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Herbarium Mediterraneum Panormitanum



# BOCCONEA

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# BOCCONEA- 27 (1)

Results of the 12th “Iter Mediterraneum”  
in Tunisia, 24 March - 4 April, 2014

(Occasional Papers from the Herbarium Greuter – N° 3)

Gianniantonio Domina, Ridha El Mokni,  
Werner Greuter & Francesco M. Raimondo



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G. Domina, W. Greuter, M. Elyes Kchouk, R. El Mokni, A. Smaoui, E. Vitek, G. Bazan, P. Escobar, & F. M. Raimondo

## The 12th “Iter Mediterraneum” in Tunisia, 24 March – 4 April 2014

### Résumé

Domina, G., Greuter, W., Elyes Kchouk, M., El Mokni, R., Smaoui, A., Vitek, E., Bazan, G., Escobar, P. & Raimondo, F. M.: The 12th “Iter Mediterraneum” in Tunisia, 24 March – 4 April 2014. — *Bocconeae* 27(1): 5-11. 2015. — ISSN: 1120-4060 printed, 2280-3882 online.

The organization and logistics of the 12th OPTIMA Iter in Tunisia from 24 March to 4 April 2014 by OPTIMA and ATUTAX is here reported. The material used and the workflow are illustrated as reference for the organization of future similar collaborative botanical excursions.

*Mots-clés*: Itinera mediterranea, OPTIMA, ATUTAX, logistics, scientific mission.

This is an account of the organization and logistics of the 12th OPTIMA Iter in Tunisia from 24 March to 4 April 2014, to serve as baseline for the organization of future similar collaborative botanical excursions.

The general organization followed the indications by Valdés (1991). The main aims of the Itinera Mediterranea are to improve the floristic knowledge of visited countries and to train in the field junior botanists through the expertise of accompanying senior ones. This current Iter was organized one year in advance by ATUTAX (Association Tunisienne de Taxonomie) and OPTIMA. The route was selected by ATUTAX and approved by the OPTIMA Secretariat, taking into account the Important Plant Areas of Tunisia defined by Kchouk & Smaoui (2013). The Iter was divided into three portions, each devoted to the study of a particular area (Fig. 1): Cap Bon (24 to 28 March), Mogods (29 March to 1st April) and Kroumirie (2 to 4 April); and each based at a different hotel. Starting from these logistic bases, a total of 43 collecting sites were visited, belonging to six of the country’s phytogeographical regions defined by Cuénod (1954): Cap Bon, Dorsale Tunisienne, Tunisie du Nord-Est, Vallée de la Medjerdah, Mogods, and Kroumirie (see Greuter & Domina 2015: Table 1). Collecting sites were so chosen as to be attainable by bus in 1.5 hours at most, starting from the hotel. For transport, a bus with 22 seats was available. For transfer of equipment and luggage from one hotel to the next, a lorry with 11.5 m<sup>3</sup> charge volume was available. At least one 4×4 vehicle would have been desirable, to shuttle participants from the bus to areas not accessible by paved roads, but costs for this facility were prohibitive, so that participants had to reach such areas by foot.

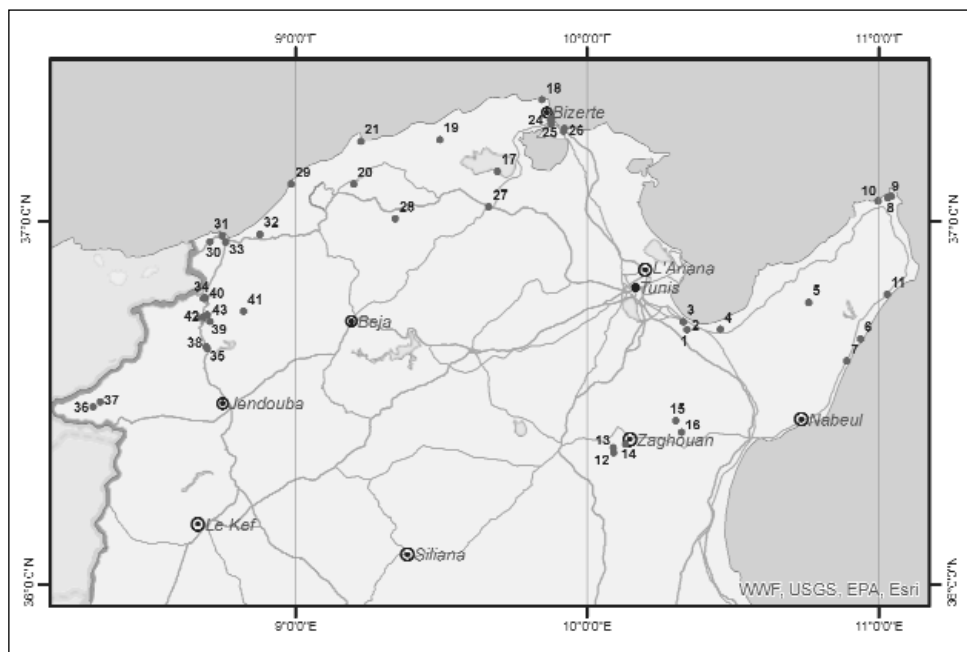


Fig. 1. Map of the sites visited during the XII OPTIMA Iter in Tunisia.

On the first day, an introductory seminar illustrating the geological, climatic, environmental and floristic peculiarities of the visited areas was held: It is here summarised by Smaoui (2015).

Each hotel offered suitably dimensioned facilities for the preparation and drying of the collected material: a large room equipped with tables and electric power, permitting “dirty” work, the storage of newspapers, presses and other supplies as well as the installation of the drying equipment.

Following a public call, applicants were selected for participation on the basis of their submitted curricula. OPTIMA selected 4 junior and 6 senior foreign participants; ATUTAX selected the 14 Tunisian participants: 2 to accompany the whole Iter and 12 who, by groups of 4, were to take turns over the three successive portions. There were thus 24 participants in total, 14 Tunisian and 10 from abroad. At any one time, the group (Fig. 2 and 3) comprised 16 persons.

### *Tunisian participants*

- Ridha El Mokni (24 March to 4 April)
- Abderrazak Smaoui (24 March to 4 April)
- Inès Ellouze (24 to 28 March)
- Henda Merchaoui (24 to 28 March)
- Nesrine Mrabet Rokbeni (24 to 28 March)
- Ameni ben Zineb (24 to 28 March)
- Fathia Abdallah Bouhdima (29 March to 1st April)





Fig. 2. Group photograph at Jebel Ressay, 28 March 2014.



Fig. 3. Group photograph near Tabarka, 2 April 2014.

Imtinène ben Hadj Jilani (29 March to 1st April)

Awatef Rhimi (29 March to 1st April)

Chahed Thouraya (29 March to 1st April)

Lotfi Abdallah (2 to 4 April)

Mohamed Dammak (2 to 4 April)

Imen Lahmayer (2 to 4 April)

Wala Toumi (2 to 4 April)

### *Foreign participants*

(24 March to 4 April, unless otherwise stated; *s*, senior participant; *j*, junior participant)

Nicola Ardenghi, Pavia, *j*.

Giuseppe Bazan, Palermo, *s*.

Gianniantonio Domina, Palermo, *s*.

Pedro Escobar, Vienna, *s*.

Werner Greuter, Palermo (24 March to 2nd April), *s*.

Anna Guttová, Bratislava, *j*.

Francisco Javier Jiménez López, Sevilla, *j*.

Francesco Maria Raimondo, Palermo (29 March to 4 April), *s*.

Marek Slovak, Bratislava, *j*.

Ernst Vitek, Wien, *s*.

In the field, participants formed collecting teams of 2(-3), each team concentrating on, but not limited to, specific groups of families assigned to its care. For vascular plants, 10 sets of each gathering were collected when feasible. Lichens were the exclusive domain of Anna Guttová (see Guttová 2014 and Guttová & al. 2015). Bryophytes were taken care of by Gianniantonio Domina and Francesco M. Raimondo (see Campisi & al. 2015).

In the late afternoon, back at the hotel, the collected specimens were pressed between newspaper and, in the process, numbered and provisionally identified. All specimen and locality data, including such additional data as flower colour or estimated size, were entered on the spot into an MS-Excel table, all this information is to be used subsequently for the purpose of labelling. The definitive, univocal gathering numbers, sequentially assigned, were noted in a standard location on the newspaper wrappers. Between the numbered, permanent wrappers enfolding the plants, newspaper pads were inserted to serve as blotting paper.

On the following day, the first-day newspaper pads were replaced by corrugated cardboard (one per 1-3 plant wrappers) and the drying process was accelerated by the use of electric heating, following a technique learnt in 2003 during the excursion “Epifenómeno” organized by Santiago Castroviejo and the Working Group of Flora Iberica in Sardinia.

The presses, with multilayer wood boards of 30 × 40 cm, were ca. 80 cm high, containing ca. 80 cardboard sheets. Each was connected to an electric ventilated heater by a sheath of fireproof tarpaulin (100 × 250 cm), tightly fixed on either side by means of elastic rope, the cardboard corrugations lying in the direction of the hot air flow (Fig. 4 and 5). The heaters were set to medium power (1000 W), to avoid overheating that might have prejudiced future DNA extraction. With temperature of ca. 45°C within the presses, most of the plants were dry within a single day.



Fig. 4 and 5. The presses for drying specimens.

In total, 22 presses and 4 electric heating devices were available for simultaneous use during the Iter, and 2000 Kg (about 5 m<sup>3</sup>) of newspaper were purchased. Due to prevailing bad weather, drying damp paper out of doors was possible only for two days.

As agreed in advance, local authorities were notified daily of the group’s planned movements so as to grant free access to protected or otherwise restricted areas and ensure local support. Lunches were organized in the field; dinners were taken at the hotels. As Escobar (2014) reports, we enjoyed a jolly and companionable atmosphere that made the Iter a pleasant, instructive, memorable and event.

At the end of the excursion, most specimens were dry but some were still in the presses, for which our Tunisian hosts undertook to complete the drying. This was important because the transfer of the harvest to Palermo took much longer than expected: due to logistic problems and customs formalities, the collected material remained in Tunisia for another month, eventually to be shipped to the Botanical Garden and Herbarium Mediterraneum in Palermo in two pallets by private transport. Here the material was sterilized by freezing, the critically identified, mostly by W. Greuter (see Greuter & Domina 2015). Formatting and printing the labels was done on the tabular data prepared by care of E. Vitek.

The principal sets of herbarium specimens, sorted, packed and dispatched by care of the Herbarium Mediterraneum, were distributed in conformity with a previous agreement among the participants. They are as follows:

1. Palermo (OPTIMA Herbarium, PAL-Gr):.....1386 Nos.
2. Tunisi (Centre de Biotechnologie de Borj Cedria): .....1278 Nos.
3. Vienna (W): .....1169 Nos.
4. Seville (SEV).....1053 Nos.
5. Bratislava (SAV).....939 Nos.
6. Pavia (PAV) .....851 Nos.

The images of the set in Palermo can be viewed in the Herbarium Mediterraneum Virtual Herbarium ([http://147.163.105.223/herbarium\\_vsimple\\_en.asp#](http://147.163.105.223/herbarium_vsimple_en.asp#)). Depending on progress with mounting, the set in Vienna will be made available in Virtual Herbaria (<http://herbarium.univie.ac.at/database/search.php>) within the next year.

### Acknowledgements

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Abderrazak Smaoui

## **Bioclimat et Végétation de la Tunisie et des régions prospectées pendant le 12ème ITER Mediterraneum de OPTIMA**

### **Résumé**

Smaoui, A.: Bioclimat et Végétation de la Tunisie et des régions prospectées pendant le 12ème ITER Mediterraneum de OPTIMA. — Bocconea 27(1): 13-20. 2015. — ISSN: 1120-4060 printed, 2280-3882 online.

Ici sont présentés les principales caractéristiques physiques, bioclimatiques et la végétation de la Tunisie et, en particulier, des régions du Cap Bon, Les Mogods et la Kroumirie, situé dans le nord du pays, explorées au cours de le 12ème Iter Mediterraneum de l'OPTIMA tenue du 24 Mars à 5 Avril ici 2014.

*Mots-clés:* Bioclimatologie, végétation tunisienne, Afrique du Nord, OPTIMA.

### **Introduction**

La Tunisie se situe au Nord de l'Afrique, est bordée à l'Ouest par l'Algérie et au sud-Est par la Libye. Elle établit au Sud la jonction entre les Sahara algérien et libyen. La Tunisie est le plus petit pays de l'Afrique du Nord. Les côtes tunisiennes sur la Méditerranée s'étendent au Nord et à l'Est sur 1300 kilomètres.

Son relief souligne le passage entre le domaine sud européen et les espaces africains. Elle se trouve à cheval entre le domaine Atlasique, partie méridionale du vaste plissement tertiaire qui structure une partie du Sud Européen, et le vieux continent africain.

### **Le relief**

La géographie de la Tunisie est marquée par l'extension du massif montagneux de l'Atlas qui prend source au Sud du Maroc et se subdivise en deux grands alignements orientés Ouest-Est: l'Atlas Tellien qui suit le littoral méditerranéen et l'Atlas Saharien qui s'estompe en arrivant au Cap Bon et au Golfe de Hammamet (Fig. 1). La partie Nord de l'Atlas Tellien se présente sous forme de 3 alignements de moins en moins élevés en arrivant au littoral oriental et qui sont: les Monts de Kroumirie, les Monts Nefza et les Mogods. Au Sud de ces Monts, la vallée de la Medjerda est alimentée par plusieurs

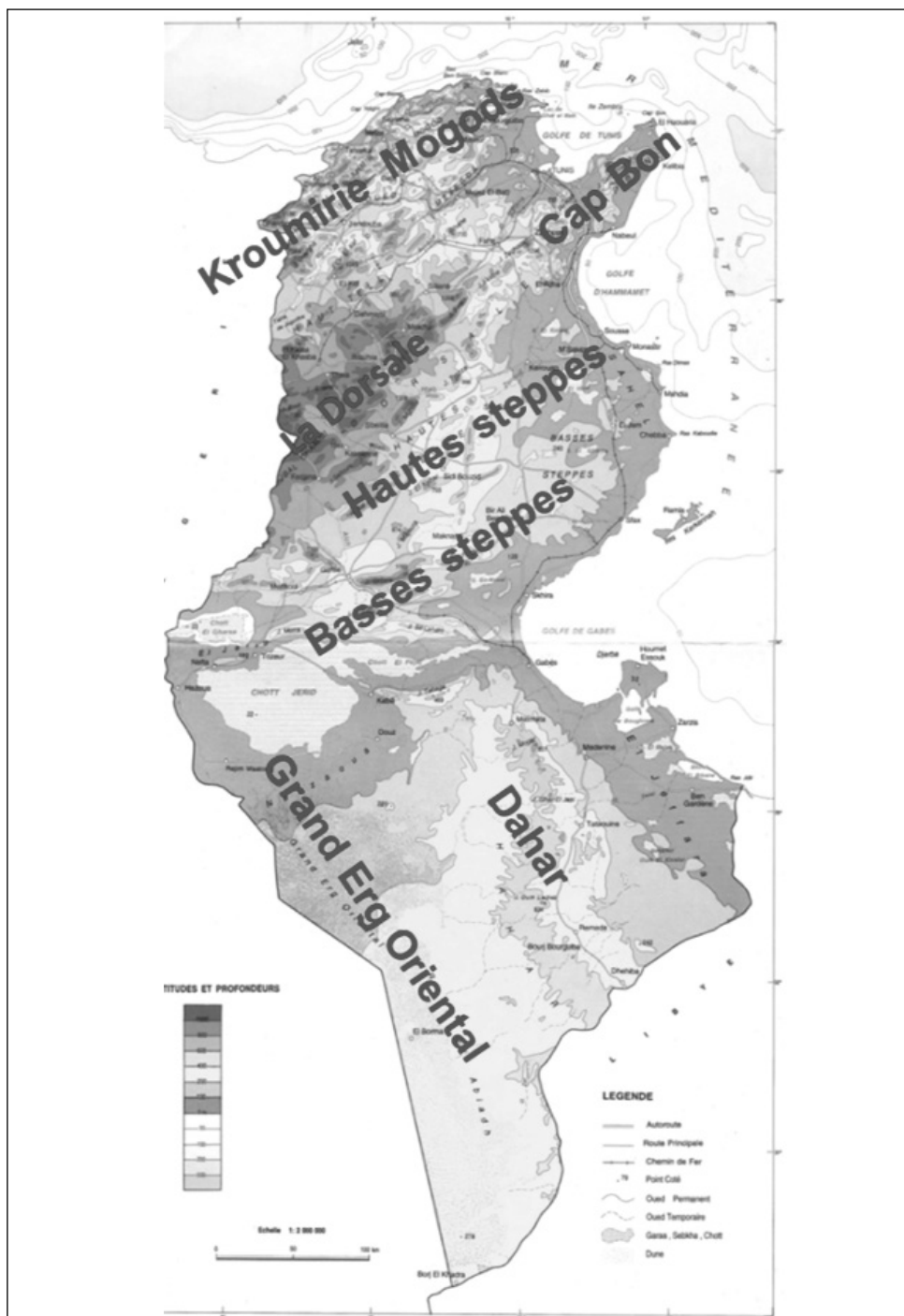


Fig.1. Carte géographique de la Tunisie, montrant les principaux reliefs du pays.



oueds, puis succède la zone collinaire des Monts de Téboursouk entre la ville du Kef et le Golfe de Tunis: c'est le Haut Tell.

