



Genetic Resources and Ornamental Plant Breeding in Latvia

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Gladiolus imbricatus L.

Introduction

Latvia is situated in the vegetation zones between Northern and Central Europe. The country distinguishes itself with a large variety of flora - total approximation 1,800 species, of which 1,310 species are local vascular plants (Gavrilova, Šulcs, 1999). Over recent decades, under the impact of human activity many of rare species have decreased considerably – despite strict protection.

Currently the Red Data book has played a certain role in the protection of threatened species. In the Red Data Book of Latvia, 319 plant species are included, respectively, 16,6 % of all vascular plant species found (Andrušaitis, 2003).

The research focused on evaluating the genetic resources of genus with exclusive ornamental qualities - *Allium L.*, *Gladiolus L.*, *Lilium L.*, and *Tulipa L.*

Materials and Methods

During the growing seasons of 2001, 2003, 2006 and 2013, in locations of natural habitat the following phenological observations were made:

- the flowering time (date),
- plant height (cm),
- number of flowers per stem (count),
- the flower diameter (cm)
- the leaf size (cm)

The environment of each individual habitat was researched. The initial data of the natural habitats were provided at the Laboratory of Botany of the Institute of Biology of Latvia University.

Results and Discussion

Ramsons (*Allium ursinum L.*) belongs to the family *Alliaceae* and is included in the Red Data Book in the third category – rare species.

Habitat: found on the left bank of Lielurga River, District of Limbazi, in shady broad-leaved forests among trees and shrubs in monodominant groups along with *Tilia cordata* Mill., *Betula pendula* Roth, *Picea abies* (L.) H.Karst., *Coryllus avellana* L., and caulescent plants - *Vicia sepium* L., *Oxalis acetosella* L., *Convallaria majalis* L., *Athyrium filix-femina* (L.) Roth, *Galeobdolon luteum* Huds. All were found in flood plains area in humus rich soil.



Phenological characteristics: Plant height – 30-35 cm, stem: triangular, with two elliptic leaves (23 cm long x 7 cm wide); flowers – many, small, white flowers placed in umbrella (diameter 5 cm), fragrance - strong garlic odour; flowering time – in May.

Allium ursinum L.



Tulipa sylvestris L.



Fig1. Observed habitats of *Allium ursinum L.*, *Gladiolus imbricatus L.*, *Lilium martagon L.* and *Tulipa sylvestris L.*

Abbreviations:

▲ *Allium*; ■ *Gladiolus*; ● *Lilium*; ○ *Tulipa*

Shingled gladiolus (*Gladiolus imbricatus L.*) - family *Iridaceae*; included in the Red Data Book, third category – rare species.

Habitat: flood plain meadows, river banks, edges of forests. Growing in groups in very few areas: on the left bank of the Gauja River, District of Riga.

Phenological characterization: Plant height – 70 high, stem - 15 cm long x 1,5 cm wide, with 2-3 linear xiphoid leaves, flowers - bright purple-pink (3,5 cm diameter) placed in raceme; flowering time: June to July. (Propagated by seeds and tubers).

Martagon lily (*Lilium martagon L.*) - family *Liliaceae*; naturalized ornamental plant; bulbous plant. Significant phenotype variations were observed between *L. martagon* found in different habitats that differ regionally - in the regions of Aizkraukle (Vīgante, Staburags, Klīntaine), Ventspils (Rīva), Kuldīga (Padure) and Tukums (Plāņi) (Figures 2, 3 and 4).

