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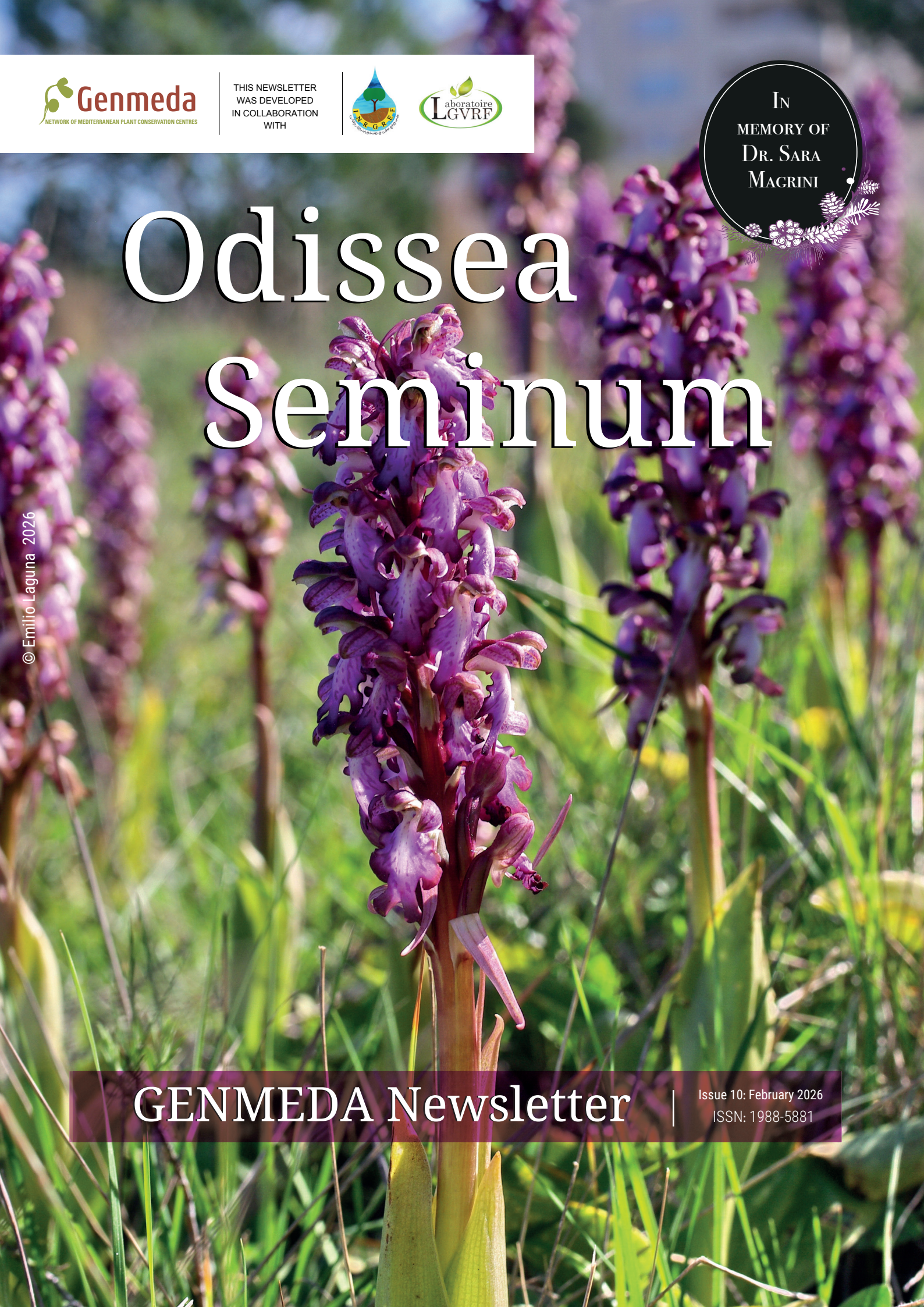
In memory of Dr. Sara Magrini

Odissea Seminum



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Odissea Seminum = The Odyssey of Seeds

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EDITORIAL

The year 2025 has come to an end, leaving behind very sad memories following the death of our dear colleague, Dr. Sara MAGRINI, on August 20.

Sara was a research scientist in the Department of Ecological and Biological Sciences at the University of Tuscia - Italy. She has primarily focused her research on botany, taxonomy, conservation biology and the ecology of seed and spore germination. She also headed the Germplasm Bank at her University and served as President of RIBES - the Italian Network of Seed Banks.

Fascinated by orchids, Sara devoted much of her research to studying this intriguing group of plants, highlighting the complex biology of their seeds and thus contributing significantly to their conservation in Italy and across the Mediterranean. To share her expertise with a wider scientific community, Sara was a dedicated member of the Orchid Specialist Group of the IUCN Species Survival Commission and a leader of the GENMEDA network's Orchid Working Group.

With their incredible diversity, beauty, and biological intricacies, orchids continue to amaze botanists. Similarly, through her valuable legacy in the conservation of this essential botanical treasure, her dedication and her wonderful human qualities, Sara will continue to inspire many researchers.

This issue of Odissea Seminum is dedicated to her memory. Rest in peace, Sara!

Imtinen BEN HAJ JILANI
GENMEDA President

In memory of

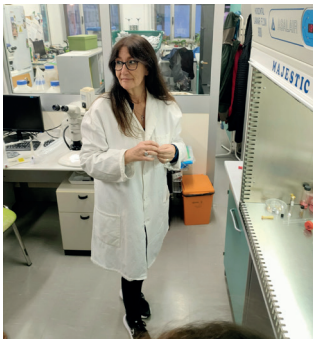
Dr. Sara Magrini

A life dedicated to the preservation of Mediterranean flora

It is with profound sadness that we honor the memory of Sara Magrini, a leading figure in plant biodiversity conservation at the University of Tuscia. Under her visionary leadership, the Seed Bank was transformed into a European center of excellence, ensuring the survival of rare and endangered species.

A rigorous researcher and passionate educator, Sara left an indelible mark on the field of botany through her determination and expertise. Her scientific legacy, reflected in her extensive publications, stands as a testament to her unwavering commitment to research and teaching. Beyond her professional titles, we salute a brilliant and generous woman whose intellectual radiance will continue to inspire future generations of botanists.

«Rest in peace, Sara!»



Dr. Sara Magrini

her publications can be found on:
https://www.researchgate.net/profile/Sara-Magrini
Tuscia Germplasm Bank

UNIVERSITÀ DEGLI STUDI DELLA TUSCIA

SHORT COMMUNICATIONS

Sara Magrini's Double-Staining Technique (2019): A Landmark Method for Orchid Seed Viability Assessment and a Lasting Legacy in Orchid Biology

Oikonomidis S., Thanos C.A

NKUA Seed Bank & Section of Botany, Department of Biology, National and Kapodistrian University of Athens, 15784 Athens, Greece

We both met **Sara Magrini** relatively recently, and a warm—though brief—friendship soon developed. For Costas, the first meeting with Sara took place in 2017 during the **NASSTEC Conference at Kew Gardens, UK,** followed by several encounters at conferences and **GENMEDA** meetings. **Spyros** had the opportunity to meet Sara at the **7th Seed Ecology Conference in Asturias, Spain (2022)**. During this brief but memorable interaction, they discussed the intricacies of orchid seed biology—a topic that fascinated them both—and remained in touch thereafter, as orchid seed biology had already been a topic of active research for years within the NKUA Seed Bank team (Oikonomidis et al., 2022.

Spyros's interest in orchid biology began early, during his undergraduate studies at the **Department of Biology, National and Kapodistrian University of Athens (2014–2019)**. Even then, he was already familiar with Sara's extensive contributions to orchid conservation (Magrini et al., 2011a, 2011b, 2013, 2019b). Shortly after his graduation, Sara published a pivotal study on orchid seed viability assessment (Magrini et al., 2019a), which immediately captured his attention.

Before this development, the reliable evaluation of orchid seed viability had been practically impossible due to the challenges of germination and the need to optimize scarification duration.

These pre-treatments often led either to high seed mortality (if overdone) or to underestimation of viability (if insufficient). Although earlier studies had recognized the importance of scarification for viability testing using vital dyes (Waes & Debergh, 1986), they did not adequately account for how the scarification process itself could destroy a portion of the seeds.

The Double-Staining Technique (DST) proposed by Sara ingeniously combined a modified **2,3,5-triphenyltetrazolium chloride (TTC)** protocol with a secondary **Trypan Blue (TB)** stain. This approach not only identifies viable seeds (through TTC staining) but, crucially, also detects permeable and destroyed seeds resulting from the chemical pre-treatment (through TB staining) (Figs. 1, 2). By integrating the outcomes of both stains, the DST allows highly accurate orchid seed viability assessment. It accounts for seeds destroyed during pre-treatment as well as those impermeable to TTC and therefore unstained.

Building on Sara's method and ideas, during his PhD research (2020–2024), **Spyros** and colleagues investigated the viability of several orchid species stored in the **NKUA Seed Bank** (Oikonomidis et al., 2024a). They also evaluated the potential of the double-staining technique for determining not only seed viability but also the **optimal duration of chemical scarification** (Oikonomidis et al., 2024b).

Sara's technique proved to be fast, reliable, and precise, enabling the determination of optimal scarification times a process previously based largely on researcher experience or lengthy germination trials that could take weeks or even months, compared to the 48 hours required by the DST.

