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Research Article

A Preliminary Survey and Taxonomy of Wild Roses (*Rosa* Spp.) Occurring on the Maltese Islands

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Abstract. Rosa spp. are neglected and understudied for the Maltese flora, where only three species have been reported. *R. sempervirens* L. is the only native rose established in at least 12 locations in Malta. *R. gallica* L. s. l. (including hybrids) and *R. canina* L. s. l. are only mentioned in historical literature with doubtful occurrences. However, there are several other roses occurring naturally in Malta, which are probably not studied due to the difficulties in identification. A study carried out between May and July 2016 has resulted in the examination of 27 populations of wild or naturally occurring roses, of which twelve species, hybrids or cultivars have been recorded, eight of which are new for the Maltese flora. In addition, new locations or rediscoveries of *R. canina* and *R. gallica* s. l. have been found and, hence, are still extant in the Maltese Islands.

Keywords: *Rosa* spp.; Rosaceae; Flora of Malta; Mediterranean region

1 Introduction

The study of native and naturalized roses (hereafter referred to as wild roses) on the Maltese islands has been neglected partly because of their intricate taxonomy, resulting in difficulties to reach concrete identification. This is chiefly because of the widespread hybridisation including the creation of numerous cultivars in this genus. Moreover, they are given little importance to the flora of Malta, partly because they are often dismissed as horticulture escapes or casual aliens.

The last updated work on *Rosa* spp. goes back to the flora of Borg (1927) and subsequent accounts of floras such as by Haslam, Sell and Wolseley (1977), Lanfranco (1989), Weber and Kendzior (2006), Casha (2013) consist of repetitions of the same records. Albeit, roses in Malta have been mentioned, as early as the 16th century. One of the earliest official descriptions of Malta was by the ancient French writer, Jean Quintin (1500–1561), who reports the abundant occurrence of very fragrant roses he called "*Rose di Malta*" (translation: Maltese roses) as cited by Gianfrangisk Abela in 1647 (Ciantar, 1772, update reprint of Abela's work). According to Borg (1927), these Maltese roses were a fragrant variety of *Rosa gallica* L.

Only *Rosa sempervirens* L. is native to the Maltese islands. It is an evergreen rambling shrub found in few rocky valleys in mainland Malta (Haslam et al., 1977). It is considered a rare and threatened species for the Maltese Islands (Lanfranco, 1989) and is consequently protected (LN311, 2006, Dec 7, :schedule III). It was first recorded by Grech Delicata (1853) from Buskett, and subsequently reported in other rocky valleys by various authors (Sommier & Caruana Gatto, 1915; Borg, 1927; Lanfranco, 1989; Tabone, 2008). Another rose reported in historical records is *R. dumetorum* Thuill. reported by Gulia (1872) from Ta' Ċenċ in Gozo, which was cited with the same name by Sommier and Caruana Gatto (1915); under the taxon *R. canina* L. var. *dumetorum* by Borg (1927); and as *R. corymbifera* Borkh. by Haslam et al. (1977). The population at Ta' Ċenċ was declared as "disappeared" already in 1911 by Sommier and Caruana Gatto (1915) and corroborated by Haslam et al. (1977). Substantiated records of *R. canina* s.l. from Malta have not been reported and recent work sometimes simply cites the old record. However, approximately forty years ago, Michael Briffa had encountered and photographed *R. canina* from Wied Inċita, Attard (pers. comm. Michael Briffa, 2007) and, upon examining this photograph, the present author confirmed its identity in a wide sense. However, no recent sighting of this rose was ever made from this valley which has suffered massive quarrying activity over the last twenty

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years. *R. canina* might as well represent a native rose as is the case for Sicily (Giardina, Raimondo & Spadaro, 2007), but with the current scarce data available, its status cannot be confirmed.

Finally, the species *R. damascena* Mill. was reported by Borg (1927) from many gardens and sometimes became naturalised in the Maltese islands, although no specific localities were given. Borg (*op. cit.*) thought that this fragrant rose is a hybrid between *R. gallica* and *R. canina*, but now it is known to be complex hybrid involving, at least, the parents *R. gallica* and *R. moschata* (Huxley, Griffiths, Levy & Royal Horticultural Society, 1992; Grant, 2000; HMF, 2016). Presumably, it was quite a popular cultivar, owing to its several Maltese names (Warda tal-Madonna, Warda tal-Ħall and Warda ta' Malta) and possibly, it was the same "*Rose di Malta*" mentioned in the 16$^{\text{th}}$ century (Ciantar, *op. cit.*). Despite its popularity, this 'Maltese rose' has not been mentioned or reported in any recent floristic account (e.g. Haslam et al., 1977; Weber & Kendzior, 2006; Weber, 2008; Casha, 2013; Mifsud, 2002–2014; Lanfranco & Bonett, 2015).

In fact, recent floristic accounts or papers only give *R. sempervirens* to be currently present for the Maltese islands, occasionally citing some of the historical records (e.g. *R. gallica*) without any recent confirmation or personal findings. However, the present author, apart from *Rosa sempervirens*, also published the presence of *R. gallica* and *R. rubiginosa* from the Maltese islands (Mifsud, 2010a, 2010b). Bakay, Racek, Rovná and Kerényi-Nagy (2015) also recorded *R. rubiginosa* from a disturbed area in Xagħra, Gozo. Apart from these examples, the author was also aware of several other roses occurring naturally in the Maltese islands, but these were never studied in any depth and identified, mainly due to the difficulty of identification that this genus is renowned for.

During Spring 2016, a fresh botanical and taxonomical study on all wild roses known to the author, and other specimens shown or indicated, thanks to the help of few contributors (see acknowledgements), was carried out. This was principally motivated because of the lack of taxonomical information and knowledge about the genus *Rosa* for the flora of the Maltese islands. Even if the present study may not convey a perfect identification of all hybrid-complexes of roses reported here, it shall fulfil the aim to highlight in detail which roses occur in Maltese ecosystems, hopefully eliciting rhodologists to share their expertise and propose better identification of the Maltese roses from those conveyed in this account. Finally, this study provides tentative names of roses which are suitable for landscaping and embellishment projects in the Maltese Islands, because such vegetatively naturalized roses are likely to be successful if cultivated in similar natural conditions around the Maltese islands.

2 Methodology and Materials

The methodology employed in this study consisted of three steps: (i) selection of roses to be considered to be native, naturalised or occurring naturally, which hereafter they are referred to as wild; (ii) a detailed morphological description of the species or cultivar, including habitat and taxonomical remarks supported by photographs and (iii) identification of the collected specimens, with the aid of various publications and online sources (Chapman, 2012; Clapham, Tutin & Warburg, 1962; Grant, 2000; HMF, 2016; HWR, 2009; Klastersky, 1968; Pignatti, 1982; Phillips & Rix, 1993; Pottier-Alapetite, 1979; Redell, 1998; Silvestre & Montserrat, 1998; Stace, 2010; VRA, 2016).

The main criteria by which roses were selected for this study are the following:

i. Individuals or populations in rural areas where they are autochthonous (e.g. in valleys or valley sides) or growing naturally in abandoned cultivated areas, and hence growing on their own over a long period of time.
ii. Individuals or populations in semi-urban areas, for example close to agricultural areas or abandoned dwellings, where they are not given any form of assistance or care by man.
iii. Roses were not included in this study when located in parks, public or private gardens and embellishments, or in rural areas where there were obvious signs of cultivation.

It was not always easy to assess whether some individuals were adventive or not, but individuals were not studied if they had signs of pruning, irrigation or any care from man, and if located in cultivated or tilled fields in which agriculture takes place actively, especially if roses formed attractive and fragrant flowers. For example roses found at the terrace of Miżieb pumping station, agricultural areas near Santa Luċija chapel in Mtarfa (Malta) and tilled fields at Bidnija and Żebbuġ, Gozo receive some care from man and therefore excluded.

For each rose species, hybrid or cultivar, a detailed botanical description, based on the material used in this study, is given in this account, with emphasis on critical distinctive characters such the leaflet margin, stipules, sepals, and styles. Herbarium specimens were prepared and kept in the author's private collection and close-up photographs were taken for future reference and re-examination. In addition, the local distribution, habitat, historical notes, taxonomic remarks and status on the Maltese islands are also supplied in detail. Locations marked by an [!] in the distribution list indicate

that the species was observed by the present author over the last 15 years.

The status was based on the terminology and definitions provided by Nesom (2000), where many populations or individuals were found to have spread vegetatively by underground shoots or suckers, sometimes scrambling for several meters over surrounding vegetation after many years of abandoned cultivation or introduction. Since many roses only reproduce vegetatively, either because they are sterile hybrids or because the habitat is not suitable for seed germination, they do not naturalize in the classic sense of dispersing away to form new populations, albeit they are still naturally occurring in the wild. According to Nesom (2000), the term *"persisting non-native plants"* is coined for such situations, defined as perennial plants originally cultivated for ornament or interest and remaining in place of origin without human assistance after the site has returned to a more natural state, and not reproducing or at least not spreading beyond the original planting. If populations are seen to be very old and have grown for several meters and intermixed with surrounding local flora (usually *Rubus ulmifolius* L.), they are here referred to established, persisting non-native roses.

3 Results

A total of 27 populations or individuals of *Rosa* spp. have been examined in this survey, of which 24 were considered native or naturally occurring (Table 1). They were classified into twelve different taxonomic entities (species, bi-parental hybrids or complex hybrids) as listed in Table 2 further below.

