ASPECTS OF GREEN CADASTRE IN THE CAMPUS OF UNIVERSITY OF PITESTI

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Abstract
Regardless of belonging and purpose, green spaces contribute to the improvement of the environment, maintaining ecological balance, improve assortment of ornamental plants, maintain and protect precious natural objects and harmonization between artificial and natural landscape in order to achieve a favorable ambience with the development of anthropogenic activities. Green space is a harmonized architectural system, consisting of urban and rural elements (natural landscapes, areas of watercourses and water bodies, road construction, horticultural and residential elements), being aesthetic, biological and ecological important, which cover, usually, a vegetation community (woody tree, shrub, floricultural and herbaceous) and animals community. The aims of green cadastre are contributing to the proper maintenance of all species of plants, trees and shrubs. By subject matter and results, this paper is a first step in achieving of green cadastre in Pitesti. The results can be used by local government to start green cadastre of the city.

Keywords: green space, cadastre, field identification, vegetation.

1. INTRODUCTION

Green cadastre appeared as a necessity of expanding and detail town cadastre, covering the entire inventory of woody vegetation in urban green spaces and located on the road network or in the premises of property. The objective is vegetation like a dynamic growth, development and structural changes, over the time the character of this cadastre is clearly distinguished from classic town cadastre. Green cadastre needs periodic restoration to capture all structural changes, which makes the overall functionality. The unit of study of green cadastre is the latest entity in an ecosystem, individual tree or shrub. Performs a inventory corresponding to spatial mapping of trees and shrubs in two working stages: space inventory corresponding to dendroflora mapping and qualitative inventory (identification of species). The modern ethics of city life in last years is focusing on the rehabilitation of green areas, even though urban expansion has affected in some way localities image.

2. MATERIAL AND METHOD

The area under study is the University Campus Targu din Vale street, with a total area of 32,426 square meters, dominated by buildings and parking space provided (courts-building use). The study took place during the period: 2011-2012. The study material consists of all dendrological species located in green spaces, on the campus area. Working method used consisted of a complex inventory of all vegetation, all trees and shrubs. Inventory was conducted in two stages: inventory space and qualitative inventory. Qualitative data are completed by quantitative data, regard to the total number of specimens of each species, and also the number of species in each plot. Collection of coordinates for each specimen, was made by using the GPS Trimble Juno SB handheld (figure 1). This device has incorporated three main functions: GPS, camera and operating system Windows-Mobile 6.1. GPS receiver facilitates data collection to incorporate them into GIS. GPS is a positioning system based on NAVSTAR operational satellites constellation orbiting Earth once every/at each 12 hours. Trimble Juno SB handheld can use various types of software, the TerraSync software was used. To complete mapping all data was transferred to specialized CAD software.

Figure 1. GPS Trimble Juno SB

3. RESULTS AND DISCUSSIONS

Urban green space is a harmonized architectural system, composed of landscape elements of the city and outside the city limits. These are: park, square, public gardens, green spaces with utilitarian character, unproductive lands, etc. The main ecological functions of green spaces are: hydrological function, erosion, climatic-health, recreational, aesthetic, scientific and educational function. Total number of trees is 71, the first being *Picea abies, Tilia cordata* and *Thuja occidentalis* (figure 2).

