

Plant Biosystems - An International Journal Dealing with all Aspects of Plant Biology: Official Journal of the Societa Botanica Italiana

Publication details, including instructions for authors and subscription information:

<http://www.tandfonline.com/loi/tplb20>

Stipa valdemonensis (Poaceae), a new species from Sicily

D. Cataldo^a, S. A. Giardina^b, B. Moraldo^c & F. M. Raimondo^d

^a Dipartimento di Biologia ambientale e Biodiversità, Università degli Studi di Palermo, Catania, Italy

^b Dipartimento di Biologia ambientale e Biodiversità, Cefal[ugrave], Italy

^c Istituto FF. Maristi, Taormina, Italy

^d Dipartimento di Biologia ambientale e Biodiversità, Università degli Studi di Palermo, Palermo, Italy

Accepted author version posted online: 18 Jun 2012. Version of record first published: 05 Jul 2012

To cite this article: D. Cataldo, S. A. Giardina, B. Moraldo & F. M. Raimondo (2012): *Stipa valdemonensis* (Poaceae), a new species from Sicily, Plant Biosystems - An International Journal Dealing with all Aspects of Plant Biology: Official Journal of the Societa Botanica Italiana, DOI:10.1080/11263504.2012.700961

To link to this article: <http://dx.doi.org/10.1080/11263504.2012.700961>



PLEASE SCROLL DOWN FOR ARTICLE

Full terms and conditions of use: <http://www.tandfonline.com/page/terms-and-conditions>

This article may be used for research, teaching, and private study purposes. Any substantial or systematic reproduction, redistribution, reselling, loan, sub-licensing, systematic supply, or distribution in any form to anyone is expressly forbidden.

The publisher does not give any warranty express or implied or make any representation that the contents will be complete or accurate or up to date. The accuracy of any instructions, formulae, and drug doses should be independently verified with primary sources. The publisher shall not be liable for any loss, actions, claims, proceedings, demand, or costs or damages whatsoever or howsoever caused arising directly or indirectly in connection with or arising out of the use of this material.

Stipa valdemonensis (Poaceae), a new species from Sicily

D. CATALDO¹, S. A. GIARDINA², B. MORALDO³, & F. M. RAIMONDO⁴

¹Dipartimento di Biologia ambientale e Biodiversità, Università degli Studi di Palermo, Catania, Italy;

²Dipartimento di Biologia ambientale e Biodiversità, Cefalù, Italy; ³Istituto FF. Maristi, Taormina, Italy;

⁴Dipartimento di Biologia ambientale e Biodiversità, Università degli Studi di Palermo, Palermo, Italy

Abstract

A new species of *Stipa*, endemic to Sicily, named *Stipa valdemonensis* is described here. The new taxon is related to *Stipa crassiculmis*. Owing to the small number of individuals observed, in few restricted localities only, it is assigned the IUCN threat status “vulnerable”.

Keywords: Sicilian flora, *Stipa*, Mediterranean islands, taxonomy

Introduction

In the course of floristic surveys for orchid mapping, in the area between the Nebrodi Mountains and Peloritani Mountains at the western outskirts of Mt. Etna, in northeast Sicily, D. Cataldo and S.A. Giardina recorded several *Stipa* individuals in two restricted localities that were apparently not referable to any taxon so far known in Sicily. Further field observations and herbarium analyses, also involving B. Moraldo and F.M. Raimondo, finally allowed to identify the plants under study as representing an independent species of *Stipa crassiculmis* Smirnov. In order to better delimit distribution and size of the population, new field surveys were carried out in other nearby areas, so that a third locality was found.

The new *Stipa* population was first discovered in May 2009 on the southern side of Punta Castelluzzo and on the slopes of Serro Valle Scuri, two contiguous differently facing sites, between 650 and 900 m. a.s.l., in the territory of Mojo Alcantara (Messina). The second locality was found soon after in the Roccella Valdemonne (Messina) territory, in the suburban park “Za Draga”. This locality, lying on the southern side of Rocca Za Draga, is between 700 and 800 m a.s.l.. Finally, the third locality was found in May 2011, 6 km north of the town of Montalbano Elicona (Messina). It lies in a place known as “Santa

Maria”, about 750 m a.s.l., on a disturbed slope, above the road to the next village.

