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## THREE NEW SPECIES FROM THE GENUS *OPHRYS*, SECTION PSEUDOPHRYS [FAM: *ORCHIDACEAE*] ON THE MALTESE ISLANDS.

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### ABSTRACT

This article deals with the first substantiated records from the Maltese islands of *Ophrys lupercalis* J. Devillers-Terschuren & P. Devillers and *Ophrys lojaconoi* P. Delforge, both forming part of the *Ophrys fusca* group, and of *Ophrys phryganae* J. Devillers-Terschuren & P. Devillers, belonging to the *Ophrys lutea* group. Identification is based on isometric morphological analysis, following the Delforge taxonomical system. Treatment of these taxa according to another taxonomical system by Baumann, Kunkele and Lorenz is also discussed.

**Keywords:** *Ophrys lojaconoi*; *Ophrys lupercalis*; *Ophrys phryganae*; *Ophrys fusca* group; *Ophrys lutea* group; Malta

### INTRODUCTION

Using isometric morphological analysis and taxonomy by Delforge (2006), *Ophrys lupercalis* J. Devillers-Terschuren & P. Devillers and *Ophrys lojaconoi* P. Delforge from the *Ophrys fusca* group and *Ophrys phryganae* J. Devillers-Terschuren & P. Devillers from the *Ophrys lutea* group have been identified from the Maltese islands. These 3 species are not included by Bartolo *et al.* (2001) in their comprehensive article on Maltese orchids, listing 33 different *Orchidaceae* species and consequently, they have not been reported to occur in Malta so far. Lanfranco (2007) and Delforge (2006) have already indicated an assumptive presence of *O. lupercalis* on the Maltese islands, whilst Lanfranco (2007) suggested *O. phryganae*, both without substantiated records.

### *Ophrys lupercalis* J. Devillers-Terschuren & P. Devillers

(= *Ophrys fusca* auct. non Link, *O. 'nigroaenea-fusca'* H.F. Paulus & Gack nom. prov.);

Malta: Dingli (11-I-2008. leg./det. Stephen Mifsud); Pembroke (30-I-2008. leg./det. Stephen Mifsud); Wardija (23-II-2008. leg./det. Stephen Mifsud)

The occurrence of *O. lupercalis* on the Maltese islands has always been doubtful (Delforge, 2006) or without substantiated records (Lanfranco, 2007). The *Ophrys* species flowering in January-February in Malta are mostly dominated by the *Ophrys iricolor* group, one of which is identified by Bartolo *et al.* (2001) as *Ophrys* cf. *mesaritica* Delforge, the other being *Ophrys vallesiana* J. Devillers-Terschuren & P. Devillers, that starts flowering in mid February. During some research on the early flowering *Ophrys* species, the author found specimens that did not belong to the *Ophrys iricolor* group because the lip did not possess elevated basal ridges that are turned sideways, which is considered as a distinguishing characteristic for this group. Instead, there were swollen basal prominences as in the species of the *Ophrys fusca* group. A patch of twelve to fifteen such orchid individuals, with morphological characteristics similar to *O. lupercalis*, was recorded on the 11<sup>th</sup> of January 2008, within labiate garigue at Dingli Cliffs. On the 30<sup>th</sup> of January, four other specimens were recorded at Pembroke and other such typical populations of *O. lupercalis* were later observed at Wardija (San Martin area) on the 23<sup>rd</sup> of February 2008. Their habitat was labiate garigue, with *Thymus capitatus* (L.) Hoffsgg. & Link as the dominant species

