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A Contribution to the Knowledge of Alien Flora in the Maltese Islands.

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ABSTRACT

The occurrence of *Limoniun sinuatum* L., *Malephora crocea* var *purpureo crocea* Schwantes J. , *Pennisetum setaceum* (Forsskal.) Chiov. and *Viola alba* Bess. In the Maltese Islands is recorded. Considerations are also made on the distribution of *Cyperus alternifolius* L. and *Solanum elaeagnifolium* Car. R.

Keywords: *Limoniun sinuatum, Malephora crocea* var *purpureo crocea, Pennisetum setaceum***,** *Viola alba, Cyperus alternifolius, Solanum elaeagnifolium,* Maltese Islands.

New Records

Limonium sinuatum

Limonium sinuatum **(Figure 1)** is a member of the Plumbaginaceae and is of Mediterranean origin (Weber,2006). Nowadays this species is widely cultivated for its ornamental value and this may explain why it is now found growing wild in the Maltese islands. E.Lanfranco states that this species has been present in these islands at least for the past 40 years but has never formally been documented(Lanfranco pers.. comm., 6th August 2007).

An individual of the white flowered variety, with a prostrate inflorescence was found in Wied Għollieqa on 20th May 2006 .On 4th May 2006, in Dwejra (Gozo), an individual of the purple-flowered variety with an inflorescence 15cm high was found on a sandy patch between two individuals belonging to *Atriplex halimus*. On the same day, three individuals of the blue-violet flowered variety were found growing on crevices on the road side between San Lawrenz and Dwejra. The origin of these four individuals is may be from a single field of cultivated *Limoniun sinuatum* found close by.

On 8th June 2007, a population of 74 blue-violet flowered individuals was found growing wild at Baħar iċ-Ċaghaq. In autumm 2007, two postrate individuals of the white-flowered variety were found growing in St. Thomas Bay, Marsaxlokk. On 9th July 2009, three individuals of the violet-flowered variety were found in garigue at Xagħra il–Ħamra, Manikata.

In a recent survey conducted by one of the authors (JS) on 9th July 2010, along the coast of Xgħajra (Żabbar), an established population of over 200 specimens of *Limonium sinuatum* was observed, representing the largest recorded population of this species in the Maltese Islands. All individuals within this observed population are of the blue-violet variety. Nearby cultivations were always noted close to sites where wild specimens occurred. The frequency of occurrence of *Limonium sinuatum* in the wild is expected to increase in the near future, if cultivation of this species also increases. Since, at present, it still rare, it is only considered as a casual alien. The effect on the local coastal ecology of this species is not yet clearly known, but since it is well adapted to maritime conditions, such as sand dunes and coastal plateaux, it can be a potential threat to indigenous species which share similar habitats.

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Malephora crocea

Malephora crocea **(Figure 2)** is a South African member of the Azioaceae. There are 13 species in the genus *Malephora* world-wide. In Malta, only *Malephora crocea* var. *purpureo-crocea*,has been recorded in the wild. This species has bluish cylindrical succulent leaves with red actinomorphic flowers, and it colonises coastal habitats. *Malephora crocea* var. *crocea*, which has green and thinner leaves with orange flowers, also present in Malta, but only in cultivation.

Malephora crocea var. *purpureo-crocea*, is still very rare in wild, although it can be very invasive as it can smother other species due to its spreading habit. This species also colonises rough coastal rocky terrain with little soil present,, which is usually colonised by a Crithmo-Limonietum association. The flowers of this species provide nectar for some Chafer Beetle species from the Scarabiidea, and for some species of warblers and other song birds that usually are in the vicinty of the Għadira Nature Reserve, (Denis Cachia personal communication, February 2008).

A localised population of *M. crocea* var. *purpureo-crocea* was observed on May 2007, at the coastal cliff of Qammieħ, behind the landfill site. Approximately 100 individuals with an average diameter of 30cm were observed. Several of these plants were found growing on a mound of rubble, along with *Carpobrotus edulis* L.Bolus. Others were situated approximately 30m away on a rocky patch with pockets of soil. Others in the same area were growing much closer to the shore than the rest. In 15th July 2007, four specimens were found growing on the north east coast of Comino near Santa Marija bay. In 25th Feb 2011, one specimen was observed amongst a community of *Darniella melitensis* at St.Peter's Pool, Delimara, Marsaxlokk.

Most of the specimens noted had propagated vegetatively, as indicated the remains of dried stems connecting from one plant to another, suggesting that the population may have arisen from a single founder individual.

Seedlings, belonging to this species, were noted emerging from the soil, and some seem to survive the summer, making this species potentially more invasive. Germination, coupled with vegetative reproduction, make this species to be well adapted to the jagged shores of the Maltese islands.

Pennisetum setaceum.

Pennisetum setaceum (Forsskal) Chiov.**(Figure 3)** is a perennial bunch grass, belonging to the Poaceae. This species is native to open, scrubby habitats in East Africa, tropical Africa, Middle East and SW Asia(www.weeds.org.au). It has been introduced to many parts of the world as an ornamental plant and in places such as Tenerife, Sicily, Sardinia, Southern Spain, Australia, South Africa, Hawaii, Western United States, California, and Southern Florida it has become an invasive species (Benton 1998). In Malta, it was introduced in 2008-2009, for ornamental purposes (Casha, 2009). Locally, observations by the authors show that areas in which *P. setaceum* was planted, have already been overrun by this species, and it seems to be spreading outside its ornamental space, entering wild ecosystems such as steppe, valleys and garigue. In 6th July 2009, three individuals were found on a degenerating garigue and steppe in the limits of Baħar iċ-Ċagħaq, near Naxxar. On 18th July 2010, another three individuals were found growing along the roadside of Mellieħa Bay. Another three individuals were located in an area known as Xagħra tat- Tunnara (limits of Għadira), whilst another record came from abandoned fields in Burmarrad. This species seems to have a great tendency to colonize roadsides in South Africa (Rahlao *et al*., 2010). The dense foliage of *P.setaceum* can smother smaller species.