Plus au Sud, la Dorsale Tunisienne s'étale d'Ouest en Est, de la frontière algérienne jusqu'au Cap Bon, sur le littoral Est. Elle se compose de chaînons montagneux qui alternent avec des plateaux escarpés et des dépressions. Au Sud de la Dorsale, l'Atlas Saharien se réduit à quelques unités montagneuses disséminées dans la région des hautes steppes qui sont sillonnées d'Ouest en Est par quelques monts isolés. Au Sud de Gafsa les dépressions des grands Chotts marquent le début du Sahara. Au Sud des Chotts et jusqu'au Dhahar s'étale le Grand Erg Oriental. Les monts du Dhahar, les plaines de la Jeffara et d'El Ouaâra terminent le paysage de la Tunisie du Sud au bord de la méditerranée orientale avec l'île de Djerba.

### ***Bioclimat***

Selon le quotient d'Emberger (1960), il existe cinq zones bioclimatiques, allant du Saharien à l'humide supérieur (Fig. 2). La pluviométrie et les températures, hivernales et estivales, sont les facteurs bioclimatiques déterminant de ce découpage. Ces facteurs dépendent de l'altitude et de la situation plus ou moins continentale. Les zones à l'intérieur des terres ont des étés plus chauds et des hivers plus froids que celles qui bénéficient des effets adoucissants de la mer.

Le bioclimat est caractérisé par trois facteurs:

- les précipitations annuelles (P)
- moyenne de température la plus élevée du mois le plus chaud (Juillet) (M)
- moyenne de température la plus basse du mois le plus froid (Janvier) (m)

Quotient pluviotermique d'Emberger Q

$$Q = (P \times 2000) / (M^2 - m^2)$$

P= moyenne de la pluviométrie annuelle

M= température moyenne du mois le plus chaud (degré Kelvin)

m= moyenne de la température du mois le plus froid (degré Kelvin)

Tableau 1. Quelques valeurs de l'indice d'Emberger.

<b>Etage bioclimatique</b>	<b>Quotient d'Emberger</b>	<b>localisation</b>
Humide	110 -150	Extrême Nord
Sub-Humide	70 -110	Nord
Semi-Aride	70 - 45	Nord
Aride	45 -10	Centre et Sud
Saharian	< 10	Extrême Sud

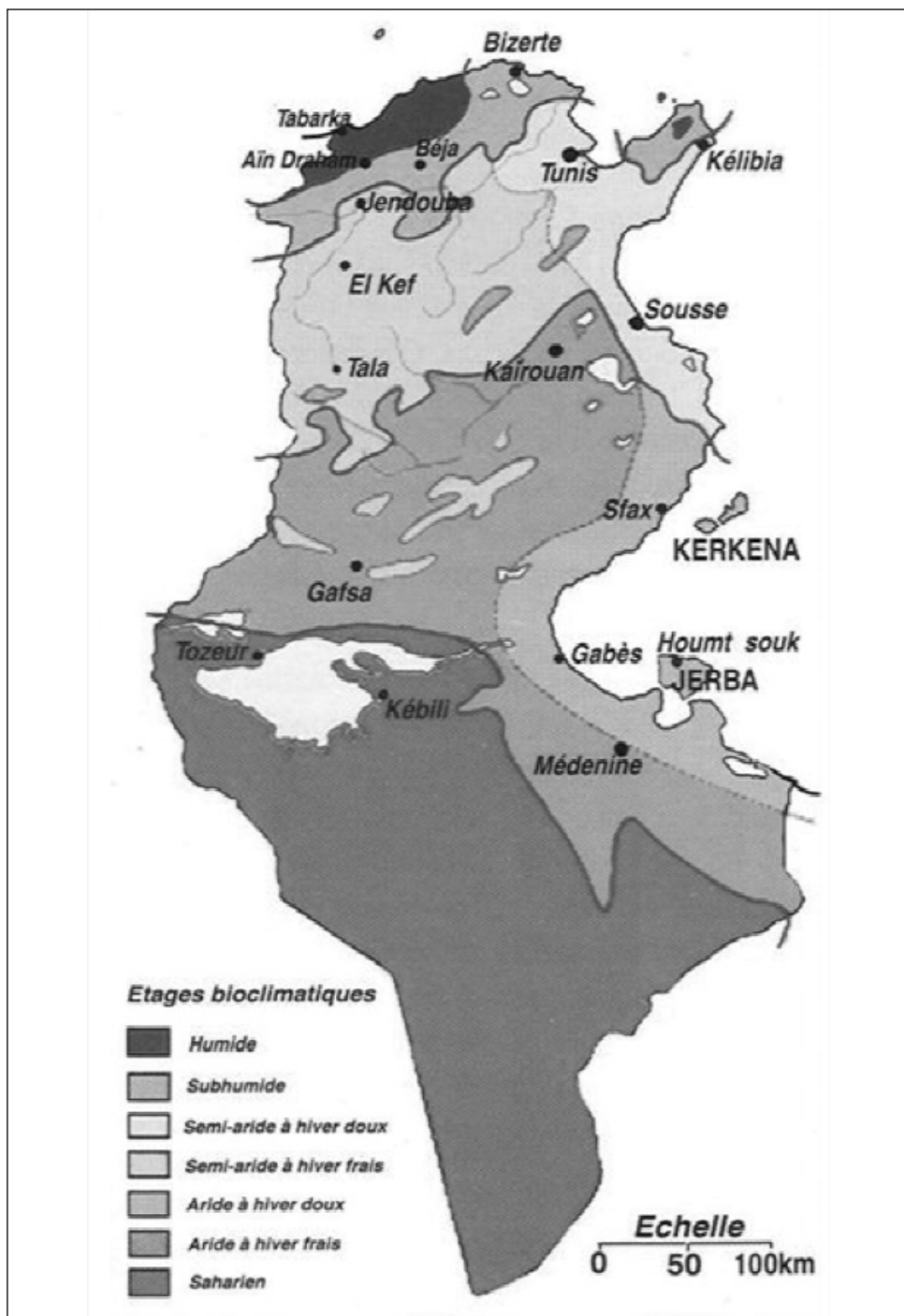


Fig.2. Carte bioclimatique de la Tunisie.

### Les associations végétales forestières

Elles sont en rapport avec les transitions latitudinales et altitudinales.

- La forêt est une formation ligneuse dont la hauteur des arbres dépasse 7 m et leur densité 100 pieds/ha.
- Matorral : C'est une formation forestière dégradée, dont la hauteur des arbres quand ils existent est inférieure à 7 m.
- Maquis : C'est un matorral haut et dense, lié à un substrat siliceux et à une tranche pluviométrique annuelle moyenne de 600 mm.
- Garrigue : C'est un matorral moyen, ouvert, lié à un substrat calcaire

Les formations forestières occupent 830 737 ha dont:

- 60,5% de forêts,
- 16% de maquis et garrigues arborés, et
- 24% de maquis et garrigues non arborés.

### La végétation tunisienne

Elle peut être classée en trois grands domaines (Fig. 3):

- la végétation tellienne
- la végétation steppique
- la végétation subdésertique et désertique

#### I- la végétation tellienne

– *la végétation méditerranéenne subhumide:*

Elle occupe les montagnes de la Kroumirie. Cette région reçoit des quantités de précipitations supérieures à 800 mm/an par an et plus de 1000 mm/an sur les hauts versants exposés au Nord et Nord-Ouest (Fig. 4). Les hivers sont frais et pluvieux.

Le sol est siliceux (grès de Numidie). Les formations climaciques sont le chêne liège aux feuilles persistantes surtout sur les sommets. Le chêne zen aux feuilles caduques surtout sur les versants moins ensoleillés. Le pin maritime est localisé près de Tabarka. Le sous-bois est assez dense et formé par la bruyère, la fougère, les cystes. Sur les Mogods et les jbelles du Cap Bon occidental, les altitudes sont faibles. Les précipitations sont de 600 à 800 mm/an et le sol est siliceux. La forêt laisse la place aux maquis de ciste, arbousier, genêt, avec des îlots de chênes kermès (espèce climacique des dunes littorales) et de chêne liège

– *La végétation méditerranéenne:*

Elle se développe sur les autres jbelles du Tell septentrional, en direction de l'intérieur des terres. Les sols calcaires et marneux et la pluviométrie est entre 600 et 800 mm/an. C'est la région de Amdoun, Béjaoua, Hédhils, Mateur, Cap Bon. La formation climacique est l'oléo-lentisque (olivier sauvage associé aux lentisques), le caroubier et le palmier nain. Dans le Tell oriental, sur les jbelles humides et soumis aux influences maritimes (jbelles Zagouan et Jbel Ressas) subsiste une forêt claire de thuya de Berbérie.

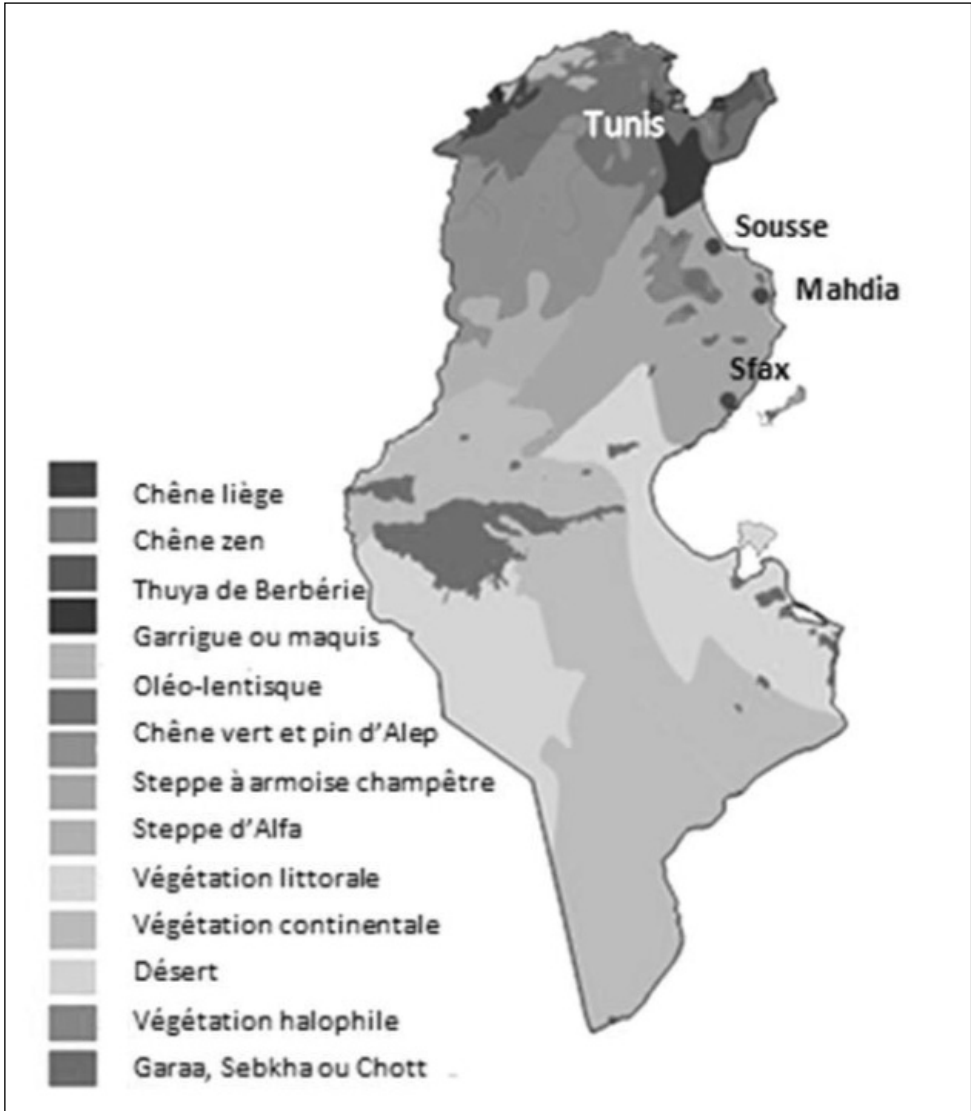


Fig.3. Carte des formations végétales naturelles de la Tunisie.

– *La végétation méditerranéenne semi-aride:*

C'est le domaine du Haut Telle et Tell Oriental. La pluviométrie comporte entre 400 et 600 mm/an. Dans le Haut Tell, la végétation est de type continental. Sur les plus hauts sommets (Chaâmbi, Kesra, Serj, Semmama) le chêne vert forme un peuplement pur. Au dessous de 1000 m, le chêne vert se mélange avec le pin d'Alep. Le pin d'alep est une espèce xérophile et plastique. Il s'adapte aux sols calcaires. Le chêne vert est moins résistant aux chaleurs et à la sécheresse.

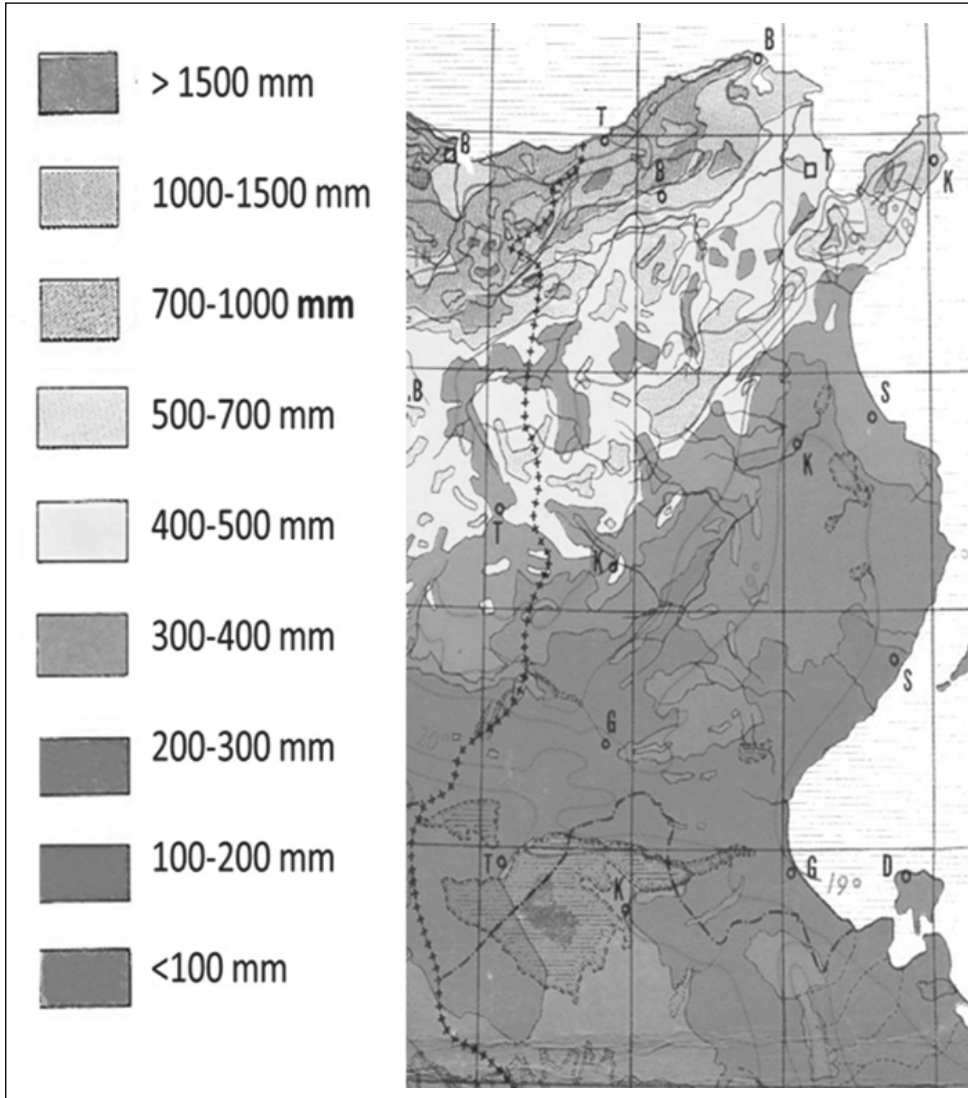


Fig.4. Carte des pluviométries annuelles de la Tunisie.