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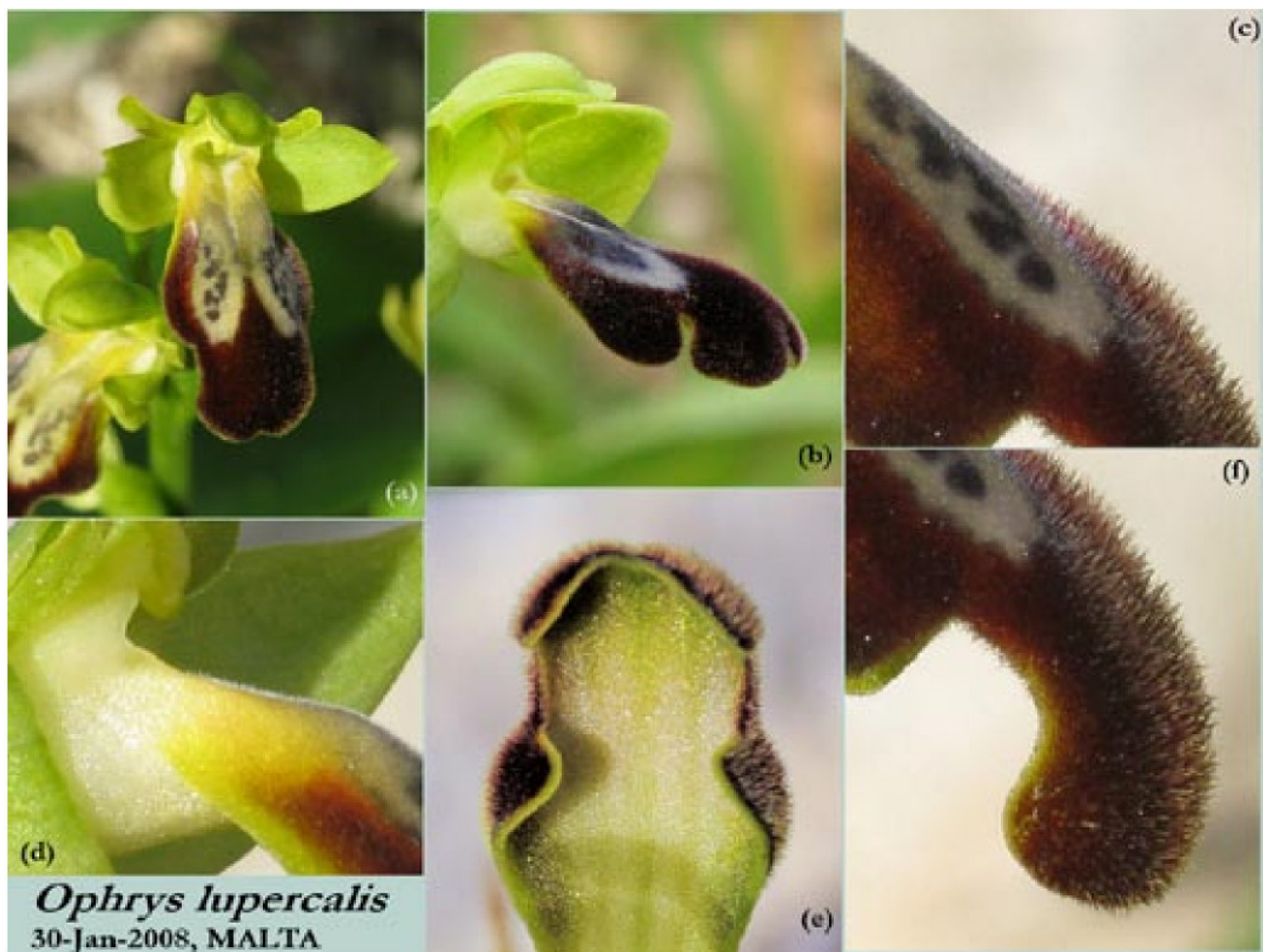


**Figure 1.** *Ophrys lupercalis* J. Devillers-Terschuren & P. Devillers from Malta

The most important characteristic features recorded from these specimens and that correspond to *Ophrys lupercalis* are given in Table 1. The table also highlights several differences from the closest relative – *Ophrys fusca* s.str., which had already been recorded in Malta by several previous authors, the latest record being that of Bartolo *et al.* (2001). Table 1 makes reference to Figure 2 showing some of the morphological features of the specimens photographed in Malta.

**Table 1:** Main characteristic features of *O. lupercalis* compared with those of a close relative species - *O. fusca* s.str Link. Adapted from Delforge (2006).