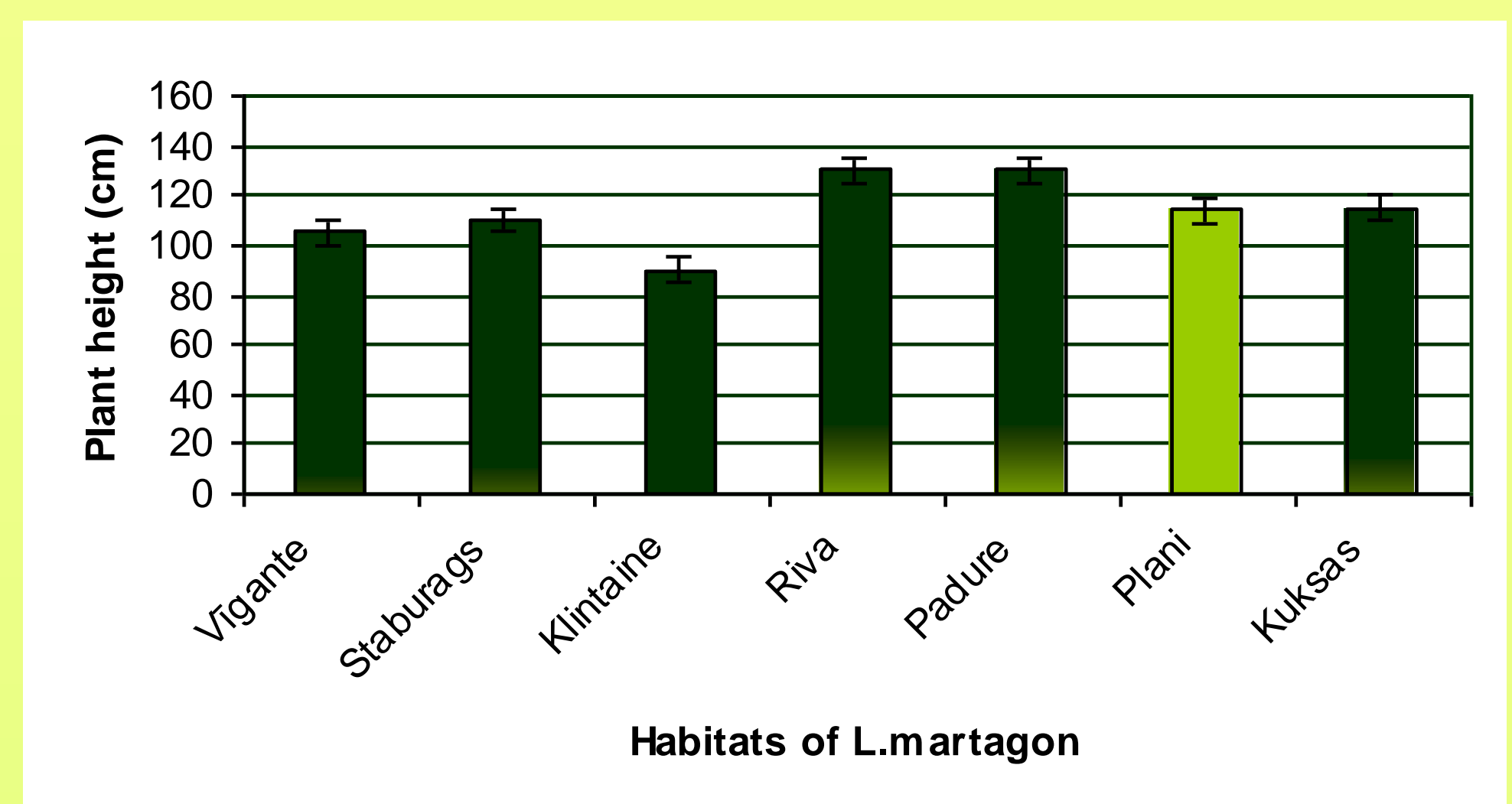


Fig 2 The average plant height at different *L. martagon* habitats.