Sara's work and legacy in orchid conservation will continue to inspire our research—and that of many others by shedding light on the intricate biology and storage behaviour of orchid seeds. Rest in peace Sara...

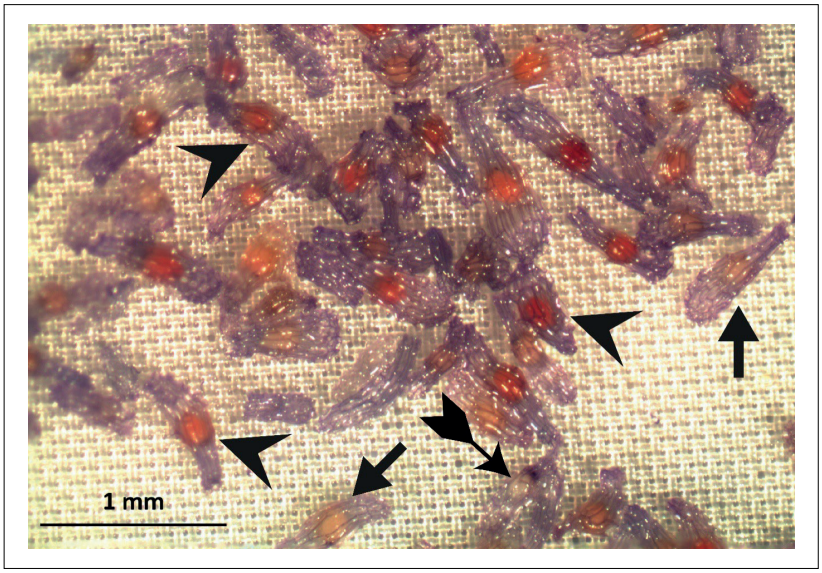


Figure 1: Seeds of Ophrys kotschyi H.Fleischm. & Soó after application of the double-staining technique. Arrowheads indicate viable seeds, arrows indicate non-viable seeds, and tailed arrows indicate dead seeds (destroyed by the chemical pre-treatment).

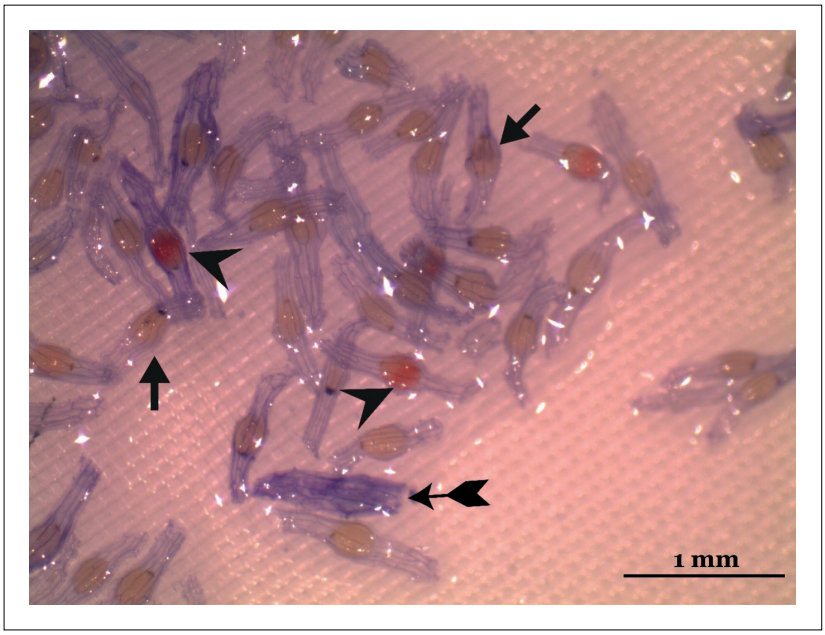


Figure 2: Seeds of Neotinea maculata (Desf.) Stearn after application of the double-staining technique. Arrowheads indicate viable seeds, arrows indicate non-viable seeds, and tailed arrows indicate dead seeds (destroyed by the chemical pre-treatment).

References

Magrini S., Buono S., Gransinigh E., Rempicci M., Scoppola A. (2011a). An integrated strategy for the conservation of Limodorum trabutianum (Orchidaceae): the example of the Marturanum Park (Latium, Italy). 4th International Orchid Conservation Congress (IOCC4) 'Orchids in a Changing World', Hlubocka, Czech Republic.

Magrini S., Carli A., Onofri S., Scoppola A. (2011b). A comparative study of the seed germination capabilities of Anacamptis palustris (Orchidaceae), a threatened terrestrial orchid, and other more common Anacamptis species, by asymbiotic culture in vitro. European Journal of Environmental Sciences, 1: 71-79.

Magrini S., Haile G., Buono S., Rempicci M., Gransinigh E., Vitis M. (2013). Orchid conservation in Tuscia Germplasm Bank. 5th International Orchid Workshop, Orchid Population Dynamics, Rende, Italy.

Magrini S., Barreca D., Zucconi L. (2019a). A rapid double-staining technique to improve seed viability testing in terrestrial orchids. Plant Biosystems – An International Journal Dealing with all Aspects of Plant Biology, 153: 877-882.

Magrini S., Vitis M., Torelli D., Santi L., Zucconi L. (2019b). Seed banking of terrestrial orchids: Evaluation of seed quality in Anacamptis following 4-year dry storage. Plant Biology, 21: 544-550.

Oikonomidis S., Koutsovoulou K., Georghiou K., Thanos C.A. (2022). Orchid-related research and activities at the NKUA Seed Bank and Research Team. Odissea Seminum 7: 4-7.

Oikonomidis S., Koutsovoulou K., Kaltsis A., Constantinou C., Andreou M., Kadis C., Georghiou K., Thanos C.A. (2024a). The effect of pollen origin (self- and cross-pollination) on seed production and viability in Ophrys (Orchidaceae). Botany Letters, 171: 500-508.

Oikonomidis S., Koutsovoulou K., Tsiftsis S., Thanos C.A. (2024b). Towards a standardised orchid germination protocol: Determining the optimal duration of chemical scarification for orchid seeds by means of viability and permeability staining. Plant Biosystems – An International Journal Dealing with all Aspects of Plant Biology, 158: 563-571.

Waes J.M.V., Debergh P.C. (1986). Adaptation of the tetrazolium method for testing the seed viability, and scanning electron microscopy study of some Western European orchids. Physiologia Plantarum, 66: 435-442.

Seed collection of the threatened Iberian endemism *Puccinellia pungens* (Pau) Paunero in Albacete, Castilla-La Mancha, following its rediscovery after 50 years.

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Keywords: Conservation, ex *situ*, endangered, herbivory.

Puccinellia pungens (Pau) Paunero is a grass species endemic to the Iberian Peninsula, whose distribution is highly restricted and fragmented (López Udias & Fabregat Llueca, 2017). Its main populations are concentrated in Gallocanta Lake, located in the Iberian System between the Spanish provinces of Zaragoza and Teruel, and in the Sierra de Albarracín (Teruel) (López Udias & Fabregat, 2011). In addition to these main populations, disjunct stands have been reported in Fuentidueña (Segovia) (Romero & Rico, 1988), Velayos (Ávila) (Romero Martín, 1996), and in the vicinity of Balazote, west of the city of Albacete (Montserrat Martí & Montserrat Martí, 1986).

The conservation status of the species has been assessed under several international and national frameworks. At the international level, it is listed as Vulnerable (VU) globally, and Endangered (EN) in Spain, by the IUCN. Moreover, this species is included in the European Habitats Directive (92/43/EEC), Annex II and Annex IV, with its status in the Mediterranean region classified as Unfavourable–Inadequate (U1). Under Spanish legislation, *P. pungens* is listed as "Vulnerable" in the Spanish Catalogue of Threatened Species (R. D. 139/2011).

Regarding the Albacete population, the first known record corresponds to a collection made by J. Borja and S. Rivas Goday in June 1967, in salt flats located between Albacete and Balazote, from which two herbarium specimens are preserved (MAF 74429 and MA 205764). Subsequently, Montserrat Martí & Montserrat Martí (1986) confirmed this record within the framework of a taxonomic study of the genus.

However, subsequent studies failed to verify the persistence of this species in the province, leading some authors to consider it locally extinct, due to the agricultural transformation of its habitat (Domínguez Lozano et al., 1994).Its dependence on soil moisture and salinity conditions must also be considered, which makes it highly vulnerable to changes (such as water dynamics and flows, irrigation water extraction, and climate change) that threaten its population dynamics and reproductive phenology (López Udias & Fabregat Llueca, 2017). Since then, the species has been mentioned in floristic catalogues and lists of threatened flora of Albacete (Sánchez Gómez et al., 1997; Valdés Franzi et al., 2001), although without new field confirmations, and it has not appeared in specific studies on the province's wetlands (Cirujano et al., 1988; Alonso, 1999, 2000) nor in more recent syntheses on the threatened flora of Castilla-La Mancha (Hernández Bermejo & Herranz, 2011).

In this context, López Udias and Fabregat Llueca (2017), within the framework of the SEFA project (Monitoring of Threatened and Specially Protected Plant Species in Spain), once again confirmed its presence in the vicinity of Albacete and Balazote, marking the rediscovery of the population after fifty years without records.

