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Acer pseudoplatanus (Sapindaceae) on Monte Soro in the Nebrodi Mountains is an old giant with its trunk covered by a thick layer of bryophytes and lichens

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A Message from the Editor

The IAVS Annual Symposium in Palermo is over and we are full of various experiences and beautiful memories of all the sunny days, encounters, smileys, debates, lectures, flowers, mountains, landscapes, monuments, foods, drinks, songs, ... Some of them are reflected in this Bulletin issue, some others will be shared in the next issues. Many thanks to Riccardo Guarino and the local team of organizers for their perfect job and extraordinary comfort and hospitability during the Symposium!

Monika Janišová
Editor of the IAVS Bulletin

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Sicilian Jewels

or

What do vegetation scientists appreciate on plants?

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with contributions from Milan Chytrý (Czech Republic), Hazel Gordon (United States), Riccardo Guarino (Italy), Atsuko Harada (Japan), Carsten Hobohm (Germany), Pavel Krestov (Russia), Irina Krestova (Russia), Javier Loidi (Spain), Ladislav Mucina (Australia), Robert K. Peet (United States) and Valério Pillar (Brazil)

During the five-day post-symposium excursion to Sicilian Mountains (June 25–29, 2017) we visited three main mountain ranges of Sicily: **Etna Massif**, the largest active volcano in the Mediterranean Basin; **Nebrodi Mts**, the smoothest and most forested part of the so-called Sicilian Apennines; and **Madonie Mts**, the highest and most heterogeneous mountain system of the Sicilian Apennines. After an intensive introduction to the Sicilian flora by Riccardo Guarino and his colleagues and friends Giuseppe Baiamonte, Giuseppe Bazan, Salvatore Brullo, Orazio Caldarella, Chiara Catalano, Leopoldo de Simone, Emanuele Genduso, Lorenzo Gianguzzi, Gianpietro Giusso del Galdo, Alessandro Gristina, Vincenzo Ilardi, Alfonso La Rosa, Corrado Marcenò, Pietro Minissale, Teresa Napolitano, Pippo di Noto, Salvatore Pasta, Rosario Schicchi, and Angelo Troìa, each of us, vegetation scientists from abroad, became familiar with plenty of Sicilian plant species. Moreover, many of us visited other Sicilian sites during the pre- and mid-symposium excursions or on private trips. We used this opportunity to make a short survey among the participants and the local guides and asked a simple question: **Which is you favourite plant in Sicily and why?** Based on the responses, this summary on jewels of the Sicilian flora was compiled, and here – the winning plants are introduced.

In total, 45 respondents took part in the survey, 24 males and 21 females. Each respondent voted for one or two plants (respondents from outside Europe or those who insisted or had persuasive supporting arguments had usually two votes), resulting in 56

Vegetation scientists and survey respondents during the excursion on Mt Etna on 25 Juni 2017.
(Above and on the two next pages)

votes altogether. Finally, we gathered 28 male and 28 female votes and 28 votes from European and 28 votes from non-European respondents. The respondents were intentionally surprised by the question and were expected to respond immediately. Interestingly, some respondents were immediately ready to take decision, while others pondered longer and in one case the respondent even changed his decision after a careful consideration.

31 plants species (from 19 families) were nominated (Table 1). Among the families, grasses (*Poaceae*) family were represented the best (4 species), followed by *Asteraceae* (3 species), *Apiaceae* (3 species), *Caryophyllaceae* (2 species), *Pinaceae* (2 species), *Fabaceae* (2 species), *Fagaceae* (2 species), *Crassulaceae* (2 species), and *Dipsacaceae* (2 species), with all the remaining families on the list represented by only a single species.

Sicily is an island with high rate of endemism. Following a most recent source (Guarino & Pasta 2017), 338 out of around 3000 of vascular plant species occurring on the island are endemic. This was reflected also in the results of our survey where 15 out of 31 appreciated plants were either narrow endemic or subendemic taxa, with distribution restricted to Sicily (Sic in column 3, Table 1) or only to small part of the Mediterranean Basin. And it is also reflected in frequent "geographic" species *epitheta* of the appreciated taxa, such as *siculus/sicula* (3 times), *aetnensis* (3 times), *nebrodensis* (once), and *calabrica* (once).