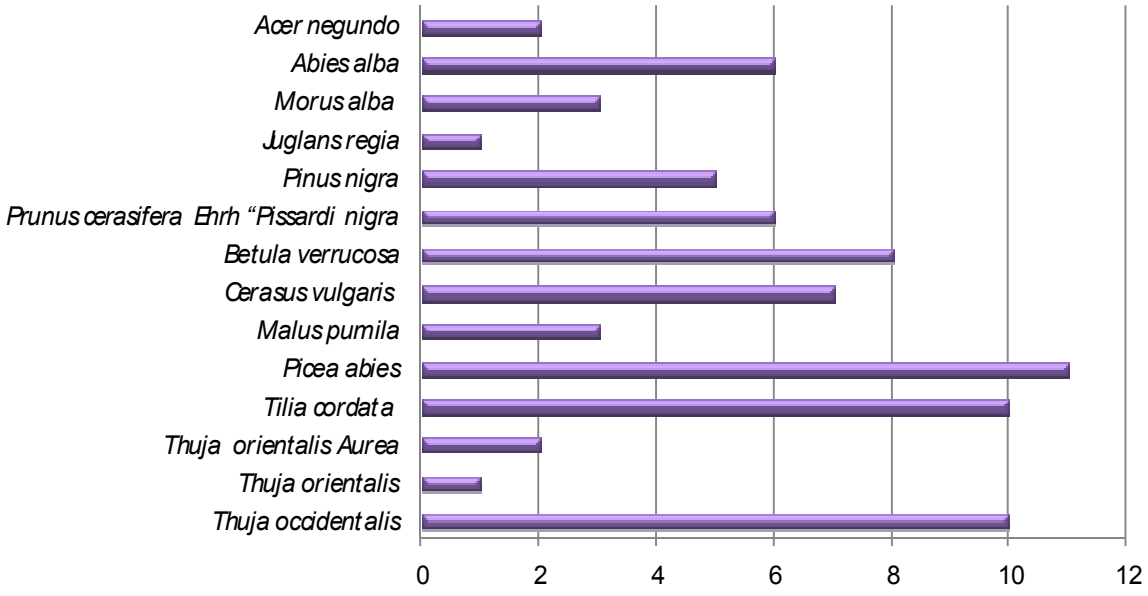

Figure 2. Number of each tree species

Total number of shrubs of the campus is 129, the first being *Ligustrum vulgare, Buxus sempervirens* and *Juniperus horizontalis* (figure 3).

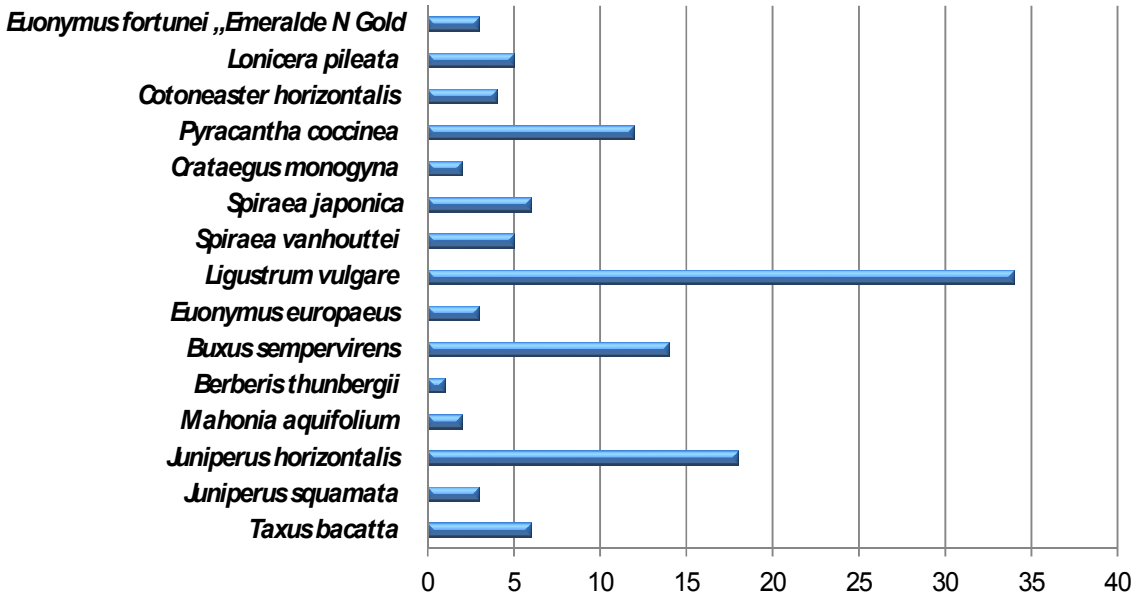

Figure 3. Number of specimens of each species of shrub

Floristic inventory includes 31 taxa distributed in 25 genera and 15 families, the largest share is held by families: Rosaceae, Cupressaceae and Pinaceae.

Bioforms spectrum analysis shows the total share of phanerophyte (100%), woody plants (trees and shrubs), with buds situated above ground level. Statistical analysis of dendroflora campus followed also and a parallel between the total number of species of trees and shrubs used in the green spaces, so the percentage of shrubs is slightly above trees.

Built plan, required the addition of three distinct plans: limit of green space, the limit of construction and the limit points of dendroflora (figure 4).