## II- la végétation steppique

Dans la Tunisie centrale, c'est le domaine de la steppe aride aux formations xérophi les adaptées aux faibles précipitations (entre 150 et 400 mm/an), aux fortes amplitudes thermiques, à l'intense évaporation, et à la fréquence des vents secs. Elle varie de l'ouest à l'est. Dans les sommets des Hautes steppes persiste encore une forêt claire et dégradée de Pin d'Alep. Plus bas apparaît le genévrier de Phénicie, le résineux le plus adapté à la sécheresse

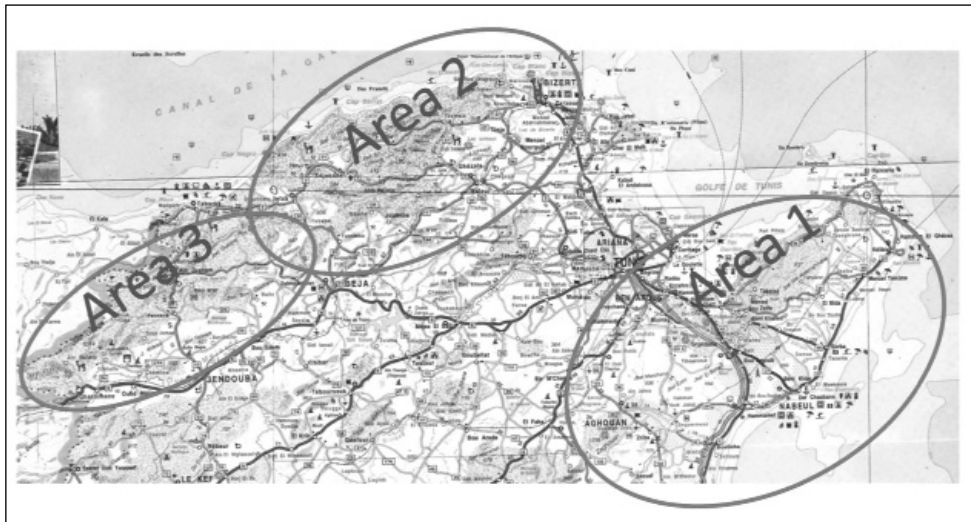


Fig.5. Carte du Nord de la Tunisie indiquant les 3 régions prospectées lors de la 12<sup>ème</sup> Iter de OPTIMA, en 2014. Région 1: Cap Bon, 2: Mogods, 3: Kroumirie.

et la continentalité. Le sous-bois est formé par le romarin et l'alfa. Dans les basses steppes, l'armoise champêtre couvre les sols sablonneux. Autour des dépressions et les fonds d'oueds au sol argileux se développent le jujubier et les plantes halophiles (*Atriplex* et *Salsola*).

### III- la végétation subdésertique et désertique

Elle correspond aux régions de bordure du Sahara. Les précipitations sont de 100 à 200 mm/an par an.

La végétation est formée par les pocées très clairsemées. Dans les zones subdésertiques littorales, la végétation est formée de *Rhanterium* qui occupe de vastes espaces jusqu'en Libye. Sur le Dhar apparaissent le *Haloxylon* et *Aristida*. Dans le Erg oriental on trouve le *Calligonum* qui peut atteindre 5 m de haut.

### Régions de la prospection de la 12<sup>ème</sup> Iter-OPTIMA

La douzième session des Itinear Mediterranea de l'OPTIMA a été organisée en Tunisie du Nord entre le 23 mars et le 05 avril 2014.

Trois grandes régions ont été prospectées (Fig. 5): Le Cap Bon; Les Mogods; La Kroumirie.

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Werner Greuter & Gianniantonio Domina

## Checklist of the vascular plants collected during the 12th “Iter Mediterraneum” in Tunisia, 24 March – 4 April 2014

### Abstract

Greuter, W. & Domina, G.: Checklist of the vascular plants collected during the 12th “Iter Mediterraneum” in Tunisia, 24 March – 4 April 2014. — Bocconea 27(1): 21-61. 2015. — ISSN: 1120-4060 printed, 2280-3882 online.

The vascular plants (plus one alga) collected during Iter Mediterraneum XII of OPTIMA in North Tunisia have been studied. In all, 1374 gatherings were made from 43 localities in the “Cap Bon” region, “Dorsale Tunisienne”, “Tunisie du Nord-Est”, “Vallée de la Medjedah”, “Mogods” and “Kroumirie” areas. They belong to 82 families and 539 species or subspecies. Three taxa are new for the flora of Tunisia (*Cerastium diffusum* subsp. *gussonei*, *Senecio leucanthemifolius* subsp. *mauritanicus*, and *Ulmus minor* subsp. *canescens*), 7 represent new records for the “Kroumirie”, 15 for the “Mogods”, 3 for the “Tunisie du Nord-Est”, 2 for the “Dorsale Tunisienne”, and 8 for “Cap Bon”.

*Key words:* Flora of Tunisia, Kroumiria, Cape Bon, Itinera Mediterranea, OPTIMA, vascular plants.

### Collecting localities

A list of collecting localities, drawn up immediately and daily updated as the excursion progressed, was used as basis for labelling. The locality data were checked and confirmed, as to accuracy of place names and consistency of spelling, by our Tunisian hosts, in particular Ridha El Mokni. The coordinates were ascertained on the spot by means of the global positioning system (GPS) Garmin GPS map CX60. When the collecting area was sizeable, the position of the extreme points visited was measured and translated into ranges of latitude and longitude, as recorded on the labels; however, in order to make it possible to georeference the specimens unambiguously, the ranges were reduced to the average values for databasing purposes, and the values reported below are these average values.

The localities, mapped in Fig. 1, have been numbered chronologically as visited by us. In addition, each locality was plotted on the map of phytogeographical regions defined by Cuénod (1954), also used by Pottier-Alapetitie (1979, 1981). Six of these regions, as shown in Fig. 1, were visited by us: **CB** (“Cap Bon”), **DT** (“Dorsale Tunisienne”), **K** (“Kroumirie”), **M** (“Mogods”), **NE** (“Tunisie du Nord-Est”), and **VM** (“Vallée de la Medjedah”). In the locality list (Table 1), these abbreviations are prefixed to the locality

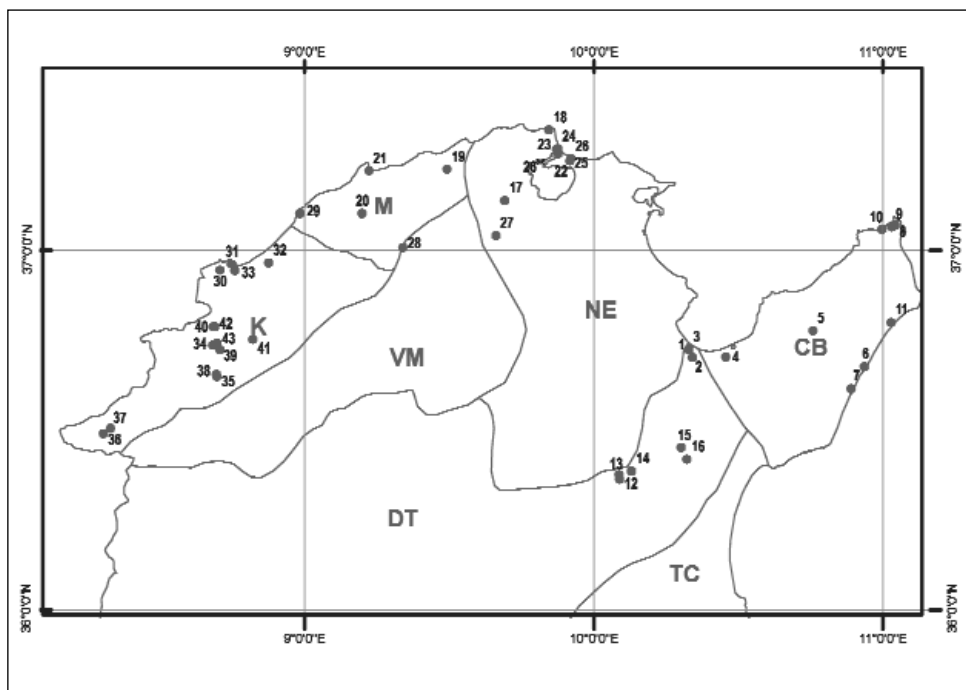


Fig. 1. The visited localities in the phytogeographical regions defined by Cuénod (1954).

numbers. In the species enumeration, the same abbreviations are given in the first place, so as to convey a quick, general impression of the distribution pattern of each taxon that emerges from the collected material.

Habitat indications for each locality have been generalised, but the particular habitat of individual species was also noted and is rendered below by means of lower-case Latin letters added to the locality number.

### Enumeration of the collected material

Within each of the principal groups (algae, pteridophytes, gymnosperms, dicotyledons, monocotyledons) the arrangement is alphabetical by families, then genera, then species. The delimitation of families follows NCU-3 (Greuter & al. 1993), the nomenclature of species and subspecies follows Med-Checklist (Greuter & al. 1984, 1986, 1989; Greuter 2008), as updated, when appropriate, to conform with Euro+Med Plantbase (Euro+Med 2006-) and/or the N African *Index synonymique* of Dobignard & Chatelain (2010-2013) and/or the Catalogue of Life dynamic checklist (Roskov & al. 2015), or any other relevant publications cited specifically. Infra-subspecific taxa are not recognised.

The name of the taxon is followed, on the same line, by the natural territorial units defined by Cuénod (**CB, DT, K, M, NE, VM**: see above and Fig. 1). On a new line, the



Table 1. A list of the collecting localities of *Iter Mediterraneum* XII to Tunisia, 2014

N°	Gouvernement	Locality	alt. (m)	lat. N	long. E	Habitat	Date	coll. N°s
DT-1	Ben Arous	Massif of Bou Kornine, c. 3-4 km SSE of Hammam-Lif	120-300	36°42'15"	10°20'31"	Maquis and garrigue with <i>Tetraclinis</i> , and ruderal places around parking; <b>1b</b> , Ruderal	24/03/2014	1-75
DT-2	Ben Arous	Massif of Bou Kornine, c. 0.8 km SSW of Hammam-Lif, at the parking area of the Ecomusée	110	36°43'34"	10°19'47"	Ruderal roadside	24/03/2014	76-88
DT-3	Ben Arous	Massif of Bou Kornine, c. 0.8 km SSW of Hammam-Lif, along the road below the parking area of the Ecomusée	90	36°43'35"	10°19'44"	Garrigue	24/03/2014	89-96
CB-4	Nabeul	C. 3 km WNW Soliman, along the road to Ejjeimi beach	1	36°42'20"	10°27'24"	Salt marsh; <b>4b</b> , In water	24/03/2014	97-133
CB-5	Nabeul	Massif of Jebel Sidi Abderrahmane, c. 9 km NW Al Middah, NW of small village	200-280	36°46'45"	10°45'31"	Garrigue, grazed meadows and rocks; <b>5b</b> , Ruderal	25/03/2014	134-213, 262-263
CB-6	Nabeul	Littoral belt of Qurba, c. 13 km NNE of Qurba, 2.8 km SSW of Lebna	0-5	36°40'45"	10°56'11"	Dunes; <b>6b</b> , Inner dunes; <b>6c</b> , Ruderal; <b>6d</b> , Sand dunes and ruderal salt marshes; <b>6e</b> , Wetland	25/03/2014	214-260
CB-7	Nabeul	Littoral belt of Qurba, c. 5 km NNE of Qurba, shore of lagoon	0-2	36°37'5"	10°53'24"	Ruderal and salt marshes; <b>7b</b> , Ruderal	25/03/2014	264-284
CB-8	Nabeul	Around top of Cape Bon	350-400	37°04'12"	11°02'33"	Garrigue, wind blown meadows and rocks; <b>8b</b> , Foot of rocks; <b>8c</b> , Rock ledges; <b>8d</b> , Rockface; <b>8e</b> , Rocks	26/03/2014	285-333
CB-9	Nabeul	Road to Cape Bon c. 2.3 km NE of El Haouaria	180	37°03'55"	11°01'47"	Forest and maquis	26/03/2014	334
CB-10	Nabeul	C. 1.6 km NW of El Haouaria, coast near the Phoenician-Roman caves	5-70	37°03'28"	10°59'46"	Rocky cliffs, sand dunes and <i>Pinus</i> forest on sand; <b>10b</b> , Dunes	26/03/2014	335-360
CB-11	Nabeul	Road from Kelibia to Manzil Tamim, c. 4.6 km NE Manzil Tamim, S of bridge across a small river	5-15	36°48'6"	11°01'40"	Ruderal; <b>11b</b> , Dry pasture; <b>11c</b> , Dry slope; <b>11d</b> , Maquis; <b>11e</b> , River bank; <b>11f</b> , Riverside; <b>11g</b> , Roadside, ruderal, segetal and besides river; <b>11h</b> , Ruderal in shade; <b>11i</b> , Sandstone rocks; <b>11j</b> , Segetal; <b>11k</b> , Shady places	26/03/2014	361-429
DT-12	Zaghoun	Massif of Jebel Zaghoun, road to Jebel Zaghoun from the NW side	500-630	36°21'53"	10°05'25"	Maquis, rocks and roadside; <b>12b</b> , Rocks	27/03/2014	430-497

DT-13	Zaghoun	Massif of Jebel Zaghoun, road to Jebel Zaghoun from the NW side	300-310	36°22'43" 10°05'18"	Maquis, rocks, roadside; <b>13b</b> , Ruderal	27/03/2014	498-505
DT-14	Zaghoun	Zaghoun, near the Roman fountain	275	36°23'19" 10°07'50"	Rock	27/03/2014	506-507
DT-15	Zaghoun	4 km N of Oued Ezzit, S side of the mountain	195-210	36°27'13" 10°18'11"	Grazed meadow and maquis/forest	27/03/2014	508-550
DT-16	Ben Arous	Jebel Ressas, c. 3.5 km SW of Dawwar at Talib 'Ali	80-200	36°36'24" 10°19'20"	Maquis and garigue with rocks and gravel field; <b>16b</b> , Rock	28/03/2014	551-634
NE-17	Bizerte	Jebel Ichkeul, S of Lake Ichkeul, c. 8 km W of Menzel Bourgiba, peninsula N and hill W of the mineral well	0-100	37°08'20" 09°41'32"	Maquis with rocks and grazed meadows; <b>17b</b> , Brackish lake, submerged; <b>17c</b> , Lake shore (brackish); <b>17d</b> , Rock base; <b>17e</b> , Rocks; <b>17f</b> , Ruderal	29/03/2014	635-755
NE-18	Bizerte	Coast c. 6.5 km NNW Bizerte, near the Roman grottos	0-60	37°19'59" 09°50'43"	Dune; <b>18b</b> , Dunes and rocks; <b>18c</b> , Grassland on clay; <b>18d</b> , Rock; <b>18e</b> , Sand; <b>18f</b> , Wet clayey slope	29/03/2014	756-806
M-19	Bizerte	Area NW of Lake Ichkeul, along the road c. 5.6 km WNW of Teskraia	100-240	37°13'29" 09°29'38"	Burned (one year ago) forest and garigue with meadows between; <b>19b</b> , Moist depressions; <b>19c</b> , Rivulet; <b>19d</b> , Roadside ditch	30/03/2014	807-875
M-20	Bizerte	c. 14 km S Cap Serrat, plain between Tamra and Dawwar Mrat	125-130	37°06'12" 09°11'56"	Meadows, humid and segetal places; <b>20b</b> , Roadside ditch	30/03/2014	876-913, 946
M-21	Bizerte	Cap Serrat, E slope and around houses on the beach	0-50	37°13'13" 09°13'24"	Garigue, rocks and ruderal places at beach; <b>21b</b> , Maritime sand; <b>21c</b> , Ruderal; <b>21d</b> , Seaside wetland; <b>21e</b> , Wet places at foot of rock	30/03/2014	914-945
NE-22	Bizerte	City of Bizerta, walls of the Medina	8	37°16'43" 09°52'29"	Wall	31/03/2014	947
NE-23	Bizerte	City of Bizerta, in the Spanish fort	30	37°16'49" 09°52'19"	Semiruderal meadow	31/03/2014	948-949
NE-24	Bizerte	City of Bizerta, promenade by the beach hotels	10	37°16'51" 09°52'38"	Meadow under planted palms	31/03/2014	950
NE-25	Bizerte	C. 5 km SW of Bizerta, N Habib Arifa, along the road in parallel to the highway	20-25	37°14'53" 09°55'03"	<i>Pinus</i> forest on sand dunes	31/03/2014	951-1001
NE-26	Bizerte	C. 5 km SW of Bizerta, sandy coast N of Habib Arifa	0-5	37°15'16" 09°55'20"	Dune; <b>26b</b> , Behind the dunes; <b>26c</b> , <i>Pinus</i> pinea wood behind the dunes; <b>26d</b> , Sand dunes and ruderal	31/03/2014	1002-1014,
NE-26 <sup>bis</sup>	Bizerte	Bizerta, by the drawbridge	5	37°16'00" 09°52'36"	Roadside	31/03/2014	1015-1016
NE-27	Bizerte	Mateur, park in the city	20	37°02'30" 09°39'42"	Weed	01/04/2014	1017-1018