	<i>O. lupercalis</i>	<i>O. fusca</i> s. str.
<b>Lip Length</b>	(10-)18mm	15-22mm
<b>Colour of tepals</b>	Green (Fig 2a, 2b)	Yellowish or pale green
<b>Colour at base of lip</b>	Faint (Fig 2d)	Colourful
<b>Colour at tip of lip</b>	Drab, dull dark brown	Vivid dark brown
<b>Colour of speculum</b>	Light colour; pale blue, greyish or milky (Fig 2a, 2b)	Variable but more saturated colour; mostly azure blue.
<b>Labellum hair</b>	Long (Fig 2c, 2f)	Moderate
<b>Underlip</b>	Pale green or sometimes with a faint reddish tint at centre (Fig 2e)	Predominantly green, sometimes broadly tinted purple-brown.
<b>Speculum hair</b>	Little to none (Fig 2c)	Sparse grey hair
<b>Flowering time</b>	(Dec-)Feb-Mar(-Apr)	(Jan-) Mar-May



**Figure 2 a-f.** Photos of *Ophrys lupercalis* J. Devillers-Terschuren & P. Devillers from specimens in Malta showing the most distinctive features of this species.

The length of the lip of the specimens found was measured and was found to vary between 13-15mm, which is considerably shorter from the average length of *O. fusca* s.str. - 18-20mm. The shorter lip length together with a pale speculum, lack of labellar basal ridges (thus not *O. iricolor* group) and the rather early flowering period (typically starting in mid January and February), are the most important preliminary characteristics, observed in the field, for *O. lupercalis*, in the Maltese Islands.

*O. lupercalis* was first found in Aude, France in Feb, 1996 and it is further distributed in Algeria, Portugal, Spain (including the Balearic Islands), Andorra, France, Sardinia and Sicily (Delforge, 2006). Along with Tunisia, Malta and peninsular Italy are given as doubtful localities by the same author.

### ***Ophrys lojaconoi* P. Delforge**

(= *Ophrys iricolor* Desfontaines subsp. *lojaconoi* (P. Delforge) Kreutz);

Gozo: ~ebbu~ (04-III-2008. leg./det. Stephen Mifsud)

*Ophrys lojaconoi* was first described by Delforge in 1995 from Foggia (Apulia, Italy). He placed it in the *Ophrys fusca* group, despite the plant having elevated ridges as those in the *Ophrys iricolor* aggregate. It has not been confirmed, but possibly, Delforge did not consider the basal ridges of the lip to be turned sideways enough as in the other species of the *Ophrys iricolor* group. Since the current study is based on the taxonomical system reported in Delforge (2006), *O. lojaconoi* will be treated as a member of the *Ophrys fusca* group.

*Ophrys lojaconoi* has never been reported from the Maltese Islands - neither mentioned at an assumptive level in Lanfranco (2007), nor reported by Bartolo *et al.* (2001), nor by Delforge (2006).





**Figure 3:** *Ophrys lojaconoi* from a moist and shaded habitat in Gozo

This could be due to the fact that *O. lojaconoi* may be rare in Malta; in fact, the author himself has only managed to record one population, consisting only of two specimens from the island of Gozo, more precisely on a hill in ~ebbu~ called Ta' Kuljat. The habitat was half shaded and rather moist and the plants were growing on damp soil over karstic rock dominated by growth of moss and specimens of *Valantia muralis* L., as shown in Figure 3 and Figure 8. This moist and partly shaded habitat matches with that given for *O. lojaconoi* by Delforge (2006). The main characteristics of this species are given in Table 2.

**Table 2.** Main characteristic features of *O. lojaconoi* adapted from Delforge (2006), except <sup>(1)</sup> which are the author's own observations.