1. *Rosa sempervirens* L. [Figure 1A]

   Distribution: MALTA: Buskett Woodland(!), Wied Inċita(!) (f. *floribunda* according to Borg, 1927), Wied Għar Dalam (Duthie, 1872); Wied il-Għasel at iż-Żenqa (f. *microphylla* according to Borg, 1927); Wied Anġlu(!), Wied Ħażrun, Ta' Baldu, Santa Katarina (Lanfranco, 1989); scree around Inquisitor's Palace, Laferla Cross (overlooking Wied Fulija), Wied Għomor(!) (Tabone, 2008); Wied l-Speranza (! 19-Nov-2009, the largest population known to the author), Wied il-Kbir, Qormi (! 10-May-2016, pers. comm. Anthony Chircop & Owen Mifsud). GOZO: "*Migiarro*" (Gulia, 1872), unsubstantiated and ambiguous record possibly referring either to Mġarr ix-Xini (Ta' Sannat) or one of the rocky valleys near the coast of Mġarr (Għajnsielem) such as Wied Biljun or iż-Żewwieqa. Also observed in cultivation at a park close to Skorba Temples, Mġarr, Malta.

   Habitat: Exposed rocky valley sides or valley beds, except at Wied il-Buskett where it is sheltered within a woodland but close to the valley bed. This shaded specimen was never observed to flower, it was possibly planted a long time ago in an unsuitable shaded area.

   Description (specimen examined #3, ref. Table 1): Evergreen shrub with long trailing branches, often found rambling over neighbouring vegetation. **Stems** and branches glabrous, greyish-green, flexuous, sparsely prickled, but rather numerous on the lower branches. **Prickles** narrow, slightly curved with an abruptly widening base, reddish-brown becoming greyish brown, 4–6 mm long with a 4–9 mm base. Acicles absent. **Leaves** imparipinnate, 4–8(10) cm long with 5 or 7 leaflets, glabrous, dark green and slightly glossy. Leaflets usually sessile except the terminal, (15)20–50 × (10)12–24 mm, narrowly ovate with an obtuse base and a rather acute to subacuminate tip, margin crenate-uniserrate almost around entire leaf. **Stipules** glabrous, (4)7–15 × 2–5 mm, linear-oblong, margins often revolute smooth or sometimes sparsely punctate with tiny red glands, terminal auricles divergent, deltate-acuminate, 3–5 mm long. **Inflorescence** simple or corymb-like, producing terminal, white, single flowers, 4–6 cm across, faintly fragrant. Pedicels, hypanthium and sepals covered with purple-red stipitata glands about 0.5 mm long. **Petals** 5, white, 12–25 mm wide, emarginate. **Sepals** lanceolate with an entire margin and an acuminate tip, about 12 × 5 mm, finely velutinose at the adaxial surface, patent at flowering. **Stamens** numerous forming an open ring around the style, 3–8 mm long; filaments white, anthers golden yellow. **Styles** fused in a pubescent column emerging from a pinkish hypanthium floor and ending with a capitate apex of pale-green, glabrous (or slightly pubescent) stigma. **Hips** dark red, subglobular, smooth or with sparse stipitate glands at the base, 8–10 mm across and 10–12 mm long. Flowering May–June.

   Taxonomy: A variable species were all described infraspecific taxa (3 subspecies, 27 varieties, and 1 form) are currently being treated either as synonyms of the nominal taxon or unresolved (ThePlantList, 2014). Borg (1927) reports the forms f. *floribunda* Guss., and f. *microphylla* D.C. (= f. *minor* Guss.) from Malta, of which none are regarded to have any taxonomic value.

   Status: Native, scarce-rare, can spread extensively in undisturbed valleys, apparently absent from

Table 1: Specimens or populations of roses examined in this study giving the date first observed, locality, altitude above sea level within the nearest 50 m, habitat and taxon entity. Legend: *Specimens considered as cultivated or aided by the intervention of man (excluded), ?*doubtful status, abandoned recently or found very near cultivated areas (included).

Pop.	Date found	Isl.	Locality	Toponym	Altitude (m)	Habitat or location	Taxon
1	31/05/2006	Malta	Dingli	Buskett	200	Woodland	1
2	27/05/2006	Malta	Attard	Wied Inċita	100	Rocky valley bank	1
3	19/11/2009	Malta	Mosta	Wied Speranza	150	Rocky valley bank	1
4	17/05/2016	Malta	Għargħur	Wied Anġlu	150	Rocky valley bank	1
5	01/06/2015	Malta	San Ġwann	Wied Għomor	100	Abandoned fields close to valley bank	1
6	10/05/2016	Malta	Qormi	Wied il-Kbir	100	Valley bed	1
*	03/05/2016	Malta	Mġarr	Park near Skorba temples	150	Small park	1
7	05/05/2006	Malta	Rabat	Wied il-Qlejgħa	150	Valley side lined by fields	6
8(?*)	26/01/2008	Malta	Qrendi	Ħagar Qim	100	Rubble wall along footpath	6
9	07/05/2009	Malta	Marsa	Old power station	50	Disturbed area possibly in an abandoned field	6
10	03/05/2016	Malta	Għargħur	Wied il-Faħam	150	Degraded garigue	6
11	22/05/2016	Malta	Siġġiewi	Fawwara chapel	200	Footpath within an agricultural area	6
12	28/05/2016	Malta	Mosta	Tarġa Gap	150	Steppe/disturbed garigue	6
*	21/05/2016	Malta	Rabat	Mtarfa (Santa Luċia)	200	Footpath near cultivated fields	6
13	22/05/2016	Malta	Dingli	Il-Qaws	250	Terrace of an explosive factory naturalising in footpath and steppe below	7
14	01/06/2006	Malta	Għargħur	Wied id-Dis	150	Terrace of an abandoned dwelling in valley bed	12
15	01/06/2006	Malta	Għargħur	Wied id-Dis	150	Terrace of an abandoned dwelling in valley bed	8
16	26/12/2005	Gozo	Ta' Sannat	Mġarr ix-Xini	50	Sheltered valley side	9
17	10/05/2016	Gozo	Nadur	Wied ir-Riħan	100	Valley bed	3
18	19/11/2009	Malta	Mosta	Wied Speranza	150	Valley side	4
19	07/05/2016	Gozo	Nadur	Wied ir-Riħan	100	Valley side	5
20	07/05/2016	Gozo	Nadur	Għajn Qasab	100	Rubble wall within an agricultural area	5
21(?*)	28/05/2016	Malta	Mġarr	Dwejra area	150	Agricultural fields	5
*	28/05/2016	Malta	Bidnija/Mġarr area	Ħal-Dragu	150	Agricultural fields	5
22	16/06/2010	Malta	Siġġiewi	Fawwara	200	Disturbed roadside	10
23	26/06/2016	Malta	Siġġiewi	Fawwara chapel	200	Rubble wall of terraced field	11
24	19/05/2010	Gozo	Kerċem	Wied il-Lunzjata	100	Against rubble wall of terraced field	2

Figure 1: **A**. *Rosa sempervirens* L. left to right: inflorescence and buds; pedicel, hypanthium and sepals; and hip (Wied l-isperenza, Mosta, 25-May-2016). **B**. Rosa 'Albéric Barbier' left: inflorescence (near Wied il-Faħam, Għargħur, 3-May-2016); centre: buds and calyx (Ħagar Qim, Qrendi, 3-May-2016); right: stipule (Santa Luċia, Mtarfa, 21-May-2016). **C**. *Rosa* 'Léontine Gervais' left to right: inflorescences; pedicel, hypanthium and calyx; stipule (il-Qaws, Dingli, 22-May-2016). Photos Stephen Mifsud.

Comino and Gozo, vulnerable with a restricted distribution in the Maltese islands (Lanfranco, 1989), legally protected (LN311, 2006, Dec 7, :schedule III). The sites reported from Wied il-Kbir and Wied Speranza are new records and both harbour amongst the largest populations on the Maltese Islands.

2. *Rosa rubiginosa* L. (syn. *R. eglanteria* L.) [Figure 4C]

Distribution: Gozo: Wied il-Lunzjata (! 19-May-2010); Xagħra (Bakay et al., 2015), but no longer extant (see details below).

Habitat: Sheltered beside a rubble wall close to a maquis in the vicinity of a perennial valley.

