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The flora of Peloritan District (Sicily): contribution to the knowledge of endangered entities distribution

Abstract

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We present recent data on the distribution of some species reported in the Regional Red List as endangered in the Peloritan District (Sicily).

In this work we consider some species reported in the Sicilian Red List as critically endangered (CR): *Tilia platyphyllos* subsp. *platyphyllos*, *Hyoseris taurina* (Pamp.) Martinoli, *Woodwardia radicans* (L.) Sm.; endangered (EN): *Polygonatum multiflorum* (L.) All., *Isoetes durieui* Bory, *Isoetes hystrix* Bory; vulnerable (VU): *Cistus crispus* L., *Carduus cephalanthus* Viv., *Osmunda regalis* L. Furthermore, we report data on *Tuberaria lignosa* (Sweet) Samp. cited in the Red List as species with deficient data (DD). We put also in evidence that there is no correspondence between the assigned category risk and the actual degree of danger affecting in the area (such as *Hypochaeris procumbens* L., *Fritillaria messanensis* Raf. and *Cytisus scoparius* (L.) Link).

The floristic Peloritan District (Brullo & al. 1995) occupies the North-Eastern part of Sicily, separated from the Etnean District by the Alcantara river and from the Nebrodian one by the Timeto and Roccella streams, the latter one being an Alcantara tributary.

Studies on the flora of the Peloritani Mountains were carried out between the XIX and the beginning of XX century (Parlatore 1858; Gussone 1827-1828, 1842-1844; Nicotra 1878, 1879, 1892; Lojacono-Pojero 1888-1909; Zodda 1898, 1899, 1900). Recent contributions are few and discontinuous (Gramuglio & al. 1998; Brullo & al. 1995, 1997). However, in most instances the data used to file the Red List were not controlled *in situ* for more than one century. Hence, it is necessary to verify the historical reports.

During the last three years we have carried out floristic investigations in the Peloritan territory. This allowed checking most of the historical localities where some species were not found any more. We have acquired new records for many endangered species.

In this work we consider some species reported in the Sicilian Red List (Conti & al. 1997) as critically endangered (CR): *Tilia platyphyllos* subsp. *platyphyllos*, *Hyoseris taurina* (Pamp.) Martinoli, *Woodwardia radicans* (L.) Sm.; endangered (EN): *Polygonatum multiflorum* (L.) All., *Isoetes durieui* Bory, *Isoetes hystrix* Bory; and vulnerable (VU): *Cistus crispus* L., *Carduus cephalanthus* Viv., *Osmunda regalis* L. Furthermore, we report new



Fig. 1. Distribution of critically endangered species (CR) in the Peloritan District .

records of *Tuberaria lignosa* (Sweet) Samp. cited in the Red List as species with deficient data (DD).

Tilia platyphyllos subsp. *platyphyllos* (Tiliaceae) (CR)

Known localities: "presso Montescuderi nella valle La Serenissima, Fiumedinisi (Messina)" (Fiori 1969); "Alta valle Torr. Niceto, Vallone Lauro" (Gramuglio & al. 2000).

New records: high Vallone Impeli (S. Pier Niceto) (UTM WC 33.16), a big specimen is on the north-western slope, within an impluvium, on lithosoil, 720 m a.s.l., 17/08/2000; Serro Pagliarotto (S. Pier Niceto) (UTM WC 33.16), three young specimens are inside a narrow and deep gorge, on rocks, 750 m a.s.l., 17/08/2000; between Serro Pagliarotto and Pizzo Sale (S. Pier Niceto) (UTM WC 34.16), a group of four specimens are on rocks on a steep slope, 725 m a.s.l., 17/08/2000.

Observations: European-Caucasian species circumscribed in Sicily to the Peloritan District. It is probable that these localities represent relics of only one subpopulation.

Hyoseris taurina (Pamp.) Martinoli (Asteraceae) (CR)

Known localities: "Milazzo", "Capo Milazzo" (Brullo & al. 1997), "Rometta" (Guarino 1997);

New records: Acqualadrone (UTM. WC 49.38), S. Saba (UTM. WC 44.37), Rodia (UTM. WC 43.36), Marmora (UTM. WC 42.35), all on dripping rocky walls, 20-100 m a.s.l., 17/04/99; Capo Rasocolmo (UTM WC 46.39), on coastal cliff, 10-150 m a.s.l., 25/06/2000; Mongiove (UTM WC 03.22), Tindari (UTM WC 04.22), on coastal rocky walls, 0-150 m a.s.l., 09/07/2001.