The most popular Sicilian plant appreciated by our group was ***Saponaria sicula*** (*Caryophyllaceae*, 7 votes). This mountain plant is one of the pioneers inhabiting volcanic scoria and limestone gravel screes, where it gradually develops circular cushions providing safe sites for other vascular plant species. The expressive pink flowers are usually distributed around the cushion periphery thus forming a wreath. This contrast of green cushions with a pink edge on the black lava background makes the plants remarkable and attractive. In later successional stages, *Saponaria* retreats as it is not a strong competitor. The distribution area of S. *sicula* subsp. *sicula* is very narrow and island-like; besides the scoria slopes of Mt Etna, it also occurs on limestones of the Madonie and even in a small area in Algeria, at elevation range spanning 700–2000 m. Two very similar subspecies occur in the Balkan Peninsula.

Betula aetnensis (some would say a local variant of common *Betula pendula; Betulaceae*, 5 votes) also attracted attention by its contrasting appearance and background - the white trunks shining on the black pyroclastic scoriae. In pure or mixed stands, it grows on Mt Etna from 1450 m up to the tree line at 2100 m a.s.l. while the best developed stands are found on the east-facing flank of the volcano.

Zelkova sicula (*Ulmaceae*, 5 votes) is a deciduous shrub of the family *Ulmaceae* growing 2–3 m tall. Yet its natural mature size is unknown as all existing specimens have been heavily browsed by goats. Its natural habitats are supramediterranean forests and scrub. The species is critically endangered by habitat

loss with only two remnant populations still surviving, both found in south-eastern Sicily near Sortino and Melilli, having about 200–250 individual stems only. These populations are thought to have originated from possibly one clone, or at most only a very few distinct individuals. During recent years, only a few flowering individuals have been observed and the fruits produced have been sterile. It is unclear why reproduction in this taxon is in peril (Garfì 2006, Hobohm 2014).

Lomelosia crenata (*Dipsacaceae*, 4 votes) grows on predominantly calcareous rocks and rocky grasslands at elevations up to 1900 m, forming large tussocks full of gently pink flowers with finely cut petals. Its distribution range includes Mediterranean regions of Italy, Greece, Albania, Montenegro and Algeria.

While male respondents voted more frequently for trees and appreciated plants characteristics related to their ability to survive or compete, female respondents often voted for subtle and tender plants, apparently appreciating their beauty and grace. The list of compliments in Table 1 documents well that the extraordinary plant features are not only perceived by our senses; we often also use our knowledge and ecological experience to build a relationship with a plant species. We are fascinated by the ability of many species to survive in harsh habitat conditions, and their adaptation for this survival. We are excited by extremes, contrasts, striking and dramatic effects, something unusual or unexpected, and look for stories. But on the other hand, commonness and familiar features reminding us of our home country can also be important in choosing our most favourite plant. A special case are plants studied by the respondents – their real "babies".

Apart from standard answers, we recorded several specific answers, which were not included in our analysis as they considered non-native species or even animals. Two trees in the Palermo Botanical Garden drew attention to such an extent that they were mentioned by our respondents: a giant *Ficus macrophylla* var. *columnaris* (*Moraceae*) and the bottle-like thorny trunked *Ceiba speciosa* (*Malvaceae*). Another tree admired as an individual rather than as a species was the primeval giant *Acer pseudoplatanus* (*Sapindaceae*) on Monte Soro (1847 m, Nebrodi Mts), said to be 1000 years old (photo on the cover page of the issue). The survey reliably revealed a zoologist among us, who voted for the beetle *Polyphylla ragusae*. But other animals gained a vote, too – specifically the black pigs in the Nebrodi Mts – because they are lovely (although quite noisy early in the morning) and some of us are sure they would also taste good.