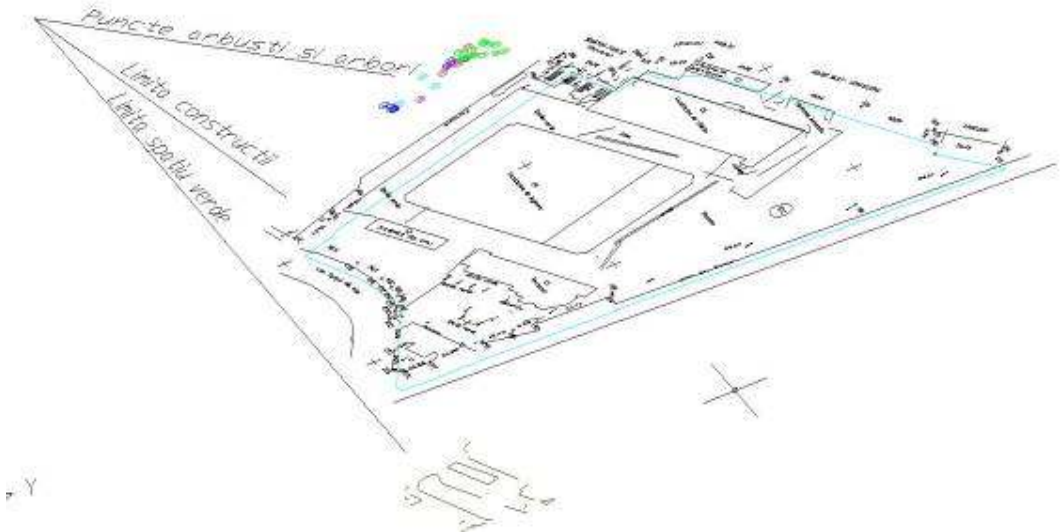

Figure 4. Plan's stratification

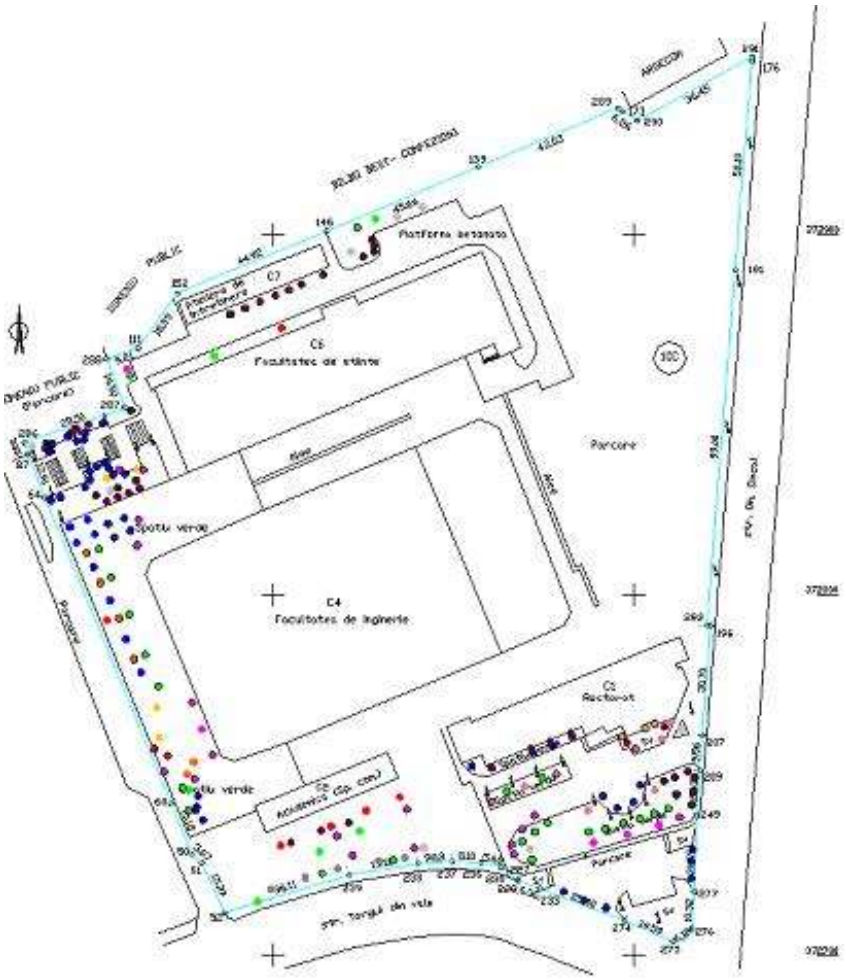

Figure 5. Dendroflora map - final distribution on campus

After reporting all points recorded GPS coordinates X, Y and Z in system Stereo '70 (table 1) and from overlapping of information layers, result the final distribution plan (figure 5).

