

ROCKERY AREA FROM BIOLOGICAL SECTION OF “ANASTASIE FĂTU” BOTANICAL GARDEN

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Abstract: Rockery theme area from Biological Section groups a large variety of plants which are originating from different parts of the world and with different environmental requirements. There are presented both species with significant result during last years and those species which were not accustomed to physical and geographical conditions.

Keywords: casmophyte, rockery, Biological Section

Introduction

Rockery is one of the most attractive area both for public and teaching interests of Botanical Garden because it representing a space used for “ex situ” preservation.

Rockery from Biological Section has the main theme to illustrate some aspects of plants evolution which is an important subject because of scientific and aesthetic reasons.

Materials and methods

In according to the original theme (established during the '70s), we keep the collections that were well acclimatized to the local environment conditions of this place. During the last years, our concerns were focused on the improvement of plant funds both from quantitatively and especially qualitatively point of view.

The fossiliferous calcareous grit stones from Middle Sarmatian Age, from Repedea (Iași County) are populated with plants which illustrating aspects of the flower evolution from actinomorphic to zygomorphic symmetry plan or from dialipetalous to gamopetalous flowers.

In the group of rockeries, located near by the garden axis consists of sedimentary rocks from the quarry Mold (Câmpulung Moldovenesc – Suceava County), are presented few evidences of morphological evolution for some plants (roots, stems and metamorphosed leaves, progressive and regressive metamorphoses of flowers) and typical plant species for rockery areas (Plate I – a, b, c).

Results and discussions

To achieve the proposed goals, we pursued the following main directions:

- correlations between typical plants choice and the context (theme, rock type, degree of sunburn);

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- ensuring of abiotic conditions as close to the specific requirements of chosen plants (it is already known the difficulties of ensuring that environmental conditions necessary for a large variety of plants are not neglected);
- creating a “whole” which has to accomplish aesthetic requirements reflected in harmony between flower and/or leaves colours, flowering period extension by using some new typical infrataxa created for alpine species which were been obtained through modern methods and acclimatized to cultivation conditions.

For a right answer to those mentioned problems, we undertaken the following:

- it maintain existing plant funds on the initial location, with a improved substrate, if necessary with calcareous soil (from Repedea, Drăgoiasa and Hagieni), fibrous peat (from Poiana Stampei), brown and blond peat (from Belarus), red soil with iron (from Albești - Constanța), sand with large grain (from plain Siret River), soil of leaves local product and soil of celery (from Rediu – Iași).

Species that have survived very well in these local climatic conditions and which maintaining the number of individuals are following: *Alyssum saxatile* L., *Arabis caucasica* Willd. ex Schlechtend. ‘*Rosea*’, *Arabis alpina* L. subsp. *alpina*, *Aubretia x hybriden*, *Anemone hupehensis* (Lemoine) Lemoine ‘*September Charme*’, *A. sylvatica* L., *Aster caucasicus* Willd., *Ajuga reptans* L., *Anchusa azurea* Mill., *Betonica officinalis* (L.) Trev., *Cerastium alpinum* L. subsp. *lanatum* (Lam.) Aschers. et Graebn., *Euphorbia myrsinites* L. subsp. *myrsinites* (Plate I - d), *Geranium macrorrhizum* L. (Plate I - e), *Helleborus odorus* Waldst. et Kit., *H. purpurascens* Waldst. et Kit., *Hosta sieboldiana* (Hook.) Engl., *Hypericum calycinum* L., *Iberis sempervirens* L., *Pennisetum alopecuroides* (L.) Spreng, *Polemonium caeruleum* L., *Potentilla recta* L., *P. reptans* L., *Salvia ringens* Sibth et Sm., *Sedum acre* L., *S. album* L., *S. hispanicum* L., *S. spurium* M. B., *S. stoloniferum* S. G. Smet., *S. telephium* L., *Stachys byzantina* K. Koch, *Veronica austriaca* L., *Vinca minor* L.

Taxa that have been maintained, but which registered a decreasing of individuals number with a positive responds are the following: *Ajuga reptans* L. ‘*Variegata*’, *Hepatica transsilvanica* Fuss, *Lychnis chalcedonica* L., *L. coronaria* (L.) Desr., *L. viscaria* L., *Paeonia tenuifolia* L., *Phlox subulata* L., *Potentilla chrysantha* Trevir., *P. rupestris* L., *Pulsatilla vulgaris* Mill.

- the taxa from spontaneous flora, which had a good performance in culture conditions during the last 2-3 years, are the following: *Acinos alpinus* (L.) Moench., *Adonis aestivalis* L., *Asperula carpatica* Morariu, *Bassia prostrata* (L.) A. J. Scott, *Epimedium alpinum* L. (Plate I - f), *Euphorbia glareosa* Pallas ex Bieb. subsp. *dobrogensis* (Prodan) Ciocarlan, *Hepatica transsilvanica* Fuss, *Iris brandzae* Prodan, *Poa bulbosa* L., *Silene nutans* L. subsp. *dubia* (Herbich) Zapal, *Satureja caerulea* Janka, *Teucrium pollium* L., *Thymus balcanus* Borbas, *T. glabrescens* Willd., *T. pulegioides* L., etc.;
- taxa from spontaneous flora which not resist in our conditions are the following: *Campanula carpatica* Jack (Plate II - a), *Dryas octopetala* L., *Leontopodium alpinum* L. (Plate II - b), *Minuartia loricifolia* (L.) Schinz ex Thell.;
- plants from sowing (seeds from the international exchange of seeds and spontaneous flora) on some substrates with their specific ecological requirements and which had a good performance in vegetation process during the last 2-3 years, are the following: *Achillea ptarmica* L., *Alyssum murale* Waldst. et Kit., *Alyssum saxatile* L. ‘*Goldklügel*’, *Alyssum saxatile* L. ‘*Compactum*’, *Andryala integrifolia* L., *Anemone blanda* Schott et