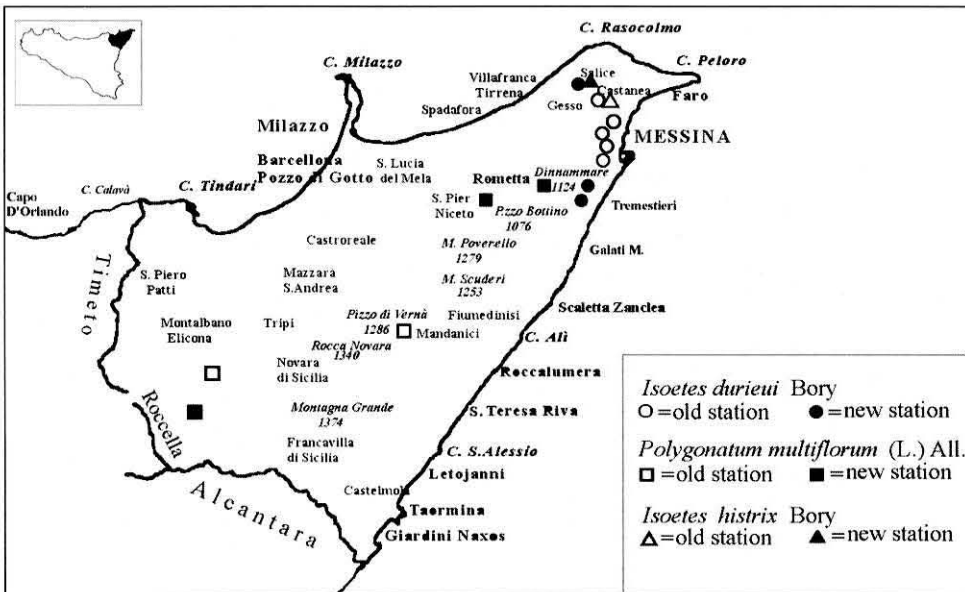


Fig. 2. Distribution of endangered species (EN) in the Peloritani District.

Observations: *H. taurina* can be considered an ancient typical member of the S. Thyrrenian element. It occurs in S.W. Sardinia, in the island of la Galite (Tunisia) in N.E. sicilian shoreline (including some Aeolian Islands) until slope Thyrrenian of S.W. Calabria (Brullo & al. 1997). The new subpopulations of Marmora, Rodia, S. Saba, Capo Rasocolmo and Acqualadrone represent the most eastern Sicilian localities and the closest to the Calabrian ones (Pizzo, Pizzo Calabro, Capo Vaticano, Briatico and Zambrone). The localities at Mongiove and Capo Tindari represent the connection with those ones of the Nebrodi District (Brolo, Capo d'Orlando, Gioiosa Marea, Piraino, Capo Calavà).

Woodwardia radicans (L.) Sm. (*Blechnaceae*) (CR)

Known localities: "Luoghi molto umidi ed ombrosi sotto la cascata dell'Acero!" (Zodda 1898); "Rarissima: S. Lucia del Mela al Salto dell'Acero" (Zodda 1900); "S. Pier Niceto" (Zodda 1900); "Messina alle acque del Niceto" (Lojacono-Pojero 1908); "Vallone Mandrazza", "Vallone Lacino" (S. Lucia del Mela) (Gramuglio & al. 1978); "Monte Girasara, Gualtieri-Sicaminò", "Serro Pagliarotto, bacino del Niceto", "Vallone Impeli, bacino del Niceto" (Gramuglio & al. 1998).

New records: Rocche Jero (Rometta) (UTM: WC 39.21), 40 specimens on a ground along an impluvium, inside a chestnut wood, 575 m a.s.l., 30/05/1999; under Puntale Saitta-Tracanal stream (Rometta) (UTM: WC 39.22), six specimens on ground in a bush of *Erica arborea* L., close to the cropping up of a water-bearing stratum, 450 m a.s.l., 01/04/2000; under Serro Ginestri-Tracanal stream (Rometta) (UTM: WC 39.23), ten specimens on a dripping rocky wall, 400 m a.s.l., 01/10/2000; at S. Pietro-Tracanal stream (Rometta) (UTM: WC 39.23), six specimens on a dripping rocky wall, 400 m



Fig. 3. Distribution of vulnerable species (VU) in the Peloritan District.

a.s.l., 01/04/2000; Ferrà valley-Mela stream (S. Lucia del Mela) (UTM: WC 28.13), eight specimens on a dripping rocky wall, 600 m a.s.l., 04/07/1999.

Observations: Relic species of the Tertiary era, once known in a few sites near Etna (Gussone 1843; Tornabene 1887), today it occurs only in the Peloritan District. The new findings near Rometta represent the most north-eastern Sicilian localities, and hence the closest to the Calabrian ones of S. Eufemia D'Aspromonte and Bagnara.