Taxonomy

Taking into account all of the characteristics of the group of *Stipa crassiculmis*, *sensu* Martinovský & Moraldo (1980), and after the most closely related taxa belonging to it were critically analyzed, the Sicilian population is here described as a new species named *Stipa valdemonensis*.

Stipa valdemonensis Cataldo, S.A. Giardina, Moraldo & Raimondo **sp. nova** (Figure 1).

Holotype: Sicilia, Mojo Alcantara (Messina), versante meridionale di Punta Castelluzzo, lungo i fianchi di Serro Valle Scuri, su affioramenti costituiti da argilloscisti carboniosi, 650–900 m (a.s.l.), 37°54'56.94"N – 15°02'12.68"E, 24.05.2010, D. Cataldo & S. A. Giardina (PAL; isotypes: CAT, FI, PAL.

Iconography: Figure 1.

Diagnosis: Herba caespitosa perennis, culmis robustis 50–80 cm altis. Foliorum vaginae pilosae, suprema ore ad 10 mm lata, basin paniculae amplexans; ligula



Figure 1. Iconography of *Stipa valdemoneensis*: (a) entire plant; (b) culm; (c) lemma; (d-e) sections of leaf.

foliorum basalium 1–1.6 mm culmorum 3–6 mm longae; lamina in statu conduplicato juncea, foliorum inferiorum scabrae, superiorum extus glabrae intussecus costas papillis conicis minutissimis (ca. 0.02 mm altis) spinuloso-tuberculatis. Panicula depauperata, 6–8-spiculata. Glumae subaequales, 5–7 cm longae, acuminatae; lemma 2.1–2.4 cm longum, lineis pilorum 7 ornatum, quarum dorsalis et subdorsales subaequilongae dimidium lemmatis nonnusquam superantes, marginales insertionem aristae attingentes et abhinc in appendices binas ciliatas

protractae; arista bis geniculata, 30–35(–37) cm longa; columna scabriuscula; seta pilis 4–6 mm longis plumosa.

Eponymy: The specific epithet refers to the ancient name (Valdemone Mountains) with which the N-eastern Sicilian range was known up to the 19th century.

Description: Perennial caespitose herb with robust, 50–80 cm high culms. Culm sheaths up to 10 mm

wide apically, clasping the base of the panicle. Leaf sheaths hairy; ligules of basal leaves 1–1.6 mm, of culm leaves 3–6 mm long; lower blades scabrous, the upper ones glabrous outside, inside with ribs covered with aculeolate 0.02 mm high conical tubercles. Panicle depauperate, with 6–8 spikelets. Glumes subequal, 5–7 cm long, acuminate; lemma 2.1–2.4 cm long, with hairs in seven lines, the dorsal and subdorsal ones subequal, sometimes exceeding one half of the lemma, the marginal ones reaching the basis of the arista and extending into ciliate auricles; arista twice geniculate, 30–35(–37) cm long; column scabrous, seta plumose, with 4–6 mm long hairs.

Phenology: Flowering and fruiting period: May to July.

Chorology and ecology

Distribution (Figure 2): As known so far, *Stipa valdemonensis* occurs scattered in northeast Sicily, confined to a small area at the western border of the Etna region, between the Nebrodi and the Peloritani Mountains. The population of Montalbano extends over less than 200 m², those of Mojo Alcantara and Roccella Valdeme over ca. 5 and 2 hectares, respectively.

Ecology (Figures 3–6): All three localities are situated between 650 and 900 m a.s.l.. Like the other representatives of *Stipa crassiculmis*, *S. valdemonensis* occurs on Mediterranean hillsides in sub-arid meadows, on limestone, where several hemicryptophytes and geophytes are dominant. Owing to the sporadic occurrence of *Quercus ilex* L., *Q. pubescens* Willd.

(aggr.), *Fraxinus ornus* L. and *Pyrus spinosa* Forsk., these communities fall within the potential *Quercion ilicis* belt (Bazan et al. 2010). *Stipa valdemonensis*



Figure 3. Awns of *Stipa valdemonensis* from the type material.

