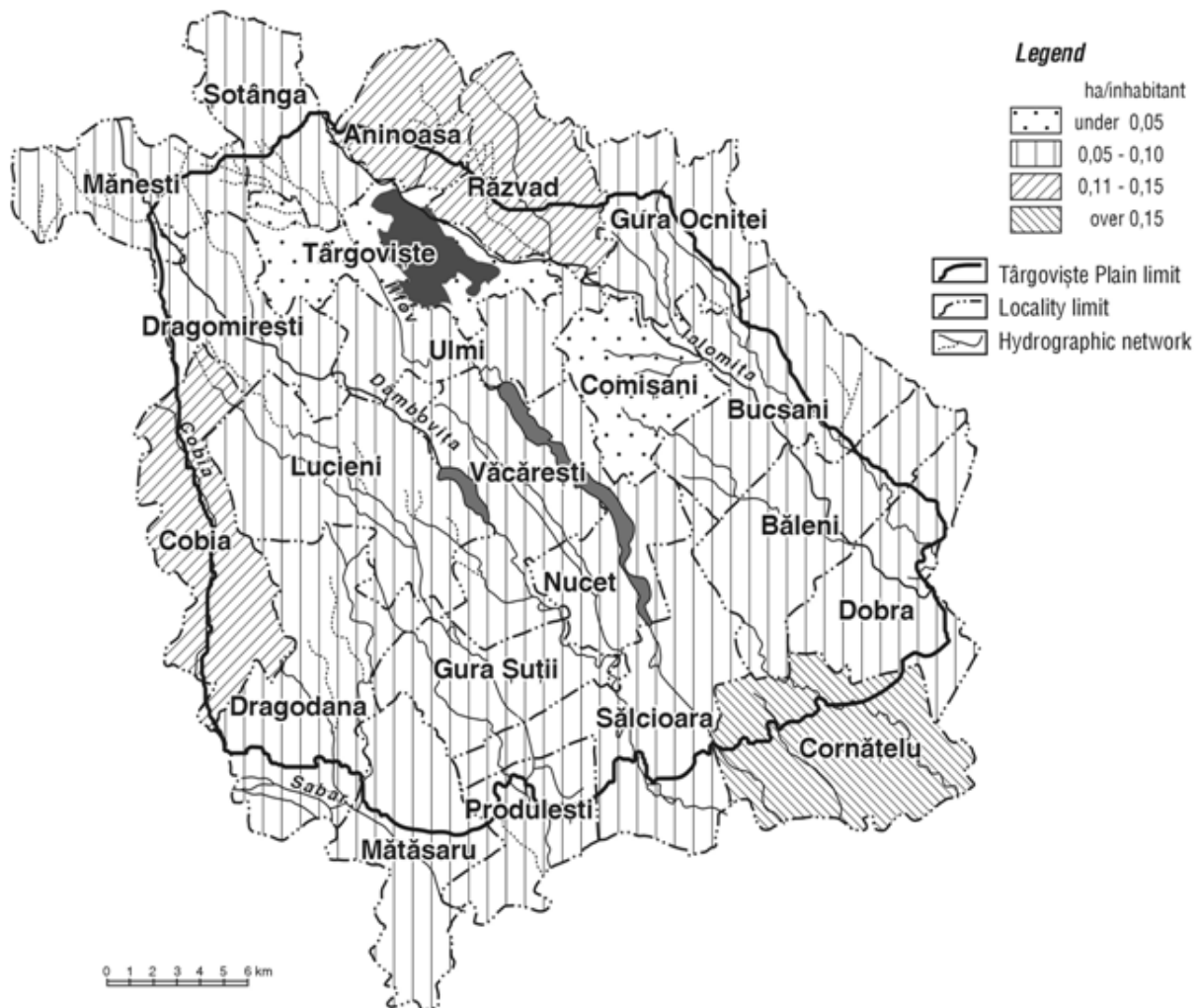


Figure 16. The Plain of Târgoviște - Anthropic pressure on the environment through pastures and hay fields.

Conclusions

The anthropic pressure on the environment highlighted is the one calculated through the arable land use as the landscape has been changed mainly through this activity. The more areas with the initial spontaneous vegetation

replaced by different cultures are drawn into the agricultural activity, the larger the anthropic pressure is. The degradation of the soil structure through agricultural works and the use of chemicals in agriculture has more or less significant effects (depending on the support capacity of different soils and the technique used in

agriculture) in all the areas used for agricultural cultures; yet, the erosion processes are present only locally, on terrace fronts or in areas with steeper slopes from the western sector of the Plain of Târgoviște, where in some sectors the horizon A of the soil has been almost totally removed. In the Plain of Târgoviște are dominant, the agricultural activities and the rural area, which makes it necessary to analyze the interaction of these activities with the natural environment components and with the environment in general. Agriculture represents an activity with an impact on the environment through the human pressure exerted by means of different agricultural land uses, through the use of chemicals, through the triggering land degradation processes, through the inadequate exploitation of the agricultural areas.

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