Despite this finding, it had not been possible to collect material from this locality until recently, due to the severe herbivory problems affecting the species, which have prevented the collection of viable seeds in the field. For this reason, in 2025, the Botanic Garden of Castilla-La Mancha, through its seed bank has set the

collection of seeds from this population as a priority objective, specifically in the site rediscovered by López and Fabregat in 2017. This action will allow, for the first time, the conservation of *Puccinellia pungens* material from the province of Albacete in a regional seed bank, thereby strengthening ex situ conservation measures and complementing the material previously deposited in the seed bank of the Polytechnic University of Madrid (C. Gómez-Campo).

For this reason, given its rarity and vulnerability, the *ex situ* conservation of its seeds becomes a priority tool to ensure its long-term preservation. Accordingly, the present work aims to document the seed collection of *Puccinellia pungens* in the locality rediscovered in Albacete, with the purpose of guaranteeing its *ex situ* conservation in the seed bank of the Botanic Garden of Castilla-La Mancha. This initiative represents an essential step towards assessing the conservation status of the population and strengthening preservation strategies for this endangered Iberian endemism.

Methods:

The populations of *Puccinellia pungens* were located in two stands in Los Prados, Albacete (UTM 30SWJ8910-9010), at an altitude of 690 m. The population is distributed across the 1 × 1 km UTM grids 30SWJ8910 and 30SWJ9010 (Datum ETRS89), occupying an area slightly larger than 8 ha (83,809 m²). In one of the stands, herbivory caused by rabbits and hares was identified as the main threat, significantly reducing the availability of mature panicles for collection.

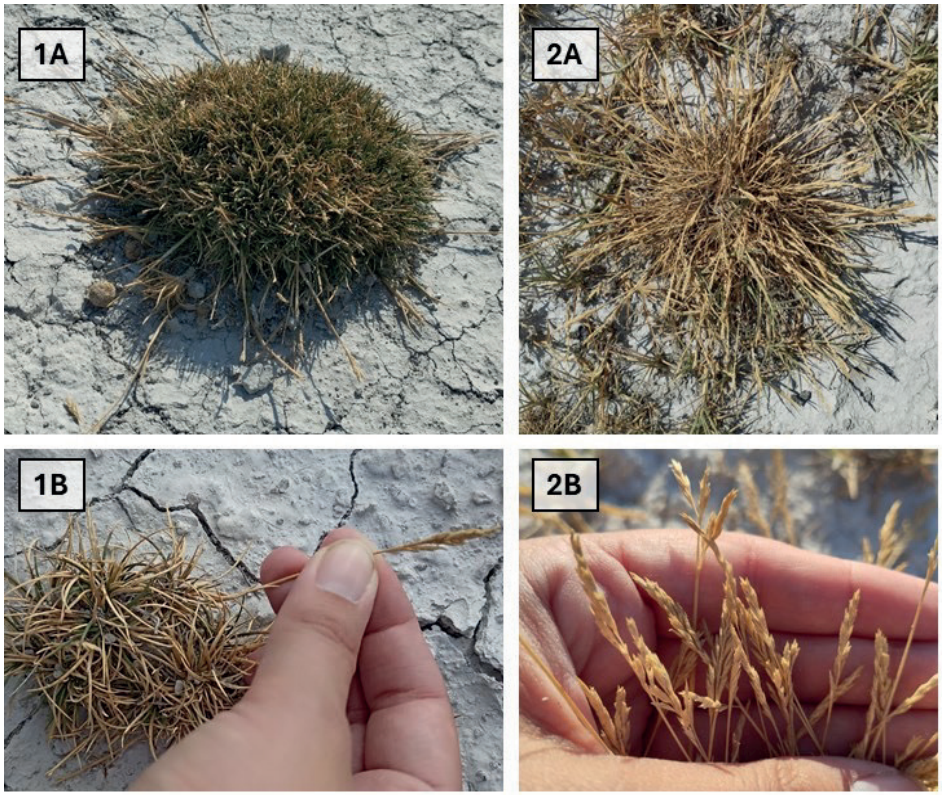


Figure 1: Comparison between an individual from the stand affected by herbivory (1A), characterized by a reduced production of mature panicles (1B), and an individual from the stand not exposed to this pressure (2A), showing a higher number of available panicles (2B).

Regarding the seed collection process from the available mature panicles carried out during the week of 7-11th July 2025, the recommendations of the ENSCONET Seed Collecting Manual for Wild Species (ENSCONET, 2009) were followed. In this way, the collection prioritised obtaining material from at least 50 individuals, selecting approximately 80% of the individuals in the population that were at optimal maturity and avoiding the harvest of more than 20% of the available seeds. The panicles from these samples were processed through manual cleaning using a series of sieves of different sizes, in order to extract and quantify the total number of seeds obtained via indirect counting.

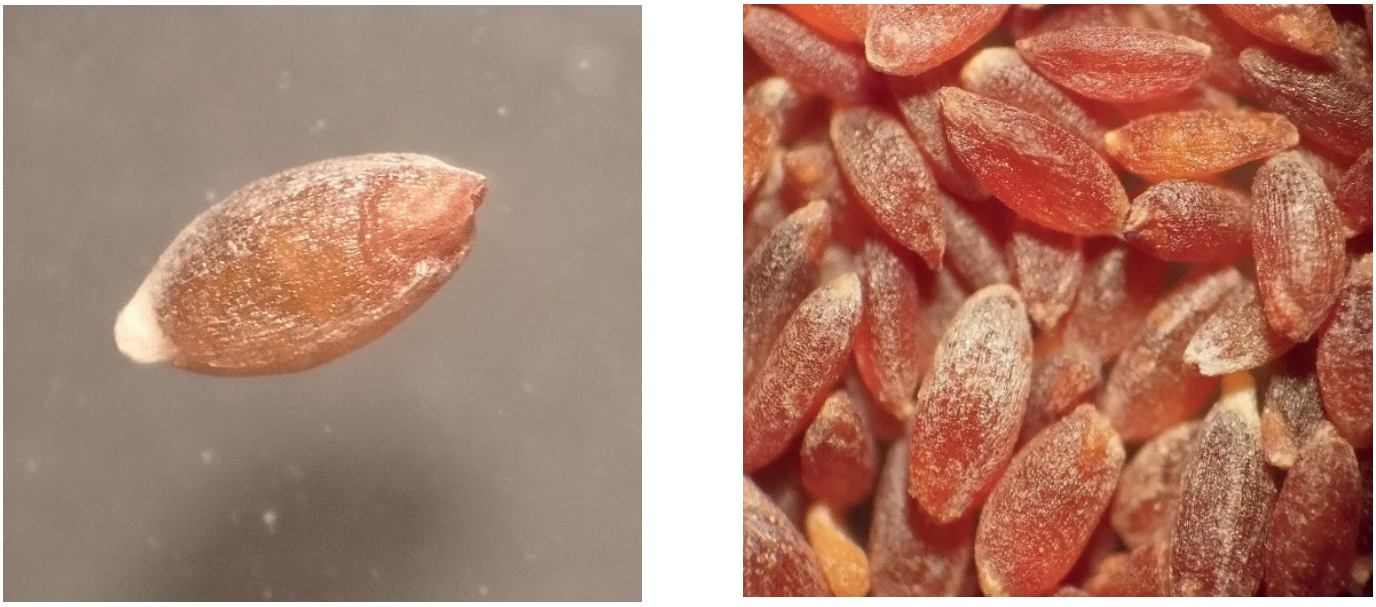


Figure 2: Photographs of seeds taken under a stereoscopic microscope, showing an individual seed on the left and a bulk sample on the right, both after the cleaning process.

The seeds were conserved following the standard protocol for orthodox seeds, as this confers the ability to tolerate drying and long-term storage, remaining viable for many years when kept under low humidity and temperature conditions (Gómez-Campo, 2002). These conditions help minimise metabolic activity and seed deterioration (Solberg et al., 2020). Accordingly, the seeds underwent a drying process in a desiccator with silica gel for 2–3 months, until reaching an approximate moisture content of 4–5%. Once this period was completed, the seeds were stored in glass jars (long-term collection) sealed with a flame. These jars were then placed hermetically inside Kilner glass jars with silica gel, which allows the detection of moisture in case the jar breaks or is accidentally opened. Finally, the tubes were stored in refrigeration units at a temperature of -11 ºC for long-term conservation.

Conclusions:

The recent rediscovery of *Puccinellia pungens* in the province of Albacete (López Udias & Fabregat Llueca, 2017) and the subsequent seed collection carried out in this study represent a key milestone for the conservation of this endangered Iberian endemism. The species faces multiple threats, primarily related to herbivory, fragmentation and regression of its natural habitat, as well as agricultural activities.

The results obtained highlight the strong impact of herbivory on seed production in *P. pungens*. From the stand affected by herbivory, a sample of 12.16 g was collected, in contrast to 48.74 g obtained from the stand without herbivory. This marked difference reflects the species' vulnerability to this external pressure and confirms that the loss of reproductive capacity constitutes one of the main threats to the persistence of its natural populations. Therefore, considering that *P. pungens* seeds have a germination potential of 90% under laboratory conditions (López Udias & Fabregat Llueca, 2017), the actions carried out in this study not only ensure the availability of viable material for future research but also lay the groundwork for potential population reinforcement programmes. In this context, the *ex situ* conservation of *P. pungens* seeds plays a strategic role, as it guarantees the preservation of its genetic resources in the face of possible disappearance or regression of its wild populations.

