Research work on *Vitis vinifera* ssp. *sylvestris* in Slovakia

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Abstract: By 2008, twelve localities had been investigated. At each location we assessed the degree of threats to the wild grapevine. Flowering plants were seldom found. The plants found were localized geographically, and 149 vines were described using the characteristics of shoot types and leaves, using the O.I.V. descriptor list. Morphological differences of the leaf shape, hair or bristle density are high. A few seeds which were found in dry black berries are much smaller in size than the seeds of *Vitis vinifera* ssp. *sativa*. From plants that were easily attainable, cuttings were taken with the objective to multiply the *Vitis sylvestris* and to establish an *ex situ* collection. In 2008, we repeated the procedure with 54 vines. The state of health of the vines *in situ* is very good. No fungal diseases were visible, and mites occurred only rarely. In the nursery, some plants were contaminated by mildew.

Keywords: conservation; evaluation; *Vitis sylvestris*; wild plants

In Slovakia *Vitis vinifera* ssp. *sylvestris* Gmel. occurs in meadow woods of the river basins (Danube, Morava, Nitra, Tisza, and Bodrog). Preceding examination studies of Eliáš *et al.* (2003), and Sádovský and Zlacká (2005), who referred to the endangered plants in Slovakia, listed *Vitis vinifera* ssp. *sylvestris* Gmel. as among them.

Our final results on the occurrence in Slovakia of *Vitis sylvestris* date from 2006 to 2008 (Pospíšilová *et al*. 2007a, b). This experimentation is a part of the EU Project GrapeGen06 "Management and Conservation of Grapevine Genetic Resources", Work Packet 4, coordinated by I.N.R.A. Montpellier.

METHODS AND AIMS

We identified 23 localities, mainly in meadow woods, in which wild vines could be found. They were detected in the river basins of the Danube, Morava and Nitra. Sádovský (2007, personal communication), gave us additional information based on his investigations of a further 8 occurrence locations of *Vitis sylvestris* in the river basins of the Tisza and Bodrog in Eastern Slovakia.

From the plants found, samples of shoot tips, leaves, flowers, and seeds (if present) were taken for ampelographical description, and for photo documentation. The geographical position of each plant described was fixed by GPS.

In the woods (*in situ*), visual observations were made of the health state of the lianas found. In particular, downy and powdery mildew from fungal diseases, as well as acariosis from animal diseases were looked for. Twice (in the winter of 2007 and 2008) canes from 30 (in 2007) and 54 (in 2008) plants were taken for both multiplication and planting in *ex situ* collections, as well as for genetic tests (SSR) which are implemented at I.N.R.A, Montpellier. In 2008, crossings of *Vitis sylvestris* were made with black varieties of *Vitis vinifera* ssp. *sativa* L.

RESULTS AND DISCUSION

By 2008, twelve localities were investigated, specifically: In the basin of the Morava: 01 Skalica, 02 Holíč, 03 Kopčany, 05 Kúty, 06 Sekule, 07 Moravský sv. Ján, 08 Malé Leváre, and 12 Vy-

Table 1. *Vitis vinifera* ssp. *sylvestris* Gmel. in Slovakia (up to 12 May 2008)

River basin	Locality	No. of found plants	No. of registered plants	No. of described plants	Photographed plants	No. of flowering plants
	Sekule	4	4	4	4	–
Morava	M. Leváre	1	1	1	1	–
	Vysoká/Mor	11	11	11	6	3
Danube	Čenkov	10	10	10	6	2
Nitra	Úľany nad Žitavou	284	123	93	85	27
Total		310	149	119	102	32

soká pri Morave. In the basin of the Danube: 22 Rovinka, 23 Rusovce, and 29 Čenkov. In the basin of the Nitra: 41 Veľké Úľany (the Great Wood – Veľký les).

Vitis vinifera ssp. *sylvestris* Gmel. was only found on sites 06, 08, 12, 29, and 41 (Table 1). The best location for *Vitis sylvestris* is the Great Wood (Veľký les) of Úľany nad Žitavou, with 248 found lianas. This greatly outnumbers the other sites.

Flowering plants were seldom found. Most lianas, climbing on the trees, reached up to 20 m into the tree crowns; only there do they produce flowers and fruits. Occasionally, we found small bunches of dry berries on the ground.

In the blooming period, we discovered only 32 flowering lianas spread near the ground surface. The ratio between male and female flowers was 53:47%. Negrul *et al.* (1965) describe the ratio between male and female plants as 3:1. Our differing ratio may be influenced by the presence of *Vitis riparia*, types we could talk about later.

From the plants found, we geographically registered 149 lianas, which were described using the characteristics of shoot types and leaves, according to the O.I.V. descriptor list. Morphological differences of the leaf shape, hair or bristle density are great. The bits of seeds which we found in dry black berries are much smaller in size than the seeds of *Vitis vinifera*. Not all of the sites are situated in protected areas, and therefore, *Vitis sylvestris* is most endangered in the unprotected localities. This is also the case in places with a low number of growing plants. For each location we assessed the degree of threat to the wild vine.

Within forest *Vitis* populations other species were also found. We could visually identify 11 rootstock types in the Great Wood of Úľany, but we believe more will be found once SSR identification of our *Vitis sylvestris* plants at Montpellier is completed.

We took canes from plants that were easily attainable, with the objective being to multiply *Vitis sylvestris* and to establish an *ex situ* collection. Cuttings taken in 2007 (from 30 plants) were put for rooting to ordinary water. Only a few of the cuttings rooted and grew afterwards. As we determined later, they were rootstock types only.

In 2008, we repeated the procedure with 54 lianas, using classical propagating methods (stratification of the cuttings and their planting in a nursery), but we did not use growth stimulators. Callusing of the cuttings was also weak. During the vegetation period we identified rootstock types among plants of *Vitis* sylvestris, which grew very well, unlike the *Vitis sylvestris* plants which usually had weak growth. After removal from the propagating nursery, more than 50% of the plants died. The low number of rooted plants might be explained by the very thin cuttings, with only very low nutritive reserves for their growth.

The rooting of canes in a greenhouse (Montpellier) gave better results, with only 37% of plants dying. The roots of *Vitis sylvestris* are visibly thicker than those of *Vitis vinifera* or of the rootstocks, and they are not so branched. The state of health of the lianas *in situ* is very good. No fungal diseases were visible, mites occurred only rarely; but in the nursery some plants were contaminated by downy mildew.

In 2008, we took pollen of *Vitis sylvestris* for artificial pollination of 4 black wine *Vitis vinifera* cultivars. We hope to reach a better fungal-resistance in the progeny, on the basis of pure *Vitis vinifera*.

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