Description (specimen examined #24, ref. Table 1): Suberect shrub, moderately branched up to 1.8 m long. **Stems** glabrous, straight or slightly arching, matte green becoming maroon-brown in areas exposed to direct sunlight with several prickles. **Prickles** narrow, straight to slightly curved then abruptly hooked at the tip, variable in size, 3–12 mm long with a 2–5 mm wide base, yellowish-pink, then maroon-red with a yellowish-green tip finally becoming light brown in old stems. Acicles present at random distribution on the stems, perhaps more frequent on young unweathered stems. **Leaves** imparipinnate, 5–11 cm long, with 5–7(–9) leaflets, light to medium green, glabrous (or puberulent) above, hairy below especially on the veins. **Leaflets** 1.5–2.5 × 1.0–1.8 cm, broadly elliptic to suborbicular, with a rounded base and obtuse to rounded tip; margin uniserrate or vaguely biserrate and with minute sessile or shortly stalked glands, also abundant on the abaxial surface and giving a characteristic of a fruity apple-like fragrant scent. **Stipules** 10–14 × 3–5 mm, oblong with two small dentate (-lanceolate) auricles each 2–3 mm long, margin entire and undented, lined with shortly stipitate glands and some pubescence from the lower surface of the stipule. **Rachis** pubescent, glandular, without prickles. **Inflorescence** solitary or up to three per branch. Buds pink to pale purple developing into pink flowers. **Corolla** single, moderately fragrant, 3.0–4.5 cm in diameter. **Sepals** 1.0–1.6 cm long, patent in flower, narrow linear-lanceolate tapering into an acuminate tip, weakly pinnatifid or with 2–3 pairs of small lobes; abaxial surface with numerous shortly-stipitate glands and sparsely minutely tomentose increasing in density towards the margin and lobes, adaxial surface entirely velutinose-pubescent and paler (hoary-grey) in colour. **Petals** 5, 10–12 × 10–12 mm, shorter from the sepals, purple-pink becoming paler at the base. **Hypanthium** fusiform, 6 mm long, generally glabrous; pedicels up to 10 mm long, densely glandular. **Stamens** numerous, up to 4–7 mm long, filaments and anthers golden yellow. **Styles** pilose, free but compact together in a short head, about 3—4 mm long and exserted through a small orifice about 1 mm wide in a flattened or shallowly concave disc; stigma pale green. **Hips** fusiform, bright red, glabrous, sometimes with some persistent sepals, although usually they fall off when fully ripe, 14–20 mm long, about 10 mm in diameter. Flowering between May and beginning of July.

Taxonomy: The hairy leaves with translucent glands emitting a scent of fresh apples, the slender prickles and the erect habit are important distinguishing characters for this species (Clapham et al., 1962; Klastersky, 1968; Pignatti, 1982; Silvestre & Montserrat, 1998; Graham & Primavesi, 2005). The closely related species *Rosa micrantha* Borrer ex SM. differs by having pedicels longer than 1 cm, glabrous styles, and very reflexed sepals which fall early after anthesis (Silvestre & Montserrat, 1998; Graham & Primavesi, 2005).

History: This species was first recorded by the present author from Wied il-Lunzjata, Gozo in May 2010 (Mifsud, 2010b). Another record was later reported from Xagħra (Bakay et al., 2015) providing a brief description and only a picture of two dry hips. Doubt about the authenticity of *R. rubiginosa* was risen from the illustrated subglobose shape of the hips, the long pedicels (approximately 2 cm from the scale provided) and that the inflorescences were produced in clusters of 2–7. In contrast, *R. rubiginosa* has elongated fusiform fruit on short pedicels (about 1 cm long) and inflorescences single or up to three flowers (Clapham et al., 1962; Graham & Primavesi, 2005). Owing to this uncertainty, two surveys at the location corresponding to the given GPS co-ordinates of this individual was carried out in September 2015 and May 2016, but no rose was found in that area.

Upon making contact with the corresponding author (L. Bakay), it was confirmed that the area where he found the rose was the same area searched by the present author and hence it was

deduced that this individual is not further extant. Bakay found and examined the rose in August 2013 (Bakay L. pers. comm., May 2016) when the flowers were already over. This entails that further examination of this specimen in flower to confirm *R. rubiginosa* or the closely related *Rosa micrantha* or perhaps a hybrid of *R. rubiginosa* is not possible. Owing to the experience on this genus of the authors (Bakay et al., 2015), this rose is best referred to as *Rosa* cf. *rubiginosa*. The location was very disturbed and no other rose species was found during two surveys about 150 m away from the location that Bakay et al. (2015) spotted this individual.

Status: New, unrecorded non-native species for the Maltese flora. Persisting, but not spreading vegetatively due to unsuitable habitat around. Very rare (one locality in Gozo).

3. *Rosa canina* L. [Figure 3A]

Distribution: GOZO: Wied ir-Riħan, Nadur, Gozo (! 10-May-2016).

Habitat: Damp sheltered area close to valley bed.

Description: Climbing to sub-erect shrub with few-branched stems shrub up to 2–3 m long. **Stems** glabrous, vivid green with few prickles at the lower parts of the stem, decreasing gradually towards the flowering parts. **Prickles** rather narrow, very curved with a hooked tip, 5–7 mm long with a broad base about 5 mm wide, pinkish-yellow then becoming grey. Acicles absent. **Leaves** imparipinnate, 8–12 cm long, (5)–7 leaflets, adaxial surface dark green, glabrous, slightly polished, abaxial surface similar but slightly paler. **Leaflets** 2.8–4.0 × 1.4–2.2 cm, narrowly lanceolate with a rounded or obtuse base and an acute to shortly acuminate tip; margin uniserrate all round; teeth alternating between two sizes, each with a tiny reddish gland at the tip (not always detected in mature leaves). **Stipules** 14–18 × 4–5 mm, oblong with two lanceolate auricles each 3–4 mm long, entirely green, margin partly revolute, sparsely glandular increasing in frequency towards the auricles, otherwise rather smooth. Rachis glabrous, green, occasionally with few pricklets. **Inflorescence** in 3–11 corymbose clusters. **Buds** rosy-pink developing into pale baby pink flowers. **Corolla** single, mildly fragrant, 4–6 cm in diameter. **Sepals** 2–3 cm long, reflexed in flower and fruit, narrow-lanceolate with a long acuminate tip which broadens again in some sepals, conspicuously lobed by 4–10 oblong or linear-lanceolate lobes (up to 6 mm long), the larger ones with few secondary lobes, abaxial surface glabrous, adaxial surface entirely velutinose-pubescent and paler (hoary-grey) in colour, sepal-lobes dotted with red glands (absent along the main margin). **Petals** 5, 13–17 × 10–13 mm, pale pink paler or white towards the base. **Hypanthium** ovoid with a small constriction below the calyx, 9–11 mm long, glabrous; pedicels glabrous 1–2 cm long. **Stamens** numerous, up to 10 mm long, filaments pale green, anthers golden yellow. **Styles** tightly packed but free, pubescent, short (c. 4 mm) and inserted in a flattened-conical disc through a small orifice about 1 mm wide, stigma amber-yellow, slightly swollen-coralloid, covering the hypanthium disc. **Hips** reddish brown, shortly ellipsoid to pyriform, glabrous, glossy, 15–24 mm long.

Taxonomy: The single pale-pink flower, multilobed sepals, red, curved prickles, free styles covering the hypanthium disc and the hairless leaflets with gland-tipped teeth are excellent matching characters for *R. canina* (Clapham et al., 1962; Klastersky, 1968; Pottier-Alapetite, 1979; Pignatti, 1982; Silvestre & Montserrat, 1998; Graham & Primavesi, 2005; Stace, 2010).

Status: Rediscovered species? The species is frequent and native in Sicily (Giardina et al., 2007) and perhaps the same may apply for Malta. This assumption would be strengthened if the old record of *R. canina* from Ta' Ċenċ (Gulia, 1872), also situated in Gozo, was autochthonous, but this population is no longer extant (Sommier & Caruana Gatto, 1915) and its status cannot be verified. Moreover, an unpublished record by Michael Briffa collected on May 1977 from the valley of Wied Inċita (pers. comm., 2007) appears to be autochthonous, but due to the lack of any recent sightings and because of the extensive quarrying and disturbance which took place at this site in the last few decades, it is also considered extinct by the present author. It cannot be completely excluded that this individual shrub at Wied Riħan, has escaped and persisted from abandoned cultivation, but it is unlikely because farmers used to cultivate more attractive and fragrant roses. With only one substantiated locality, the status of *R. canina* in Malta remains uncertain. Very rare (one locality in Gozo).