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- Kotschy, *A. multifida* Poir. 'Rubriflora', *Aquilegia caerulea* James, *A. nigricans* Baumg., *Arabis sovery* Reut. et Huet subsp. *subcoriacea* (Gren.) Breistr., *Armeria maritima* (Mill.) Willd., *Asphodeline lutea* (L.) Rchb., *Aster alpinus* L. var. *dolomiticus*, *Azorina vidalii* (H.C.Wats.) Feer, *Saponaria ocymoides* L., *Thymus* × *citriodorus* (Pers.) Schreb., *Gentiana sinoornata* Balf., *Campanula glomerata* L. 'Alba', *C. glomerata* L. 'Superba', *C. poscharskyana* Degen (Plate II - c), *C. rhomboidalis* L., *C. rotundifolia* L. subsp. *rotundifolia*, *C. collina* M. B., *C. cochleariifolia* Lam., *C. cochleariifolia* Lam. 'Weiss', *C. carpatica* Jack var. *turbinata*, *C. carpatica* Jack 'Deep Blue Clips', *C. carpatica* Jack 'White Clips', *C. latifolia* L., *C. ochroleuca* Mevr. V. Vollenhove, *C. punctata* Lam., *C. portenschlagiana* Schult., *C. punctata* Lam. 'Cherry Bells' (Plate II - d), *C. thyrsoides* L., *Cerintho major* L. 'Atropurpureus', *Auebrieta* × *hybriden* 'Royal Red', *Codonopsis clematidea* (Scrogg. ex Fisch. et Mey) C. B. Clarke, *Hypericum montanum* L., *Jasione montana* L., *Lagoecia cuminoidea* L., *Papaver bursrei* Crantz, *Delosperma davayi* N. E. Br., *D. herbeum* N. E. Br., *Dianthus deltoidea* L., *D. arenarius* L., *D. knapii* (Pant.) Aschers et Kan ex Borb., *D. carthusianorum* L., *D. spiculifolius* Schur, *D. superbus* L., *Gypsophylla cerastioides* D. Don, *G. muralis* L., *G. repens* L., *Legousia speculum-veneris* (L.) Chaix, *Leontopodium alpinum* Cass, *L. alpinum* Cass 'Materhorn', *L. linearifolium* Hand.-Mazz., *L. himalayana* DC., *L. palibinianum* Beauverd, *Viola sororia* Willd., *V. labradorica* Schrank, *Aquilegia canadensis* L., *A. caerulea* James, *A. flabellata* Sieb. et Zucc. var. *pumila* (Huth) Kudo (Plate II - e), *Achillea ageratifolia* (Sibth et Sm.) Boiss., *Cymbalaria muralis* Ph. Gartn., *Gentiana septemfida* Pall. var. *lagodechiana* Kusn., *G. sinoornata* Balf. 'Alba', *Sanvitalia procumbens* Lam., *Scutellaria alpina* L., *Silene zawadzki* Herbich, *S. pendula* L. 'Compacta', *Hutchinsia alpina* (L.) R. Br., *Petrorhagia saxifraga* (L.) Link, *Platycodon grandiflorum* (Jacq.) A. DC., *Polemonium caeruleum* L. 'Alba', *Pulsatilla alpina* (L.) Delarbre, *P. halleri* (All.) Willd.
- taxa from trades with living plants or seeds material which have good performances and which expanding given space and number of individuals, are the following: *Anemone blanda* Scott et Kotsky 'Blue star' (Plate II - f), *Armeria maritima* (Mill.) Willd. 'Leucantderosa', *Campanula cochleariifolia* Lam. 'Elisabeth Olivier', *C. portenschlagiana* Schult 'Alpines', *Carex buchananii* Berggr., *Festuca valesiaca* Schleich. ex Gaud. 'Glaucantha', *Fragaria vesca* L., *Hebe* × *andersonii* (Lindl. et Paxt) Cock., *Iris pumila* L., *Lamium maculatum* L. 'Silver Backon', *Lysimachia nummularia* L. 'Goldklügel', *Phlox subulata* L. 'Millstream Daphne', *Thymus vulgaris* L. 'Foxley', *Sedum lineare* Thunb. 'Lineamaculata', *Sempervivum arachnoideum* L., *S. tectorum* L., *Sempervivum* L. 'Raspberry Ice'.

Conclusions

Specific activity for "ex situ" preservation representing a continuous process that we have to resume multiplying plants each year with other environmental requirements to achieve a sufficient required reserve stocking both for populate of rocks and botanical researches.

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In the Biological Section are cultivated over 150 taxa belonging to 63 genera and 28 botanical families with different ecological requirements, which vegetate well in our conditions. Our efforts are rewarded by the beauty and tenderness of these special plants.

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a, b, c, – overview; d – *Euphorbia myrsinites* subsp. *myrsinites*; e – *Geranium macrorrhizum*;
f – *Epimedium alpinum*



a – *Campanula carpatica*; b – *Leontopodium alpinum*; c – *Campanula poscarskyana*;
d – *Campanula punctata* 'Cherry Bells'; e – *Aquilegia flabellata* var. *pumila*;
f – *Anemone blanda*