Viola alba

Viola alba **(Figure 4)** belongs to the Violaceae. Most species of this genus occur mainly in mountainous regions of Eurasia (Blamey & Grey-Wilson, 2004). Only a few species occur in the Mediterranean; some are endemic to the few large Mediterranean islands. *Viola alba* is rarely cultivated in the Maltese Islands, though its tropical orchid-like shape makes it attractive, so the chances of it being cultivated can increase in the near future.

One individual in flower was noted on 8th March 2007, in the inland part of Ta' Ċenc, Gozo, close to a fresh water rock pool. Later that month, another individual was found in crevices of an abandoned artificial pool in Paola, Malta. The sites of occurrences of this species may suggest that it prefers to grow in valleys and rock pool systems,

where there is abundant water in winter, but with only two records, this cannot be justified. Due to its preference for a specific habitat, such as damp places, which are scarce in the Maltese islands, its distribution is limited.

Cyperus alternifolius L. - new local distribution.

Although *Cyperus alternifolius* **(Figure 5),** which is native to Madagascar is not a new alien species to the Maltese islands, since it was already recorded by Borg (1927), as an ornamental species, the authors consider this species to be a new adventive plant species in the Maltese islands, due to its recent occurrence in the wild.

On 6-9th April 2008, two large individuals were found on an abandoned clay dump that functions as a rock pool in Imrieħel, Qormi. Later in the same month, six individuals were found on the banks of Wied is-Sewda, four of which closer to Attard and two closer to Qormi. On 6th May 2008, one individual was on a wall near the valley of Birkirkara. Besides the authors' findings, Mifsud (2003) presented a photo of *Cyperus alternifolius* growing in a valley, accompanied by *Ricinus communis* L. and *Arum italicum* Mill., even though in that document it was noted as 'cultivated'.

The origin of the local distribution of this species might be directly from artificial garden ponds in nearby gardens or may be descendants of the previous generations of escaped plants. The Birkirkara specimen is most probably an escaped garden specimen, due a private garden being close-by, but the valley specimens can be a sign that recently the species is spreading without human assistance. Whether with wind dispersal, animal or water dispersal (the last dispersal method is usually the case), *Cyperus alternifolius* is finding its way to valley systems.

Solanum elaeagnifolium Car. R. - new local distribution.

Solanum elaeagnifolium **(Figure 6)** belongs to the Solanaceae. A population consisting 20 individuals of S. *elaeagnifolium* were found by one of the authors (JS) in a disturbed steppe close to St. Paul's By-pass on 4th August 2010. This species was already recorded in Malta, but only from the harbour area (Lanfranco, 1969). The population discovered by the authors may be derived from ornamental stock as this plant is frequently grown for embellishment. Cultivation of this species is very common especially in the Eastern Mediterranean, including Cyprus, where it is also widely naturalized (Blamey & Grey-Wilson, 2004). The Mediterranean climate is ideal for this species to flourish and if it is left unchecked, disturbed habitats and/or abandoned fields can be colonized by the species. Tunisia, Greece and Italy are the closest examples where it has become a noxious weed, especially for agriculture (EMPPO, 2007). This species can also be very competitive with *Glaucium flavum* Crantz., which is native to Western Mediterranean, including Malta, due to similar flowering seasons (Tscheulin *et al*.,2009). So far, this species has not been recorded from Gozo, Comino and the minor islands and islets.

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Fig1

Fig 2a

Fig 2b

Fig3

Fig4

Fig5

Fig6a

Fig 6b

Fig 6c

(All images were taken in the wild in Malta by the authors).

REFERENCES

Blamey ,M. & Grey-Wilson,C. (2004) Wild Flowers of the Mediterranean. A & C Black Publishers.560pp.

Borg J. (1927) Descriptive Flora of the Maltese islands. Government Printing Office.

Casha, A. (2009). Contributions to the Maltese flora. *The Central Mediterranean Naturalist* 5(1): 35-43.

European and Mediterranean Plant Protection Organization. (2007) OEPP/EPPO Bulletin 37: 236–245.

Lanfranco,G. (1969), Field guide to the wild flowers of Malta.

Haslam S.M., Sell,P.D & Wolseley,P.A. (1977) " Flora of the Maltese Islands". Malta University Press 559pp.

Rahlao, S. J, Milton, S. J, Esler, K. J, & Barnard, P. (2010) The distribution of invasive *Pennisetum setaceum* along roadsides in western South Africa: the role of corridor interchanges. Weed Research 50, 537–543, doi/10.1111/j.1365-3180.2010.00801.x

Tscheulin, T., Petanidou T., Potts, G. and Settele. J. (2009) The impact of *Solanum elaeagnifolium*, an invasive plant in the Mediterranean, on the flower visitation and seed set of the native co-flowering species *Glaucium flavum*. Plant Ecology 205 pgs 77-85, doi: 10.1007/s11258-009-9599-y

http://www.maltawildplants.com/CYPR/Cyperus_alternifolius.php -accessed 25.9.08

http://www.issg.org/database/species/ecology.asp?si=309&fr=1&sts -accessed 1.9.2010.

http://www.weeds.org.au/cgi-bin/weedident.cgi?tpl=plant.tpl&ibra=all&card=E16 – accessed in 28.1.2011