

Inventory and descriptions of wild grapevine (*Vitis vinifera* subsp. *sylvestris*) from Slovenia, Croatia and Bosnia and Herzegovina

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First written records in Croatia since 1879

Vinarsko zelce, Vinarsko žleže, *Lysimachia Nummularia L.* (*Frey.*).

Vinena tikva, *Cucurbita Lagenaria L.* (*Nov.*).

Vinerski zelce (*Bl.*), v. Vinarsko zelce.

Viničevina (*Zag.*), Viničina (*Kalnik*), v. Vinika.

Vinik (= *phoenicea*, *φοίνιξ*), palma (*Stulli*), *Phoenix dactylifera L.*

Vinika, *Vitis vinifera silv. Gmel.* (*Vis. Freyer, Jambr.*), v. Vinjaga.

Vinobaja, *Phytolacca decandra L.* (*Panč.*).

Vinoloza (*Vukas.*), Vinova loza, rus. виноградъ, polj. winorośl, čes. vinový kmen, *Vitis vinifera L.* (*Vuk, Panč.*).
(Voda od vinove loze dobra je ženskinju za kosu, raste od toga. *Milić.*).

(Sadila Mara vinograd

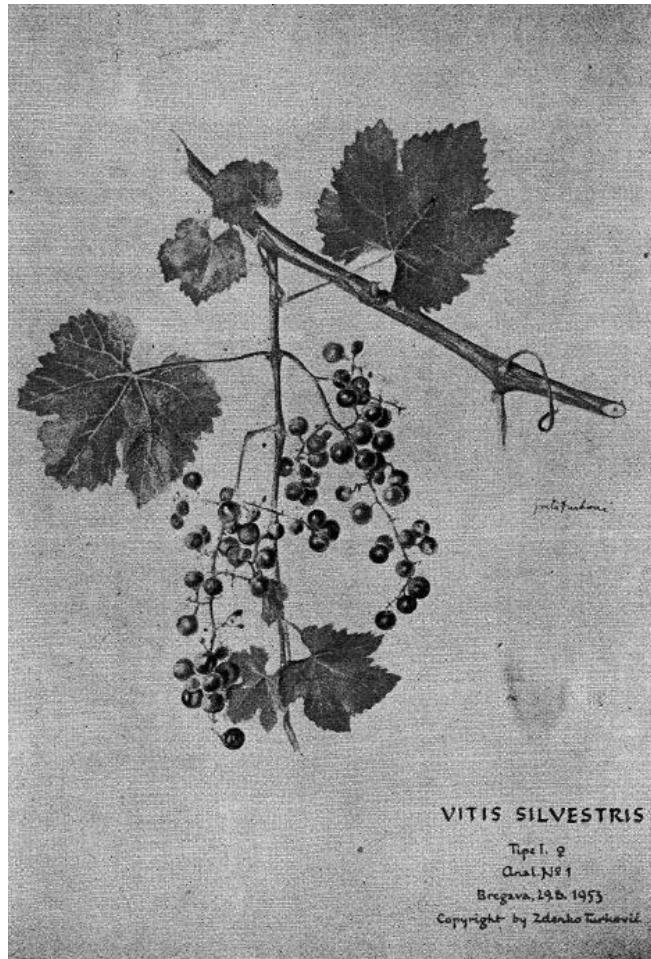
i bielu lozu vinovu. *Nar. pj. Vuk*).

(Zagonetke: Lipa krava lipova, otelila liepa sina a manita unuka. *Vuk*.

Otac kotac, mati dropljuša, sitna djeca, al obiesna. *Slav.*).