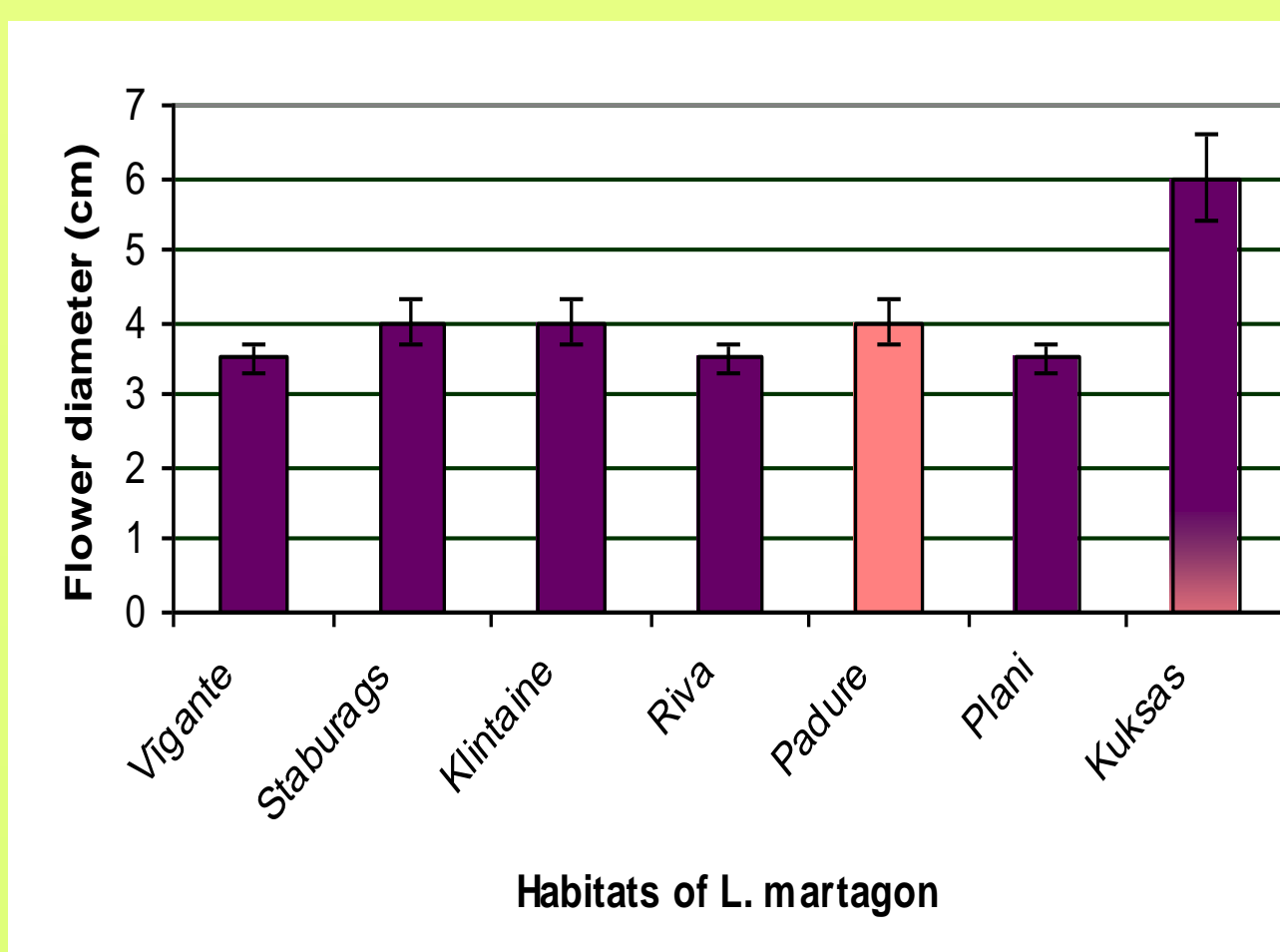


Fig 3 The average number of flowers at different *L. martagon* habitats.