Furthermore, due to the herbivory threat detected in one of the stands, wire protections were installed around eight plants to safeguard the mature panicles produced in the following reproductive year, thereby ensuring the possibility of seed collection in that subsequent campaign. Likewise, future studies will evaluate the effectiveness of such wire protections to determine

whether they contribute to increasing the availability of mature panicles and, consequently, improving collection success.

In this way, the work of the Germplasm Bank of the Botanic Garden of Castilla-La Mancha (BG-JBCLM), focused on the conservation of threatened regional wild flora, is strengthened by this recent addition of *P. pungens* seeds from the Albacete population, which is a significant achievement for conservation at both the regional and even national level. These *ex situ* actions are complemented by the *in situ* measure of installing protections against herbivory, constituting a key preventive action to ensure future seed collections. Together, these measures are a significant step towards an integrated conservation strategy that combines in situ and ex situ actions to guarantee the survival and preservation of this Iberian endemism locally.

Figure 3: Wire protection installed around one of the *Puccinellia pungens* individuals.

Acknowledgments:

We are deeply grateful to José Antonio López Donate for his invaluable collaboration in providing access to the *P. pungens* populations, offering information and logistical support that were essential for the successful completion of this work. We also extend our thanks to the Junta de Comunidades de Castilla-La Mancha for providing updated information on the location of these populations, which was crucial for the planning and success of the seed collection activities.

Bibliography

•**Alonso Vargas, M.A. (1999).** *Conservación y biodiversidad de los ecosistemas vegetales de las zonas húmedas salinas de la provincia de Albacete*. Instituto de Estudios Albacetenses Don Juan Manuel, Albacete, 158 pp.

•**Alonso Vargas, M.A. (2000).** *Estudio geobotánico de los saladares del Sureste peninsular (Albacete, Alicante, Almería y Murcia)*. Tesis Doctoral, Universidad de Alicante.

•**Cirujano, S., Montes, C. & García, Ll. (1988).** Los humedales de la provincia de Albacete. Una panorámica general. *Al-Basit* 24: 77-95.

•**Comisión Estatal para el Patrimonio Natural y la Biodiversidad (2012).** *Directrices para la vigilancia y evaluación del estado de conservación de las especies amenazadas y de protección especial*. Ministerio de Agricultura, Alimentación y Medio Ambiente, Madrid, 116 pp.

•**Domínguez Lozano, F., Franco Múgica, F., Galicia Herbada, D. & Moreno Rivero, L. (1994).** Mapa 658. *Puccinellia pungens (Pau) Paunero. In: Fernández Casas, J., Gamarra, R. & Morales Abad, M.J. (eds.), Asientos para un atlas corológico de la flora occidental, 22. Fontqueria* 40: 194-196.

•**ENSCONET. (2009).** *ENSCONET seed collecting manual for wild species* (1st ed.). Royal Botanic Gardens, Kew & Universidad Politécnica de Madrid. ISBN 978-84-692-3926-1.

•**Gómez-Campo, C (2002)** *Long term seed preservation, the risk of using inadequate containers is very high.* Monographs ETSIA, Universidad Politécnica de Madrid 163: 1-10.

•**Hernández Bermejo, E. & Herranz Sanz, J.M. (eds.) (2011).** *Protección de la diversidad vegetal y de los recursos fitogenéticos en Castilla-La Mancha, la perspectiva existente y el compromiso del Jardín Botánico.* Instituto de Estudios Albacetenses Don Juan Manuel, Albacete, 496 pp.

•**López Udias, S. & Fabregat Llueca, C. (2011).** *Acciones de conservación para varias especies de flora amenazada de Teruel durante 2011*. Gobierno de Aragón, informe inédito.

•**López Udias, S. & Fabregat Llueca, C. (2017).** Redescubrimiento de *Puccinellia pungens* en Albacete (Castilla-La Mancha). *Conservación Vegetal* 21: 4-6. Universidad Autónoma de Madrid, Departamento de Biología. ISSN 1137-9952. URI: http://hdl.handle.net/10486/681038

•**Montserrat Martí, G. & Montserrat Martí, J.M. (1986).** Notas citotaxonómicas sobre el género *Puccinellia (Poaceae)* en la Península Ibérica. *Collectanea Botanica* (Barcelona) 16: 341-349.

•**Romero Martín, T. (1996).** Cuatro plantas poco conocidas de la cuenca del Duero. *Anales del Jardín Botánico de Madrid* 54: 443-444.

•**Romero Martín, T. & Rico Hernández, E. (1988).** Aportaciones al conocimiento de la flora de la cuenca del Duero. *Monografías del Instituto Pirenaico de Ecología* 4: 333-337.

•**Sánchez Gómez, P., Güemes Heras, J., Herranz Sanz, J.M., Fernández Jiménez, S., López Vélez, G. & Martínez Sánchez, J.J. (1997).** *Plantas vasculares endémicas, amenazadas o raras de la provincia de Albacete.* Instituto de Estudios Albacetenses Don Juan Manuel, Albacete, 223 pp.

•**Solberg S Ø, Yndgaard F, Andreasen C, Von Bothmer R, Loskutov IG & Å Asdal (2020).** Long-term storage and longevity of orthodox seeds: A systematic review. *Frontiers in Plant Science,* 11, 1007.

•**Valdés Franzi, A., Alcaraz Ariza, F. & Rivera Núñez, D. (2001).** *Catálogo de plantas vasculares de la provincia de Albacete (España)*. Instituto de Estudios Albacetenses Don Juan Manuel, Albacete, 304 pp.

Conserving Sardinian agrodiversity: the Regional Germplasm Bank for Agriculture and Food

Ludovica Dessì, Marco Porceddu, Marco Sarigu and Gianluigi Bacchetta

Sardinian Germplasm Bank (BG-SAR), Department of Life and Environmental Sciences, University of Cagliari, Italy.

The project

For over three millennia, Sardinian communities have shaped a long agricultural tradition deeply connected to their landscapes through crop domestication and selection, creating a unique agricultural heritage rich in genetic and cultural diversity. However, this heritage is increasingly threatened by genetic erosion, driven not only by agricultural intensification and land-use changes but also by the growing dominance of global markets that tend to exclude traditional local varieties in favour of a few standardized international cultivars. Since 2022, Agris Sardegna has coordinated the Regional Germplasm Bank for Agriculture and Food (BRGAgris; Fig. 1), established within the framework of the Regional Law No. 16/2014 for the conservation and enhancement of Sardinian agrodiversity (https://www.biodiversitasardegna.it/laore/it/index.html).

BRGAgris was created to counter these trends by promoting both *ex situ* and *in situ* conservation of Sardinian plant genetic resources of agronomic interest. The network integrates scientific research (Fig. 2), conservation practices, and community engagement, linking innovation with traditional knowledge.

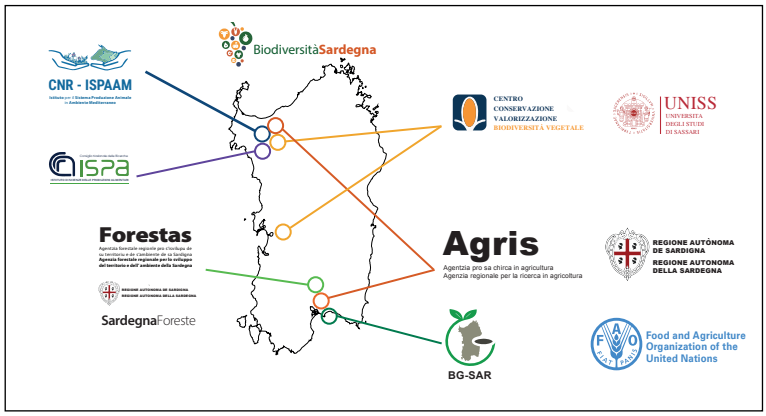


Figure 1: BRGAgris conservation sections. The institutions are recognized by the Food and Agriculture Organization (FAO)

Figure 2: BG-SAR and CNR-ISPAAM team during a coordination meeting.

A distinctive feature of BRGAgris is its participatory approach, involving custodian farmers and local communities in on-farm conservation and in the transmission of traditional propagation techniques. By promoting collaboration among research institutions, public authorities, and custodian farmers, BRGAgris offers a dynamic and inclusive model for the sustainable management of Sardinia agrodiversity and for strengthening the resilience of its agricultural systems in the face of global change.

The Sardinian Germplasm Bank (BG-SAR)

Within this framework, the Sardinian Germplasm Bank (BG-SAR) of the University of Cagliari, FAO WIEWS instcode ITA456, plays a central role in the long-term conservation of seeds, supporting the preservation of local varieties adapted to specific environments (Porceddu et al., 2017; Fig. 3). In addition to conservation, the BG-SAR plays a key role in supporting other germplasm bank by acquiring digital images of seeds for morpho-colorimetric analyses (Fig. 4) and performing X-ray analysis to assess seed quality and viability prior to storage.

Figure 3: Conservation of genetic resources at the BG-SAR.