<b>VM-28</b>	Bizerte	S of the road Mateur-Tabarca, 2-3.5 km SW of Sidi Abdallah Ben Saiden	235-450	37°01'13" 09°19'32"	Garigue, rocky slope, semi-ruderal besides track; <b>28b</b> , Along brook; <b>28c</b> , Cultivated as hedge; <b>28d</b> , Field margin; <b>28e</b> , Rocks; <b>28f</b> , Segetal	01/04/2014	1019-1088
<b>M-29</b>	Jendouba	Coast c. 26 km NE of Tabarca, Cap Negro	0-30	37°06'13" 08°59'4"	Maquis and garigue; <b>29b</b> , Littoral rocks; <b>29c</b> , Maquis; <b>29d</b> , Ruderal; <b>29e</b> , Sandy coastal flats	01/04/2014	1089-1122
<b>K-30</b>	Jendouba	Along the road to the Algerian frontier, 4 km WSW Tabarca, above Malloula	170-185	36°56'45" 08°42'26"	<i>Pinus</i> plantation; <b>30b</b> , On sand	02/04/2014	1123-1138
<b>K-31</b>	Jendouba	Tabarca, rocky coast in the N part of the city	0-50	36°57'47" 08°44'51"	Cliffs at coast; <b>31b</b> , Locally escaped from cultivation; <b>31c</b> , Straggling through shrubs; <b>31d</b> , Submersed marine	02/04/2014	1139-1163
<b>K-32</b>	Jendouba	Tabarca, along the road to Tabarca Airport	25-30	36°57'58" 08°52'37"	Sand dunes distant from sea and pond; <b>32b</b> , Aquatic; <b>32c</b> , In water; <b>32d</b> , Sandy soil	02/04/2014	1164-1194, 1199, 1229
<b>K-33</b>	Jendouba	S part of the city of Tabarca	5	36°56'42" 08°45'32"	Ruderal	02/04/2014	1195
<b>K-34</b>	Jendouba	1 km N of Ain Draham	770-780	36°47'24" 08°41'3"	<i>Quercus</i> forest; <b>34b</b> , High above the ground on <i>Quercus</i> suber trunks and branches; <b>34c</b> , On rocks and soil; <b>34d</b> , Roadside ditch; <b>34e</b> , Rocks	02/04/2014	1196-1228
<b>K-35</b>	Jendouba	13.5 km S of Ain Draham, in Al Firnanah	270	36°39'06" 08°41'53"	<i>Quercus</i> forest and rocks	03/04/2014	1230
<b>K-36</b>	Jendouba	El Feidja National Park, between the Park Centre and the watch tower, on rocks	710-770	36°29'34" 08°18'19"	<i>Quercus</i> forest and rocks	03/04/2014	1231-1271
<b>K-37</b>	Jendouba	El Feidja National Park, track to a small forest house ENE of the Park Centre	850-865	36°30'25" 08°19'47"	<i>Quercus</i> forest and maquis	03/04/2014	1272-1292
<b>K-38</b>	Jendouba	13.5 km S of Ain Draham, in Al Firnanah	285	36°39'27" 08°41'41"	Ruderal	03/04/2014	1293-1310
<b>K-39</b>	Jendouba	4.5 km S of Ain Draham, roadside	680-700	36°44'20" 08°40'57"	Humid <i>Quercus</i> forest	03/04/2014	1311-1332
<b>K-40</b>	Jendouba	N end of Ain Draham	730	36°47'23" 08°41'22"	Humid <i>Quercus</i> forest	03/04/2014	1333
<b>K-41</b>	Jendouba	2.8 km S of Ain Draham, c. 1 km NE of the sport training centre	660-670	36°45'16" 08°49'17"	Bog with <i>Sphagnum</i> and surrounding <i>Quercus</i> forest; <b>41b</b> , Along rivulet; <b>41c</b> , Rocks	04/04/2014	1334-1346
<b>K-42</b>	Jendouba	4 km S of Ain Draham, 1.2-1.6 km E of the sport training centre	600-670	36°44'42" 08°41'51"	<i>Quercus</i> forest; <b>42b</b> , Rocks	04/04/2014	1347-1361
<b>K-43</b>	Jendouba	C. 6 km S of Ain Draham, 3 km WSW of Beni m Tir, river valley below the road and track to a small pond above the road	580-615	36°43'36" 08°42'25"	<i>Quercus</i> forest, pond and rivulet; <b>43b</b> , In the water	04/04/2014	1362-1374

individual specimens are enumerated in the format **N: XXXX [Y]**, where **N** stands for the locality number (**1** to **53**, as detailed above), **XXXX** for the specimen number (*1* to *1374*), and **Y** for the number of duplicates collected, which can vary from 0 to 22. This may be followed in parentheses by the qualification “sterile”, “buds”, “fruit remains”, when no fully developed fertile plants were collected; and sometimes “fruits”, when no flowering individuals were found.

Many features concerning the individual gatherings (life form, overall size, and colour, in particular) were noted when the plants were being pressed, and these notes appear on the labels. As reporting these texts for individual gatherings would be largely repetitive, they have been synthesised into short statements given for the taxon as a whole. Other comments, if and when appropriate, are added in the form of Notes.

The senior author (WG) is responsible for plant identification and takes the blame for any errors, except for *Festuca* and *Poa*, named by Nicola Ardenghi, Pavia; *Limonium*, *Orobanche* and *Romulea*, revised by Gianniantonio Domina; *Myoporum* and *Salvia microphylla*, named by Francesco Maria Raimondo; and *Isoetes*, studied by Angelo Troia, Palermo.

The information on new reports for Tunisia were obtained by comparison with Cuénod (1954), Pottier-Alapetite (1979-1981), Greuter & al. (1984, 1986, 1989), Greuter (2008), Le Floc’h & al. (2010), Dobignard & Chatelain (2010-2013), and Euro+Med (2006-); while first records for individual phytogeographical areas were checked against the aforementioned relevant literature and take into account the following floristic and taxonomic papers: Nabli (1989), El Hamrouni (2001), Ghrabi-Gammar & al. (2009), Ferchichi-Ben Jamaa & al. (2010), Domina & Jaouadi (2013), Biondi & al. (2013, 2014), El Mokni & al. (2015), and Martin & al. (2015).

## ALGAE

### *Characeae*

*Chara* sp. – **NE** – submerged

**17b** – 0695 – [10]

## PTERIDOPHYTA

### *Equisetaceae*

*Equisetum telmateia* Ehrh. – **K** – perennial.

**32**: 1191 [7] (sterile).

### *Isoetaceae*

*Isoetes duriacii* Bory – **K** – perennial.

**43**: 1365 [4].

*Isoetes histrix* Bory – **CB, K, M** – tufted perennial.

**8**: 0301 [12]; **19b**: 0868 [10]; **21e**: 0914 [4]; **30b**: 1135 [1].

### *Polypodiaceae*

*Anogramma leptophylla* (L.) Link – **CB NE** – annual.

**5**: 0204 [3]; **8d**: 0317 [1]; **17d**: 0723 [10].

*Asplenium ceterach* L. – **DT NE VM** – perennial .

**12b:** 0495 [6]; **16:** 0630 [6]; **17e:** 0724 [4]; **28e:** 1066 [4].

*Asplenium obovatum* Viv. – **K** – tufted perennial.

**34e:** 1227 [8].

*Asplenium onopteris* L. – **K** – perennial.

**34c:** 1217 [8].

*Asplenium trichomanes* L. – **K** – perennial, rachis brown.

**34e:** 1209 [2]; **39:** 1329 [7]; **41c:** 1341 [10]; **42b:** 1347 [9].

*Cheilanthes acrostica* Tod. – **DT**.

**12b:** 0497 [3].

*Cosentinia vellea* (Aiton) Tod. – **NE** – perennial.

**17e:** 0719 [6].

*Polypodium cambricum* L. – **K NE** – rhizomatose perennial.

**17e:** 0721 [13]; **34b:** 1219 [17]; **36:** 1267 [5]; **39:** 1314 [5].

*Polystichum setiferum* (Forssk.) Woynar – **K** – tufted perennial.

**34:** 1218 [11].

*Pteridium aquilinum* (L.) Kuhn – **K** – rhizomatose perennial.

**34:** 1222 [10].

### *Selaginellaceae*

*Selaginella denticulata* (L.) Spring – **CB DT K NE VM** – perennial.

**1:** 0069 [4]; **5:** 0187 [10]; **8:** 0332 [4]; **12b:** 0496 [3]; **17:** 0725 [10]; **28:** 1065 [5]; **34:** 1221 [3].

### GYMNOSPERMAE

#### *Cupressaceae*

*Juniperus macrocarpa* Sm. – **NE** – shrub 1 m.

**18:** 0793 [10].

*Juniperus turbinata* Guss. – **CB M NE** – shrub 1-3 m.

**5:** 0202 [9]; **17:** 0745 [11]; **18:** 0775 [9]; **21:** 0916 [4] (juvenile).

*Tetraclinis articulata* (Vahl) Mast. – **DT** – shrub or small tree 4-6 m.

**1:** 0044 [7]; **15:** 0549 [10]; **16:** 0597 [7].

#### *Ephedraceae*

*Ephedra fragilis* Desf. – **NE** – straggling shrub 1-1.5 m.

**17e:** 0728 [13]; **26:** 1004 [13].

#### *Pinaceae*

*Pinus halepensis* Mill. – **DT** – tree 5 m.

**1:** 0040 [5]; **12:** 0446 [11].

*Pinus pinaster* Aiton – **K** – partly planted, also spontaneous tree 14 m.

**30:** 1124 [14].

**DICOTYLEDONES****Acanthaceae**

*Acanthus platyphyllus* (Murb.) Prain – **CB K NE** – perennial.

**8c:** 0319 [10] (sterile); **17:** 0735 [10] (in bud); **34:** 1203 [7] (sterile); **42:** 1361 [3] (only leaves).

This taxon is clearly morphologically and taxonomically isolated from *A. mollis* L. deserving to be considered a separated species.

**Aizoaceae**

*Carpobrotus edulis* (L.) N. E. Br. – **NE** – creeping perennial, flowers yellow or purplish pink.

**18b:** 0800 [6].

**Anacardiaceae**

*Pistacia lentiscus* L. – **CB DT NE** – shrub, 1-3 m .

**1:** 0039 [10]; **5:** 0179 [10]; **11d:** 0375 [9]; **17:** 0688 [10].

**Apocynaceae**

*Nerium oleander* L. – **VM** – shrub 1.5 m.

**28b:** 1062 [10] (in fruit).

*Periploca angustifolia* Labill. – **DT NE** – shrub 1,5 m, flowers dark purplish brown, margin and outside green.

**1:** 0017 [8]; **16:** 0551 [10] (in fruit); **17:** 0635 [11].

*Vinca major* L. – **K** – perennial, 40 cm, long runners, flowers pale violet.

**40:** 1333 [17].

**Aquifoliaceae**

*Ilex aquifolium* L. – **K** – evergreen tree, 5 m.

**42:** 1353 [12].

**Araliaceae**

*Hedera algeriensis* Hibberd – **CB K** –, trailing or climbing.

**8d:** 0314 [10] (sterile); **34:** 1202 [16] (in fruit).

**Aristolochiaceae**

*Aristolochia navicularis* Nardi – **K NE** – perennial, perigon tube pale greenish yellow with pale greenish-brown limb.

**8f:** 0780 [13]; **37:** 1280 [7].

**Betulaceae**

*Alnus glutinosa* (L.) Gaertn. – **K** – tree 10 m.

**32:** 1173 [12].

**Boraginaceae**

*Alkanna tinctoria* Tausch – **CB NE** – prostrate perennial, flowers deep blue with purple eye and tube.

**7:** 0273 [3]; **11g:** 0367 [8]; **18e:** 0756 [9]; **25:** 0970 [13].

*Anchusa azurea* Mill. – **VM** – annual, flowers deep blue, tube purple.

**28:** 1083 [9].

*Borago officinalis* L. – **CB M VM** – annual or perennial, flowers bright blue.

**11:** 0394 [10]; **20:** 0884 [10]; **28:** 1086 [4].

*Cerinthe major* L. – **VM** – flowers black purple proximally, yellow distally.

**28:** 1070 [15].

*Cynoglossum cheirifolium* subsp. *heterocarpum* (Kunze) Maire – **CB DT VM** – annual or biennial, flowers whitish turning pale purplish, venation inconspicuous.

**7:** 0270 [9]; **12:** 0483 [3]; **28:** 1068 [12].

*Cynoglossum creticum* Mill. – **CB** – biennial, flowers purple turning blue, with net of dark veins.

**11j:** 0426 [6].

*Echium parviflorum* Moench – **CB DT NE VM** – flowers blue.

**1b:** 0035 [10]; **11:** 0393 [8]; **13:** 0498 [8]; **16:** 0558 [8]; **17:** 0639 [1]; **28:** 1076 [9].

*Echium plantagineum* L. – **VM** – biennial, flowers purple.

**28:** 1085 [9].

*Echium sabulicola* subsp. *decipiens* (Pomel) G. Klotz – **CB NE** – perennial, flowers dark bluish violet.

**6:** 0238 [10]; **18e:** 0758 [9].

*Myosotis discolor* Pers. – **M** – annual, flowers pale blue with yellow centre.

**19:** 0858 [7].

*Myosotis ramosissima* Rochel – **K** – annual, flowers blue.

**36:** 1246 [7]; **37:** 1282 [4].

*Nonea vesicaria* (L.) Rchb. – **CB** – perennial, flowers dark brownish violet.

**6d:** 0216 [11]; **11c:** 0391 [11].

### *Cactaceae*

*Opuntia maxima* Mill. – **VM**.

**28c:** 1058 [5] (sterile).

### *Callitrichaceae*

*Callitriche obtusangula* Le Gall – **K**.

**32b:** 1192 [10].

*Callitriche stagnalis* Scop. – **M** – annual.

**19c:** 0819 [15]; **20b:** 0912 [12] (aerial).

### *Campanulaceae*

*Campanula erinus* L. – **NE** – annual, flowers pale blue.

**17:** 0665 [3].

### *Caprifoliaceae*

*Viburnum tinus* L. – **K M** – shrub, 3 m, evergreen, flowers white.

**21:** 0938 [12] (in fruit); **39:** 1315 [13].

*Caryophyllaceae*

*Arenaria cerastioides* Poir. – **M** – annual, flowers white, anthers dark blue.

**19:** 0813 [21]; **21:** 0935 [11]; **29c:** 1108 [8].

*Arenaria leptoclados* (Rchb.) Guss. – **DT K NE** – annual, flowers white.

**16:** 0600 [13]; **17:** 0705 [3]; **32d:** 1190 [3].

*Cerastium diffusum* subsp. *gussonei* (Lojac.) P. D. Sell & Whitehead – **K** – annual, flowers white.

**32d:** 1188 [7].

*Cerastium glomeratum* Thuill. – **CB K M NE** – annual, flowers white.