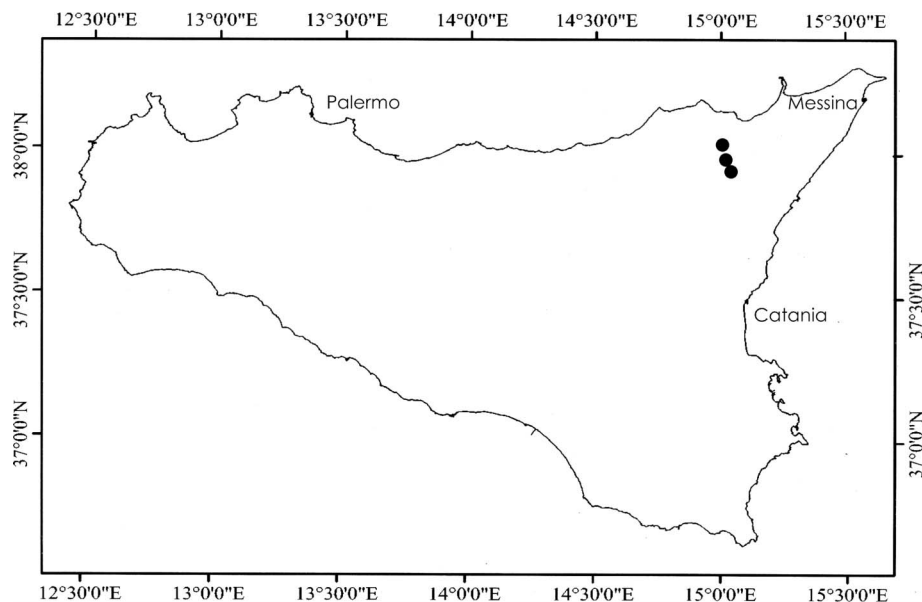


Figure 2. Distribution of *Stipa valdemonensis* in Sicily (●).



Figure 4. *Stipa valdemonensis* in the *locus classicus* (Mojo Alcantara) (photograph by D. Cataldo).



Figure 5. *Stipa valdemonensis* in the Roccella Valdemone locality (photograph by D. Cataldo).

occurs on long abandoned fields, where *Ferula communis* L., *Asphodelus ramosus* L., *Hyparrhenia hirta* (L.) Stapf, *Euphorbia rigida* M. Bieb., *Phlomis fruticosa* L., *Pallenis spinosa* (L.) Cass., *Carlina gummifera* (L.) Less., *Avena barbata* Pott ex Link, *Echium italicum* L., *Anisantha madritensis* (L.) Nevski, *Achnatherum bromoides* (L.) P. Beauv., *Stipa capensis* Thunb. and *Ampelodesmos mauritanicus* (Poir.) T. Durand & Schinz abound. This vegetation mostly belongs to the association *Thapsio-Feruletum communis* Bartolo, Brullo, Minissale & Spampinato, which is widespread in Sicily (Bartolo et al. 1990).

Status: Owing to the restricted distribution, the small population size and the low number of individuals known so far, the status “Vulnerable” (according to IUCN 2001) is assigned to *S. valdemonensis*.

Remarks and taxonomic relationships

According to Martinovský et al. (1975), *Stipa crassiculmis* subsp. *picentina* occurs in Sicily. That report is based on a specimen from the limestone mountains of Palermo identified in WU as “*Stipa pennata*” and cited by Moraldo (1986): Palermo, in



Figure 6. *Stipa valdemonensis* in the Montalbano locality (photograph by D. Cataldo).

montibus aridis, s.d., *Reina* (WU). This same taxon was also reported from Ficuzza (Palermo) by Gianguzzi et al. (2004) and, subsequently, by Giardina et al. (2007), but its presence was later considered as doubtful (Conti et al. 2007). Probably, the population of *Stipa* from the cited locality is to be identified with *S. sicula* Moraldo, Caputo, La Valva & Ricciardi (Raimondo et al. 2004). The report of Gianguzzi et al. (2004) – in the lack of other specimens collected by the same authors (Gianguzzi, *in litteris*) – should, therefore, be referred to *S. sicula*. Recently, Raimondo et al. (2010) excluded *Stipa crassiculmis* subsp. *picentina* from the Sicilian flora.

Stipa valdemonensis differs from *S. crassiculmis* (including its subspecies) not only by the overall size of the awns. Typical characteristics of *S. crassiculmis* shared by *S. valdemonensis* are the inflated uppermost leaf sheath (hence the epithet “*crassiculmis*”), the glabrous and aculeolate ribs in the inner lamina, and the often more than 30-cm long arista.