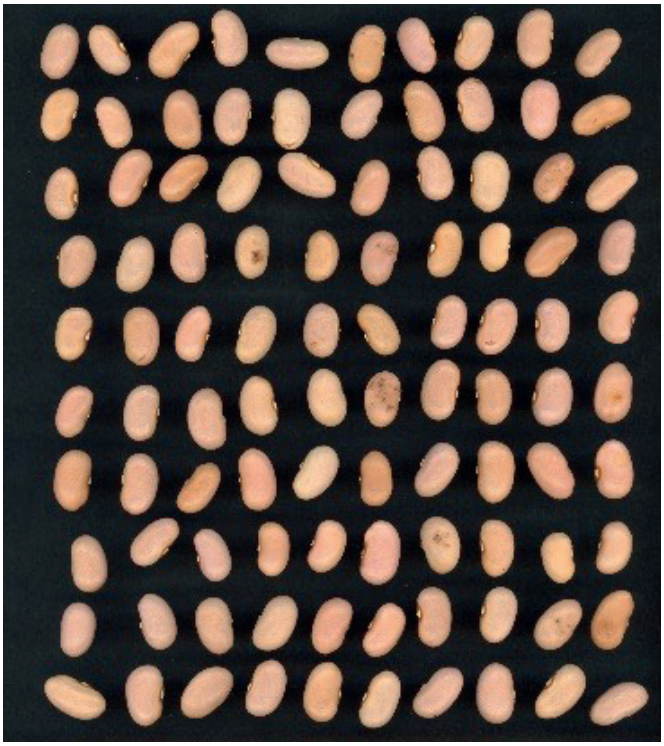


Figure 4: Image acquisition of seeds for morphocolorimetric analysis

These activities ensure accurate knowledge of the morphological characteristics of seeds and enable early identification of potential anomalies or damage that could compromise germination and long-term conservation. BG-SAR is also the only laboratory in Sardinia responsible for both seed testing and long-term conservation, providing a technical and scientific reference point for seed conservation activities at the regional level.

Agrodiversity conservation efforts during the first two years

Since BRGAgris establishment, the BG-SAR has achieved important results in the collection, characterization, and ex situ conservation of Sardinian plant genetic resources. To date, 119 accessions have been collected, processed, and stored under controlled conditions, representing a wide range of local varieties of agronomic and cultural relevance. Particularly significant are the collections of Phaseolus vulgaris L. (more than 40 varieties) and *Solanum lycopersicum* L. (more than 35 varieties), which include traditional cultivars that testify to centuries of adaptation to local environments and farming practices. These collections constitute a valuable reservoir for research, breeding, and future initiatives aimed at enhancing the conservation and sustainable use of Sardinian agricultural diversity.

Figure 4: Local variety of *Solanum lycopersicurm* L. cultivated in Sardinia (photo from www.biodiversitasardegna.it).

The Regional Germplasm Bank for Agriculture and Food conservation network ensures a continuous monitoring system of conserved resources, making it available to local farmers, future generations, and their use in recovery and valorisation projects. By promoting synergies between research, sustainable agriculture, and local communities, the BRGAgris network aims to serve as a model for protecting Sardinia's agrodiversity and establishing a regional reference for the conservation and valorisation of plant genetic resources.

Acknowledgments

We thank the colleagues from Agris Sardinia, Forestas - Regional Forestry Agency, the Interdepartmental Centre for Plant Biodiversity Conservation and Enhancement (CBV) of the University of Sassari, the Institute for Animal Production System in Mediterranean Environment (ISPAAM) and the Institute of Sciences of Food Production (ISPA) of the National Research Council of Sassari.

References

Porceddu, M., Santo, A., Orrù, M., Meloni, F., Ucchesu, M., Picciau, R., ... & Bacchetta, G. (2017). Seed conservation actions for the preservation of plant diversity: The case of the Sardinian Germplasm Bank (BG-SAR). *Plant Sociol*, 54(2), 111-117.

Population characteristics and ex situ conservation actions for the Critically Endangered (CR) tree *Liquidambar orientalis* Mill.

Koutsovoulou, K., Thanos, C. A., & Daskalakou, E. N.

Institute of Mediterranean Forest Ecosystems. Hellenic Agricultural Organization "DEMETER

Liquidambar orientalis Mill. (Altingiaceae), commonly known as oriental sweetgum (υγράμβαρη or ζητιά in Greek), is a Tertiary relict species endemic to the eastern Mediterranean region. Its natural distribution is limited to Greece (where it occurs exclusively on the island of Rhodes), and southwestern Turkey; the species is also considered introduced and naturalized in Cyprus. The largest subpopulation on Rhodes grows alongside Gadouras Stream in the central part of the island while the second largest forms a unique riparian forest along a narrow, steep valley, known as the Valley of Butterflies - an important locality at both national and European levels. The species is assessed as Critically Endangered (CR) for Europe, according to the IUCN criteria, and Endangered (EN) on a global scale. At the national level, the oriental sweetgum is protected under the Greek Presidential Decree 67/81 and included within Natura 2000 protected areas (specifically in GR4210006 - Rodos: Profitis Ilias-Epta Piges-Petaloudes-Remata). Beyond its ecological significance in riparian zones and its contribution to biodiversity, the species is sensitive to hydrological changes and vulnerable to climate change and anthropogenic activities.

The proposed study aims to acquire valuable data, encompassing the determination of the species' distribution area and population size across all its localities on Rhodes, as well as the biometric characteristics of monumental trees, serving as a foundational reference for future assessments. Furthermore, the study will enhance ex situ conservation efforts through the collection and storage of new seed samples from all known populations on the island.

The new knowledge generated (e.g., seed germination under optimal temperature and light regimes, seed storage viability, and seedling growth) together with these collections will play a pivotal role in safeguarding the species and facilitating in situ restoration, particularly in response to potential threats such as tourism pressure, drought, or wildfires. Finally, the awareness-raising actions planned within the project will strengthen local community involvement in the conservation of this rare species.

The project has a duration of 12 months and is expected to be completed by June 2026.

The research team consists of: Dr. Katerina Koutsovoulou, Postdoctoral Researcher-Biologist (Scientific Coordinator), Dr. Evangelia N. Daskalakou, Research Director at the Institute of Mediterranean Forest Ecosystems, Hellenic Agricultural Organization "DEMETER" (Host Institution Coordinator, e-mail: edaskalakou@fria.gr, http://www.fria.gr/), Dr. Kostas Ioannidis, Research Assistant (Deputy Host Institution Coordinator), Dr. Spyridon Oikonomidis, Biologist, Researcher at the Department of Biology, National and Kapodistrian University of Athens (NKUA), Maria Barmpari, Forester MSc and Professor and Professor Emeritus Costas A. , Department of Biology, NKUA.

The project is supported by:

The National Environment & Climate Change Agency (N.E.C.C.A.) under the 2nd Call "Actions to protect, conserve and promote biodiversity - Field studies of endemic, endangered and nationally important species of Greece" (Project Number: 27994 and Acronym: Ygramvari).

Koutsovoulou, K., Thanos, C. A., & Daskalakou, E. N. (2025). Ecophysiology of seed germination in riparian trees and implications for restoration and conservation. Plant Species Biology, 40(3), 233-244. https://esj-journals.onlinelibrary.wiley.com/doi/full/10.1111/1442-1984.70004

Figure 1: *Liquidambar orientalis* mature trees in the Valley of Butterflies, Rhodes Island (a) and woody 'fruiting heads' (infructescences) on the tree canopy (b).

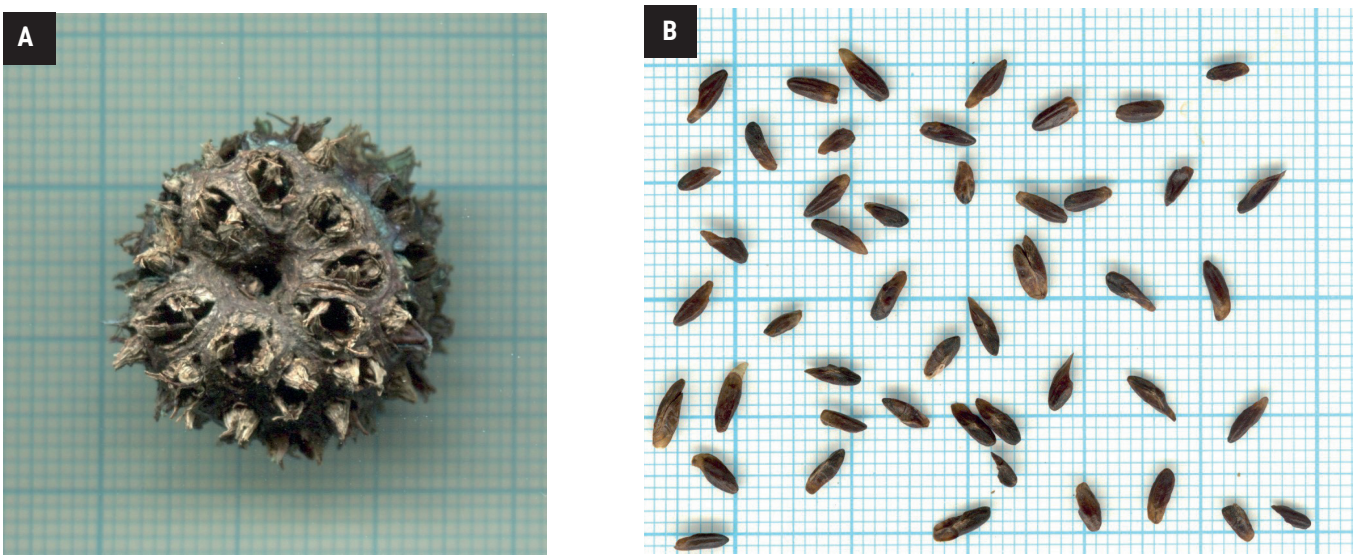


Figure 2: *Liquidambar orientalis* woody infructescence (with mostly open individual fruits) (a) and seeds (b).