	<i>O. lojaconoi</i>
<b>Base of lip</b>	Marked, elevated into ridged plateaus (Fig 4a)
<b>Length of lip</b>	12-15mm (Fig 4b) / median lobe up to 8mm
<b>Lip longitudinal plane</b>	Horizontal (Fig 4d)
<b>Lip margin<sup>(1)</sup></b>	Thin yellow edge (4a, 4c)
<b>Lip hairs</b>	Straight, long, dense, dark with a purple tinge.
<b>Lateral lobes</b>	Reduced, short and narrow (Fig 4b, 4c)
<b>Sinuses</b>	Wide (Fig 4b, 4c)
<b>Angle between the longitudinal axis of lip and the side of the lateral lobe.<sup>(1)</sup></b>	Very acute: 22°-26° (Fig 4c)



**Figure 4 a-d.** Photos of *O. lajoconoi* highlighting the most distinctive features

The most distinguishing features of *O. lajoconoi* in the field are the small lateral lobes, which as a result leaves wide sinuses and a rather elongated median lobe. It is described to flower between February and April (Delforge, 2006), and in fact, the first flowers in individuals from the Maltese population were recorded in bloom on the 4<sup>th</sup> of March, 2008. The moist, semi-shaded habitat is also a feature to be attributed some importance, since many *Ophrys fusca* s.l. and *Ophrys iricolor* s.l. in Malta are often found in a relatively more exposed and arid habitats.



**Figure 5.** Underlip of *Ophrys lajoconoi* from Malta

*O. lojaconoi* has several morphological influences reminiscent of the *Ophrys iricolor* group. The most important ones are the elevated ridges at the basal part of the lip, and also the red-tinged underlip with a distinct green border as shown in Figure 5. Additionally, the acute angle (c. 24° with reference to fig 4c) between the side of the lateral lobe and the longitudinal axis of the lip is well below the range of 30° to 40° which, for many years, was used in conventional identification keys, as the main characteristic feature for the identification of the *O. fusca* group. It is hence more similar to the Maltese *Ophrys iricolor* s.l. (namely *O. vallesiana* and *O. cfmesaritica*) than to any member of the *Ophrys fusca* group.

The recorded presence of *Ophrys lojaconoi* in Malta provides more distributional data for the species within the Mediterranean region, with such data being to date, according to Delforge (2006) rather scant. The same author states that this species is found along the Adriatic side of the Italian peninsula, where the Italian region of Apulia is situated, specifically from Mount Gargano in Foggia to the south of Brindisi. In another report, Delforge (2003) claims that he did not find this species in the Italian region of Calabria, located at the southeast part of mainland Italy. Records of *O. lojaconoi* from Sicily require verification, since the only references available to Delforge (2003) were online ones.

### ***Ophrys phryganae* J. Devillers-Terschuren & P. Devillers**

(= *Ophrys lutea* Cavanilles subsp. *phryganae* (J. Devillers-Terschuren & P.Devillers) Melki );

(= *Ophrys corsica* (Soleirol ex G. & W. Foelsche);

Malta: Dwejra (17-III-2008. leg./det. Stephen Mifsud / Leslie Lewis & Stephen Mifsud)

The member species of the *Ophrys lutea* group in Malta given by Bartolo *et al.* (2001) are *Ophrys lutea* Cavanilles subsp. *lutea* and *Ophrys sicula* Tineo (= *Ophrys lutea* Cavanilles subsp. *minor* (Tod.) O. & E. Danesch.). They are distinguished by their different size of the labellum, where the former has a length of 14-18mm whilst the latter is notably shorter - 8.0 - 14.5mm (Delforge, 2006). The author was shown a population of what was supposedly a *Ophrys sicula* one, by Michael Briffa at Dwejra (mainland Malta) on March 2007. According to Bartolo *et al.* (2001), this population should correspond to the population recorded by Schembri *et al.* (1987) when *Ophrys phryganae* had not yet been described.

On analysing the morphological features of this population one year later in March 2008, it was found that the lip was kinked at the base and consequently bent downwards at an angle of 40-50 degrees. This is a crucial morphological characteristic of *Ophrys phryganae* described by J.Devillers-Terschuren & P.Devillers in 1991 and eventually used by Delforge (2006) to key it out from *O. sicula* which has a slightly smaller lip size. The author compared the shape of the lip of this population with the *Ophrys sicula* situated at G~ar il-Kbir, Dingli (Bartolo *et al.*, 2001) and a marked difference emerged. The lip of the specimen of G~ar il-Kbir was observed to be almost horizontal and without an evident kink at the base. The difference between *O. sicula* from Dingli and *O. phryganae* from Dwejra can be seen in Figure 6.



