LAND SURVEY AND CADASTRAL MEASUREMENT IN HORTICULTURE

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Abstract
In this study was a combination of geographic features with the topo-cadastral topography with a strongly practical, with wide application in the entire national economy. The study area was the area Rucar Arges county, located in the extreme southern intermountain basin Rucăr – Bran. It is situated at an altitude of 750 meters on the south side of Piatra Craiului Mountains, and at the foot of Fagaras, on their lower part of the mountain range formed Iezer – Păpuşa. Horticultural point of view we have identified populations of lady's slipper (Cypripedium calceolus L.) The results obtained were as species identification and positioning as topographic coordinates X, Y and Z share and in terms of reporting orthophotomapping was performed on the exact position of this species.

Keywords: Cypripedium calceolus L., orthophotomap, natural habitat, topographic cartography.

1. INTRODUCTION

Cypripedium calceolus L. or "Lady's Slipper" is a very rare species of orchids that live in Romania (Alexiu, 1998). Today, exotic orchids can be found in any flower shop, unfortunately the local fast disappearing from their natural habitat. Modern mentality to receive daily things artificially influences the orchids. Habitats of origin of the alpine soil that plants grow and multiply soil is poor in trace elements and necessary biological development.

Figure 1. Geological substrate Cypripedium calceolus (original)

In the natural environment (Figure 1), especially *Cypripedium calceolus* depend on mycorrhizal colonization of the development it offers the necessary nutrients (Chapin, 1980; Kielland and Chapin, 1992; Körner, 1999). This is due to the slow decomposition of organic matter and minerals at low temperature and nutrient gradient is decreasing with increasing altitude. Mycorrhizal

colonization had a wide range of enzymes to break down organic matter. Therefore, this cohabitation is advantageous for plants in meeting nutrient needs. Optimum range of mycorrhizal colonization development of specific alpine areas is between 8-15 0C (Caldwell et al., 2000). All types of mycorrhiza can be found in alpine areas, but their lack of certain areas may explain the reason why some plants are not found in those areas (Körner, 1999).
The distribution area of this species occupies a large part of Europe, in North West England, Scandinavia to the north, rarely reaching the South Mediterranean mountain areas. In eastern reaches Siberia, Caucasus and Japan. It is widespread in Romania (Alba, Argeş, Bacău, Bistriţa, Covasna, Harghita, Iaşi, Maramureş, Neamţ). On the territory of the National Park, the species is rare, being reported only in the Rucăr (Pop, 2007). In agriculture and horticulture, surveying works are used to organize the agricultural land in the calculation and accounting areas in the design and drawing work on fruit-growing plantations, agro-forestry, the design and execution of land reclamation. In this paper we conducted a different application, giving unique subject.

2. MATERIAL AND METHOD

Mapping between the land was late spring, when the ground was already covered with vegetation. Previous phase has purchased the land topographical plans and maps relief situation represented by contour lines. After purchasing topographic base and the literature study existing land were recognized for topographic maps to see if appropriate. Also in this phase was prepared notebook observations, tools and accessories. For mapping travel routes were established perpendicular to the valleys and peaks.

Figure 2. Administrative territorial limits of Rucăr locality (original)

During field work, we used total station NTS-350 SOUTH produced by South Surveying, adopting a dual system of issuing and receiving optical signal, thus increasing quality and performance of topographic equipment. GPS sites used come from Sokkia Company, Stratus model with 12 channels, signal L1 C / A code, Accuracy 5m, 1m, 5mm, cold start 2min., Warm start 45s, resume 3s internal antenna.
Identified species belongs to *Cypripedium calceolus* L., popular named *Lady Slipper,* belongs to the Kingdom *Plantae*, Phylum *Spermatophyta*, Class *Liliopsida*, Order *Orchidales*, Family *Orchidaceae*, Genus *Cypripedium*.
It is a plant with tall stems of 15-50, even 70 cm, cylindrical, sometimes 5 leaves wide elliptical to arranged alternate (Figure 3). Flowers are usually solitary, large, sometimes two, rarely three or four. Tepalles are four in number (except the label) and have a brown, vesicular label is yellow. Symbiotic relationships it establishes with fungi in the soil, allowing them to obtain sufficient

nutrients substances. Are extremely sensitive to excess fertilizers and fungicides, as they can affect mushroom and orchid disappears (Ciocârlan, 2009).
The plants have a period of 2-3 weeks of blossoming in the middle to late spring.
It can be grown by vegetative or generative tubers by seed, but seed germination requires the presence of species of fungi.