Figure 3:
Collecting field data and *Liquidambar orientalis* seeds in the Valley of Butterflies, Rhodes Island (November 2025).

"Promoting the Utilization of Native Trees and Shrubs of Crete for Ecosystem Restoration and Green Infrastructure"

Michalis Choreftakis, Eleni Markaki, Panagiota Gotsiou, Christini Fournaraki
Mediterranean Plant Conservation Unit of CIHEAM-MAICh

The Mediterranean Agronomic Institute of Chania (CIHEAM – MAICh) has launched the project **"Utilization of Crete's Native Trees and Shrubs in Restoration Actions, Urban and Peri-Urban Green Space Projects, Beekeeping Parks, and Promotion of the Use of Suitable Forest Propagation Material"** in cooperation with the Forest Directorate of Chania, the National and Kapodistrian University of Athens, the Institute of Mediterranean Forest Ecosystems - ELGO "DEMETER" and the Technical University of Crete.

The goal of the project is the use of native trees and shrubs in restoration practices of natural ecosystems and landscapes, in green infrastructure projects, as well as in beekeeping parks in Crete, with the aim of highlighting and preserving the region's biodiversity and utilizing the above knowledge. Native species are particularly adapted to the local climatic conditions that characterize the local biodiversity and landscape.

The level of knowledge on the above topic in the Mediterranean has significantly increased in recent years at the research level, in part due to the implementation of relevant research projects among the partners of the GENMEDA Network and the exchange of expertise gained through them, such as ECOPLANTMED project (Ballesteros et al. 2015). However, this knowledge has not yet been applied at a practical level on the island of Crete.

Crete is the fifth-largest island in the Mediterranean and is located in the southernmost part of Greece. According to the most recent update of Flora of Greece Web (Dimopoulos et al. 2025), the flora of Crete includes approximately 2,160 native taxa.

The small shrubs and trees (i.e. phanerophytes) of the flora of Crete are estimated to include 153 taxa (including alien/established taxa), of which approximately 114 are considered native (Dimopoulos et al. 2025, Strid 2024, Strid 2016).

Among the species mentioned above, 40 have been selected for having limited information regarding their sexual reproduction and for not being yet utilized by forest nurseries. Some of these species have phytogeographic interest, as Crete represents the southernmost point of their distribution, such as the east-Mediterranean taxon Quercus robur subsp. pedunculiflora (K. Koch) Menitsky (Tan et al. 2012). Additionally, the species Fraxinus ornus L. is probably an example of a relict, mesic forest element in the Cretan flora that was more prevalent during the Pleistocene and early Holocene (Turland and Fielding 2005). Special emphasis will be placed on the utilization of Cretan endemic species, for which germination protocols have been created in previous projects (Thanos & Fournaraki 2013, Fournaraki et al. 2023).

The project's focus will be on investigating and documenting the germination protocols of forest species (trees and shrubs) in a practical manual, aimed at promoting the use of native species by nursery owners, private agronomists, landscape architects, and public organizations for habitat restoration, landscape design, beekeeping, and urban and peri-urban green space projects. The scientific results of this project as well as results already obtained from seed germination studies, through various research works and programs and the experience of the Forest Nurseries of Crete, will be transferred to the above manual in the form of practical germination protocols, intended for forest nurseries and generally for professionals in the production of propagation material.

Additionally, the project will assess the current status of commercial market of forest species propagation material in Crete in various nurseries and the legal framework governing it, with the aim of encouraging the use of native species and enhancing forest nurseries in the region.

Through the above actions, by utilizing native plants, the spread of invasive alien plants, which are currently widely used by municipalities and other organizations in restoration and greening projects, is limited. The use of native plants, in addition to preserving the landscape, enhances the ability of ecosystems to recover and restore balance after the ongoing pressures they face due to climate change and anthropogenic factors.

The project started in August 2025, will last for 3 years and is funded by the national financial program - Priority Axis 4- "Forest Protection and Upgrade" of the Green Fund of Greece.

Figure 1: ***Pyrus spinosa Forssk.*** fruit

Figure 2: Cretan mountain landscape with native trees and shrubs

Figure 3: ***Zelkova abelicea*** (Lam.) Boiss.
an endemic tree of Crete

References

Ballesteros D, Meloni F, Bacchetta G (Eds.). 2015. Manual for the propagation of selectedMediterranean native plant species. Ecoplantmed, ENPI, CBC-MED. Available online: http://www.ecoplantmed.eu/en/publications/propagation_manual

Dimopoulos P., Raus Th., & Strid A. (Eds) (2025). Flora of Greece web. Retrieved October, 2025, from https://portal.cybertaxonomy.org/flora-greece/intro

Fielding J. and Turland N., 2005. Flowers of Crete, edited by B. Mathew, Royal Botanic Garden, Kew.

Fournaraki C., Choreftakis M., Markaki, E., Kokkinaki, A., Gotsiou, P., Nousia, P., Grigorakis, E., & Sklavaki P. 2023. Actions for the conservation of two recently described threatened endemic tree species in wetlands of West Crete, Greece. Poster Presentation, 4th Mediterranean Plant Conservation Week, Valencia, 27-23 October 4 ,2023MPCW Book of abstracts, p.238/87

Strid A. (2016) Atlas of the Aegean Flora. Part 1: Text & 48 colour plates (700 pp). Part 3362 :2 colour distribution maps (878 pp.) Berlin: Botanic Garden and Botanical Museum Berlin, Freie Universität Berlin. ISBN 3 097 180 392 978.

Strid A. 2024. Atlas of the Hellenic Flora. Broken Hill Publishers Ltd Cyprus.

Tan K., Sfikas G., Adamopoulos T. & Zieliński J. 2012. Reports 116–114. In Vladimirov V. et al (eds). New floristic records in the Balkans: 18. pp. 85-84.

Thanos C.A and Fournaraki C. 2013. Seed Germination of Zelkova abelicea and Climate Change Impacts. Seed Ecology IV.The Fourth International Society for Seed Science Meeting on Seeds and the Environment: Shenyang, Liaoning Province, China. June 2013 ,26-22 (Book of Abstracts)

UPCOMING EVENTS 2026

Genmeda
NETWORK OF MEDITERRANEAN PLANT CONSERVATION CENTRES

CONSERVATOIRE
BOTANIQUE NATIONAL
MÉDITERRANÉEN

GENERAL ASSEMBLY

1-2 April, 2026, Hyères, France

By Ana María Cebrián Barrigón

In 2026, GENMEDA will be hosted for its General Assembly on April 1 and 2 in Hyères - Porquerolles, France, by the Conservatoire Botanique National Méditerranéen (CBNMed), which will be celebrating the 50th anniversary of its seed bank. This will be a great opportunity to visit a pioneering European Centre for seed conservation and restoration.

The 5th International Yew Conference.

Requena, Valencia (Spain), 15 -17 April 2026.

Emilio Laguna [1], Ana Cebrián [2] & Daniel Arizpe [2]

[1] University of Alicante, Scientific Station Font Roja-Natura, Spain

[2] Generalitat Valenciana. VAERSA – Centre for Forest Research and Experimentation (CIEF), Spain

The Centre for Forest Research and Experimentation (CIEF), with the close collaboration of the association 'Amigos del Tejo y las Tejedas', organize within the framework of the European Union's LIFE Teixeres project (LIFE20 NAT/ES/001128) the 5th edition of the International Yew *(Taxus baccata)* Conference, which will take place in the city of Requena (province of Valencia, Valencian Community, Spain) between 15 and 17 April 2026. The aforementioned project is developed jointly through the CIEF by the Valencian Ministry on Environment, Infrastructure and Territory, and its public company VAERSA, both belonging to the Generalitat Valenciana -regional government of the Valencian Community-.

The previous editions of the International Yew Conference were held in several Spanish cities: Alcoi (province of Alicante) in 2006, Olot (Girona) in 2008, Ponferrada (León) in 2010 and Poblet (Tarragona) in 2014. For their development, most of these editions have been supported or co-financed by the European Union's LIFE program through 3 former projects developed in the Valencian Community (project LIFE Alta Muntanya, 2004-2006), Catalonia (LIFE Taxus, 2012-2016), and the Spanish regions of the Cantabrian range (LIFE Baccata, 2016-2021).

Taxus baccata is one of the most popular and well-known plant species in decline in Spain, as well as the one that is usually considered the longest-lived. It is also present in many Mediterranean countries, where is also considered as a relict and declining species, being the subject of various conservation and genetic rescue projects. This has led to a growing number of specialists in its knowledge and management, meeting at international conferences such as this scheduled for Requena in 2026.

The conference is expected to last 3 days, with the first two -April 15 and 16- being dedicated to the presentation of papers, round tables and debates, while the last one would be dedicated to a half-day field trip to nearby areas where conservation work is being carried out with this species in the center-west of the province of Valencia. In addition to various habitat restoration actions (plantations of yew and nurse species, in situ protection of specimens, etc.), this zone is home to several living collections of seed-producing plants from the same area, following the quasi in situ conservation model, implanted in natural or semi-natural areas.