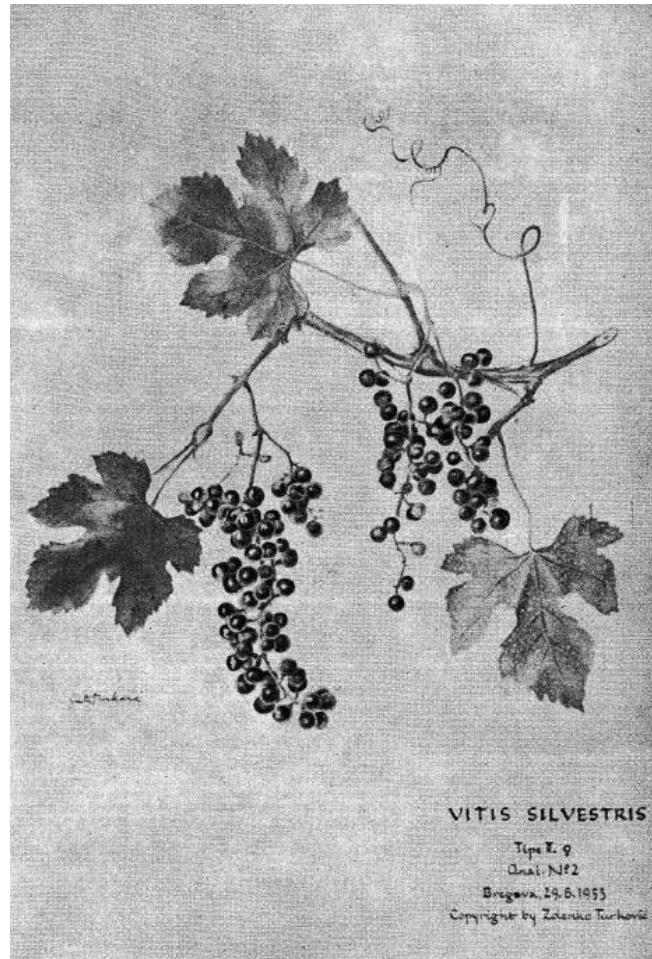
Šulek (1879.), Croatian names: „*vinika*” or „*vinjaga*”

Description of wild grape from Herzegovina



VITIS SILVESTRIS

Tipe I. ♀
Anal. № 1
Bregava, 29.6. 1953
Copyright by Zdenko Turković



VITIS SILVESTRIS

Tipe II. ♀
Anal. № 2
Bregava, 29.6. 1953
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Turković and Sučević – Šafar (1953)

Objectives

- Inventory of wild populations in Slovenia, Croatia and Bosnia and Herzegovina and evaluation of their morphological (shoots, leaves, flowers and fruits) and genetic traits as a necessary step to preserve this valuable genetic resources.