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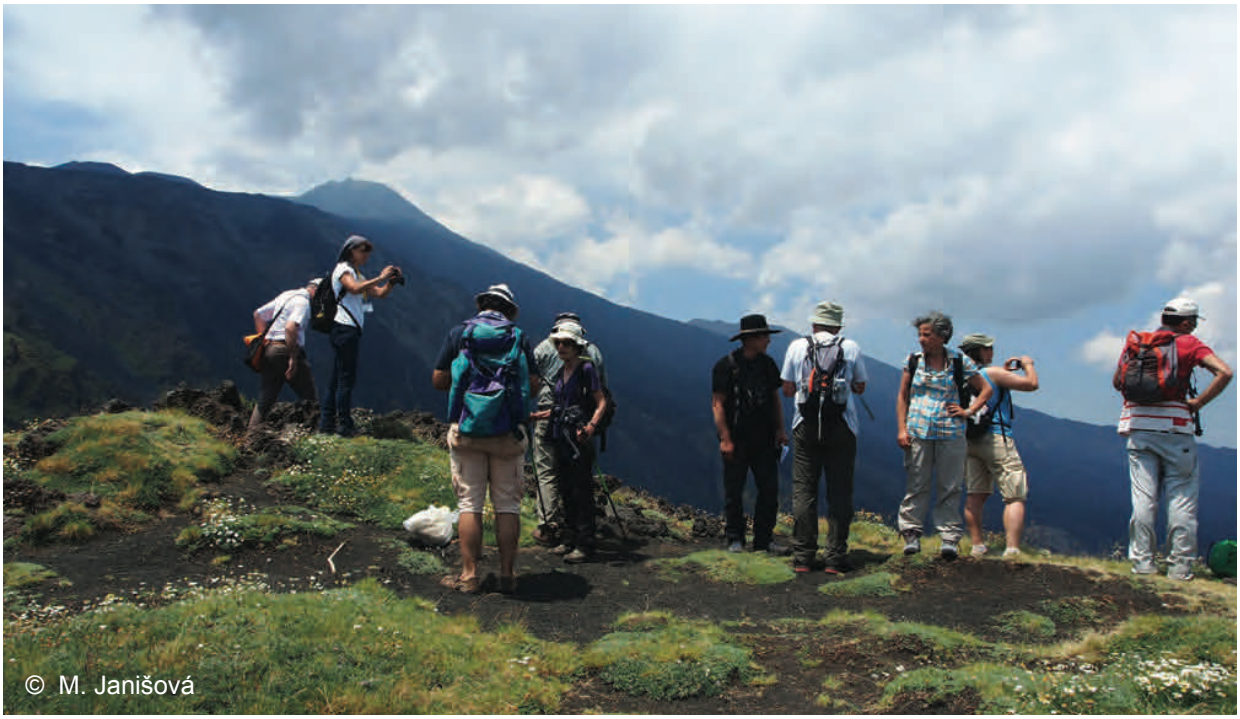

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Figure above: *Saponaria sicula* (*Caryophyllaceae*). Figure below: *Lomelosia crenata* (*Dipsacaceae*).

Figure above: *Betula pendula* (*Betulaceae*). Figure below: *Zelkova sicula* (*Ulmaceae*).

Table 1 Favourite plants of vegetation scientists ordered by their popularity (number of votes) and the characteristics responsible for their popularity (compliments). Nomenclature, taxonomy, and distribution follow Raimondo et al. (2010).