Registration for the conference is free but mandatory. Requena is the main town in the interior sector of the province of Valencia, connected to Madrid and Valencia cities through highway and high-speed trains. For any relevant information, the congress website can be found at the following **link:** https://sites.google.com/view/vjornadastejo/inicio?authuser=0

PROJECTS

1. RESCOM Project: An integrated approach to (re)discovering synergies between ecosystem conservation and human activities

By Adam JIRSA (AIFM)

The RESCOM project, launched in 2023 by the Mediterranean Consortium for Biodiversity and funded by the French Environment Fund, the MAVA Foundation and the French Development Agency, aims to strengthen the resilience of ecosystems in the Mediterranean. It promotes partnership-based work, bringing together a multitude of actors (managers, researchers, associations, institutions, local populations) in several countries around the Mediterranean. As part of the RESCOM project, the International Association for Mediterranean Forests (AIFM) is working in partnership with the Directorate General of Forests (DGF), local communities and experts to strengthen the resilience of ecosystems in the Oued Ezzen National Park (NP Oued Ezzen), Tunisia. This exceptional forest area faces challenges related to climate change, but also to the difficult socio-economic conditions of local communities. The aim of the RESCOM project on this site is to find synergies between the needs of local communities and the DGF and actions to preserve natural environments and biodiversity. This is innovative work in the Tunisian context, where the Forest Code imposes restrictions on local communities.

The Forest Code stipulates the following regarding national parks:

Article 221.

« All actions likely to harm the natural development of fauna and flora are prohibited or subject to restrictions, including hunting, fishing, agricultural, forestry and pastoral activities, industrial activities, mining, advertising and commercial activities, the extraction of materials, whether concessionary or not, the use of water, and public traffic, regardless of the means used, the wandering of domestic animals within a national park or nature reserve, as well as flying over them by aircraft. » *(translated from French, Code forestier et ses textes d'application, 2017)*

Carried out on demand and with the agreement of the DGF, the RESCOM project's actions are experimental in nature, given the Forest Code currently in application. The RESCOM project is therefore truly innovative in terms of the sustainable management of Tunisia's protected areas. The pilot actions could serve as examples for devising more flexible forms of management that are better suited to the needs of local stakeholders, while always prioritising the preservation of ecosystems.

Furthermore, the AIFM's work within RESCOM is based in the NP Oued Ezzen but aims to propose solutions that can be applied to other protected areas in Tunisia facing similar challenges. The first part of the AIFM's work consisted of developing and validating a management and development plan (PAG) for the ecosystemic unit of Oued Ezzen (national park and two adjacent natural reserves). This made it possible to establish a general overview of the territory and its challenges, define management guidelines and translate them into actions.

The actions set out in this document were then submitted to a consultation process with local stakeholders to identify those considered to be priorities. In October 2025, the AIFM had the opportunity to participate in a field visit of the DGF teams during which the actions carried out as part of the RESCOM project were validated. These actions include, for example, the installation of signage adapted to the challenges of the territory.

Currently non-existent, signage will serve to raise awareness among park visitors, channel visitor flows to limit their impact on fragile natural environments, and direct visitors to douars where local populations are seeking to develop ecotourism activities (lodging, sale of local products, etc.).

Tourist activities (hiking, wild camping, lodgings, etc.) are commonplace in the NP Oued Ezzen, despite being formally prohibited by the Forest Code. The RESCOM project's approach is to experiment with participatory and proactive management of ecotourism, rather than restrictive management, which is inefficient in preventing the negative impacts of these activities and creates additional difficulties for local populations. The initiative therefore aims to build the resilience of the territory as a whole, that of local populations (by facilitating the development of their economic activities) and that of ecosystems and their biodiversity (by limiting the negative impact of visitors on natural environments).

The AIFM has also recently become the coordinating structure for the Bouhachem Natural Park pilot site in Morocco, thanks to an additional funding granted to the RESCOM project by the French Development Agency (AFD) in 2025. The AIFM will strive to work in close partnership with the Regional Directory of the National Forest and Water Agency (DRANEF) Tanger-Tétouan-Al Hoceima and local stakeholders to strengthen the resilience of the territory through nature-based solutions and innovative actions that benefit both local communities and ecosystems.

Adam JIRSA, AIFM

2. TRANS-SAHARA project: Novel WEFE Nexus-based approaches towards agroforestry management in the Greater Northern African Region

By Faten Mezni (INRGREF)

TRANS - SAHARA

The TRANS-SAHARA project seeks to break down these barriers by embedding water security into agroforestry systems using an innovative **Water-Energy-Food-Ecosystems (WEFE) Nexus approach**. By deploying innovative technological nature-based solutions (NBS), advanced measurement technologies, scalable agroforestry models, and sustainable business strategies, the project aims to enhance community livelihoods and promote long-term adoption.

Large-scale pilot initiatives in Tunisia, Ghana, and Ethiopia and smaller scale demonstrations as part of the UNCCD Great Green Wall initiative in Chad, Djibouti and Senegal will validate these solutions, with a strong emphasis on community-led engagement to ensure local relevance and acceptance.
By bridging knowledge gaps, improving crop yields, and establishing carbon sinks on degraded land, the **TRANS-SAHARA** project will contribute to socio-economic growth and climate resilience. Its participatory, multi-stakeholder approach aspires to achieve widespread adoption across **Africa by 2030**, fostering sustainable development and bolstering climate change mitigation and adaptation efforts in Africa and beyond.

With a budget of €5.5 million and a duration of 3 years, TRANS-SAHARA, under the coordination of the European Research Executive Agency, this project brings together 21 partners from 8 African countries (Algeria, Chad, Djibouti, Ghana, Kenya, Mali, Senegal, and Tunisia (INRGREF)), 5 European countries (Belgium, Germany, Italy, Spain, the Netherlands), and the United Nations Convention to Combat Desertification (UNCCD), United Nations University Institute for Environment and Human Security (UNU-EHS), Bavarian State Ministry for Environment and Consumer Protection (StMUV) Germany, and National University Corporation Wakayama University, National University Corporation Tottori University, and Tokyo University of Agriculture in Japan, as Associated Partners. The project will be implemented in conjunction with the UNCCD Great Green Wall Initiative. The project seeks to promote sustainable agroforestry by embedding water security into agroforestry systems through innovative measurement technologies, scalable agroforestry models, and sustainable business strategies.

THE NETWORK

GENMEDA has 33 members & 1 associate member from 14 countries contributing to the conservation of the Mediterranean flora genetic resources.

Why a network?

Plant conservation centres from a same floristic region can make a large contribution to conservation by implementing both ex situ and in situ joint and coordinated actions. Cooperation allows information-sharing and developing common methodologies and applied technical and scientific know-how.

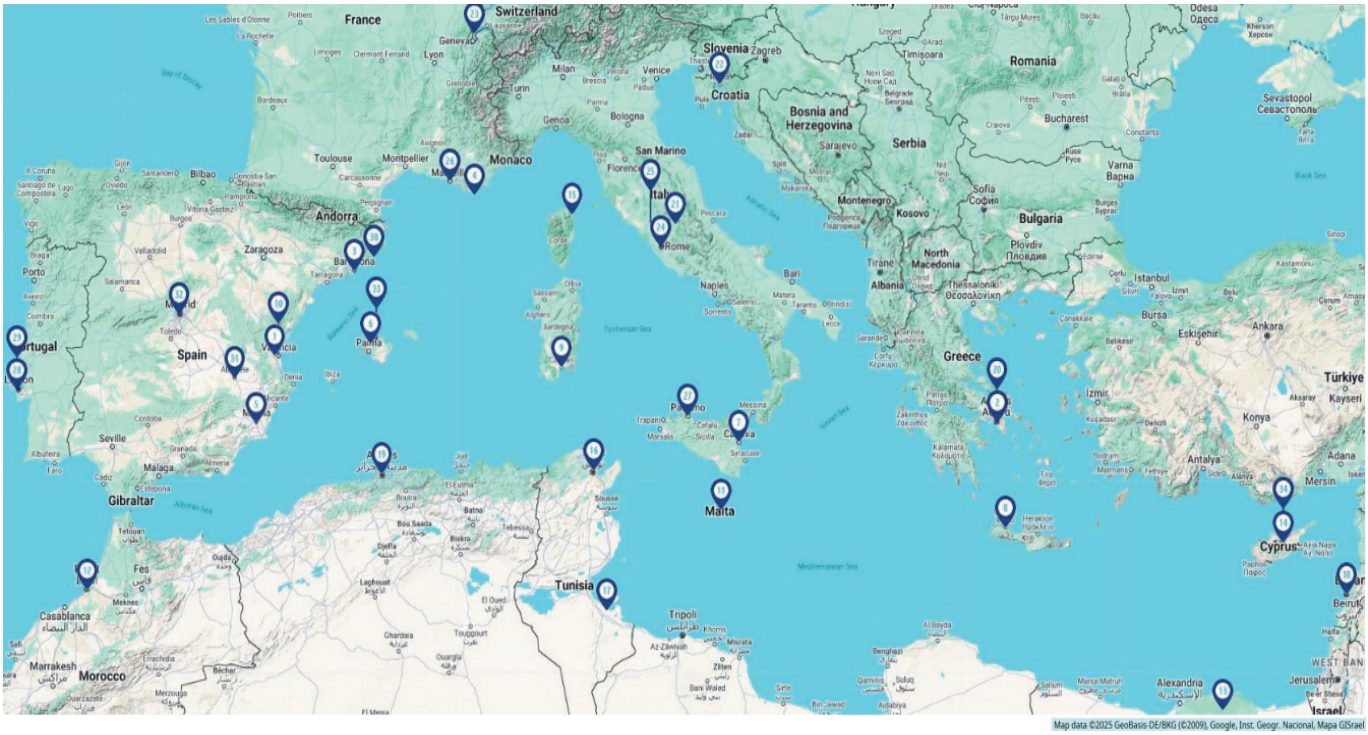
Who is involved?