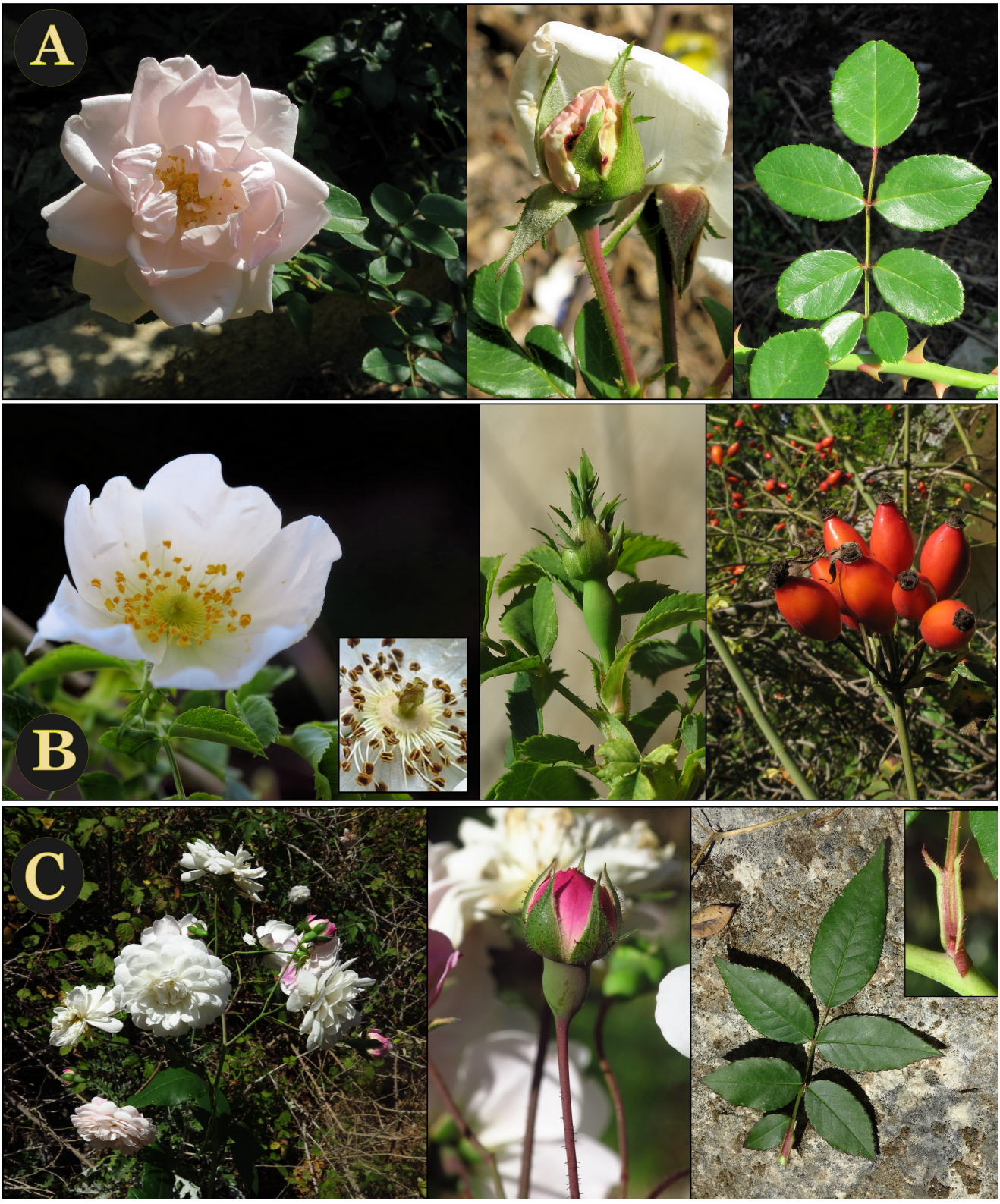

Figure 2: **A**. *Rosa* cf *luciae* s.l. unidentified left to right: corolla; buds showing sepals; leaf and prickles (Wied id-Dis, Għargħur, 3-May-2016). **B**. *Rosa stylosa* Desv.× *R. arvensis* Huds (= *R.* ×*pseudorusticana* Crepin ex Rogers) left to right: corolla (single); hypanthium and sepals; hips (Wied id-Dis, Għargħur, 3-May-2016). **C**. *Rosa* 'Adélaide D'Orleans' left to right: corymbose inflorescence; bud showing sepals (initially magenta then fading to white); leaf (Wied Mġarr ix-Xini, Ta' Sannat, Gozo, 10-May-2016). Photos Stephen Mifsud.

4. *Rosa gallica* L. s.l. [Figure 3B]

Distribution: Malta: Wied Speranza (! 19-Nov-2009).

Habitat: Rocky valley sides.

Description: Deciduous with many suckers and shoots spreading and forming an expanded cushion-shaped shrub not more than 1 m high. **Stems** 0.5–1.0 m, glabrous, pale to glaucous green with many prickles on all parts of the stem. **Prickles** thin, almost straight and linear, reddish-mauve, variable in size from pricklets of about 4 mm in length to larger prickles not more than 12 mm long, intermixed with many gland-tipped acicles (c. 2 mm long) and stiff stipitate glands (0.5 mm long). **Leaves** imparipinnate, 7–10 cm long, 3–5(–7) leaflets, glabrous, medium dark green above (fading with age), greyish or paler matte green below due to the presence of fine pubescence, which with age becomes restricted only on the main veins. **Leaflets** 2.8–5.5 × 1.8–2.5 cm, broadly elliptic with a rounded to subcordate base and an acute to blunt tip; margin crenate-uniserrate all round with tiny translucent glands at the lower half of the margin, emitting a resinous scent. **Stipules** 14–18 × 3–5 mm, oblong with two small rounded-lanceolate auricles each 2 mm long, entirely green, finely tomentose below (extending to the margins), margin lined by shortly-stipitate colourless or pale red glands. Rachis shortly tomentose below, unarmed, hoary green. **Inflorescence** single terminal flowers, rarely twos or threes subtended by a short green pedicel. **Corolla** single, moderately fragrant, 4–6 cm in diameter. **Sepals** 8–12 mm long, patent in flower, persistent but deciduous when hips mature, deltate gradually tapering to a shortly acuminate tip, margin with 1 or 2 pairs of distinct, linear-oblong lobes (up to 4 mm long); abaxial surface tomentose and densely glandular, adaxial surface entirely velutinose-pubescent and paler (hoary-grey) in colour. **Petals** 5 to 8, 3–4 mm wide, vivid purple fading to pink towards the base, overlapping, sometimes cup-shaped. **Hypanthium** ovoid with a small constriction below the calyx, 7–8 mm long, glabrous becoming hispid-glandular below; pedicels 1–2 cm long, with several red-stalked hispid glands of various sizes. Stamens numerous, up to 10 mm long, filaments and anthers golden yellow. **Styles** tightly packed but free, villous, short (c. 4 mm) and inserted in a flattened-conical disc through a small orifice about 1 mm wide, stigma yellow, slightly swollen-coralloid, partly covering the hypanthium disc. **Hips** bright red, ellipsoid to subglobular, hispid-glandular, 10–12 mm long.

Taxonomy: Identification through keys of Klastersky (1968), Silvestre and Montserrat (1998), Graham and Primavesi (2005), Stace (2010) led to *R. gallica*. The single terminal flowers (sometimes cup-shaped); broadly ovate leaflets, the numerous small prickles and acicles along the stems and the glandular pedicels with a resinous scent are typical characters of *R. gallica*.

There are some varieties with single or semi-double corolla, amongst these, the most popular are the cultivar *Rosa gallica* 'Complicata' (syn. *Rosa gallica* 'Ariana d'Algier'), but it is very fragrant and almost thornless; *Rosa gallica* 'Alain Blanchard' also with 5–10 petals but mottled and darker; and *R. gallica* 'Officinalis' which is a semi-double rose with more (10–16) petals (HMF, 2016). It is difficult to determine if the population found at Wied Speranza is a pure *R. gallica*, or one of its many varieties and cultivars. It has many distinct characters of *R. gallica* and the population is located in a very natural place, away from anthropogenic activity, but then, it has some flowers with 7 petals, although according (HMF, 2016), *R. gallica* can have up to 8 petals. Under these circumstances the wide sense of *R. gallica* is the best treatment for this rose.

History: *Rosa gallica* is one of the oldest roses, where its history is believed to date back to the year 1200 BC (Herbs2000, 2002–2016). Numerous hybrids and cultivars have been formed and now placed in what is known as the gallica cultivar group, where over 2000 gallica cultivars were commercially available at the beginning of the 19th century (Haynes, 2012b). The oldest and most common cultivar is *Rosa gallica* 'Officinalis', known as the Provence rose or Apothecary rose, the cultivation of which for cosmetic, medicinal and culinary use was documented since the 13th century (HistoricRoses, 2009). Much older is the Damask rose, a hybrid between *R. gallica* rose with *R. moschata* (= *R.* ×*damascena*), which is documented since 900 BC (Herbs2000, 2002–2016), and reported from the Maltese islands at least since the 16th century (see below).

Status: Persisting and naturalizing locally but non-invasive. Examined material was found in a rocky area along a valley side and appears to

be a very old population which has expanded vegetatively by underground suckers to a low shrub about 6–7 m across. It can even be an archeophytic survivor. Rare.

5. *Rosa* ×*damascena* Mill. (*R. gallica* × *R. moschata* (×*R. fedtschenkoana*)) [Figure 3C]

Distribution: MALTA: fields below Dwejra, close to main road to Mġarr village (! 28-May-2016, pers. comm. Brian Restall); GOZO: Wied ir-Riħan (! 07-May-2016, pers. comm Richard Grech); Għajn Qasab (! 07-May-2016, pers. comm Richard Grech). Also observed in a cultivated area named Ħal-Drago at Bidnija (! 28-May-2016, pers. comm. Brian Restall), and was regarded as an adventive specimen, although uncertain if it receives aid from man.

Habitat: Damp areas beside valley beds, tributary streamlets or damp cultivated fields with clayey soil.