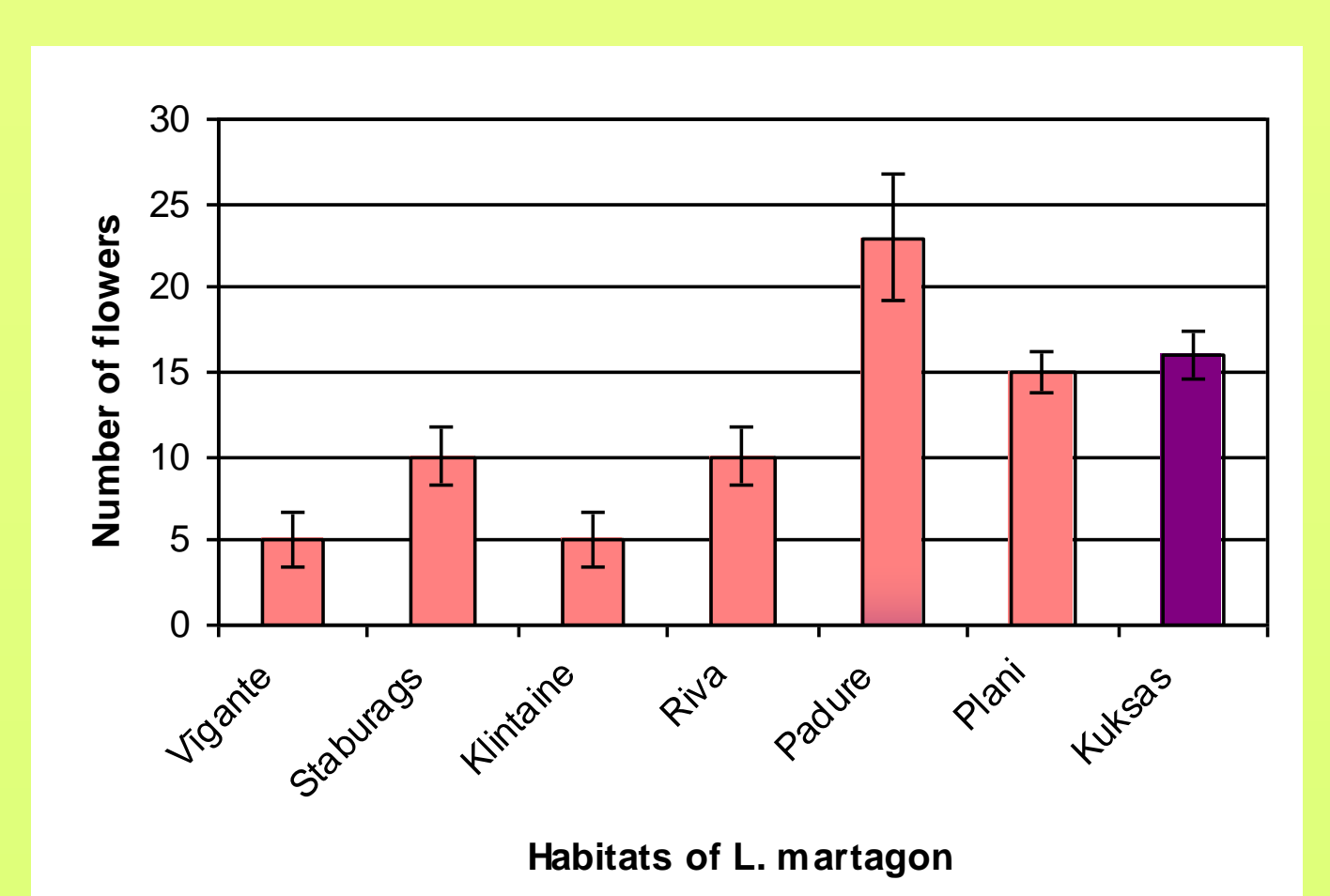


Fig 4 The average flower diameter at different *L. martagon* habitats.



Plāņi



Padure



Kukšas

Variability of flowers of *L. martagon* at different habitats

Wild tulip (*Tulipa sylvestris L.*) family *Liliaceae*; rare; naturalized ornamental plant; bulbous plant.

Habitat: flood plain meadows by the River Lielupe, District of Jelgava. Phytocenosis: *Alopecurus pratensis L.*, *Alchemilla vulgaris L.*, *Phleum pratense L.*

Phenological characterization: Plant height 20-40 cm; stem, with 2-4 alternately linear leaves (10-20 cm long x 1-2.5 cm wide), flowers – yellow, 4-7 cm diameter; flowering time: May.

Breeding of ornamental cultivars

In the International Lily Register of 13,000 registered lily species, cultivars and hybrids, 350 specimens have been created by Latvian breeders (Matthews, 2007). Many of the cultivars that originated in Latvia are endangered and in limited supply; therefore a lot of work is planned on maintenance and utilization of these plants.

Conclusions

1. A questionable habitat: if a population is confined to a restricted vicinity (a village), it may have originated from some cultivated species.
2. In diverse natural habitats phenotype variation observed to be notable.