500 km
300 m

Vinje, Velika vas, SLO

15

Psunj, CRO

28

Paklenica, CRO

20

Gizdavac, CRO

5

Modro jezero, CRO

15

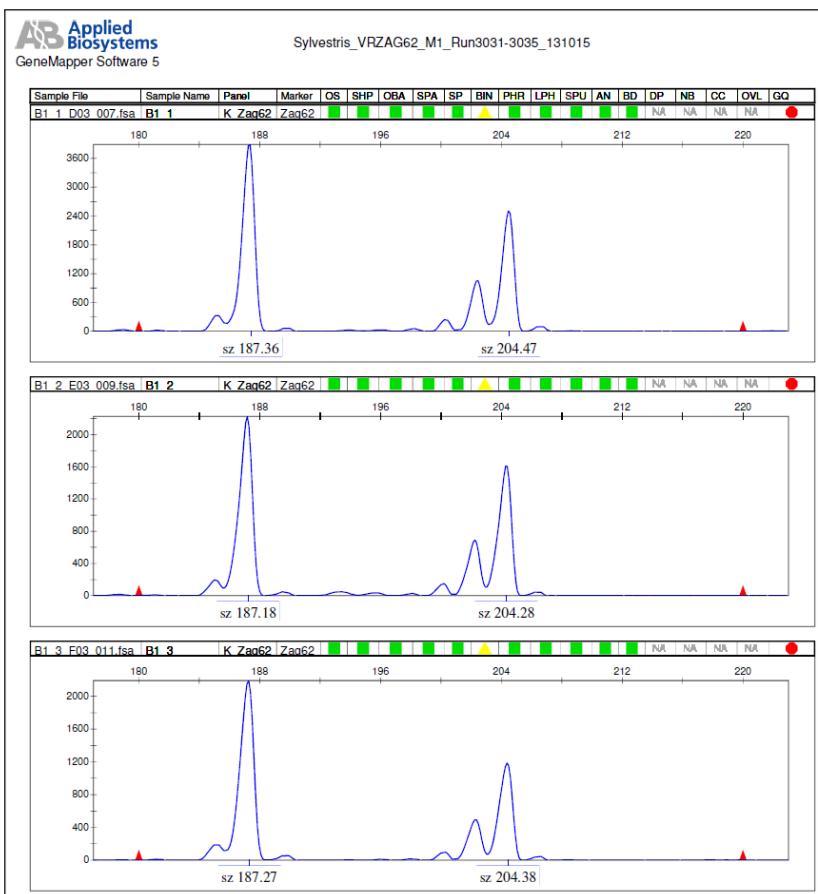
Neretva, BiH

22

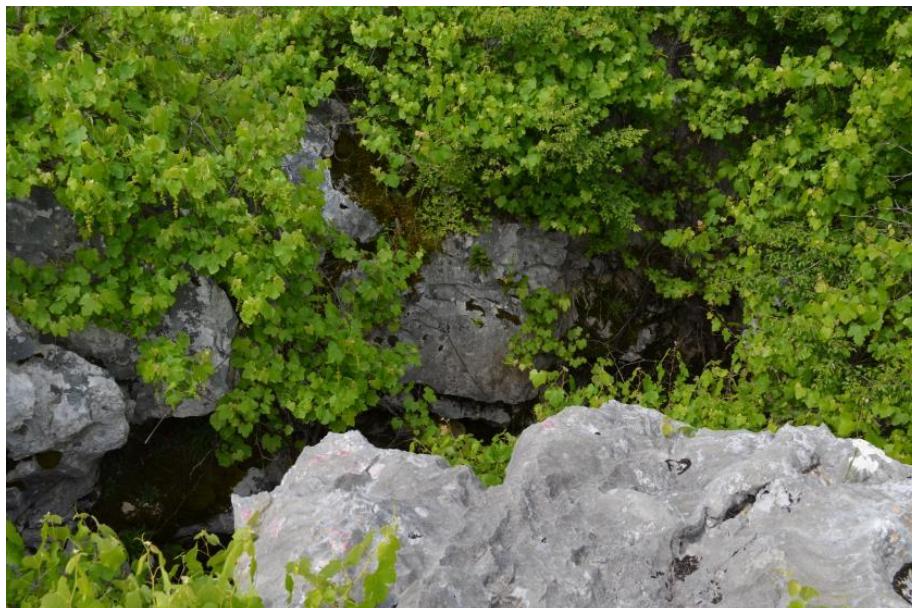
Locations of wild grapevine populations in SLO, CRO and BiH

Methods

- Prospection, GPS coordinates (WGS84) recorded for each individual observed
 - Phenotyping methods – observation of shoot, leaves and clusters, OIV descriptors (OIV, 2009)
 - Genetic analysis: 20 SSR markers in 7 multiplex
 - Statistics: PCoA, CA analysis (GenAlex 6.5; Mega 6.0; Structure)



Karstic area



Psunj – deep wood



Results: Morphology shoots, leaves, clusters, berries

| OIV descriptor | <i>sylvestris</i> |
|---|--|
|  | OIV 001 Young shoot: opening of the shoot tip Always full open |
|  | OIV 151 Flower: sexual organs Always diecious |
|  | OIV 076 Mature leaf: shape of teeth Never sharp teeth's (one side concave, one side convex) |
| | OIV 452 Leaf: degree of resistance to <i>Plasmopara</i> No symptoms |
| | OIV 455 Leaf: degree of resistance to <i>Oidium</i> Symptoms on several individuals |
| | OIV 461 Degree of tolerance to <i>Phylloxera</i> (leaf) No symptoms |
| | OIV 079 Mature leaf: degree of opening / overlapping of petiole sinus Always open |
| | OIV 082 Mature leaf: degree of opening / overlapping of upper lateral sinus Always open |
| | OIV 085 Mature leaf: density of erect hairs between the main veins on lower side of blade Often low |
|  | OIV 204 Bunch: density Never dense; always loose |
| | OIV 220 Berry length Always very short |
| | OIV 223 Berry: shape Always round (obloid, globose) |
| | OIV 225 Berry: color of skin Always blue black |
| | OIV 236 Berry: particular flavor Often none |

Flower type

♂

Male

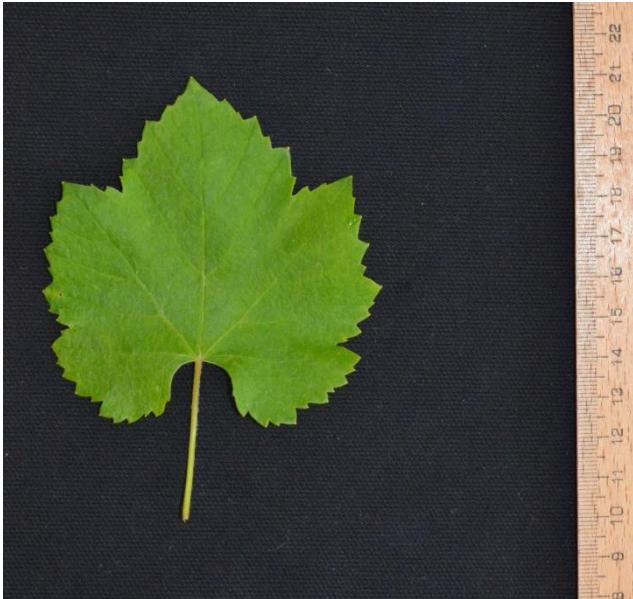


♀

Female



Leaf and bunch morphology



Gizdavac G1



Neretva NE04-10



Paklenica PK1



Non-sylvestris individuals within population

- Rootstocks, cultivars, hybrids
 - Registered within each population observed
1. Distinctive morphology
 2. SSR unspecific alleles, cluster analysis, parent-offspring test