Description (specimen examined #19, ref. Table 1): Erect, moderately long-branched shrub with straight branches up to 2–3 m long. **Stems** glabrous, pale green, old stems with longitudinal, pale brown, shallow scars (fissures), densely prickled, sometimes found in irregular patches. **Prickles** very narrow, almost straight to slightly curved, typically with various sizes from 1 mm to 7 mm long (base 0.5 mm to 3 mm), initially pinkish-salmon then becoming beige-gray. Pricklets and acicles present, randomly distributed with prickles more frequent along main stems and primary branches, acicles increasing on leaf rachis and petioles. **Leaves** imparipinnate, 8–14 cm long, (3)5–7 leaflets, adaxial surface bright green, glabrous, rugose and coarse, abaxial surface hoary and slightly greyish, covered with dense, fine hair less than 0.5 mm long, sometimes restricted on the veins. **Leaflets** 3.0–6.0 × 2.2–4.0 cm, broadly ellipsoid with rounded or sub-truncate base and an obtuse tip, crenate-uniserrate, margin hairy from pubescence of abaxial surface. **Stipules** 12–20 × 4–5 mm, oblong (slightly concave below auricles) with two lanceolate-acuminate auricles, each 3—5 mm long, pale green, abaxial surface pubescent, margin pubescent, entire with red sessile glands towards the auricles, partly involute. Rachis densely pubescent with few red stipitate glands and small pricklets at the leaf nodes below. Flowers in (1)3–6 corymbose clusters. **Buds** magenta-pink developing into rosy-purple flowers. **Corolla** semi-double or double, highly fragrant, 5–8 cm in diameter, single or in few-numbered corymbs. **Sepals** 2–3 cm long, reflexed or patent-reflexed in flower and fruit, narrow-lanceolate with a long acuminate tip, conspicuously lobed by (0)1–3(5) narrow long lobes, (sometimes these with a secondary small teeth), abaxial surface pubescent becoming more dense towards the margin and with numerous red stipitate glands, adaxial surface entirely velutinose-pubescent and paler (hoary-grey) in colour. **Hypanthium** elongated-ellipsoid with a small constriction below the calyx, 10–14 mm long, hairless but with numerous red stipitate glands especially at the base; pedicels distinctly long (about 3–4 cm) with many stipitate glands. **Stamens** numerous, 3–8 mm long, with white filaments and amber-yellow anthers. **Styles** free, 3–5 mm long, densely pubescent overtopping and covering the hypanthium disc below, stigma pale green, slightly swollen-coralloid, orifice wide, circa 2 mm. After anthesis, the immature fruit, has a distinctive fragrant scent similar to pine resin. **Hips** ovoid-elliptic, glabrous, vivid red 15–20 mm long, 8–11 mm across. Flowering between (April) May-June.

Taxonomy: The influence of *R. gallica* in the material examined is evident, from the numerous, straight prickles of various sizes, the lobed to pinnatifid sepals with red stiff glands, and glandular pedicels, sepals and stipule margin. However, it differs by having double-flowers, a deep stronger fragrance and a more erect non-suckering habit. A well-known, strongly musk-scented rose is *R.* ×*damascena*, a hybrid between *R. gallica*, *R. moschata* and possibly *R. fedtschenkoana* (Haynes, 2012a), which most of its diagnostic characters matched with the specimens examined. Another well-known gallica hybrid is *R.* ×*centifolia* L., but this rose has flowers with much more numerous petals (more than 100), stronger pinnatifid sepals and usually a characteristic moss-like growth on the pedicels and sepals (Graham & Primavesi, 2005; HMF, 2016). Flowers of examined specimens had 60–80 petals and lacked the moss-like growth on the pedicels, hence none are attributed to *R.* ×*centifolia*.

History: *R.* ×*damascena* is one of the oldest and most successful hybrid roses, which was introduced from Syria and then cultivated in most of southern Europe. It is thought that the crusader Robert de Brie introduced it sometime between 1254 and 1276, although other routes of introduction have

also been hypothesised (Haynes, 2012a). Having attractive and fragrant flowers, roses were amongst the first plants reported from Malta, and the cultivation of what was known as "*Rose di Malta*" (= Maltese roses) goes back to the 16th century by the ancient French writer, Jean Quintin (1500–1561) cited later by Gianfrangisk Abela in 1647 (Ciantar, 1772, update reprint of Gianfrangisk Abela). According to Borg (1927), the Maltese roses are a fragrant hybrid of *R. gallica* and were common in cultivation at that time. Their cultivation seems to have been replaced gradually by the importation of different and fancier roses and additionally, decreasing rapidly by the destruction or development of old gardens.

Status: Persistent, non-native hybrid with few populations questionably adventive (e.g. at Ħal-Drago, Bidnija). Being already established and popular in Malta in the 16th century, and considered as a very old rose, it can be assumed that the Damask rose is an archaeophyte. Rare in the Maltese Islands, but more individuals are possibly present in private fields and farms and ancient gardens from old cultivations.

6. *Rosa* 'Albéric Barbier' (*Rosa luciae* × *Rosa* 'Shirley Hibberd') [Figure 1B]
Barbier Frères & Compagnie, 1900 (France)

Distribution: MALTA: Wied il-Qlejgħa (! 5-May-2006); rubble wall between Ħaġar Qim and Mnajdra Temples, Qrendi (! 26-Jan-2008); Marsa, along road to old Power Station (! 7-May-2009); Għargħur, close to Wied il-Faħam (! 3-May-2016); Fawwara chapel (! 22-May-2016, pers. comm. Edwin Lanfranco), Tarġa Gap, Mosta (! 28-May-2016, pers. comm. Brian Restall). Also observed in private cultivation and overhanging a wall at Santa Luċia street, Mtarfa (! 21-May-2016) as well as in fields close to Santa Luċija chapel, Mtarfa (! 21-May-2016, pers. comm. Carmen Chetcuti), which are regarded as cultivated or receiving the attention of man.
Habitat: Rambling on vegetated valley sides or old walls, over rubble walls or spreading on disturbed garigue. They are likely to be introduced from propagules that may have been dumped or planted long time ago and naturalising vegetatively. In the UK, this rose is reported to become naturalised in open ground and in scrub, usually near the sea (Stace, 2010).

Description (specimen examined #10, ref. Table 1): Evergreen, profusely branched, rambling or prostrate shrub with its branches trailing up to 5 m long. **Stems** glabrous, bright green turning maroon at exposed parts or terminal branches, variably prickled, scarcely so along the young stems where only a pair of prickles are usually present just below the leaf node. **Prickles** narrow, slightly curved, reddish-maroon, 5–8 mm long with a 5 mm base. Acicles absent. **Leaves** imparipinnate, 8–14 cm long with (5)7 leaflets, glabrous, bright medium green and very glossy on both sides, petioles often reddish. **Leaflets** 4.0–6.5 × 2.0–2.8 cm, ovate with an obtuse-cuneate base and a rather acute tip, crenate-uniserrate at the upper two-thirds of the leaf margin. **Stipules** 15–20 mm long, linear-oblong with two lanceolate-acuminate auricles each 4–6 mm long, margin with herbaceous linear teeth, up to 2 mm long with reddish-maroon tips, rarely subglandular. Rachis maroon, with several pricklets below, 0.3–0.9 cm long. **Inflorescences** in few-numbered corymbose clusters, rarely single. Buds pale yellow or champagne, sometimes with brownish edges if exposed to wind. **Corolla** double, slightly fragrant, variable in size, 3–6 cm in diameter, white-cream with a pale yellow centre, which gradually fades to a complete white flower when fully mature; in rare occasions, outermost petals stained pink. **Sepals**, reflexed, narrowly lanceolate-deltate, subacuminate, coriaceous, abaxial surface glabrous becoming densely felty-pubescent towards the margin, adaxial surface entirely pubescent and paler (hoary-grey) in colour, margin entire often with 1–2 small linear lobes or appendages, up to 3 mm long. **Hypanthium** globose, 4–7 mm long, glabrous; pedicels reddish-maroon (less so if in a shaded location), glabrous or occasionally with few short acicles. **Stamens** numerous, short, pale mustard yellow, encircling the hypanthium margin. **Styles** free or subfused at the base, 8–13 mm long, densely pubescent, stigma glabrous, pale green, coralloid. **Hips** deciduous, falling early. Flowering between (April–) May–June.

Taxonomy: The prostrate rambling habit, the evergreen, glabrous glossy leaves, red-maroon petioles and pedicels (less so in shaded habitats), and the subfused styles are key to *Rosa luciae* Franchet & Rochebr (= *Rosa wichuraiana* Crép.) (Graham & Primavesi, 2005), but the double flowers and their styles, which are not completely fused, suggest one of its more popular hybrids. The 'Albéric Barbier' rose is the best matching cultivar (Grant, 2000; Stace, 2010; Chapman,

2012; HMF, 2016), but the *Rosa* 'Aviateur Blériot' (*R. luciae* × 'William Allen Richardson') (Fauquel, 1909) is a suitable alternative although this has coppery orange buds which blossom to larger flowers stained in a more vivid yellow (Grant, 2000; RHS, 2016; HMF, 2016). The population at Fawwara was slightly different in being more vigorous, thicker stems and larger leaves, prickles and flowers. These differences are most probably owned to the fact that specimen was found growing close to a water reservoir and hence in a more fertile ground, although it can be attributed to the closely related hybrid *Rosa* 'Gardenia' (*R. luciae* × 'Perle des Jardins') (Horvath, 1899), which is described to be more vigorous and with undulated leave margins as in the specimen, but the flowers were not strongly fragrant that the 'Gardenia' is renowned for (Grant, 2000; HMF, 2016, 2016; VRA, 2016).

History: The 'Albéric Barbier' rose is a common hybrid from *R. luciae*, which was bred in 1900 by the Barbier's nursery and generated by a cross between *Rosa luciae* and 'Shirley Hibberd'. 'Shirley Hibberd' is an 1874 Tea rose, bred by Antoine Levet in Lyon and named after James Shirley Hibberd (1825–1890), who was one of the most popular and successful gardening writers of the Victorian era (Chapman, 2012).

Status: New, unrecorded, non-native taxon for the Maltese flora. Persisting and well established rose, spreading and naturalizing locally in some populations but not invasive. Scarce (at least six populations in the wild).

7. *Rosa* 'Léontine Gervais' (*Rosa luciae* × 'Souvenir de Catherine Guillot') [Figure 1C]
Barbier Frères & Compagnie, 1903 (France)

Distribution: MALTA: il-Qaws, Dingli (! 22-May-2016, pers. comm. Edwin Lanfranco).