**5:** 0192 [10]; **8:** 0321 [14]; **11k:** 0419 [10]; **17:** 0691 [12]; **19:** 0823 [15]; **21:** 0934 [9]; **29e:** 1103 [9]; **32d:** 1187 [7]; **34:** 1216 [12]; **36:** 1259 [15]; **37:** 1292 [4]; **39:** 1324 [7].

*Dianthus rupicola* subsp. *hermaeensis* (Cosson) O. Bolòs & Vigo – **CB** – subshrub.

**8d:** 0305 [11] (sterile).

*Herniaria hirsuta* L. – **CB** – annual.

**5:** 0211 [1].

*Minuartia mediterranea* (Ledeb.) K. Malý – **DT K NE** – annual, flowers white.

**16:** 0601 [3]; **17:** 0704 [4]; **32d:** 1189 [1].

*Moehringia pentandra* Gay – **M** – annual, flowers white.

**19:** 0811 [1].

*Moenchia erecta* (L.) P. Gaertner & al. – **K M** – annual, flowers white.

**19:** 0848 [5]; **36:** 1260 [7]; **37:** 1287 [1].

*Paronychia argentea* Lam. – **CB DT K M** – prostrate perennial.

**4:** 0115 [10]; **5:** 0198 [10]; **7:** 0281 [3]; **12:** 0447 [9]; **15:** 0533 [15]; **29e:** 1102 [19]; **37:** 1289 [12].

*Paronychia capitata* (L.) Lam. – **DT** – decumbent perennial.

**1:** 0008 [1]; **13:** 0500 [6].

*Paronychia echinulata* Chater – **CB M** – annual.

**8:** 0324 [2]; **19:** 0863 [6].

*Petrorhagia prolifera* (L.) P. W. Ball & Heywood – **M** – annual.

**21:** 0915 [3] (in bud).

*Polycarpon polycarpoides* (Biv.) Zodda – **DT** – perennial.

**1:** 0052 [4]; **16:** 0592 [10].

*Polycarpon tetraphyllum* (L.) L. – **CB K** – annual.

**5:** 0193 [3]; **39:** 1326 [7].

*Polycarpon tetraphyllum* subsp. *alsinifolium* (Biv.) Ball – **CB NE** – annual.

**6:** 0247 [14]; **18:** 0795 [10].

*Rhodalsine geniculata* (Poir.) F. N. Williams – **M** – decumbent perennial, flowers pale pink.

**29e:** 1109 [12].

*Sagina apetala* Ard. – **CB K M** – annual.

**5:** 0196 [12]; **19:** 0851 [4]; **36:** 1238 [4].

*Sagina maritima* G. Don – **NE** – annual.

**18f:** 0779 [2].

*Silene barrattei* Murb. – **NE** – perennial, flowers pale pink.

**18:** 0789 [10].



*Silene colorata* Poir. – **CB DT NE** – annual, flowers bright purplish pink, tips of coronal scales whitish – **5:** 0180 [14]; **7:** 0275 [14]; **11:** 0424 [10]; **15:** 0536 [12]; **16:** 0596 [10]; **18:** 0778 [10]; **25:** 0974 [7].

*Silene gallica* L. – **CB DT M** – annual, flowers pale pink, unblotched .  
**11:** 0423 [4]; **15:** 0534 [1]; **20:** 0893 [4]; **21:** 0933 [1]; **29e:** 1110 [10].

*Silene nocturna* L. – **CB K M** – annual, flowers pale pink, dirty outside.  
**4** –0129 [7]; **29e:** 1104 [9]; **31:** 1158 [3].

*Silene succulenta* Forssk. – **CB NE** – fleshy-leaved perennial, flowers white inside, dirty purple outside.

**6:** 0252 [10]; **18:** 0788 [3]; **26:** 1006 [15].

*Silene tunetana* Murb. – **DT M VM** – annual, flowers uniformly pink or with a whitish aureola around a dark purple eye, and with pale coronal scales.

**16:** 0595 [11]; **20:** 0876 [12]; **28:** 1063 [10].

*Spergula arvensis* L. subsp. *arvensis* – **CB** – annual, to 15 cm.

**5:** 0205 [8].

*Spergularia bocconei* (Scheele) Graebner – **CB**.

**4:** 0127 [1].

*Spergularia maritima* subsp. *tunetana* (Maire) Greuter & Burdet – **CB** – flowers pink.

**4:** 0118 [11].

*Spergularia salina* J. Presl & C. Presl – **CB** – annual.

**6e:** 0253 [15].

*Stellaria media* (L.) Vill. – **CB DT K M NE** – annual, flowers white.

**5:** 0194 [10]; **8b:** 0320 [10]; **11k:** 0419a [1]; **12:** 0448 [11]; **17:** 0690a [10]; **25:** 0976 [5]; **25:** 0999 [2]; **26c:** 1012 [4]; **29:** 1119 [14]; **36:** 1261 [1]; **39:** 1325 [9]; **41:** 1338 [6 p.p.].

**Note.** – *Stellaria media* and *Stellaria pallida* often grow intermingled and are closely similar in appearance, which explains why many of our gatherings resulted to be mixed; nevertheless, on closer inspection the species are well distinct and do not appear to intergrade.

*Stellaria neglecta* Weihe – **K** – annual, flowers white, 10 stamens.

**34:** 1214 [10].

*Stellaria pallida* (Dumort.) Piré – **CB DT K M NE** – annual, flowers apetalous or white.

**5:** 0194a [10 p.p.]; **8b:** 0329 [6]; **12:** 0448a [11 p.p.]; **17:** 0690 [10 p.p.]; **19:** 0854 [1]; **26c:** 1014 [5]; **41:** 1338a [6 p.p.].

### Casuarinaceae

*Casuarina cunninghamiana* Miq. – **NE** – tree 10 m, planted.

**25:** 1001 [10].

### Chenopodiaceae

*Arthrocnemum macrostachyum* (Moric.) K. Koch – **CB** – shrub or creeping shrublet.

**4:** 0119 [11]; **6e:** 0217 [10]; **6e:** 0248 [11].

*Beta maritima* L. – **CB** – perennial.

**6c:** 0240 [8].

*Chenopodium murale* (L.) S. Fuentes & al. – **CB DT M** – annual.

**2:** 0076 [9]; **6c:** 0259 [10]; **29:** 1118 [19].

*Emex spinosa* (L.) Campd. – **CB NE** – perennial.

**6c:** 0260 [7]; **17f:** 0712 [1].

*Halimione portulacoides* (L.) Aellen – **CB**.

**4:** 0114 [10].

*Halocnemum cruciatum* (Forssk.) Console & Tod. – **CB**.

**4:** 0113 [9].

**Note.** – According to Bacchetta & al. (2012) there are morphological differences between the populations of *Halocnemum* found around the Mediterranean and those from the saline shores of Lake Inder north of the Caspian Sea, in W Kazakhstan, that had been described in 1771 as *Salicornia strobilacea* Pallas. These authors adopted the name *H. cruciatum*, based on *S. cruciata* Forssk. from Alexandria of Egypt, for the circummediterranean plants previously known as *Halocnemum strobilaceum* (Pallas) M. Bieb. Independently, Papini & al. (2004) had found significant differences, at the DNA level, between *Halocnemum* plants from the delta of the river Po in NE Italy and those near Cagliari in S Sardinia. More recently, Biondi & al. (2013, 2014) have demonstrated that two clearly separable species indeed exist, differing in morphology (including seed microcharacters) as well as ecology, but that only the S Mediterranean plants (from Spain, Sardinia, Sicily, S Anatolia, Cyprus and the whole of N Africa) belong to *H. cruciatum*, whereas those of peninsular Italy, Greece and Turkey-in-Europe remain in *H. strobilaceum*.

*Sarcocornia perennis* (Mill.) A. J. Scott – **CB**.

**4:** 0120 [10].

*Suaeda vera* J. F. Gmel. – **CB** – decumbent shrub.

**4:** 0126 [9]; **7:** 0284 [9].

### **Cistaceae**

*Cistus clusii* Dunal – **DT** – shrub, 50 cm, flowers white.

**1:** 0001 [10].

*Cistus creticus* subsp. *eriocephalus* (Viv.) Greuter & Burdet – **CB DT** – shrub, 0.8-1.5 m, flowers pink with yellow eye.

**1:** 0011 [10]; **11d:** 0385 [10]; **12:** 0487 [10].

*Cistus monspeliensis* L. – **CB DT K M NE** – shrub 0.4-1 m, flowers white with yellow eye.

**5:** 0195 [10]; **12:** 0486 [10]; **16:** 0561 [12]; **17:** 0700 [7]; **19:** 0822 [10]; **21:** 0924 [9]; **29c:** 1105 [10]; **31:** 1155 [10]; **36:** 1257 [10].

*Cistus salviifolius* L. – **DT K M NE** – shrub, 20-80 cm, flowers white with yellow eye, sepals normally pubescent but often glabrous, purple in centre.

**1:** 0014 [7]; **12:** 0488 [10]; **18:** 0799 [11]; **25:** 0995 [10]; **29c:** 1117 [7]; **30:** 1138 [11]; **37:** 1290 [7]; **37:** 1291 [5]; **39:** 1327 [10]; **41:** 1339 [3]. **41:** 1339a [4]; **42:** 1359 [7]; **42:** 1360 [7].

*Fumana arabica* (L.) Spach – **DT** – shrublet 30-50 cm, flowers yellow.

**1:** 0042 [10]; **12:** 0490 [5].

*Fumana laevipes* (L.) Spach – **DT** – shrublet 20 cm, flowers yellow.

**1:** 0021 [10].

*Fumana scoparia* Pomel – **DT:** 15 cm, flowers yellow.

**1:** 0054 [1].

*Fumana thymifolia* (L.) Webb – **CB DT K M** – shrublet 20-30 cm, flowers yellow.

**1:** 0033 [11]; **3:** 0090 [6]; **5:** 0184 [11]; **16:** 0562 [10]; **21:** 0927 [4]; **29c:** 1106 [7]; **30:** 1137 [3]; **31:** 1156 [11].

*Halimium halimifolium* (L.) Willk. – **K M** – shrub 40-50 cm.

**29c:** 1113 [10] (old fruits); **30:** 1136 [9] (fruit remains).

*Helianthemum croceum* (Desf.) Pers. – **DT** – suffrutex 20 cm, flowers yellow.

**16:** 0565 [14].

*Tuberaria guttata* (L.) Fourr. – **CB** – perennial, flowers yellow.

**8:** 0330 [3].

*Tuberaria lignosa* (Sweet) Samp. – **K** – perennial.

**30:** 1128 [3] (in bud).

*Tuberaria lipopetala* (Murb.) Greuter & Burdet – **CB** – annual, petals yellow, unspotted.

**8:** 0333 [2].

### *Compositae*

*Achillea maritima* (L.) Ehrend. & Y. P. Guo – **CB** – perennial.

**6:** 0256 [11].

*Anacyclus clavatus* (Desf.) Pers. – **DT NE** – annual, ray flowers white, disk yellow.

**1b:** 0010 [6]; **17:** 0713 [3].

*Andryala integrifolia* L. – **VM** – perennial, flowers lemon yellow.

**28:** 1023 [1].

*Andryala laxiflora* DC. – **DT** – annual, in bud.

**16:** 0634 [2].

*Anthemis secundiramea* Biv. – **CB** – annual, ray flowers white, disk yellow.

**5:** 0143 [4]; **8:** 0291 [1]; **10:** 0349 [4].

*Anthemis ubensis* Pomel – **DT NE** – annual, ray flowers white.

**15:** 0516 [1]; **25:** 0952 [2].

*Arctotheca calendula* (L.) Levyns – **M** – stoloniferous perennial, ray flowers yellow, lead-coloured outside, disk dark purple.

**20:** 0899 [4].

*Artemisia arborescens* L. – **NE** – shrub, 1.5 m.

**17e:** 0707 [9] (sterile).

*Bellis annua* L. – **CB K NE VM** – annual, to 6 cm, ray flowers white, disk yellow.

**4:** 0108 [4]; **5:** 0150 [2]; **6c:** 0230 [3]; **8:** 0293 [2]; **18d:** 0794 [8]; **25:** 0987 [2]; **28:** 1024 [2]; **32:** 1193 [2]; **41:** 1334 [8].

*Bellis prostrata* Pomel – **M** – perennial, ray flowers white.

**19:** 0859 [4].

*Bellis sylvestris* Cirillo – **CB DT K M** – perennial, to 30 cm, ray flowers whitish-pink, disk yellow.

**1:** 0027 [6]; **5:** 0145 [4]; **8:** 0289 [5]; **12:** 0432 [4]; **19:** 0845 [2]; **34:** 1212 [8]; **39:** 1330 [4].

*Calendula arvensis* L. – **CB DT K NE VM** – 40 cm, annual, ray flowers orange, rarely yellow, disk sometimes blackish purple.

**1b:** 0015 [5]; **4:** 0097 [3]; **6c:** 0221 [5]; **15:** 0510 [3]; **17:** 0718 [3]; **28:** 1020 [6]; **38:** 1304 [7].

- Calendula stellata* Cav. – **CB DT VM** – annual or perennial, 20 cm, flowers orange.  
**5:** 0155 [4]; **12:** 0433 [8]; **28:** 1021 [6].
- Carduus getulus* Pomel – **CB** – perennial or biennial.  
**5:** 0197 [3].
- Carduus spachianus* Dur. – **CB DT M NE** – normally annual, 1 m, flowers dark lilac to purplish pink.  
**1b:** 0003 [9]; **5:** 0134 [9]; **11:** 0362 [7]; **17:** 0715 [3]; **20:** 0946 [10]; **25:** 0959 [10].
- Carthamus pinnatus* Desf. – **DT VM** – acaulescent perennial.  
**1:** 0025 [5]; **28:** 1027 [3] (in bud).
- Centaurea calcitrapa* L. – **K M** – perennial.  
**20:** 0905 [6] (in bud); **32:** 1194 [8] (in bud).
- Centaurea napifolia* L. – **CB** – perennial, radiate flowers purple.  
**11:** 0369 [10].
- Centaurea sphaerocephala* L. – **NE** – perennial.  
**18:** 0796 [3] (in bud); **25:** 0954 [9] (in bud).
- Chamaemelum fuscatum* (Brot.) Vasc. – **CB M** – annual, 20 cm, ray flowers white, disk yellow.  
**5b:** 0139 [3]; **19:** 0843 [2].
- Cichorium intybus* L. – **CB**.  
**11:** 0425 [1] (in bud).
- Coleostephus myconis* (L.) Rchb. f. – **CB DT NE VM** – annual, 30 cm, ray flowers yellow or white with yellow base.  
**5:** 0144 [3]; **16:** 0606 [3]; **25:** 0953 [4]; **28:** 1022 [8].
- Cotula coronopifolia* L. – **CB M NE** – perennial, flowers yellow.  
**4b:** 0098 [6]; **17c:** 0716 [10]; **21d:** 0945 [3].
- Crepis vesicaria* L. – **CB DT** – perennial, 20 cm, ligules yellow, outside often reddish.  
**1b:** 0029 [5]; **5b:** 0147 [4]; **12:** 0435 [8]. **12:** 0435a [1].
- Dittrichia viscosa* (L.) Greuter – **DT**.  
**1:** 0050 [3].
- Erigeron bonariensis* L. – **CB K** – annual (sometimes perennial?), 10 cm, flowers brownish.  
**4:** 0112 [2]; **7b:** 0265 [4]; **38:** 1302 [4].
- Filago argentea* (Pomel) Chrtek & Holub – **DT** – annual.  
**15:** 0509 [2].
- Filago gallica* L. – **CB DT M** – annual.  
**5:** 0186 [1]; **8:** 0292 [2]; **15:** 0535 [3]; **19:** 0847 [5].
- Filago pygmaea* L. – **CB NE** – annual, to 5 cm.  
**4:** 0105 [3]; **5:** 0146 [2]; **5:** 0190a [1]; **8:** 0286 [3]; **10:** 0351 [2]; **17:** 0711 [13] (in bud); **17:** 0717 [3].
- Galactites tomentosus* Moench – **CB** – annual, radiating flowers pale lilac.  
**10:** 0353 [7].
- Glebionis coronaria* (L.) Spach – **CB** – annual, flowers yellow.  
**6d:** 0214 [5].
- Hedypnois rhagadioloides* (L.) F. W. Schmidt – **CB DT M NE** – annual, to 10 cm, ligules yellow.  
**4:** 0099 [3]; **5:** 0164a [1]; **5b:** 0148 [4]; **7b:** 0264a [1]; **11:** 0368 [4]; **15:** 0511 [2]; **15:** 0512 [2]; **17:** 0697 [5]; **17:** 0722 [10]; **20:** 0911 [5].