Polygonatum multiflorum (L.) All. (Liliaceae) (EN)

Known localities: Bosco di Montalbano e di Mandanici (Gussone 1827), Bosco di Malabotta (Montalbano Elicona) (Guarino 1997)

New records: Rocca Stefana (S. Pier Niceto) (UTM WC 31.15), a few specimens under *Pteridium aquilinum* Kuhn, 1000 m a.s.l., 27/06/99; Licopeti valley (Roccella Valdemone) (UTM WC 02.00), a few specimens inside a hazel wood, 900 m a.s.l., 03/05/99; P.lla Cassarini-Dinnammare (Messina) (UTM WC 40.24), inside a chestnut wood, 900 m, 03/05/00.

Observations: we found the species also in the Mandanici woods (M. Mualio, 1100 m and Sella Fanni 1000 m, both reafforested with *Pinus pinaster* Poiret; Postoleoni, in a glade of chestnut wood, 950 m a.s.l.; at Monte Cavallo, under *Pteridium aquilinum* Kuhn, 1100 m a.s.l.), where in the past it was reported as *P. gussonii* Parl. (Parlatore, 1858).

Isoetes duriei Bory (Isoetaceae) (EN)

Known localities: "S. Corrado", "Casazza", "Camaro", "Sotto il Campo Inglese" (Zodda 1905); "Castanea a Ravelli", "Scoppo" (Nicotra & Campagna 1908);



Fig. 4. Distribution of data deficient species (DD) in the Peloritan District.

New records: Salice (UTM WC 43.34), 130 m a.s.l., 17/03/2000; Puntale Caracciolo-Zafferia (UTM WC 45.23), 250 m a.s.l. 12/02/2000; Serra Pedra-Larderìa (UTM WC 45.21), 150 m a.s.l., 12/02/2000.

Observations: All new localities where this West-Stenomediterranean-Atlantic species occurs, are characterised by an exiguous number of specimens inside ephemeral pools. Moreover, the historical sites of Castanea at Ravelli (Nicotra & Campagna 1908) and S. Corrado (Zodda 1905) are confirmed, the latter with very few individuals.

Isoetes histrix Bory (*Isoetaceae*) (EN)

Known localities: "Castanea a Ravelli" (Nicotra & Campagna 1908);

New records: Salice (UTM WC 43.34), inside ephemeral pools, 100 m, 17/03/2000.

Observations: This is the second locality of the Peloritan district where this Stenomediterranean-Atlantic species has been found. The historical locality of Castanea at Ravelli is confirmed.

Carduus cephalanthus Viv. (*Asteraceae*) (VU)

Known localities: "Bafia", "Mandanici" (Gussone 1843); "Fiamedinisi", "Messina al Campo" (Nicotra 1878); "S. Lucia", "Dinnammare alle Fontanelle", "Montescuderi" (Lojacono-Pojero 1902);

New record: Pizzo Bottino (S. Stefano Briga) (UTM WC 40.19), inside a bush of *Erica arborea* L., 1000 m a.s.l., 29/04/1999.

Observations: This subendemic Centre-Mediterranean species, in Sicily occurs only in the Peloritan District.

Osmunda regalis L. (*Osmundaceae*) (VU)

Known localities: "Mandanici" (Nicotra 1879); "Messina a Camaro", "Cataratti", "al Campo", "Scala", "S. Miceli", "Salice" (Nicotra 1892); "Serro Paglierotto" (Gramuglio & al. 1998); "Itala", "Antillo" (Zodda 1905); "M. Ciccìa" (Nicotra & Campagna 1908). New records: Rocche Jero (Rometta) (UTM WC 39.21), in a valley, 550 m a.s.l., 30/05/1999; near S. Calorio shelter (S. Stefano Briga) (UTM: WC 39.17), along an impluvium inside a chestnut wood, 920 m a.s.l., 21/10/1999; Sorgente Imbardo (Pellegrino) (UTM: WC 36.20), near the spring, 510 m a.s.l., 27/10/2000.

Observations: subcosmopolitan species for which the historical localities of Camaro, Cataratti (Nicotra 1892) and Itala (Zodda 1905) are confirmed. An exiguous number of specimens (3-10) is present in all localities, but at Itala, were recorded 50 individuals. The old locality of Salice, still observed in 1998, today is no more existing.

Cistus crispus L. (*Cistaceae*) (VU)

Known localities: "Messina al Campo" (Gussone 1828); "Bianchi", "Masse", "Faro", "Castanea" (Nicotra 1878).

New records: Olmo locality (Rometta) (UTM: WC 37.29), a few specimens marginally to the provincial way, 220 m a.s.l., 31/05/2001.

Observations: This West-Mediterranean species, in Sicily and Italy exclusive to the Peloritan District is known till now only in a wide area at the most eastern limit of the Peloritan District, facing the Straits of Messina. The new locality extends the distributions of the species to the West.