Habitat: Terrace and wall of an abandoned building with shoots naturalized in footpath and disturbed steppic ground several meters away. Building possibly still visited by people but the rose is completely abandoned with naturalized shoots emerging and spreading in the surrounding natural habitats.

Description: Same as **2** above but with smaller leaflets (3.0–5.0 × 2.0–2.8 cm) and stipules (13–17 mm). Stipule teeth smaller (<1 mm) with a glandular tip which is conspicuous in young leaves and then weathers away. Buds rose-purple. Corolla semi-double, 5–8 cm in diameter, salmon pink flushing gently to yellowish tones at the centre, becoming pale pink when mature, loose-petalled and open at the centre to expose their colourful stamens and styles; quite fragrant with a fruity scent. Sepals without lobes or if present much reduced to tiny linear appendages. Stamens longer (up to 13 mm) pinkish yellow, bearing amber-orange anthers. Styles free and densely pubescent, but conspicuously deep red at the upper half tipped with an amber-orange stigma. Hips deciduous (not observed). Flowering between May–July.

Taxonomy: The resemblance with the Wichuraiana ramblers (*R. luciae* hybrids) such as *Rosa luciae* × 'Shirley Hibberd' described above is evident in many morphological characters, most important being in its habit, glossy glabrous leaves, stipules, sepals, free hairy styles, reddish petioles and fruit falling prematurely. Only the colour of the corolla, stamens and styles and the stronger fragrance of the flower were essentially different. Hybrids of *R. luciae*, which display this flower colour are *Rosa* 'Leontine Gervais' (*R. luciae* × 'Souvenir de Catherine Guillot') and *Rosa* 'René André' (*R. luciae* × 'L'Ideal'). According to Grant (2000), HWR (2009), Chapman (2012), the rambling Wichuraiana rose studied from Dingli corresponds best with 'Leontine Gervais'.

History: This rambler was created by Barbier and Compaigne of Orleans in 1903 (Grant, 2000). Its name is thought to be dedicated to someone who worked in the Barbier nursery (Chapman, 2012).

Status: New, unrecorded, non-native taxon for the Maltese flora. Persisting and well established rose spreading vegetatively to the surrounding natural habitats, but not invasive. Very rare (one locality).

8. *Rosa* × *pseudorusticana* Crepin ex Rogers (*Rosa stylosa* × *R. arvensis*) [Figure 2B]

Distribution: MALTA: Wied id-Dis (! 1-Jun-2006).

Habitat: Abandoned cultivation in a terrace of an unused dwelling close to valley bed.

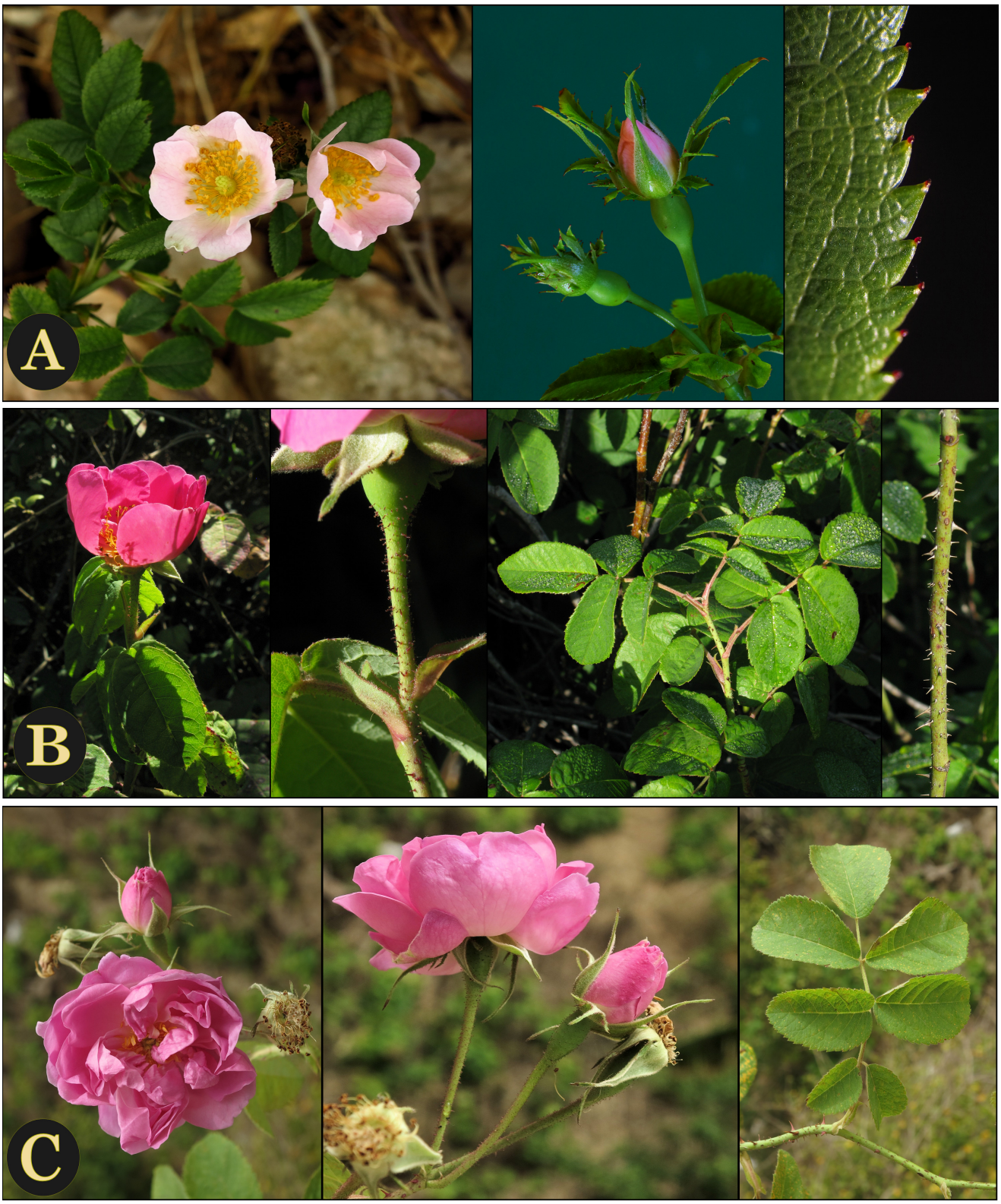

Figure 3: **A**. *Rosa canina* L. left to right: inflorescences; calyx showing lobed sepals; leaf margin showing terminal astipitate red gland at the tip of teeth (Wied ir-Riħan, Nadur, Gozo, 10-May-2016). **B**. *Rosa gallica* L. left to right: inflorescence; pedicel and hypanthium with red stipitate glands; broad, ovate leaves; stem showing its numerous prickles, pricklets and acicles (Wied l-isperanza, Mosta, 19-Nov-2009). **C**. *Rosa* ×*damascena* Mil. left to right: inflorescences; pedicel, hypanthium and lateral view of corolla; broad, ovate leaves (Wied ir-Riħan, Nadur, Gozo, 10-May-2016). Photos Stephen Mifsud.

Description: Deciduous sub-erect shrub with straight to arching stems, about 1–2 m long, few-branched. **Stems** and branches glabrous, greyish-green, rigid to moderately flexuous. **Prickles** very few, narrow, slender, slightly curved sometimes almost straight, pale brown, 4–5 mm long with a 3–4 mm base. Acicles. **Leaves** imparipinnate, 4–5(6) cm long with 5 leaflets, glabrous, glossy dark green above, matte greyish-green below. **Leaflets** (12)15–20 × (10)12–15 mm, broadly ovate with a rounded or broadly cuneate base and an acute tip, margin uniserrate, teeth large at the apical third then gradually diminishing towards the base. **Stipules** glabrous, 10–13 × 5–7 mm, oblong to broadly fusiform, margins lined with spaced stalked red glands, auricles divergent, narrow-deltate, 3–4 mm long. **Corolla** single, pure white, 4–5 cm across, mildly fragrant. Pedicels and hypanthium glabrous. **Sepals** narrow lanceolate, lobed, especially around the acuminate tip, strongly reflexed at flowering, 15–17 × 4–5 mm (not including the lateral lobes), abaxial side glabrous, adaxial surface finely velutinose. **Stamens** numerous of unequal length ranging between 3–10 mm long, filaments pale green, anthers golden yellow. **Styles** connivent-fused in a very short, 3–4 mm long column with bulging pale green glabrous stigma. **Hips** dark red, fusiform, sepals caducous, smooth and glossy, 10–13 mm across and 18–25 mm long. Flowering between May and June.

Taxonomy: This single-flowered rose has characters of both putative parents, most importantly the narrow prickles, white flowers, rounded leaflets and lobed sepals of *R. arvensis* Huds. and the elongated, larger fusiform hips and fused styles of *R. stylosa* Desv. The styles of some flowers were subfused at the base or tightly clumped, which became loose when gently pulled apart, rather heterogenous between different flowers. This is considered as an intermediate character between the free styles of *R. arvensis* and fully-fused in *R. stylosa*. Moreover, the eglandular, large and coarsely uniserrated margin of the leaflets are also considered as a good character of this hybrid (Stace, 2010; Graham & Primavesi, 2005).

Status: New, unrecorded, non-native taxon for the Maltese flora. Perhaps best assigned as a persisting non-native rose since no influx of human activities have been detected, but not invasive. Very rare (one locality).