**Figure 6.** Lateral view of *Ophrys sicula* (Dingli, Malta) on the left and *Ophrys phryganae* (Dwejra, Malta) on the right with its distinguishing kink at the base of the lip.



The population of *O. phryganae* from Dwejra was constituted by some twenty to twenty-five specimens, spaced out at an occupying area of 5-6m. Ten specimens were randomly selected for morphological isometric analysis to identify the species, and while they all had a marked kink at the base of the lip, the lip-length varied from 1 mm to 14mm. Despite being relatively numerous, the same individuals are threatened by high vegetation, composed mainly of large numbers of *Asphodelus aestivus* Brotero and *Bituminaria bituminosa* (L.) Stürton. Actually, the *O. phryganae* population was restricted to a small patch where *Asphodelus aestivus* was found in moderate numbers.

Delforge (2006) states that *Ophrys phryganae* was first described from Las sithi, Crete in 1991, and the distribution of this species is poorly known, but gives the following countries of distribution: France (Corsica only), Greece (including Crete and the eastern Aegean archipelago), Italy (Sardinia only), Turkey (Anatolia only), former Yugoslavia, and doubtfully in Sicily. Baumann *et al.* (2006) reports it from Greece, Southwest Turkey and as doubtful in Italy.

### Protection of *Ophrys* species on the Maltese Islands

All species of the *Ophrys fusca* group (quoted as “*Ophrys fusca* Link s.l.”) are legally protected through the Flora, Fauna and Natural Habitats Protection Regulations, 2006 (Legal Notice 311 of 2006), as published through the Environment Protection Act and the Development Planning Act. Since *Ophrys lupercalis* and *Ophrys lojaconoi* are part of this group, they are therefore also protected. On a similar note, since *Ophrys phryganae* is also regarded as a subspecies of *Ophrys lutea*, the latter is safeguarded through the same legal provisions. This schedule lists a number of animal and plants species of national interest in need of strict protection.

### Distribution of the three *Ophrys* species found on the Maltese Islands:

#### *Ophrys lupercalis*

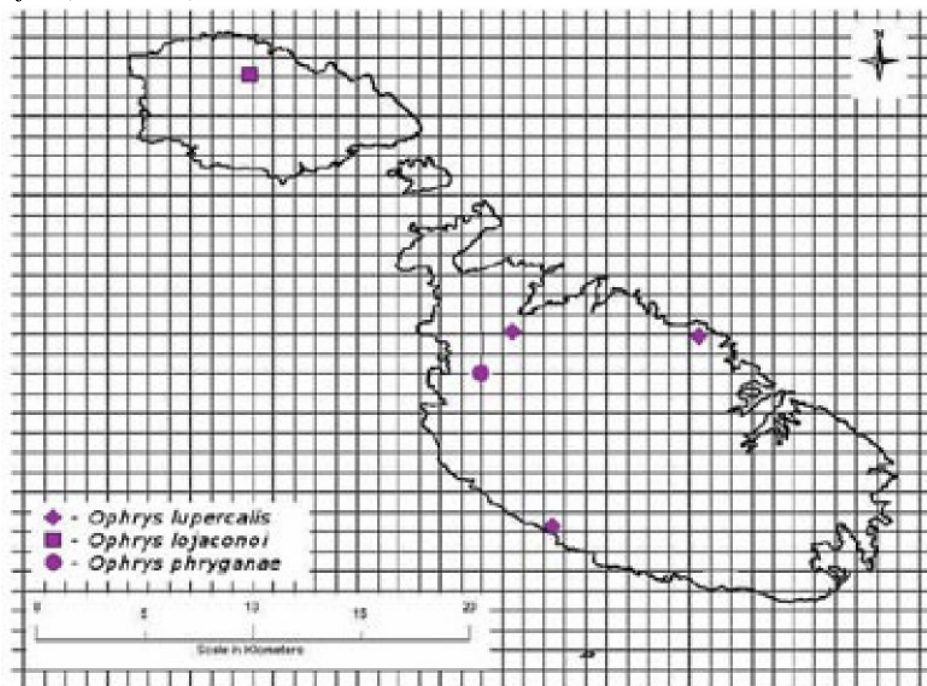
Malta: Dingli\* (11-I-2008); Pembroke\* (30-I-2008); Wardija\* (23-II-2008)