Species	Family	Distribution	Number of votes	Respondent's country		Respondent's gender	
				Europe	Outside Europe	Male	Female
Saponaria sicula	*Caryophyllaceae*	S-Stenomedit	7	5	2	2	5
Compliments: It is beautiful. It is like heaven in hell (lava). It is pioneer, forming amazing patches of all ontogenetic stages from seedlings to adults. It grows on lava as well as on calcareous rocks, but is happier on lava. It is a wonderful combination of strength and grace.							
Betula aetnensis	*Betulaceae*	Sic	5	2	3	3	2
Compliments: It has a white trunk. Forms nice contrast of black lava and white bark of trunks. It is lovely. It is unusual. It is unexpected.							
Zelkova sicula	*Ulmaceae*	Sic	5	5	0	4	1
Compliments: It is a monster, living in a desperate atmosphere, among unfriendly plants. It is a hero. It is unpredictable. Nice endemic plant with an interesting distribution, genetics, physiology and ecology.							
Lomelosia crenata	*Dipsacaceae*	Stenomedit	4	1	3	0	4
Compliments: It is lovely. It is beautiful. It has nice flowers and fine petals.							
Fagus sylvatica	*Fagaceae*	C-Europ	3	2	1	3	0
Compliments: It is the most beautiful tree in the world. It is unexpected in Sicily. It grows on extreme sites, where it would not be expected from Ellenberg indicator values.							
Abies nebrodensis	*Pinaceae*	Sic	2	0	2	2	0
Compliments: It is unusual.							
Astragalus siculus	*Fabaceae*	Sic	2	2	0	1	1
Compliments: It is pioneer, which governs the dynamic processes of the whole community. It belongs to an interesting genus adaptively radiated in the Mediterranean region.							
Ferula communis	*Apiaceae*	Medit	2	0	2	0	2
Compliments: It is striking and dramatic.							
Genista aetnensis	*Fabaceae*	endem	2	0	2	0	2
Compliments: It is pretty. It smells and has a dramatic colour.							
Limonium hyblaeum	*Plumbaginaceae*	Sic	2	1	1	1	1
Compliments: It was described by my uncle. The Limonium genus has nice colour and fine shape.							
Pinus nigra subsp. calabrica	*Pinaceae*	endem	2	1	1	1	1
Compliments: It looks nice on the lava. It competes with birch and beech.							
Bellardiochloa variegata subsp. aetnensis	*Poaceae*	Sic	1	1	0	1	0
Compliments: Everybody neglects it.							
Cachrys ferulacea	*Apiaceae*	NE-Medit Mont	1	0	1	1	0
Compliments: It resembles Iran.							
Capparis spinosa	*Capparidaceae*	Medit	1	1	0	1	0
Compliments: I studied this species since 2008.							
Centaurea solstitialis subsp. schouwii	*Asteraceae*	subendem	1	0	1	0	1
Compliments: It is very common and spiny.							

Species	Family	Distribution	Number of votes	Respondent's country		Respondent's gender	
				Europe	Outside Europe	Male	Female
Cerastium tomentosum	*Caryophylla-ceae*	endem	1	0	1	0	1
Compliments: It forms nice cushions.							
Chamaerops humilis	*Arecaceae*	W-Steno-medit	1	0	1	1	0
Compliments: It is a very smart plant.							
Cistus creticus	*Cistaceae*	Medit	1	0	1	0	1
Compliments: It smells and has a dramatic colour.							
Desmazeria pignattii	*Poaceae*	Sic	1	1	0	0	1
Compliments: It has a narrow niche, specific ecology. It is annual occurring in desiccated salty hollows along the coast.							
Eryngium triquetrum	*Apiaceae*	SW-Steno-medit	1	0	1	0	1
Compliments: It belongs to my favourite genus.							
Evacidium discolor	*Asteraceae*	subendem	1	1	0	0	1
Compliments: It is small and pretty. It looks like a small *Leontopodium* (very rare plant in the respondent's home country).							
Geranium versicolor	*Geraniaceae*	NW-Medit Mont	1	1	0	0	1
Compliments: Love without specific reasons.							
Lygeum spartum	*Poaceae*	Medit	1	0	1	1	0
Compliments: It is most beautiful.							
Nerium oleander	*Apocynaceae*	Medit	1	0	1	0	1
Compliments: It is beautiful.							
Onopordum illyricum	*Asteraceae*	Stenomedit	1	1	0	1	0
Compliments: It is most beautiful.							
Pseudoscabiosa limonifolia	*Dipsacaceae*	Sic	1	1	0	1	0
Compliments: I studied this species for PhD thesis.							
Quercus ilex	*Fagaceae*	Medit	1	0	1	1	0
Compliments: It comes from the monsoon climate.							
Scrophularia canina	*Scrophularia-ceae*	Medit	1	0	1	1	0
Compliments: It looks like a barking dog.							
Sedum hispanicum	*Crassulaceae*	S Europ	1	0	1	1	0
Compliments: It is small and effective.							
Sedum sediforme	*Crassulaceae*	Stenomedit	1	0	1	0	1
Compliments: It is succulent.							
Stipa austroitalica subsp. appendiculata	*Poaceae*	subendem	1	1	0	1	0
Compliments: It moves nicely in the wind.							