Conclusions

In the past few years, taxonomic studies on the vascular flora of Italy resulted both in the revision of some critical groups (e.g., Bancheva et al. 2011) and in the description of new species in various genera, such as *Lathyrus* (Conti 2010) and *Linum* (Peruzzi 2011). The description of a new *Stipa* species, presumed to be endemic to Sicily, belongs to that same context. Owing to its characteristics, *S. valdemonensis* belongs to the *S. crassiculmis* group as defined by Martinovský & Moraldo (1980).

Other specimens

Sicily: Roccella Valdemoni (Messina), Parco suburbano “Za Draga”, 37°55'36.63"N – 15°00'55.33"E, 09.05.2010, D. Cataldo & S.A. Giardina (PAL); Montalbano Elicona (Messina) Contrada Santa Maria, 38°02'37.69"N – 14°59'41.58"E, 07.06.2011, D. Cataldo (PAL); Mojo Alcantara (Messina), versante meridionale di Punta Castelluzzo, lungo i fianchi di Serro Valle Scuri, su affioramenti costituiti da argilloscisti carboniosi, 650–900 m (a.s.l.), 37°54'56.94"N – 15°02'12.68"E, 09.05.2011, D. Cataldo & S. A. Giardina (CAT, FI, PAL).

Acknowledgements

The authors wish to acknowledge Professor Paolo Colombo for his useful morphological analysis; Professors Pietro Mazzola and Werner Greuter for their suggestions and critical revision of the text; and the University of Palermo, the Fondazione Internazionale *pro Herbario Mediterraneo* (Palermo) and the Fondazione per la Flora Italiana (Florence) for financial support.

References

- Bancheva S, Geraci A, Raimondo FM. 2011. Assessing the genetic diversity of the *Centaurea parlatoris* group (sect. *Dissectae*, Compositae) in Sicily using isozymes. *Plant Biosyst* 145: 778–785.
- Bartolo G, Brullo S, Minissale P, Spampinato G. 1990. Flora e vegetazione dell'Isola di Lampedusa. *Boll Acc Gioenia Sc Nat* 21: 119–255.

- Bazan G, Brullo S, Raimondo FM, Schicchi R. 2010. Le serie di vegetazione della Regione Sicilia. In: Blasi C, editor. *La vegetazione d'Italia*. Roma: Palombi Editori. pp. 429–470.
- Conti F. 2010. A new species of *Lathyrus* L. (Fabaceae) from Central Apennine (Italy). *Plant Biosyst* 144(4): 814–818.
- Conti F, Alessandrini A, Bacchetta G, Banfi E, Barberis G, Bartolucci F, et al. 2007. Integrazioni alla checklist della flora vascolare italiana. *Nat Vicentina* 10(2006): 5–74.
- Gianguzzi L, Giardina A, Scuderi L. 2004. La flora vascolare. In: Gianguzzi L, editor. *Il paesaggio vegetale della Riserva Naturale Orientata “Bosco della Ficuzza, Rocca Busambra, Bosco del Cappelliere, Gorgo del Drago”*. Collana Sicilia Foreste Palermo 22: 47–96.
- Giardina G, Raimondo FM, Spadaro V. 2007. A catalogue of plants growing in Sicily. *Bocconea* 20: 5–582.
- IUCN. 2001. IUCN Red list categories and criteria, version 3.1. Cambridge, UK: IUCN Species Survival Commission.
- Martinovský JO, Moraldo B. 1980. *Stipa* in regione mediterranea atque submediterranea occurrentia. *Preslia* 52: 13–34.
- Martinovský JO, Moraldo B. 1975. *Stipa crassiculmis* P. Smirnov ssp. *picentina*, ssp. n. nel massiccio dei Picentini (Appennino campano). *Delpinoa*, Ser. 2, 16–17: 185–191.
- Moraldo B. 1986. Il genere *Stipa* in Italia. *Webbia* 40: 203–278.
- Peruzzi L. 2011. A new species of *Linum perenne* group (Linaceae) from Calabria (S Italy). *Plant Biosyst* 145: 938–944.
- Raimondo FM, Domina G, Spadaro V. 2010. Checklist of the vascular flora of Sicily. *Quad Bot Amb Appl* 21: 189–252.
- Raimondo FM, Mazzola P, Domina G. 2004. Check-list of the vascular plants collected during Iter Mediterraneum. *Bocconea* 17: 212.