- Helichrysum stoechas* subsp. *barrelieri* (Ten.) Nyman – **CB NE** – ± decumbent subshrub, 20 cm, bracts lemon yellow.  
**10:** 0342 [11]; **18:** 0774 [4].
- Helminthotheca aculeata* (Vahl) Lack – **DT** – perennial.  
**12:** 0438 [1] (sterile).
- Hyoseris lucida* L. – **NE** – perennial, ligules yellow.  
**18:** 0781 [7].
- Hyoseris radiata* L. – **CB DT K NE VM** – perennial, 20 cm, ligules yellow tinged greenish-purple outside, sometimes with purple teeth.  
**1:** 0028 [3]; **8:** 0288 [9]; **16b:** 0607 [10]; **17:** 0702 [6]; **28:** 1019 [8]; **36:** 1264 [10].
- Hyoseris scabra* L. – **CB NE VM** – annual, 1-2 cm, ligules pale yellow.  
**4:** 0110 [5]; **5:** 0160 [5]; **17:** 0720 [2]; **28:** 1025 [4].
- Hypochaeris achyrophorus* L. – **CB DT NE** – annual, 15-40 cm, ligules yellow, outside reddish.  
**1:** 0038 [2]; **1b:** 0041 [1]; **7b:** 0264 [3]; **10:** 0350 [2]; **14:** 0507 [4]; **16:** 0590 [7]; 0698 [3]; **18:** 0785 [9].
- Hypochaeris glabra* L. – **CB** – annual, ligules yellow.  
**6c:** 0224 [4].
- Hypochaeris laevigata* (L.) Ces. & al. – **K DT** – perennial, ligules yellow.  
**12:** 0436 [4] (in bud); **36:** 1263 [4].
- Jacobaea delphinifolia* (Vahl) Pelsner & Veldkamp – **M** – annual, flowers yellow.  
**20:** 0904 [7].
- Laphangium luteoalbum* (L.) Tsvelev – **CB** – annual.  
**5:** 0190 [1].
- Launaea fragilis* (Asso) Pau – **DT** – perennial.  
**15:** 0541 [5] (in bud).
- Leontodon tuberosus* L. – **CB DT M** – perennial geophyte, to 30 cm, ligules yellow, outside reddish.  
**1b:** 0034 [3]; **5:** 0158 [10]; **8:** 0285 [5]; **19:** 0844 [9].
- Micropus supinus* L. – **CB** – annual.  
**5:** 0185 [1].
- Osteospermum* (hybr.) – **K** – perennial, flowers pale lavender, bluish violet outside; cultivated for ornament and escaping.  
**31b:** 1150 [1].
- Pallenis maritima* (L.) Greuter – **CB M NE** – perennial, ligules yellow, red outside.  
**10:** 0340 [6]; **18b:** 0786 [6]; **29:** 1089 [5].
- Pallenis spinosa* (L.) Cass. – **CB DT** – perennial, flowers lemon yellow.  
**1:** 0045 [2]; **11:** 0371 [2].
- Phagnalon rupestre* subsp. *illyricum* (H. Lindb.) Ginzb. – **CB DT** – suffrutex 30-40 cm, flowers yellowish.  
**1:** 0004 [7]; **5:** 0140 [4]; **11:** 0363 [10]; **12:** 0434 [5].
- Phagnalon saxatile* (L.) Cass. – **DT NE** – suffrutex 30 cm.  
**14:** 0506 [10]; **16:** 0618 [15]; **17:** 0714 [6].
- Picris sinuata* (Lam.) Lack – **CB NE** – perennial.  
**6:** 0215 [10]; **10b:** 0335 [4] (sterile); **25:** 0956 [10] (sterile).

*Plagiush maghrebinus* Vogt & Greuter – **K** – shrub to 1.2 m.

**34:** 1207 [13] (sterile).

*Podospermum laciniatum* (L.) DC. – **CB**: 10-20 cm, ligules yellow.

**4:** 0111 [10].

*Reichardia intermedia* (Sch. Bip.) Samp. – **CB DT** – ligules yellow.

**1b:** 0032a [1]; **5:** 0164 [2]; **12:** 0437 [4]; **16:** 0594 [3].

*Reichardia picroides* (L.) Roth – **CB DT NE** – perennial, ligules yellow.

**1b:** 0032 [4]; **10:** 0337 [3]; **18:** 0765 [2].

*Rhaponticum acaule* (L.) DC. – **VM** – acaulescent perennial, flowers pale yellow.

**28:** 1026 [1].

*Scorzonera coronopifolia* Desf. – **DT** – geophyte, outer ligules yellow, reddish outside, central flowers dark purple.

**12:** 0431 [4]; **16:** 0593 [1].

*Scorzonera undulata* subsp. *deliciosa* (DC.) Maire – **DT M NE VM** – perennial geophyte, ligules pink.

**15:** 0508 [2]; **16:** 0589 [10]; **17:** 0699 [2]; **19:** 0852 [5]; **28:** 1064 [2].

*Senecio leucanthemifolius* Poir. – **CB** – annual, flowers yellow.

**8:** 0287 [2].

*Senecio leucanthemifolius* subsp. *mauritanicus* (Pomel) Greuter – **CB DT** – annual, to 30 cm, flowers yellow.

**1b:** 0047 [3]; **5:** 0161 [2]; **6:** 0220 [11]; **12:** 0430 [2].

*Senecio leucanthemifolius* var. *vernus* (Biv.) Fiori – **NE** – annual, ligules yellow.

**18:** 0764 [3]; **25:** 0951 [2]; **29:** 1090 [2].

*Senecio lividus* L. – **M** – annual, flowers yellow.

**19:** 0850 [10].

*Senecio vulgaris* L. – **K** – annual, flowers yellow.

**34:** 1213 [4]; **37:** 1281 [3]; **39:** 1331 [4].

*Sonchus asper* (L.) Hill – **M** – annual, ligules yellow, reddish outside.

**20:** 0898 [3].

*Sonchus bulbosus* (L.) N. Kilian & Greuter – **CB K NE** – geophyte, to 20 cm, ligules yellow, purplish tinged outside.

**4:** 0100 [4]; **6c:** 0223 [3]; **26:** 1003 [4]; **31:** 1149 [3].

*Sonchus oleraceus* L. – **DT** – 70 cm, ligules yellow.

**1b:** 0013 [5].

*Sonchus tenerrimus* L. – **CB NE** – annual to 30 cm, ligules yellow.

**5:** 0162 [2]; **17:** 0696 [8]; **25:** 0955 [4].

*Urospermum dalechampii* (L.) F. W. Schmidt – **CB** – perennial to 40 cm, ligules sulphur yellow, purple outside.

**11:** 0364 [9]; **28:** 1028 [5].

*Urospermum picroides* (L.) F. W. Schmidt – **DT K NE** – annual, ligules yellow.

**1b:** 0019 [2]; **17:** 0706 [8]; **39:** 1332 [2].

### *Convolvulaceae*

*Convolvulus durandoi* Pomel – **K M** – decumbent perennial, flowers pale purplish pink with dark veins in throat and purple stripes outside.

**19:** 0810 [10]; **31:** 1152 [7].

*Convolvulus siculus* L. – **DT NE** – annual, flowers blue.

**16:** 0552a [1]; **17:** 0675 [3].

*Convolvulus tricolor* L. subsp. *tricolor* – **M VM** – perennial, flowers blue with a yellow corona around a white centre.

**20:** 0906 [5]; **28:** 1071 [3].

*Convolvulus tricolor* subsp. *cupanianus* (Sa'ad) Stace – **DT** – annual, flowers blue with a yellow corona around a white centre.

**16:** 0552 [13].

### *Crassulaceae*

*Crassula tillaea* Lester-Garland – **K** – annual.

**36:** 1236 [9].

*Sedum caeruleum* L. – **CB K** – annual.

**5:** 0181 [2] (sterile); **36:** 1266 [3] (in bud).

*Sedum cepaea* L. – **K** – annual.

**34:** 1226 [3] (sterile).

*Sedum dasyphyllum* L. – **CB** – perennial.

**8d:** 0309 [3] (sterile).

*Sedum stellatum* L. – **NE** – annual.

**17:** 0640 [10] (with old fruits).

*Sedum tuberosum* Coss. & Letourn. – **K** – perennial.

**31:** 1162 [4] (with old fruits).

*Umbilicus horizontalis* (Guss.) DC. – **NE** – geophyte.

**17:** 0641 [2] (with old fruits); **17:** 0641a [6] (with old fruits).

### *Cruciferae*

*Arabidopsis thaliana* (L.) Heynh. – **K** – annual, flowers white..

**36:** 1250a [2];

*Biscutella didyma* L. – **CB DT M NE** – annual, to 50 cm, flowers pale yellow.

**5:** 0163 [10]; **8:** 0325 [4]; **12:** 0452 [4]; **16:** 0631 [10]; **18e:** 0762 [10]; **19:** 0836 [10];

**20:** 0889 [10]; **25:** 0978 [9].

*Brassica gravinae* Ten. – **DT** – perennial, flowers pale yellow.

**1:** 0064a [2]; **12b:** 0492 [10]; **13:** 0505 [4].

*Brassica napus* L. – **M** – perennial, flowers yellow.

**20:** 0900 [8].

*Brassica souliei* subsp. *amplexicaulis* (Desf.) Greuter & Burdet – **DT** – annual, flowers yellow.

**16:** 0629 [10].

*Cakile maritima* Scop. subsp. *maritima* – **CB** – annual, flowers purplish pink.

**6:** 0242 [8].

*Capsella* × *gracilis* Godr. – **CB K** – annual, to 60 cm, flowers white.

**5:** 0174b [1]; **36:** 1262a [2]; **38:** 1307b [2].

*Capsella bursa-pastoris* (L.) Medik. – **CB K M** – annual, to 60 cm, flowers white or pinkish.

**5:** 0174a [4]; **19:** 0838 [1]; **38:** 1307 [6].

- Capsella rubella* Reut. – **CB DT K NE** – annual, to 25 cm, flowers white or pinkish.  
**5:** 0174 [2]; **12:** 0450 [2]; **17:** 0747 [4]; **32b:** 1184 [2]; **36:** 1262 [6]; **38:** 1307a [1].
- Cardamine hirsuta* L. – **CB DT K M** – annual, flowers white.  
**8b:** 0323 [3]; **12:** 0449 [5]; **19:** 0870 [3]; **36:** 1250 [4]; **43:** 1366 [2].
- Diplotaxis eruroides* (L.) DC. – **CB DT** – 50 cm, flowers white or pinkish.  
**2:** 0078 [3]; **4:** 0130 [4].
- Diplotaxis muralis* (L.) DC. – **DT** – annual, flowers pale yellow.  
**3:** 0095 [1]; **12:** 0494 [5].
- Diplotaxis simplex* (Viv.) Spreng. – **CB** – flowers pale yellow.  
**5:** 0203 [5].
- Diplotaxis virgata* (Cav.) DC. – **DT K** – hapaxanthous ?, 60 cm, flowers yellow.  
**1:** 0064 [5]; **38:** 1310 [11].
- Erophila verna* (L.) Chevall. – **K** – annual, flowers white.  
**36:** 1251 [11].
- Eruca sativa* subsp. *longirostris* (Uechtr.) Jahand. & Maire – **CB** – annual, flowers pale yellow with violet veins.  
**7:** 0278 [12]; **10:** 0358 [4].
- Hirschfeldia incana* (L.) Lagr.-Foss. – **CB DT K NE** – annual, 70-100 cm, flowers yellow.  
**2:** 0081 [9]; **7:** 0279 [8]; **10:** 0352 [10]; **12:** 0451 [6]; **15:** 0538 [2]; **16:** 0632 [4]; **17:** 0753 [9]; **38:** 1303 [6].
- Lepidium glastifolium* Desf. – **K** – perennial, flowers white.  
**36:** 1245 [3].
- Lobularia maritima* (L.) Desv. – **CB DT NE** – annual, flowers white, honey-scented.  
**5:** 0178 [12]; **11:** 0421 [10]; **15:** 0539 [10]; **17:** 0732 [3]; **25:** 1000 [1].
- Malcolmia doumetiana* (Coss.) Rouy – **CB NE** – annual, flowers white to pale pink.  
**6:** 0237 [11]; **18:** 0798 [11]; **25:** 0997 [13].
- Moricandia arvensis* (L.) DC. – **DT** – flowers pink.  
**3:** 0093 [6].
- Nasturtium officinale* R. Br. – **K** – perennial, flowers white.  
**32b:** 1186 [14].
- Raphanus raphanistrum* L. – **CB K NE** – annual or biennial? to 70 cm, flowers pale yellow with pink to violet veins outside.  
**5:** 0209 [1]; **27:** 1017 [5]; **38:** 1308 [11].
- Rapistrum rugosum* (L.) All. – **CB** – annual, flowers pale yellow.  
**6c:** 0254 [1]; **11:** 0428 [4].
- Sinapis alba* L. – **VM** – annual, flowers yellow.  
**28:** 1050 [5].
- Sinapis arvensis* L. – **DT** – annual, flowers yellow.  
**15:** 0538a [4].
- Sisymbrium irio* L. – **DT** – flowers yellow.  
**3:** 0094 [7].
- Sisymbrium officinale* (L.) Scop. – **M NE** – annual, flowers pale yellow.  
**17:** 0738 [5]; **29:** 1116 [11].



**Cynomoriaceae****Cynomorium coccineum** L. – **CB**.**4:** 0101 [13].**Cytinaceae****Cytinus hypocistis** subsp. **macranthus** Wettst. – **CB K** – on *Halimium halimifolium*, flowers bright yellow, scales orange red.**5:** 0135 [5]; **30:** 1129 [11].**Ericaceae****Arbutus unedo** L. – **K** – tree, 3 m.**36:** 1234 [11].**Erica arborea** L. – **CB K M** – shrub, to 2 m (30 cm when grazed), flowers white or pinkish.**5:** 0177 [12]; **8:** 0313 [10]; **19:** 0825 [9]; **34:** 1198 [10]; **36:** 1254 [10].**Erica multiflora** L. – **DT** – shrub, 1.5-2 m, flowers pink.**1:** 0055 [11]; **12:** 0458 [8].**Erica scoparia** L. – **K M** – shrub 1.5 m.**19:** 0832 [8] (in bud); **30:** 1125 [10] (in bud).**Euphorbiaceae****Euphorbia amygdaloides** L. – **K** – hapaxanthous.**39:** 1316 [3]; **42:** 1354 [14].**Euphorbia bivonae** Steudel – **CB NE** – shrub 0.3-1 m, or hanging shrub 4-5 m.**5:** 0176 [16]; **17:** 0644 [12].**Euphorbia dendroides** L. – **DT** – shrub to small tree 1.5-2 m, cyathium glands yellow.**12:** 0477 [10]; **16:** 0564 [6].**Euphorbia exigua** L. – **DT M NE** – annual.**16:** 0610 [3]; **17:** 0680 [4]; **19:** 0873 [1].**Euphorbia helioscopia** L. – **CB DT M NE VM** – annual, cyathium glands greenish yellow.**1b:** 0037 [7]; **6c:** 0225 [11]; **11:** 0386 [10]; **17:** 0652 [11]; **20:** 0882 [9]; **28:** 1079 [3].**Euphorbia peplus** L. – **CB NE** – annual.**6c:** 0222 [10]; **17:** 0667 [15].**Euphorbia peplus** var. **minima** DC. – **CB DT** – annual.**8:** 0290 [2]; **16:** 0611 [1].**Euphorbia terracina** L. – **CB NE** – annual, biennial or perennial.**7:** 0272 [12]; **11:** 0406 [11]; **25:** 0986 [10].**Fagaceae****Quercus canariensis** Willd. – **K** – semideciduous tree 10-20 m.**34:** 1205 [16] (old fruits); **36:** 1255 [12]; **41:** 1336 [13].**Quercus coccifera** L. – **CB DT M NE** – shrub or tree, 0.8-5 m.**5:** 0201 [3]; **11d:** 0384 [9]; **12:** 0473 [11]; **18:** 0777 [10]; **21:** 0926 [11]; **25:** 0996 [12];**29c:** 1112 [11] (sterile).

*Quercus ilex* subsp. *ballota* (Desf.) Samp. – **CB DT** – tree, 4-10 m.