#### *Ophrys lojaconoi*

Gozo: Zebbug (04-III-2008)

#### *Ophrys phryganae*

Malta: Dwejra\* (17-III-2008)



**Figure 7.** Distribution of the three *Ophrys* species reported in this study in the Maltese Islands (UTM, zone 33S, 1 km x 1 km grid).



## DISCUSSION

The identification of these orchid species is controversial, and this paper is based on the taxonomic approach adopted by Delforge (2006), which treats many taxa as valid species. Nevertheless, this approach is not adopted in all systems. For instance, in their recent analysis on orchids, Baumann *et al.* (2006) tend to either ‘lump’ some of the species in Delforge (2006) into a single taxon, or give them a different taxonomic rank, often a lower one. For instance, *Ophrys lupercalis* and *Ophrys lojaconoi*, together with five other species, are all treated by Baumann *et al.* (2006) as *Ophrys fusca* Link subsp. *fusca*. Similarly, within the *Ophrys lutea* group, *Ophrys phryganae*, is only recognized as a subspecies of *Ophrys lutea*, i.e. *Ophrys lutea* subsp. *phryganae*; the same applies for *O. sicula* and *O. lutea* s.str., both of which are reported from Malta by Bartolo *et al.* (2001).

At the time of writing, both taxonomic systems were and could be widely used, as long as the system adopted is cited. The aim of this paper is not to determine which system is to be used, or which taxon is to be reported. One should also mention the consequences of taxonomic exaggeration, which according to Pillon & Chase (2007), is evident in the taxonomy of European orchids. Describing new species as a result of the existence of minor morphological differences, sometimes simply originating from site-specific adaptations, including adaptations to local pollinator species, may lead to poorly circumscribed orchid taxa. According to Pillon & Chase (2007), this phenomenon constitutes “*a serious obstacle to their (orchid species) conservation because rare, poorly defined species may be prioritized for conservation over taxonomically ‘good’ species*”.



**Figure 7:** *Ophrys lupercalis* J.Devillers-Terschuren & P.Devillers from Pembroke, Malta - 30-I-08



**Figure 8:** *Ophrys lajoconoi* P. Delforge from Zebbug, Gozo (Maltese Islands) - 4-III-08



**Figure 9:** *Ophrys phryganae* J. Devillers-Terschuren & P.Devillers from Dwejra (Malta) - 17-III-08

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## REFERENCES

- Bartolo, G., Lanfranco, E., Pulvirenti, S. & Stevens, D.T.** (2001). *L'Orchidaceae dell'Arcipelago Maltese (Mediterraneo Centrale)*. Journal Europäischer Orchideen, 33(3): 743-870.
- Baumann, H., Kunkel, S. & Lorenz, R.** (2006). *Orchideen Europas Mit angrenzenden Gebieten*. Eugen Ulmer KG, Germany, 333pp
- Delforge, P.** (1995). *Un nom approprié pour une espèce italienne du sous-groupe d' O. fusca*. Natural. belges **76** (Orchid. 8): 277-290.
- Delforge, P.** (2006). *Orchids of Europe, North Africa and Middle East*. 3<sup>rd</sup> Edition, A&C Black Ltd. Publishers, London. ISBN- 13: 978-0-7136-7525-2.
- Lanfranco, E.** (2007). *Key to the Ophrys fusca complex in the Maltese Islands*. Unpublished.
- Pillon, Y. & Chase, M.W.** (2007). *Taxonomic Exaggeration and its effects on Orchid Conservation*. Conservation Biology, 21 (1): 263-265.
- Schembri, P. J., Lanfranco, E., Farrugia, P., Schembri, S. & Sultana, J.** (1987). *Localities with Conservation Value in the Maltese Islands*. – Malta: Environment Division. I ii = 27pp.
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