Figure 3. Cypripedium Calceolus L. (original)

3. RESULTS AND DISCUSSIONS

Population of the "Lady's Slipper" (*Cypripedium calcelous* L.) was located to Rucăr on top of the Cross (to Darste) in a meadow within a mesophilic pasture in the beech forests (Figure 4), where appear dissemination spruce (*Picea abies*). *Cypripedium calceolus* has found the optimum ecological environment of plant associations coenotic *Anthoxantho-Agrostetum capillare* Siliger 1933, characteristic habitat classification NATURA 2000 the 6520 - Mountain hay meadows.

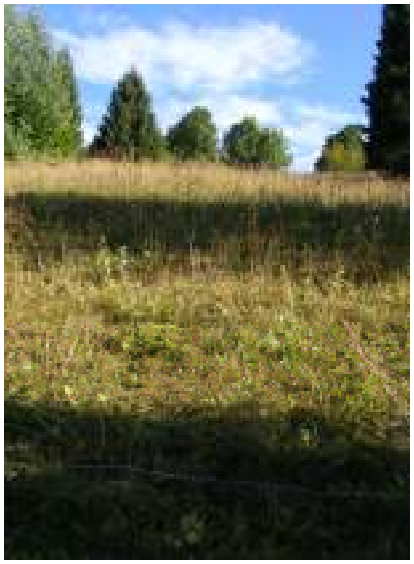

Figure 4. The area occupied by Cypripedium L. calcelous to Rucăr-Arges (original)

Along with *Cypripedium calceolus*, grassy rug is completed by species such as the: *Ophioglossum vulgatum, Trollius europaeus, Fragaria vesca, Alchemilla vulgaris, Potentilla erecta, Anthyllis*

vulneraria, Trifolium montanum, T. repens, T. pratense, Lotus corniculatus, Linum catharticum, Carum carvi, Astrantia major, Laserpitium latifolium, Pimpinella saxifraga, Heracleum sphondylium, Polygala amara, Hypericum maculatum, Helianthemum nummularium, Salix caprea, Populus nigra, Primula elatior, Gentiana asclepiadea, G. cruciata, Plantago major, P. media, Pedicularis comosa, Melampyrum bihariense, Rhinanthus rumelicus, Galium verum, G. cruciata, Thymus balcanus, Teucrium chamaedrys, Prunella vulgaris, Euphrasia rostkoviana, Scabiosa lucida, Phyteuma tetramerum, Campanula glomerata, C. rapunculoides, C. patula, C. persicifolia, Leontodon hispidus, Carlina acaulis, Tanacetum corymbosum, Tragopogon orientalis, Cirsium erisithales, Centaurea pseudophrygia, Achillea millefolium, Colchicum autumnale, Maianthemum bifolium, Listera ovata, Orchis morio, Neottia nidus-avis, Gymnadenia conopsea, Platanthera bifolia, Briza media, Dactylis glomerata, Agrostis capillaris, Anthoxanthum odoratum, Trisetum flavescens.

Of rare species present on the site we mention: *Listera ovata, Orchis morio, Neottia nidus-avis, Gymnadenia conopsea, Platanthera bifolia, Phyteuma tetramerum, Trollius europaeus*.

Figure 5. Orthophotomap Cypripedium calceolus* L. *(original)

In terms cadastral measurement data were obtained following coordinate Stereo '70:
X= 431364,00 m Y=514140,00 m Z=949 m;
Area that is located: S= 100 mp;
Legal situation of land: physical property.

4. CONCLUSIONS

In horticultural point of view we have identified populations of "Lady's Slipper" (*Cypripedium calceolus* L.) a mesophilic meadow within a beech forest in the Rucăr locality. Related results not only identify the species, but also the positioning as topographic coordinates X, Y and Z share and in terms of reporting orthophotomapping was performed on the exact position of this species. Using orthophotoplans and mandatory placement Stereo system 70 has eliminated some discussion and controversy regarding the placement areas;

The spectacular advances in computers have opened new opportunities for achieving graphics party mapping applications. For the use of electronic computers to these records, raw data must be processed and converted into standard formats as plain, including basic information on study objectives.

5. ACKNOWLEDGEMENTS

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