**8:** 0304 [11]; **12:** 0474 [13].

*Quercus ilex* subsp. *ballota* (Desf.) Samp. × *Q. coccifera* L. – **DT** – tree 4 m.

**12:** 0475 [8].

*Quercus suber* L. – **K M** – evergreen tree 2-20 m.

**21:** 0925 [11]; **34:** 1206 [9] (old fruits); **36:** 1256 [10]; **41:** 1335 [10].

### Frankeniaceae

*Frankenia hirsuta* L. – **CB** – prostrate perennial.

**6e:** 0250 [3].

*Frankenia laevis* L. – **CB NE**.

**4:** 0123 [6]; **17c:** 0708 [8] (sterile).

*Frankenia pulverulenta* L. – **CB** – annual, flowers white.

**4:** 0131 [1]; **6e:** 0251 [1].

### Gentianaceae

*Blackstonia perfoliata* (L.) Huds. – **K** – flowers yellow.

**39:** 1312 [4].

### Geraniaceae

*Erodium botrys* (Cav.) Bertol. – **CB** – annual.

**8:** 0327 [1].

*Erodium cicutarium* (L.) L'Hér. – **CB K** – annual, flowers pale lilac to purplish pink.

**8:** 0326 [12]; **30:** 1132 [5]; **39:** 1318 [7].

*Erodium laciniatum* (Cav.) Willd. – **CB NE** – annual, flowers purplish pink.

**5:** 0188 [13]; **18e:** 0770 [9].

*Erodium malacoides* (L.) L'Hér. – **CB DT** – annual, flowers purplish pink.

**2:** 0079 [8]; **11:** 0420 [1]; **12:** 0491 [9]; **16:** 0598 [10].

*Erodium moschatum* (L.) L'Hér. – **CB DT K** – annual, flowers pink to violet.

**2:** 0080 [7]; **5:** 0182 [7]; **38:** 1305 [15].

*Geranium lucidum* L. – **NE** – annual, flowers purplish pink.

**17e:** 0710 [10].

*Geranium molle* L. – **CB K** – annual, flowers purplish pink.

**7:** 0283 [3]; **8:** 0306 [14]; **11k:** 0418 [6]; **34:** 1215 [7]; **36:** 1258 [8]; **39:** 1323 [10].

*Geranium purpureum* Vill. – **NE** – annual, flowers deep purplish pink.

**17:** 0709 [10]; **25:** 0975 [10].

*Geranium robertianum* L. – **M** – annual, flowers pink.

**19:** 0839 [10].

### Globulariaceae

*Globularia alypum* L. – **DT** – shrub 40 cm, flowers blue.

**12:** 0478 [10].

### Guttiferae

*Hypericum afrum* Lam. – **K** – semi-shrub 1 m.

**41:** 1340 [11].

*Hypericum australe* Ten. – **CB K M** – ascending perennial or suffrutex, flowers yellow, reddish outside.

**5:** 0212 [2]; **21:** 0932 [5]; **29:** 1097 [2]; **30:** 1131 [7]; **31:** 1159 [3].

### *Labiatae*

*Lamium amplexicaule* L. – **K** – annual.

**37:** 1279 [6].

*Lavandula multifida* L. – **DT** – suffrutex 30 cm, flowers bluish violet.

**15:** 0525 [15]; **16:** 0572 [10].

*Lavandula stoechas* L. – **CB M** – shrub 40-80 cm, flowers blackish violet, as also the sterile bracts – **5:** 0168 [6]; **19:** 0817 [12]; **21:** 0921 [7]; **29:** 1099 [11].

*Prasium majus* L. – **CB DT NE** – shrub 1 m, flowers white.

**11:** 0407 [10]; **16:** 0586 [9]; **17:** 0674 [4].

*Rosmarinus officinalis* L. – **CB DT** – shrub 0.4-1 m, flowers blue or bluish violet.

**1:** 0048 [8]; **10:** 0339 [10]; **12:** 0476 [9].

*Salvia microphylla* Kunth – **K** – Cultivated.

**35:** 1230 [5].

*Salvia verbenaca* L. – **CB DT NE VM** – biennial, flowers pale to dark blue violet (lower lip sometimes white), plant fetid.

**1:** 0030 [8]; **5:** 0159 [13]; **12:** 0462 [10]; **18e:** 0757 [6]; **25:** 0971 [7]; **28:** 1080 [8].

*Salvia viridis* L. – **DT** – annual, flowers pink.

**16:** 0559 [15].

*Satureja nervosa* Desf. – **CB DT** – suffrutex, flowers pale to dark lilac or lavender.

**3:** 0091 [10]; **11i:** 0417 [4]; **16:** 0560 [8].

*Stachys arenaria* Vahl – **CB**.

**5:** 0183 [2] (sterile).

*Stachys arvensis* (L.) L. – **CB M** – annual, flowers pale bluish or purplish pink.

**8:** 0307 [1]; **19:** 0809 [13].

*Stachys marrubifolia* Viv. – **M** – annual, flowers purplish pink.

**29:** 1100 [10].

*Stachys ocymastrum* (L.) Briq. – **DT** – annual, corolla white with pale yellow, purple-dotted lower lip and white, laterally purple-marked upper lip with linear lobes.

**12:** 0484 [2]; **16:** 0587 [10].

*Teucrium fruticans* L. – **M** – shrub 40 cm, flowers pale blue with dark veins.

**19:** 0875 [2]; **21:** 0920 [10].

*Thymus algeriensis* Boiss. & Reut. – **DT** – shrublet 20 cm, flowers purplish pink.

**1:** 0020 [6]; **12:** 0479 [11]; **16:** 0588 [10].

*Thymus numidicus* Poir. – **K** – shrublet 20 cm.

**30:** 1127 [6] (sterile).

### *Leguminosae*

*Acacia cyclops* G. Don f. – **NE** – shrub 2 m, cultivated and escaping.

**26b:** 1011 [9].

*Acacia saligna* (Labill.) Wendl. f. – **CB NE** – naturalised tree c. 8 m, flowers yellow.

**11d:** 0409 [12]; **25:** 0994 [10].

- Anthyllis barba-jovis* L. – **M** – shrub 2.5 m, flowers whitish yellow.  
**29b**: 1092 [10].
- Anthyllis vulneraria* subsp. *maura* (Beck) Maire – **DT NE** – biennial or perennial, flowers white to pink with pink or dark purple keel, calyx purplish distally.  
**1**: 0049 [10]; **12**: 0439 [14]; **25**: 0963 [16].
- Astragalus caprinus* L. – **DT** – flowers yellowish green.  
**1**: 0043 [8].
- Astragalus epiglottis* L. – **NE** – annual, flowers bluish .  
**17**: 0650 [4].
- Astragalus falciformis* Desf. – **DT** – flowers bluish.  
**1**: 0072 [13].
- Astragalus hamosus* L. – **NE** – decumbent annual, standard bluish, wings and keel whitish.  
**17**: 0646 [4].
- Astragalus longicaulis* Pomel – **DT** – decumbent annual, flowers pale blue.  
**13**: 0504 [3].
- Astragalus sesameus* L. – **NE** – annual, flowers blue.  
**17**: 0648 [1].
- Calicotome infesta* subsp. *intermedia* (C. Presl) Greuter – **CB DT** – spiny shrub 0.7-2 m, flowers yellow.  
**1**: 0031 [6]; **5**: 0149 [9]; **10**: 0341 [11]; **11d**: 0412 [9]; **12**: 0441 [9]; **15**: 0526 [10]; **16**: 0633 [7].
- Calicotome villosa* (Poir.) Link – **M NE VM** – spiny shrub 1.5-1.8 m, flowers yellow.  
**18e**: 0763 [7]; **19**: 0830 [9]; **21**: 0937 [7]; **28**: 1047 [7]; **29**: 1120 [7].
- Ceratonia siliqua* L. – **DT** – tree 15 m.  
**12**: 0457 [10].
- Coronilla juncea* L. – **DT M** – straggling shrub 1.7 m, flowers yellow.  
**1**: 0007 [4], 0067 [10]; **21**: 0944 [3].
- Coronilla scorpioides* (L.) W. D. J. Koch – **DT NE** – annual, flowers yellow.  
**1**: 0074 [3]; **17**: 0643 [10].
- Coronilla valentina* L. subsp. *valentina* – **NE** – shrub 80 cm, flowers yellow.  
**17**: 0638 [7].
- Cytisus villosus* Pourr. – **K** – shrub 1-2 m, flowers yellow.  
**34**: 1224 [13]; **37**: 1284 [9]; **39**: 1313 [7].
- Genista aspalathoides* Lam. – **CB DT M** – spiny cushion 20 cm or shrub 0.4-1.5 m, flowers yellow.  
**1**: 0058 [10]; **5**: 0151 [3]; **5**: 0152 [10]; **8**: 0303 [10]; **10**: 0343 [10]; **29c**: 1121 [12].
- Genista ferox* Poir. – **M VM** – spiny shrub 1-2 m, flowers yellow.  
**20**: 0903 [13]; **28**: 1052 [6] (in fruit); **29d**: 1111 [12] (in fruit).
- Genista tricuspidata* Desf. – **DT** – shrub 40 cm, flowers yellow.  
**1**: 0071 [4]; **2**: 0083 [7].
- Genista ulicina* Spach – **K M** – straggling shrub 1-1.5 m, flowers yellow.  
**19**: 0853 [1]; **21**: 0943 [2]; **37**: 1283 [10] (sterile).
- Hedysarum coronarium* L. – **NE VM** – perennial, flowers reddish purple.  
**18d**: 0766 [5] (in bud); **28**: 1048 [14].

- Hedysarum spinosissimum* subsp. *capitatum* (Rouy) Asch. & Graebn. – **CB DT VM** – annual (perennial?), flowers pink to purple.  
**1:** 0073 [7]; **11c:** 0373 [20]; **28:** 1042 [11].
- Hippocrepis biflora* Spreng. – **DT NE** – annual, flowers yellow.  
**1b:** 0018 [3]; **17:** 0653 [6].
- Hippocrepis brevipetala* (Murb.) E. Domínguez – **NE VM** – annual (perennial?), flowers yellow, very fragrant.  
**17:** 0655 [2]; **28:** 1046 [18].
- Hippocrepis ciliata* Willd. – **CB DT** – annual, flowers yellow.  
**1b:** 0022 [6]; **11:** 0411 [5].
- Hippocrepis emerus* subsp. *emeroides* (Boiss. & Sprun.) Lassen – **DT** – shrub 1.5 m, flowers yellow.  
**1:** 0005 [15].
- Hymenocarpus circinnatus* (L.) Savi – **DT** – annual, flowers yellow.  
**15:** 0542 [3].
- Lathyrus cicera* L. – **DT** – annual, flowers dark purple.  
**16:** 0626 [3].
- Lathyrus clymenum* L. – **DT** – annual, standard purple, wings and keel bluish violet.  
**1:** 0070 [7]; **16:** 0625 [9].
- Lathyrus ochrus* (L.) DC. – **CB** – annual, flowers pale yellow.  
**11j:** 0387 [12].
- Lens nigricans* (M. Bieb.) Godr. – **NE** – annual, flowers pale blue.  
**17:** 0668 [13].
- Lotus biflorus* Desr. – **DT** – annual, flowers yellow.  
**16:** 0613 [10].
- Lotus cytisoides* L. – **CB DT K M NE** – perennial, flowers yellow.  
**2:** 0087 [10]; **5:** 0173 [11]; **8:** 0302 [18]; **10:** 0336 [15]; **11:** 0413 [10]; **12:** 0442 [12];  
**15:** 0540 [13]; **25:** 0960 [15]; **29:** 1122 [14]; **32:** 1166 [11]; **36:** 1235 [11].
- Lotus cytisoides* subsp. *conradiae* Gamisans – **CB NE** – perennial, flowers yellow.  
**6:** 0227 [14]; **18:** 0768 [10]; **26:** 1002 [12].
- Lotus edulis* L. – **CB DT M NE** – annual, flowers yellow, standard with purple veins.  
**1b:** 0002 [11]; **2:** 0086 [4]; **11:** 0361 [12]; **12:** 0455 [10]; **15:** 0543 [4]; **16:** 0617 [10];  
**17:** 0642 [12]; **18e:** 0771 [10]; **19:** 0834 [5].
- Lotus ornithopodioides* L. – **CB DT M NE** – annual, flowers yellow.  
**1b:** 0024 [7]; **2:** 0088 [10]; **11:** 0403 [9]; **12:** 0456 [10]; **16:** 0615 [10]; **17:** 0637 [6];  
**19:** 0835 [8].
- Lotus tetragonolobus* L. – **CB DT M VM** – annual, flowers dark purple.  
**11c:** 0379 [12]; **16:** 0624 [3]; **20:** 0901 [5]; **28:** 1043 [4].
- Lupinus cosentinii* Guss. – **NE** – annual, standard and wings blue, standard with twin whitish macula, keel whitish with dark violet tip.  
**25:** 0957 [9].
- Medicago littoralis* Loisel. – **CB DT K NE** – decumbent annual, flowers yellow.  
**11:** 0415 [10]; **13:** 0503 [11]; **15:** 0544 [3]; **18:** 0769 [10]; **32:** 1168 [5].
- Medicago lupulina* L. – **NE** – annual, flowers yellow, fruit pubescent.  
**17:** 0658 [10].

- Medicago marina* L. – **CB** – perennial, flowers yellow.  
6: 0232 [14].
- Medicago minima* (L.) L. – **DT** – annual, flowers yellow.  
15: 0548 [10].
- Medicago monspeliaca* (L.) Trautv. – **NE** – annual, flowers yellow.  
17: 0660 [14].
- Medicago polymorpha* L. – **NE** – annual, flowers yellow.  
17: 0636 [2]; 17: 0651 [7].
- Medicago soleirolii* Duby – **CB** – annual, flowers yellow.  
5: 0166 [2].
- Melilotus messanensis* (L.) All. – **CB** – annual 30 cm, flowers yellow.  
4: 0106 [11]; 7: 0267 [3].
- Melilotus sulcatus* Desf. – **CB DT** – annual, flowers yellow.  
4: 0107 [12]; 11j: 0388 [4]; 16: 0623 [10].
- Ononis alba* Poir. subsp. *alba* – **DT** – annual, flowers light pink.  
16: 0627 [3].
- Ononis hispanica* subsp. *ramosissima* (Desf.) Förther & Podl. – **CB** – suffrutex 50 cm, flowers yellow with red stripes.  
10: 0346 [12].
- Ononis variegata* L. – **CB NE** – perennial, flowers yellow, standard with reddish veins.  
6: 0226 [12]; 18: 0767 [12].
- Parkinsonia aculeata* L. – **K** – invasive naturalised alien shrub 2 m.  
33: 1195 [7] (sterile).
- Retama raetam* (Forssk.) Webb – **CB NE** – retamoid shrub 1-1.5 m, flowers white.  
6: 0219 [10]; 25: 0958 [15].
- Scorpiurus muricatus* L. – **CB DT** – annual, flowers yellow suffused orange, standard purple-veined.  
2: 0084 [4]; 11j: 0389 [12]; 16: 0622 [10].
- Trifolium campestre* Schreb. – **M NE** – annual, flowers pale yellow.  
17: 0662 [1]; 21: 0936 [5].
- Trifolium nigrescens* Viv. – **CB DT K NE** – annual (perennial?), flowers whitish to pale pink.  
4: 0109 [11]; 15: 0547 [4]; 17: 0645 [2]; 32: 1167 [1].
- Trifolium scabrum* L. – **CB DT K NE** – annual, flowers pale pink to whitish.  
4: 0116 [6]; 15: 0545 [3]; 17: 0656 [16]; 32: 1169 [4].
- Trifolium stellatum* L. – **CB DT NE** – annual, flowers white turning pale pink.  
2: 0085 [6]; 11: 0397 [12]; 15: 0546 [5]; 17: 0647 [10].
- Trifolium subterraneum* L. – **CB M K** – annual, flowers white.  
5: 0170 [10]; 19: 0833 [12]; 36: 1242 [5].
- Trifolium suffocatum* L. – **CB K** – annual (perennial?), flowers whitish.  
5: 0167 [3]; 36: 1243 [7].
- Trifolium tomentosum* L. – **CB K NE** – annual, flowers pink.  
4: 0117 [4]; 17: 0664 [15]; 38: 1295 [14].
- Trigonella foenum-graecum* L. – **CB M VM** – annual, flowers whitish, plant aromatic; also cultivated.  
11: 0422 [2]; 20: 0902 [10]; 28: 1041 [10].