Figure above: *Ficus macrophylla* var. *columnaris* (*Moraceae*) is a tropical tree with smooth light-gray bark and entire oblanceolate leaves, which in Mediterranean climate grows to about fifteen meters tall but in favourable conditions it grows much larger, producing great numbers of prop roots. This extraordinary individual is cultivated in the Palermo Botanical Garden.

Figure below: An alley of *Ceiba speciosa* (*Malvaceae*) with the thorny trunks in the Palermo Botanical Garden. Its native range is Argentina, southern Brazil, Uruguay, Paraguay, and eastern Bolivia.

Figure above: *Abies nebrodensis* (*Pinaceae*) is an extremely rare tree, currently limited to a small valley (1440–1600 m a.s.l.) subject to periodical fogs, where it colonizes young sandy soils. The Madonian fir is one of the last representatives of a Tertiary vegetation that has been largely displaced by the arrival of beech in Sicily during the wet phases of the Quaternary (Guarino & Pasta 2017). Degraded natural habitat, the poor health of specimens propagated in tree nurseries, the limited population size (including only 30 individuals), and fire represent the biggest threats to the survival of the species (Hobohm 2014).

Figure below: *Fagus sylvatica* (*Fagaceae*) at the extreme southern limit of its distribution range looks much different from its typical central- or western-European appearance. Not only is its occurrence in the centre of the Mediterranean Basin unexpected, this species was admired also due to its special growth form. Thanks to traditional management of the wooded pastures, the bark at the bottom part of trunks has been damaged and resprouting has been supported. The young branches have been repeatedly browsed, leading to formation of such a specific growth form.

Figure above: *Pinus nigra* subsp. *calabrica* (syn. *Pinus nigra* subsp. *laricio, Pinaceae*) forms a beautiful Calabrian pine forest, which represents the zonal vegetation in the N-NW flank of Mt Etna, but most often it forms just a seral stage of oak or beech woods (depending on elevation). The Calabrian pine forests have been exploited since ancient times for timber and resin (pitch) production. Resin extraction was a local economic activity until the recent past. Many old pines with the typical "fishbone" carving, adopted for this ancient practice, are still alive (Guarino & Pasta 2017).

Figure below: *Genista aetnensis* (*Fabaceae*), endemic to very restricted areas of Sardinia, Corsica and Sicily is a very important biomass producer on recent lava flows, where it can grow relatively fast, thanks to the symbiosis with nitrogen-fixing bacteria (Guarino & Pasta 2017), and thereby increases the rate of primary succession.

Figure above: *Thapsia garganica* (*Apiaceae*), is an impressive plant especially during its flowering and fruiting time between March and July. It grows in dry grasslands (in the picture the dry grasslands of Nebrodi Mts are shown with a view to the cliffs named "Rocche del Crasto"), shrubland fringes and nearby roads and settlements. It is distributed throughout the Mediterranean; in some regions it is used as a medicinal plant. A similar plant, *Ferula communis*, in the Roman times had an infamous function – used as a stick to beat (punish – hence the name!) 'unruly' slaves.