Table 1. Identification (extract)

PLANT NAME	X	Y	Z
Thuja occidentalis	372791,67	490649,1	253,51
	372754,24	490667,66	253,36
	372756,1	490664,11	246,11
Juniperus squamata	372755,63	490683,11	263,18
	372749,92	490677,38	265,98
	372745,04	490676,29	261,64

Euonymus fortunei „Emeralde N Gold”	372750,15	490676,28	260,91
	372753,59	490677,92	273,23
	372753,51	490678,3	279,69
Cotoneaster horizontalis	372760,28	490668,45	195,1
	372832,41	490653,87	253,97
	372834,88	490662,22	257,39
	372768,67	490667,66	253,81
Thuja orientalis	372735,14	490677,22	253,40
			
Thuja orientalis aurea	372746,12	490725,15	252,62
			
	372875,57	490691,68	241,43
Tilia cordata - tei	372709,13	490693,45	259,1
	372720,33	490700,52	258,12
	372724,23	490701,96	258,09
	372723,6	490709,6	257,91
	372724,86	490715,65	257,02
	372722,06	490714,39	250,6
	372725,06	490722,83	251,05
	372727,72	490728,03	256,48
Spiraea vanhouttei	372745,49	490734,22	255,05
	372743,77	490732,13	257,17
	372735,62	490713,58	258,84
	372734,59	490712,71	266,54
	372868,03	490672,41	257,31

Picea abies	372727,64	490710,04	255,41
	372828,34	490645,97	269,05
	372842,54	490638,42	274,5
	372839,36	490655,54	268,79
	372837,76	490657,11	271,86
	372833,09	490665,73	251,55
	372838,81	490669,6	274,08
	372852,18	490656,2	249,81
Taxus bacata	372756,39	490759,91	255,01
	372752,27	490766,05	259,65
	372749,82	490773,37	266,97
	372752,98	490778,66	262,59
	372746,88	490768,76	260,22
	372763,64	490804,51	254,4
Mahonia aquifolium	372756,98	490800,49	257,19
	372760,78	490802,54	251,78
Cerasus vulgaris	372762,54	490804,81	249,83
	372741,42	490769,37	270,68
	372731,41	490772,21	258,54
	372741,97	490780,6	257,64
	372724,18	490810,86	255,08
	372757,48	490809,64	248,45
	372748,74	490786,07	256,82
Crataegus monogyna	372746,36	490775,12	257,41
	372747,28	490769,8	256,45
Pinus nigra	372740,43	490813,15	251,3
	372741,63	490819,06	255,35
	372753,36	490814,87	243,59
	372750,26	490818,66	251,19
	372747,47	490818,53	258,4

Juglans regia	372859,7	490613,92	283,4
			
Morus alba	372347,31	490555,76	259,7
	372827,4	490659,01	253,14
	372923,49	490767,11	255,36
Abies alba	372879,2	490701,94	248,45
	372886,47	490717,27	239,07
	372866,85	490680,84	292,58
	372851,7	490664,65	263,67
	372841,1	490643,2	254,44
	372840,21	490639,13	250,16
Lonicera pileata	372885,13	490709,2	249,33
	372894,78	490708,78	229,06
Acer negundo	372936,77	490779,48	253,49
	372920,47	490786,18	263,78
Spiraea japonica	372759,13	490797,43	249,43
	372754,36	490798,34	256,84
	372759,09	490800,64	257,19
	372770,2	490804,81	249,83
	372768,39	490810,87	252,07
	372759,81	490796,98	252,13

Buxus sempervirens	372731,51	490759,96	251,97
	372732,76	490757,59	254,1
	372737,14	490760,65	242,16
	372714,37	490764,89	239,51
Ligustrum vulgare	372757,24	490815,72	246,93
	372753,55	490822,54	237,32
	372749,2	490820,87	250,89
	372744,09	490819,38	251,1
	372736,36	490814,17	262,91
	372732,19	490809,76	257,71
	372738,84	490801,27	250,32
	372737,74	490795,54	251,94

The contribution of this paper is especially practical: in addition to applying the modern mapping technology in life sciences, provides arguments for reconsidering management of green spaces. From the analysis of data obtained through observations and measurements, Pitesti University campus located in the Targul din Vale, data processed using Geographic Information System and by comparison with literature result the following conclusions: this project can be extended to a complete complex cadaster feature where you can calculate the ecological function and the function of green landscape: considering that the study area has a major benefit for the youth, report between green space and artificial surface is less. Noting the progressive degradation of environmental quality is recommended to make a green cadaster in Pitesti.

4. CONCLUSIONS

Regardless of belonging and purpose, green spaces contribute to environmental improvement, maintaining ecological balance, to improve the assortment of ornamental plants and harmonization between artificial and natural landscapes in order to achieve a favorable ambience conduct to the anthropogenic activities. The main objective of green cadaster is contribution to a good maintenance of all plant species of trees and shrubs. Paper by subject and results matter, is a first step in achieving green cadaster Pitesti.

Landscaping connects the natural and anthropogenic enviroment, landscaper has the mission to harmonize the built environment with the nature one, to integrate into the landscape visual effects for enhance a positive feeling. Landscaping highlights the a type of building by directing the viewer, by filtering the images and making games shadow and light, color and texture.

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