Local, regional, national and international authorities & institutions, national bodies, universities and research centers.

Mission and objectives

GENMEDA aims to contribute to the conservation of Mediterranean flora genetic resources through: Enhancement of human capital, equipment and methodologies to boost flora conservation applied knowledge

- Harvesting of most threatened species genetic materials and creating, as far as possible, living plant collections
- Creation of a virtual common collection of vegetal genetic and reproduction materials
- Planning of joint initiatives concerning flora conservation and/or management
- Backing-up the decision-making processes of flora conservation public policies
- Support of environmental education and public awareness on biodiversity conservation.



Members

1. Centre for Forestry Research and Experimentation (CIEF) of the Valencian Community, Spain
2. National and Kapodistrian University of Athens (NKUA), Faculty of Biology – Department of Botany, Greece
3. Institut Botànic - Jardí Botànic de Barcelona (JBB), Spain
4. Conservatoire Botanique National Méditerranéen of Porquerolles (CBNMed), France
5. Center of Conservation of Wild Flora of the Region of Murcia (CCFS), Spain
6. Fundació Jardí Botànic de Sòller (JBS), Spain
7. University of Catania - Department of Biological, Geological and Environmental Sciences (DBS), Italy
8. CIHEAM Mediterranean Agronomic Institute of Chania (MAICh), Greece
9. University of Cagliari - Hortus Botanicus Karalitanus (HBK), Italy
10. Botanic Garden of the University of Valencia (JBUV), Spain
11. Department of Biology, University of Malta (DBUM), Malta
12. Mohammed V de Rabat University, Institut Scientifique de Rabat (ISR), Morroco
13. Mansoura University, Faculty of Science (FSUM), Egypt
14. Agricultural Research Institute (ARI), Cyprus
15. Office of the Environment of Corsica, Conservatoire Botanique National de Corse, France
16. National Research Institute for Rural Engineering, Water and Forests (INRGREF), Tunisia Arid Zones Research Institute (IRA), Tunisia
17. Arid Zones Research Institute (IRA), Tunisia
18. Saint Joseph University (USJ), Laboratory for Seed Germination and Conservation and 'Jouzour Loubnan' Seed Bank, Lebanon
19. Hamma Botanical Garden (JEH), Algeria
20. Hellenic Agricultural Organization "DEMETER", Institute of Mediterranean & Forest Ecosystems (FRIA), Greece
21. Rete italiana banche del germoplasma per la conservazione ex situ della flora spontanea italiana (RIBES), Italy
22. Natural History Museum Rijeka (NHMR), Croatia
23. IUCN/SCC – Mediterranean Plant Specialist Group (MPSG), Switzerland
24. Sapienza University of Rome, Botanical Garden of Rome (BGR), Italy
25. University of Tuscia, Tuscia Germplasm Bank (TGB), Italy
26. International Association for Mediterranean Forests (AIFM), France
27. University of Palermo, Sicilian Plant Germplasm Repository (SPGR/PA), Italy
28. Biopolis Association, Portugal
29. Forest Research Center, School of Agriculture (ISA),
30. Marimurtra Botanical Garden, Spain
31. Botanic Garden of Castilla-La Mancha (JBCLM), Spain
32. Real Jardín Botánico, CSIC, Madrid, Spain
33. El Centre Forestal de les Illes Balears, Spain

Associate members

34. Nature Conservation Unit, Frederick University (FredU – NCU), Cyprus

Representatives

President

Imtinen BEN HAJ JILANI
(on behalf of CIHEAM MAICh, 'Institut National Agronomique de Tunisie', University of Carthage, Tunisia).

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Michalis CHOREFTAKIS (CIHEAM-MAICh, Greece)
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Genmeda

NETWORK OF MEDITERRANEAN PLANT CONSERVATION CENTRES

Network of Mediterranean Plant Conservation Centres

GENMEDA aims to contribute to the conservation of Mediterranean flora genetic resources

+30 members from **+12** Mediterranean countries

+65,000 seed accessions

+12,000 plant taxa preserved

Sideritis tragoriganum (Photo: Emilio Laguna)

HUMAN CAPITAL	Strengthening human capital, equipment, and methodologies for flora conservation
GENETIC MATERIAL	Collecting genetic material from the most threatened Mediterranean plants
LIVING PLANT COLLECTIONS	Establishing living plant collections
VIRTUAL COLLECTION	Creating a virtual common collection
COLLABORATING ON CONSERVATION	Collaborating on joint flora conservation initiatives
PUBLIC POLICY DECISION-MAKING	Contributing to flora conservation public policy decision-making
ENVIRONMENTAL EDUCATION	Promoting environmental education and public awareness on biodiversity conservation

GENMEDA is a community of seed banks, gene banks, botanical gardens and other conservation centres of plant genetic resources, including authorities, national bodies, networks and international expert groups and associations.

Visit our website to see more about GENMEDA and our publications & projects

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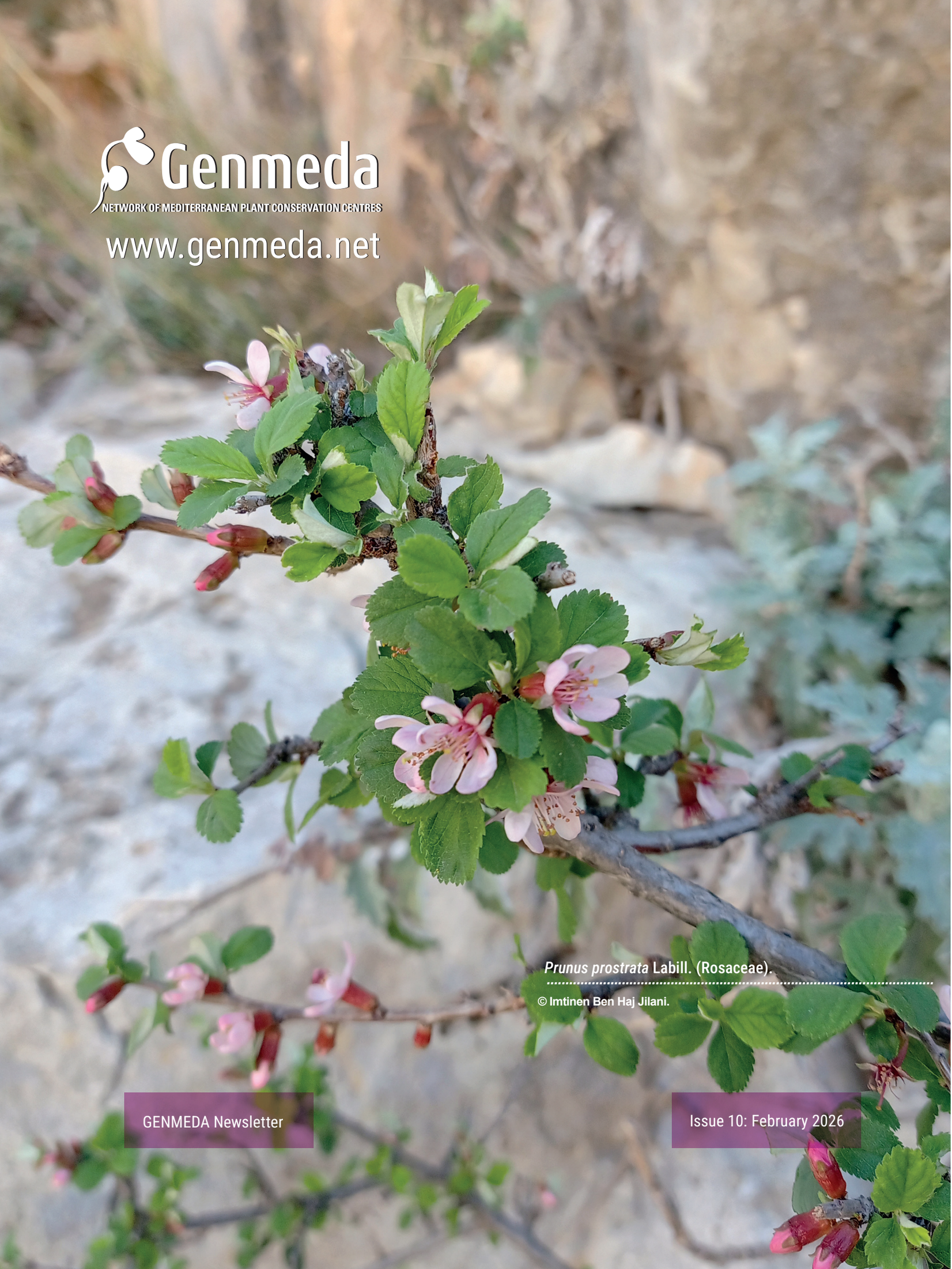

Prunus prostrata Labill. (Rosaceae).

GENMEDA Newsletter

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