9. *Rosa* 'Adélaide D'Orleans' (*Rosa sempervirens* × 'Old Blush') [Figure 2C]
Jacques, 1826 (France)

Distribution: GOZO: Mġarr ix-Xini (! 26-Dec-2005).

Habitat: Lower parts of a damp, sheltered valley side with *Rubus ulmifolius* L.

Description: Evergreen, profusely branched, rambling to prostrate shrub with its branches trailing up to 6 m long. **Stems** glabrous, bright green turning maroon at exposed parts and pedicels, scarcely to moderately prickled unevenly. **Prickles** narrow most of their length then expanding abruptly to a wide base, slightly curved, dull brown with a paler copper-brown terminal half, 5–8 mm long with a 5–9 mm base. Acicles absent. **Leaves** imparipinnate, 9–12 cm long with 5 (7) leaflets, glabrous, adaxial surface glossy, abaxial surface matte and slightly grayish. **Leaflets** 3.5–6.0 × 1.7–2.5 cm, the terminal conspicuously larger, lanceolate with an obtuse or rounded base and an acute-subacuminate tip, crenate-uniserrate around the entire margin. **Stipules** 12–16 mm long, linear-oblong with two lanceolate-acuminate auricles each 4–5 mm long, green or maroon, margin with herbaceous linear teeth up to 2 mm long with reddish tips (or entirely red), rarely with stipitate glands at the base or auricles. Rachis reddish-maroon, with few pricklets below at the leaflet nodes, c. 4 mm long. **Flowers** in many-numbered corymbose clusters, usually more than 10 and up to 25. **Buds** rosy-pink developing into white flowers with pinkish petals at the base. **Corolla** double, very slightly fragrant, 4–8 cm in diameter, larger in few-numbered corymbs. Petals numerous, white or with a very faint pink hue. **Sepals** patent in flower, becoming partly reflexed in fruit, lanceolate with a subacuminate tip, unlobed or one pair of very narrow lobes, abaxial surface with many, unevenly distributed stalked glands, adaxial surface entirely velutinose-pubescent and paler (hoary-grey) in colour, margin, velutinose-pubescent. **Hypanthium** oblong with a rounded base, 7–8 mm long, glabrous, pedicels with sparse stalked glands, maroon, distinctly long (about 3–4 cm). **Stamens** numerous, short, pale green filaments with yellow anthers. **Styles** mostly free but clumped very close together, few styles fused at the base, 5 mm long, sparsely pubescent, stigma glabrous, pale green, coralloid. Hips absent.

Taxonomy and History: This rose was identified as 'Adélaide D'Orleans', one of the many hybrids produced from *Rosa sempervirens* known as Sempervirens hybrids or Sempervirens ramblers. These hybrids have evergreen dark leaves, whitish flowers, yellow stamens and stipules very similar to *R. sempervirens*. 'Adélaide D'Orleans' has a characteristic small rosy-pink buds, which fade to a white corolla when mature (Phillips & Rix, 1993; Grant, 2000). It was bred in 1826 by Antoine A. Jacques, head gardener to the Duc d'Orléans at Château de Neuilly (1824 to 1832) by crossing the Southern Europe species Rosa sempervirens with a Chinese Tea Rose called 'Old Blush' (Phillips & Rix, 1993). He also produced a similar hybrid named 'Félicité et Perpétue' by crossing *R. sempervirens* with another Chinese rose named 'Noisette' (Phillips & Rix, 1993), but this is described to have a strong musk fragrance and smaller flowers (Haynes, 2012c). 'Félicité et Perpétue' could be a suitable alternative where its distinction from 'Adélaide D'Orleans' is minimal, but the latter is preferred for this rose found in Gozo for lacking the musky fragrance. *Rosa* 'Blush Noisette' (*Rosa* ×*noisettiana* Thory) was also considered, but similarly this is a highly fragrant rose, and differs in being smaller shrub and its flowers are more pinkish.

Remark: This rose is found situated very close to a water pumping station built by the British at the beginning of the 20th century at the bottom of the valley of Mġarr ix-Xini. It is assumed that it has been planted by English servicemen and naturalising in the sheltered sides of this valley. Its current spread reaches some 25×15 m rambling and competing with the common and native bramble *Rubus ulmifolius* L.

Status: New, unrecorded, non-native taxon for the Maltese flora. Persisting and well established rose spreading vegetatively to the surrounding natural habitats, but not invasive. Very rare (one locality in Gozo).

10. *Rosa* 'Excelsa' (*R. luciae* × 'Crimson Rambler') [Figure 4A]
Michael H. Walsh, 1908 (United States)

Distribution: Malta: Fawwara area (! 16-Jun-2010).

Habitat: Disturbed weedy area along roadside.

Description: Trailing and rambling shrub with profusely branched stems up to 4 m long. **Stems** glabrous, finely striated, bright to pale green with few prickles. **Prickles** narrow, slightly curved, 4–6 mm long with a 4 mm wide base, yellowish green with a pinkish hue then becoming straw-coloured. Acicles absent. **Leaves** imparipinnate, 7–11 cm long, with 7(–9) leaflets, light to medium green, glabrous, slightly polished on both sides. **Leaflets** 2.0–3.0 × 1.2–1.6 cm, narrowly lanceolate with a cuneate base and an acute tip; margin uniserrate all round; teeth slightly appressed with margin, eglandular. **Stipules** 12–16 × 4–5 mm, oblong with two dentate(-lanceolate) auricles each 3–6 mm long, entirely green, margin partly raised up, entirely lined with long, linear herbaceous, red-tipped teeth up to 3 mm long and with stipitate red glands (up to 0.5 mm long) alternating between the teeth. **Rachis** with few pricklets (2 mm long) below and occasionally with few stipitate glands above. **Inflorescence** at terminal branches in 8–20(28) corymbose clusters. **Buds** pale rosy-pink developing into deep magenta flowers. **Corolla** double, mildly fragrant, 3.0–4.5 cm in diameter. Petals pink flushing abruptly to white and finally to a narrow yellow border at the base. **Sepals** 0.8–1.2 cm long, semi-reflexed in flower, lanceolate with a caudate-acuminate tip, unlobed or with one (or rarely two) pair of linear lobes about 3 mm ling; abaxial surface with numerous stipitate, red glands and sparsely minutely tomentose increasing towards the margin, adaxial surface entirely velutinose-pubescent and paler (hoary-grey) in colour. **Hypanthium** ovoid, 5 mm long, generally glabrous; pedicels about 2–4 cm long, glabrous or with few stipitate glands. **Stamens** numerous, up to 5–10 mm long, filaments white, anthers golden yellow. **Styles** free, slightly pubescent, exserted by 4–5 mm through a small orifice (1 mm wide) of a flattened conical disc; stigma green, slightly swollen-coralloid. **Hips** not observed, possibly caducous. Hypanthia and pedicels of several flowers attacked by mildew. Flowering between the end of May and beginning of July.

Taxonomy: Several characters matched with *Rosa multiflora*, where the most important similarities were the corymbose sprays of numerous flowers, the glandular and dentate stipules, the glandular sepals and subglabrous styles (Klastersky, 1968; Graham & Primavesi, 2005). However, owing to its double flowers, this individual is clearly a hybrid. The best matching hybrid was found to be the *Rosa* 'Excelsa' (also known as the Rosa

'Red Dorothy Perkins'), involving the parent *R. wichuraiana* (= *R. luciae*) from which it attains its glossy, glabrous and perennial leaves and the red-maroon petioles and pedicels. According to HMF (2016), this popular rose is a hybrid formed between *Rosa wichuraiana* × 'Crimson Rambler', the latter being a multiflora hybrid cultivar. The flowers of this hybrid has a conspicuous whitish centre and few to several white streaks at the outer parts of the petals, both of which were observed in the studied specimen. *Rosa* 'Super excelsa' (= *Rosa* 'Super Dorothy Perkins') is another hybrid involving *R. luciae* and *R. multiflora*, which is similar to the rose found at Fawwara, but it is reported to form larger flowers and hence much more conspicuous sprays and a more intense scarlet colour.

History: Michael H. Walsh in Massachusetts used both *R. multiflora* and *R. wichuraiana* in his breeding program from which he introduced the *Rosa* 'Excelsa' rambler in 1909. It set a new standard for Wichuraiana hybrids and it was soon grown everywhere, for it was healthier and easier to train than 'Crimson Rambler' but it is susceptible to mildew (Scaniello & Bayard, 1994) in HMF (2016). It has a natural weeping habit and became an important rose standard for producing weeping roses (Redell, 1998).

Status: New, unrecorded, non-native taxon for the Maltese flora. Persisting and well established individual, spreading locally and naturalizing vegetatively but not invasive. Very rare (one locality).

11. *Rosa* 'Juliana von Stolberg' (*Rosa multiflora* × *Rosa* 'Rush') [Figure 4B]
Louis Lens, 1924–2001 (Belgium, before 1999)

Distribution: Malta: Fawwara area (! 26-Jun-2016, pers. comm. R. Bartolo).

Habitat: Disturbed weedy area in dirt and rubble along roadside.