Figure below: *Cachrys ferulacea* (syn. *Prangos ferulacea, Apiaceae*) is a perennial herb that dominates the mountain pastures subject to overgrazing. In the Madonie Mts in the picture we admired beautifully coloured stands of the *Cachryetum ferulaceae* (*Cerastio-Astragalion nebrodensis*) developed on the overgrazed slopes of local karstic dolines.

Figure above: *Astragalus siculus* (*Fabaceae*) is endemic of Sicily, occurring in shrubby communities of the *Astragaletum siculi* (*Rumici-Astragalion siculi*) differentiated by the presence of many other endemics, such as *Senecio aetnensis, Galium aetnicum, Tanacetum siculum* and *Viola aetnensis*. The thorny cushions of *Astragalus siculus* shelter many plant species defined as "Polstergäste" (literally: the guests of the cushion; Guarino & Pasta 2017).

Figure below: *Cerastium tomentosum* (*Caryophyllaceae*) is a beautiful plant naturally distributed in the southern Italy (and interestingly also in Slovakia!), including northern Sicily, where it grows in sunny grasslands and rocky habitats between 600 and 2200 m a.s.l. In many other parts of Europe it is planted as a decorative plant and frequently escapes cultivation.

Figure above: *Onopordum illyricum* (*Asteraceae*) is a spectacular thistle occurring on old field and in overgrazed pastures in many parts of the Mediterranean Basin. A real treat for lovers of prickly plant life!

Figure below: *Evacidium discolor* (*Asteraceae*) is like a small Edelweiß, *Leontopodium alpinum*. It is limited to few mountain ranges of Sicily, Malta, Algeria, and Morocco, where it inhabits open soils and rocky places.

Figure above: *Limonium hyblaeum* (*Plumbaginaceae*) is a cushion-forming plant of coastal cliffs exposed to salt spray and merciless relentless sunshine. Its decorative leaves found appreciation by some florist who might be responsible to introducing the plant to Australia where it is becoming a coastal pest.

Figure below: *Nerium oleander* (*Apocinaceae*) occurs naturally in gravelly riverbeds of Sicilian fiumaras, but is widespread in cultivations as well.

Figure above left: *Chamaerops humilis* (*Arecaceae*), the Mediterranean dwarf palm, is one of only two palm species native to southern Europe. It is widely distributed in uncultivated land and is adapted to regimes of frequent burning, which it survives largely by re-sprouting from underground rhizomes and fire-damaged stems.

Figure above right: *Geranium versicolor* (*Geraniaceae*) is native of Italy, Sicily and the southern Balkans.

Figure below: In the Nebrodi Mts, traces of traditional land uses are still very evident and the main income for local communities is provided by pastoral activities (pigs left to wild pasture in the woodlands, goats and sheep in open degraded cork and downy oak woods and grasslands) and tourism (Guarino & Pasta 2017). As pigs are rarely grazed in the other parts of the world, we were amazed by these lovely animals and watched them like a popular TV show.

Figure above: a) *Eryngium triquetrum* (*Apiaceae*) by C. Hobohm, b) *Sedum sediforme* (*Crassulaceae*) by R. Guarino, c) *Lygeum spartum* (*Poaceae*) by P. Krestov d) *Centaurea solstitialis subsp. schouwii* (*Asteraceae*) by H. Gordon, e) *Sedum hispanicum* (*Crassulaceae*) by A. Harada, f) *Cistus creticus* (*Cistaceae*) by J. Loidi, g) *Desmazeria pignattii* (*Poaceae*) by R. Guarino, h) *Capparis spinosa* (*Capparidaceae*) by M. Janišová, i) *Scrophularia canina* (*Scrophulariaceae*) by P. Krestov, j) *Pseudoscabiosa limonifolia* (*Dipsacaceae*) by R. Guarino, k) *Quercus ilex* (*Fagaceae*) by H. Gordon, and l) *Stipa austroitalica subsp. appendiculata* (*Poaceae*) by R. Guarino.