Tuberaria lignosa (Sweet) Samp. (*Cistaceae*) (DD)

Known localities: "Campo", "Scirpi", "S. Rizzo", "Bimare" (*hodie Dinnammare*) (Nicotra 1878); "Colline di Messina, comune" (Nicotra 1879); "M. Ciccìa" (Zodda 1899); "Massa S. Giorgio", "Portella Castanea (Me)" (Guarino 1997).

New records: near the forestry shelter of Puntale Saitta (Rometta) (UTM WC 40.22), on gneiss, 800 m a.s.l., 14/04/1999; Pizzo Corvo (Rometta) (UTM WC 40.21), on gneiss, 830 m a.s.l., 14/04/1999; Pizzo Bottino (S. Stefano Briga) (UTM WC 40.19), on gneiss, 950 m a.s.l., 22/10/1999; Puntale S. Calorio (S. Stefano Briga) (UTM WC 39.17), on gneiss, 900 m a.s.l., 22/10/1999; Pizzo Milia (Rometta) (UTM WC 38.23), on gneiss, 620 m a.s.l., 15/05/2001.

Observations: This West-Mediterranean species, in Sicily exclusive to the Peloritan District, was reported by Nicotra (1879) as widespread on the hills around Messina. This is supported by the numerous herbarium specimens (ME): "Casazza del Re" (Seguenza 1856); "Casazza" (Borzi 1880); "Casazza", "Colle S. Rizzo", "Bianchi e Campo Inglese" (Gajolli 1882); "Messina" (Franke 1882); "S. Corrao", "Casazza del Re", "Messina al Campo" (Citarda s.d.); "S. Corrado" (Borzi 1884). Today it results much less frequent in this area: its occurrence is confirmed in the historical localities of Campo Italia, Dinnammare and Mt. Ciccìa. Five new localities were recorded westwards of the ones already known.

It was possible to find out that for some entities there is no correspondence between the

assigned risk category and the actual degree of danger in the area. This is the case of *Hypecoum procumbens* L. (*Papaveraceae*), cited in the Regional Red List as suffering a lower risk (LR): we confirm the presence of just a few individuals in only one (shore of Torre Faro) of the four known localities.

Other species, reported as vulnerable (VU), have been observed more frequently than acknowledged from literature data, as in the case of *Fritillaria messanensis* Raf., observed in a number of localities in the Peloritani (Gussone 1827; Nicotra 1878; Gramuglio & Arena 1973; Raimondo & al. 1992; Gianguzzi & al. 1995; Picone & Zaccone 2001) and furthermore in the following ten new other ones: Lardereria loc. Serra Pedra (UTM WC 22.45), 190 m a.s.l.; Zafferla at Puntale Caracciolo (UTM WC 23.44), 300 m a.s.l.; Zafferla loc. Colino (UTM WC 23.45), 165 m a.s.l., all these inside oak woods, 18/03/2001; Mt. Kalfa (UTM WB 24.97), in garrigues dominated by *Calicotome spinosa*, 1000 m a.s.l., 27/04/2000; between M. Mualio and Pizzo Batteddu (UTM WC 25.09), hundreds of individuals on the ridge, 1000 m a.s.l., 14/04/2000; near Salice at Piano Comi (UTM WC 43.34), 30 specimens inside a oak scrub, 130 m a.s.l., 25/03/1998; Mt. Ritagli di Lecca (Novara di Sicilia) (UTM WC 15.05), a big specimen inside a oak wood, 18/04/2001, near the hut of Postoleone (Mandanici) (UTM WC 27.10), in grassland close to the road, 1000 m, 27/05/99; Mt. Cavallo (UTM WC 29.08) on the N.E. slope, a number of individuals under *Pteridium aquilinum* Kuhn., 1100 m a.s.l., 27/05/1999; under Punta Murtareddu loc. Acqua Monaco (Nizza di Sicilia) (UTM WC 30.09), 50 specimens inside a oak scrub, 1000 m a.s.l., 27/05/1999.

The site of Mt. Kalfa is very important because extends the areal of distribution of this East-Mediterranean mountainous species to the Sud-West.

Similarly *Cytisus scoparius* (L.) Link., known for "Messina, Ibisio, Itala" (Gussone 1828) e Dinnammare (Nicotra 1878) and more recently in "monti sopra Mandanici" (Bartolo 1994) and in "Malabotta" (Guarino 1997) and has been found in new station : Pizzo Bottino (S. Stefano Briga, Me) (UTM WC 38.18), along the ridge, 980 m a.s.l., 16/05/2001; Pizzo Gardile (UTM WC 22.07), along the ridge, 1100 m a.s.l., 19/05/2000; Montagna di Vernà (UTM WC 23.09), 110 along the ridge, 1150 m, 15/05/2000; Fiumara S. Pietro (UTM WC 38.24), along the stream with riparian vegetation, 350 m a.s.l., 15/05/1999, Rocche Argimusco (WC 04.03), in ericaceous maquis, 1150 m, 25/05/1999.

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