Description: Same as above in many critical characters, but more robust with thicker stems and larger **prickles**, up to 11 mm long, and leaves with larger leaflets (7–9 per leaf) measuring 3–4 × 1.8–2.2 cm, similarly glabrous, glossy and crenulate-dentate. **Stipules** up to 20 mm long with the same margin morphology bearing linear herbaceous teeth and stipitate glands, somewhat the teeth longer and the glands more proliferous, even present the margin of the teeth. **Corymb** of 8–15 flowers, which differ by being single (constantly 5-petals), slightly larger (4–5 cm across) and purple pink with a wide white centre. **Hypanthium** and **pedicels** with several stipitate glands, becoming more numerous on the sepals, also like 10, partially reflexed (diagonal orientation) to reflexed and lacking lateral teeth or projections at the margin. Hypanthium is much different, fusiform, 12 mm long rugose and glandular. **Stamens** and **styles** same as 10. **Hips** (of previous year), reddish-brown, fusiform, punctate, possibly remains of the stipitate glands, and 14–18 mm long and 10 mm in diameter. Flowering between June and beginning of July.

Taxonomy: The spray of flowers, the glandular and dentate stipules, the glandular sepals and the fused styles in a shortly exserted column were judged to be a character set of *Rosa multiflora*. However, the vivid purple-pink colour of the flowers and the glossy, evergreen leaves suggested hybridism. Amongst the multiflora hybrids, the 'Juliana von Stolberg' (also known as the 'Super Red Dorothy Perkins') was found to be the most suitable name for this rose, owing to its large, glossy evergreen leaves with shortly acuminate tips and single flowers with a white centre. Other names attributed to this rose are 'Juliana' and 'LLX 8868' (HMF, 2016).

History: Countess Juliana von Stolberg was born in 1506 and on the occasion of her 500th anniversary a rose was named after her and planted in the German town Stolberg in the Harz Mountains (HMF, 2016).

Status: New, unrecorded, non-native taxon for the Maltese flora. Could be still adventive due its location over and scrambling down a rubble wall of a cultivated field, but it appears to be completely neglected with new shoots found in the ground away from the wall making it to be more likely a persisting non-native rose. Very rare (one locality).

12. *Rosa* cf *luciae* s.l. [Figure 2A]

Distribution: MALTA: Wied id-Dis (! 1-Jun-2006).

Habitat: Abandoned cultivation in a terrace of an unused dwelling close to valley bed.

Figure 4: **A**. *Rosa* 'Excelsa' left to right: inflorescence; leaf; detail of stipule; detail of sepals (Fawwara, Siġġiewi, 22-May-2016). **B**. *Rosa* 'Juliana von Stolberg' left to right: inflorescence (Fawwara, Siġġiewi, 21-Jun-2016); sepals; stipule (Fawwara, 02-Jul-2016). **C**. *Rosa rubiginosa* L. left to right: corolla; bud showing hypanthium and sepals (Wied il-Lunzjata, Gozo, 19-May-2010); hips (Wied il-Lunzjata, Kerċem, Gozo, 17-Jan-2014). Photos by Stephen Mifsud except first photo of 4B who was taken and kindly supplied by R. Bartolo.

Description: Deciduous, sub-erect, few-branched shrub with straight to slightly curved branches. **Stems** greyish-green, glabrous, moderately prickled but rather numerous on the lower branches. **Prickles** narrow, slightly curved or almost straight, beige-brown becoming grey with age, 4–7 mm long with a 6–9 mm base. Acicles absent or very few on the pedicels. **Leaves** imparipinnate, 4.0–7.5(9.0) cm long with 5 leaflets, glabrous, bright green and glossy on both sides. **Leaflets** (15)20–30 × (12)18–25 mm, suborbicular to broadly ovate with a rounded base and an obtuse-rounded tip; margin uniserrate almost around entire leaf, eglandular. **Stipules** glabrous, 10–16 × 3–4 mm, linear-oblong; margins smooth at lower half then becoming lined with stipitate glands towards the apex, auricles divergent, narrow-deltate, 4–6 mm long. **Flowers** double, white with a hint of pink, 4–6 cm across, and faintly fragrant. **Pedicels** with stiff glandular hair about 0.5 mm long, hypanthium glabrous. **Sepals** lanceolate with an acuminate tip, reflexed at flowering, margin with 1 or 2 pairs of teeth, 15–20 × 5–7 mm, abaxial side glabrous becoming velutinose towards the margin, adaxial surface entirely finely velutinose. **Stamens** numerous, 5 mm long, filaments white, anthers yellow to tobacco brown. **Styles** free, 4 mm long, glabrous; stigma capitate-coralloid, pale-green, glabrous. **Hips** dark red subglobular to pyriform with persistent reflexed sepals, smooth, 8–12 mm across and 10–16 mm long. Flowering between May and June.

Taxonomy: This rose was first encountered in May 2009 and at the time had many mature flowers. When the specimen was re-examined more critically in May 2016, it had only one wind-damaged flower. It appeared to be another Wichuraiana rambler rose, but a concrete identification could not be reached due to lack of representative flowers.

Status: Persisting, non-native rose since no influx of human activities have been detected, but not invasive. Very rare (one locality).

4 Conclusion

This preliminary survey on wild roses has led to important updates to the native and alien flora of the Maltese Islands. Seven new taxa have been added to the Maltese alien flora, *Rosa canina* and *R. gallica* have been rediscovered, and new records of *R. sempervirens* and *R.* ×*damascena* are also reported (see Table 2). Over 24 roses have been found to occur naturally, of which many were rambler roses. Eight ramblers were Wichuraiana hybrids ('Albéric Barbier', 'Léontine Gervais' and 'Excelsa'), one Multiflora hybrids ('Juliana von Stolberg') and one Sempervirens hybrid ('Adélaide D'Orleans'). *Rosa rubiginosa* and *R.* ×*pseudorusticana* have also been discovered from Wied il-Lunzjata (Gozo) and Wied id-Dis (Malta) respectively. Only one individual from Wied id-Dis has not been identified.

This account widens the knowledge of the non-native flora of the Maltese islands and the distribution of native or historically-recorded roses. Moreover, once these roses are identified, they can easily be employed in landscaping management due to their survival and growth in the wild. This study hence provides names of roses are likely to be successful and low-maintenance, suitable for the Maltese landscape. It can be concluded that none of the reported roses are invasive and that the Wichuraiana hybrids are very successful in Malta. This species is also one of the main progenitors of many hybrid cultivars of roses in the Iberian peninsula (Silvestre & Montserrat, 1998).

Although great effort has been made to provide a concrete identification, the present author is not an experienced rhodologist. This account shall hopefully attract the attention of experts of roses to improve the taxonomic or cultivar identification reported here. Finally, this study may perhaps help international rhodologists to recover some old roses, which may have become lost or very rare in cultivation and hence can be recovered from suitable propagation methods from these naturalized refugia, given that some of these roses may have been imported many decades ago during the British rule.

Other wild populations of roses are present in the Maltese islands, for example some material collected by Edwin Lanfranco and Michael Briffa some 30 years ago (pers. comm. Edwin Lanfranco, June 2016), need to be examined and checked if they still occur in Maltese natural habitats. A few other populations found by the present author lacked flowers during this survey and this needs to be studied in an investigation planned for the coming few years, as a sequel and update to this preliminary.

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Table 2: Species, bi-parental (simple) hybrids and complex hybrids (cultivars) occurring naturally in the Maltese islands, and their local distribution and status.

#	Taxon	Hybrid and group	Distribution	Status (refer to Nesom, 2000)	Fig.
1	*Rosa sempervirens* L.	NO	MALTA: Buskett Woodland, Wied Inċita, Wied Għar Dalam, Wied il-Għasel (iż-Żenqa), Wied Anġlu, Wied Ħażrun, Ta' Baldu, Santa Katarina, scree below Inquisitor's Palace, Laferla Cross (overlooking Wied Fulija), Wied Għomor, Wied Speranzaˆ, Wied il-Kbirˆ. GOZO: "Migiarro" (extinct)	Native	1A
2	*Rosa rubiginosa* L.	NO	GOZO: Wied il-Lunzjata	Persisting	4C
3	*Rosa canina* L.	NO	GOZO: Wied ir-Riħan, Nadur.	Native (?) or persisting non-native	3A
4	*Rosa gallica* L.	NO	MALTA: Wied Speranza, Mosta	Persisting and established	3B
5	*Rosa* ×*damascena* Mil.	YES Gallica	MALTA: fields below Dwejra, Mġarr; Ħal-Drago, Bidnija (cultivated?). GOZO: Wied ir-Riħan and Għajn Qasab, Nadur	Persisting, but some populations are adventive	3C
6	'Albéric Barbier'	YES Wichuraiana	MALTA: Wied il-Qlejgħa; Ħagar Qim Temples; Marsa (close to old power station); Għargħur (close to Wied il-Faħam); Fawwara; Tarġa Gap, Mosta. Also found cultivated at Santa Luċia area in Mtarfa.	Persisting and established	1B
7	'Léontine Gervais'	YES Wichuraiana	MALTA: Il-Qaws area, Dingli	Persisting and established 1C	
8	*Rosa* ×*pseudo-rusticana* Crepin ex Rogers	YES *R. stylosa* × *arvensis*	MALTA: Wied id-Dis	Persisting	2B
9	'Adélaide D'Orleans'	YES Sempervirens	GOZO: Wied Mġarr ix-Xini	Persisting and established	2C
10	'Excelsa'	YES Wichuraiana	MALTA: Road to Fawwara	Persisting and established	4A
11	'Juliana von Stolberg'	YES Multiflora	MALTA: Fawwara	Likely persisting	4B
12	*Rosa* cf *luciae* s.l.	YES Indet.	MALTA: Wied id-Dis	Persisting	2A

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