♂ ♀



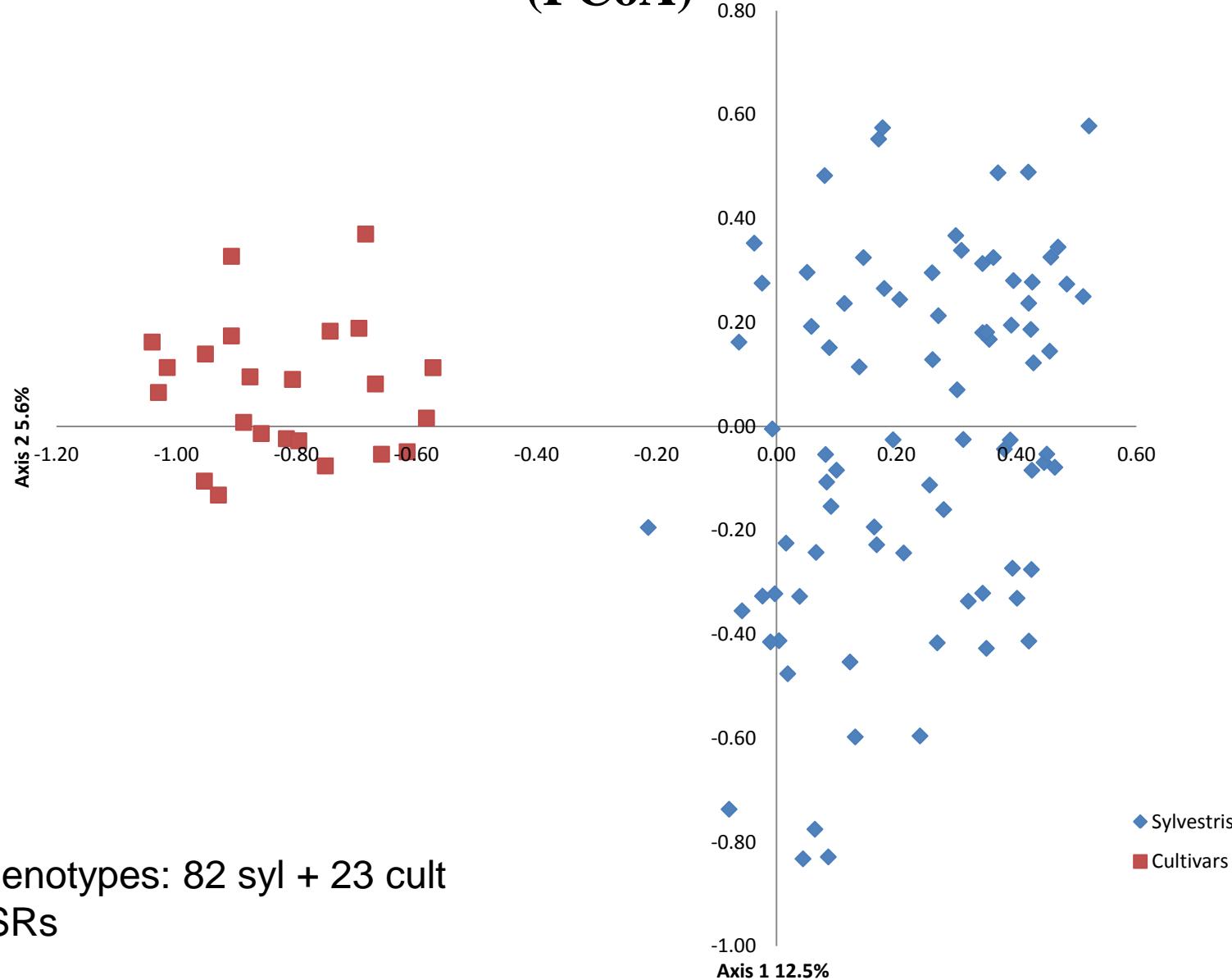
♀



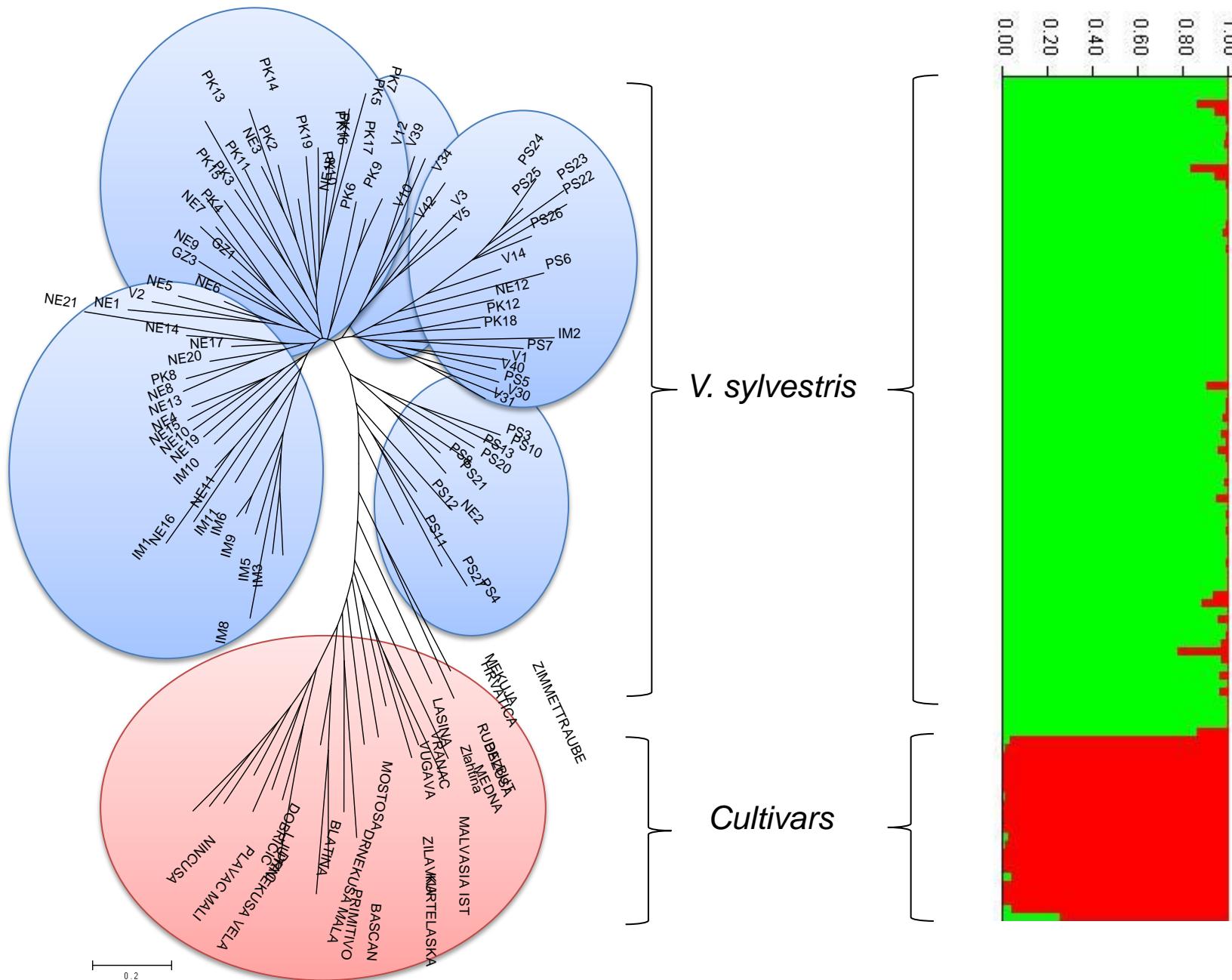
♂



Genetic relationship between *sylvestris* and cultivated genotypes (PCoA)



Genetic structure $K = 2$, Neighbor-joining tree



Conclusions

- Clear distinction between *sylvestris* and *sativa* based on leaf and cluster morphology
- Non-sylvestris individuals (rootstocks, cultivars, hybrids) observed in each population
- Distance and model-based cluster analysis differentiated among genotypes
- Morphology seems powerful tool for discrimination between two subspecies (OIV151 Flower type, OIV079 Petiole sinus, OIV082 Lateral sinus, OIV076 Shape of teeth = diagnostic descriptors, *in situ*)
- Conservation and protection of biodiversity – highly needed – *ex situ* germplasm collection

The background image shows a lush, green forest floor covered in moss and fallen tree branches. Large, light-colored rocks are scattered throughout the scene, some partially hidden by vegetation. The overall atmosphere is one of a wild, natural environment.

Thank you for your attentions