*Tripodion tetraphyllum* (L.) Fourr. – **CB DT NE** – annual, standard cream, wings yellow, keel yellow or dark purple tipped.

**11:** 0370 [4]; **16:** 0614 [16]; **17:** 0666 [13].

*Vicia leucantha* Biv. – **CB** – annual, flowers whitish.

**11j:** 0372 [12].

*Vicia sativa* L. – **CB** – annual, flowers purple, standard paler.

**11j:** 0414 [14].

*Vicia sativa* subsp. *nigra* (L.) Ehrh. – **CB NE** – annual, 30 cm, flowers purplish viole, standard sometimes bluish.

**7:** 0266 [3]; **25:** 0962 [3].

*Vicia villosa* Roth subsp. *varia* (Host) Corb. – **NE** – annual, standard, wing claw and keel blue, wings distally white, keel with twin round white subapical macula.

**25:** 0961 [12].

### *Linaceae*

*Linum bienne* Mill. – **CB DT K M** – annual, flowers blue.

**3:** 0089 [6]; **5:** 0200 [4]; **19:** 0821 [11]; **31:** 1157 [7].

*Linum decumbens* Desf. – **DT** – annual, flowers burgundy.

**16:** 0602 [12].

*Linum trigynum* L. – **DT** – annual, flowers sulphur yellow.

**16:** 0608 [6].

### *Malvaceae*

*Malope malacoides* subsp. *tripartita* (Boiss. & Reut.) Maire – **VM** – perennial, flowers purplish pink with dark veins.

**28d:** 1067 [12].

*Malva olbia* (L.) Alef. – **M** – shrub 3.5 m, flowers purple.

**21:** 0941 [5].

*Malva parviflora* L. – **DT K** – annual, flowers pink.

**2:** 0082 [9]; **38:** 1293 [11].

*Malva sylvestris* L. – **DT** – perennial, flowers purplish pink with darker veins.

**2:** 0077 [6]; **16:** 0591 [10].

### *Moraceae*

*Ficus infectoria* Roxb. – **NE** – tree 10 m, planted.

**26bis:** 1015 [10].

### *Myoporaceae*

*Myoporum tenuifolium* G. Forst. – **K** – shrub, 2 m, flowers white.

**38:** 1306 [9].

### *Myrtaceae*

*Eucalyptus gomphocephala* DC. – **M** – tree 10 m.

**19:** 0820 [14].

*Myrtus communis* L. – **K** – shrub 2 m.

**43:** 1363 [11].

### *Oleaceae*

*Fraxinus angustifolia* subsp. *oxycarpa* (Willd.) Franco & Rocha Afonso – **K** – tree over 4 m.

**32:** 1177 [6] (in fruit).

*Jasminum fruticans* L. – **DT NE** – shrub 0.7-1 m, flowers yellow.

**12:** 0493 [7]; **16:** 0620 [10]; **17:** 0663 [10].

*Phillyrea latifolia* L. – **CB DT K M** – shrub 1-3 m, flowers pale yellow.

**5:** 0136 [10]; **12:** 0480 [10]; **16:** 0575 [10]; **19:** 0826 [10]; **36:** 1237 [15].

### *Orobanchaceae*

*Orobanche crenata* Forssk. – **CB** – annual, stigma yellow.

**11j:** 0400 [1].

*Orobanche minor* Sm. – **M**.

**23:** 0948 [4] (on *Galactites tomentosus*).

*Orobanche mutelii* F. W. Schultz – **NE** – annual, flowers pale lilac, stigma white.

**17:** 0746 [1] (on *Hyoseris radiata*).

*Orobanche nana* (Reut.) G. Beck – **NE** – annual, flowers pale bluish violet to lilac or purple, stigma white.

**25:** 0967 [10] (on *Oxalis pes-caprae*); **25:** 0968 [4] (on *Medicago littoralis*); **26:** 1008 [4] (on *Oxalis pes-caprae*).

*Orobanche schultzei* Mutel – **NE** – annual.

**18:** 0801 [1] (on *Asteraceae* sp.; in bud).

*Orobanche variegata* Wallr. – **DT M VM** – annual, flowers dark dirty blood-red distally, pale proximally, stigma yellow.

**1:** 0023 [2] (on *Calycotome villosa*); **5:** 0153 [2] (on *Calycotome villosa*); **19:** 0865 [2]; **28:** 1040 [7].

### *Oxalidaceae*

*Oxalis pes-caprae* L. – **DT** – geophyte, flowers yellow.

**16:** 0619 [10].

### *Papaveraceae*

*Fumaria bastardii* Bor. – **CB** – annual, flowers purple with dark tip.

**6c:** 0245 [10].

*Fumaria bicolor* Sommier – **CB M NE** – annual, flowers whitish to pale pink with dark purple tip.

**5:** 0210 [1]; **8:** 0294 [1]; **17:** 0736 [8]; **18:** 0784 [11]; **25:** 0989 [8]; **29:** 1115 [12].

*Fumaria capreolata* L. – **K M** – annual, flowers white with blackish purple tip.

**19:** 0842 [2]; **36:** 1265 [3].

*Papaver dubium* L. – **NE** – annual, petals brick red, unspotted.

**17:** 0733 [1].

*Papaver hybridum* L. – **NE** – annual, petals blood-red with black basal spot.

**17:** 0730 [10].



*Papaver rhoeas* L. – **K** – annual, flowers flame red, lacking dark spots.

**31:** 1153 [1].

### *Plantaginaceae*

*Plantago afra* L. – **CB DT NE VM** – annual.

**11:** 0398 [13]; **15:** 0532 [4]; **16:** 0577 [10]; **17:** 0683 [6]; **18c:** 0759 [14]; **25:** 0980 [9];

**28:** 1081 [8].

*Plantago albicans* L. – **CB NE** – perennial.

**11c:** 0390 [10]; **25:** 0988 [10].

*Plantago coronopus* L. – **CB**.

– 0104 [12].

*Plantago crassifolia* Forssk. – **CB M NE** – perennial.

**6:** 0231 [13]; **18:** 0760 [10]; **29:** 1098 [3].

*Plantago lagopus* L. – **CB DT** – annual.

**1:** 0056 [10]; **6c:** 0229 [12].

*Plantago weldenii* Rchb. – **CB**.

**4:** 0102 [6]; **4:** 0103 [6].

### *Plumbaginaceae*

*Limonium hipponense* Brullo & Erben – **NE**.

**18d:** 0805 [5] (sterile).

*Limonium zembrae* Pignatti – **CB** – perennial.

**10:** 0348 [1] (sterile).

### *Polygalaceae*

*Polygala monspeliaca* L. – **M** – annual, flowers greenish with dirty purple veins.

**19:** 0872 [10].

*Polygala numidica* Pomel – **K M** – perennial, flowers green becoming pale to purplish blue turning green again, crest whitish.

**19:** 0840 [4]; **29c:** 1107 [4]; **30:** 1126 [9]; **31:** 1161 [5].

### *Polygonaceae*

*Polygonum aviculare* L. – **K** – annual, flowers whitish to pink.

**31:** 1163 [1]; **38:** 1300 [6].

*Polygonum maritimum* L. – **M NE** – perennial, tepals white, outside with greenish stripe.

**21b:** 0931 [5]; **26:** 1007 [6].

*Rumex bucephalophorus* L. – **CB** – annual – **5:** 0191 [10] (sterile).

*Rumex bucephalophorus* L. subsp. *bucephalophorus* – **CB NE** – annual.

**6b:** 0255 [12]; **25:** 0973 [7].

*Rumex bucephalophorus* subsp. *gallicus* (Steinh.) Rech. f. – **DT NE** – annual.

**16:** 0599 [14]; **18:** 0787 [11].

*Rumex roseus* L. – **NE** – perennial.

**26:** 1010 [11].

**Primulaceae**

*Anagallis arvensis* L. – **CB DT NE** – annual, flowers deep blue with purple tube.

**1:** 0053 [5]; **5:** 0189 [5]; **6c:** 0236 [10]; **16:** 0585 [10]; **17:** 0673 [7].

*Anagallis monelli* L. – **CB VM** – perennial, flowers deep blue with purple eye and tube.

**5:** 0206 [3]; **10:** 0354 [10]; **28:** 1072 [8].

*Asterolinon linum-stellatum* (L.) Duby – **DT** – annual.

**16:** 0616 [10].

**Ranunculaceae**

*Adonis microcarpa* DC. – **VM** – annual, flowers flame red with black eye and stamens.

**28:** 1054 [16].

*Clematis cirrhosa* L. – **M NE** – woody climber.

**17:** 0749 [8] (sterile); **19:** 0818 [5] (sterile young shoots).

*Clematis flammula* L. – **M** – woody climber.

**19:** 0815 [10] (sterile).

*Nigella damascena* L. – **DT** – annual, sepals whitish with greenish-blue veins, honey-leaves blackish blue.

**16:** 0576 [3].

*Ranunculus aquatilis* L. – **K M** – most leaves floating, flowers white.

**20:** 0892 [1]; **43b:** 1367 [10].

*Ranunculus arvensis* L. – **VM** – annual, flowers yellow.

**28:** 1051 [11].

*Ranunculus bullatus* L. – **NE** – geophyte.

**17:** 0739 [9] (sterile).

*Ranunculus ficaria* subsp. *ficariiformis* Rouy & Fouc. – **K M VM** – perennial, petals bright yellow, greenish or purplish green outside.

**19:** 0827 [10]; **28:** 1061 [6]; **34:** 1220 [10].

*Ranunculus macrophyllus* Desf. – **VM** – geophyte, flowers yellow.

**28:** 1053 [10].

*Ranunculus millefoliatus* Vahl – **DT** – geophyte, flowers yellow.

**12:** 0454 [14].

*Ranunculus muricatus* L. – **M NE** – annual, flowers yellow.

**17:** 0737 [10]; **17:** 0743 [7]; **19:** 0831 [10]; **21:** 0919 [7]; **29:** 1114 [15].

*Ranunculus ophioglossifolius* Vill. – **K** – perennial, flowers yellow.

**32:** 1180 [2].

*Ranunculus paludosus* Poir. – **CB M** – geophyte, flowers bright yellow.

**5:** 0199 [6]; **8:** 0328 [10]; **19:** 0824 [10]; **21:** 0918 [13].

*Ranunculus peltatus* Schrank – **M** – floating leaves present, petals white with yellow claw.

**20:** 0890 [11].

*Ranunculus spicatus* subsp. *blephariocarpos* (Boiss.) Grau – **DT K M NE** – geophyte, flowers yellow.

**12:** 0453 [6]; **17:** 0740 [12]; **19:** 0829 [3]; **34:** 1225 [4].

*Ranunculus trichophyllus* Chaix – **K M** – annual, all leaves submersed, flowers white, very small.

**20:** 0891 [12]; **32:** 1183 [8].

**Resedaceae**

**Reseda alba** L. – **CB DT NE** – annual or biennial, flowers white.

**11:** 0410 [9]; **16:** 0628 [7]; **25:** 0998 [11].

**Reseda lutea** L. – **DT** – perennial, flowers pale yellow.

**13b:** 0499 [2].

**Rhamnaceae**

**Rhamnus alaternus** L. – **CB K** – shrub 2-5 m, flowers yellowish green.

**11d:** 0382 [7]; **34:** 1197 [15]; **43:** 1362 [5].

**Rhamnus lycioides** subsp. **oleoides** (L.) Jahand. & Maire – **CB NE VM** – shrub 0.3-1.5 m.

**11d:** 0383 [13]; **17:** 0731 [5] (in bud); **28:** 1088 [4] (in bud).

**Rhamnus myrtifolius** Willk. – **DT** – decumbent shrub ca. 10 cm.

**16b:** 0603 [2].

**Rosaceae**

**Aphanes floribunda** (Murb.) Rothm. – **K** – annual.

**36:** 1271 [3].

**Crataegus azarolus** L. – **DT VM** – shrub or tree, 3-5 m, flowers white, styles 2-3.

**13:** 0502 [8]; **28:** 1044 [10].

**Crataegus monogyna** Jacq. – **K VM** – shrub 1-2.5 m, flowers white, style 1.

**28:** 1045 [7]; **37:** 1285 [8].

**Prunus avium** L. – **K** – tree 4 m.

**42:** 1349 [3]; **43:** 1368 [7].

**Prunus prostrata** Labill. – **DT** – small, erect shrub, flowers pink.

**12:** 0440 [8].

**Rubus incanescens** (DC.) Bertol. – **K**.

**42:** 1355 [7] (sterile); **43:** 1369 [7] (sterile).

**Rubus ulmifolius** Schott – **CB K M NE** – sometimes climbing in trees to at least 5 m, flowers white.

**11d:** 0404 [9] (sterile); **11f:** 0408 [6]; **19:** 0864 [10] (sterile); **25:** 0969 [10]; **34:** 1204 [12] (with *Smilax*, old fruits).

**Rubiaceae**

**Crucianella maritima** L. – **NE** – suffrutex, sterile.

**18:** 0782 [6].

**Galium murale** (L.) All. – **M** – annual.

**19:** 0849 [3].

**Galium verrucosum** Huds. – **CB DT K VM** – annual, flowers white to pale yellow, fruit whitish, verrucose.

**8:** 0310 [12]; **12:** 0482 [12]; **16:** 0583 [16]; **28f:** 1078 [10]; **36:** 1268 [15].

**Rubia peregrina** L. – **CB DT** – straggling perennial, flowers white to greenish white.

**11d:** 0416 [11]; **16:** 0573 [8].

**Sherardia arvensis** L. – **CB DT K M** – annual, flowers pink to reddish violet.

**1:** 0046 [6]; **5:** 0171 [6]; **15:** 0527 [10]; **16:** 0584 [12]; **20:** 0880 [15]; **36:** 1248 [3].

*Valantia muralis* L. – **CB NE** – annual.

7: 0271 [5]; 8: 0308 [15]; 17: 0659 [11]; 17: 0734 [1]; 18d: 0772 [10].

### *Salicaceae*

*Populus alba* L. – **K** – tree 3 m.

36: 1270 [4].

*Salix atrocinerea* Brot. – **K** – shrub or tree to 5 m.

32: 1170 [8] (sterile); 32: 1174 [9]; 39: 1311 [13].

### *Saxifragaceae*

*Saxifraga tridactylites* L. – **NE** – annual, flowers white.

17: 0703 [2].

### *Scrophulariaceae*

*Antirrhinum majus* subsp. *tortuosum* (Lam.) Ball – **DT** – perennial, flowers purple with yellow marks in throat.

16: 0574 [10].

*Cymbalaria muralis* P. Gaertn. & al. – **M**.

22: 0947 [11].

*Linaria cossonii* Bonnet & Barratte – **NE** – biennial?, flowers purple.

25: 0993 [6].

*Linaria doumetii* Bonnet & Barratte – **DT** – annual, flowers white with yellow throat and violet veins.

12: 0485 [5].

*Linaria multicaulis* subsp. *heterophylla* (Desf.) D. A. Sutton – **CB** – annual, flowers yellow.

7: 0268 [6].

*Linaria reflexa* (L.) Desf. – **CB DT K M NE VM** – annual, flowers white or pale blue to bright violet with orange-yellow throat marks .

5: 0165 [5]; 8: 0312 [3]; 11: 0392 [5]; 15: 0531 [5]; 18e: 0761 [8]; 20: 0881 [4]; 28: 1069 [9]; 37: 1286 [8].

*Linaria triphylla* (L.) Mill. – **DT M VM** – annual, flowers pale yellow, lower lip yellow, spur violet.

15: 0530 [2]; 20: 0883 [1]; 28: 1077 [16].

*Misopates orontium* (L.) Raf. – **DT** – annual, flowers pale purplish pink.

16: 0609 [10].

*Odontites squarrosus* (Rchb.) Bolliger – **DT** – semishrub, flowers dark red.

1: 0009 [8].

*Parentucellia latifolia* (L.) Caruel – **DT VM** – annual, corolla limb whitish, tube and sometimes upper lip dark purple.

12: 0459 [6]; 28: 1074 [5].

*Scrophularia canina* L. – **DT** – perennial 1 m, flowers blackish purple with white lower lip.

16: 0554 [10].

*Scrophularia laevigata* Vahl – **NE** – perennial, flowers dirty red.

17e: 0693 [10].

*Scrophularia peregrina* L. – NE – annual, flowers blackish purple.

17: 0692 [7].

*Scrophularia tenuipes* Coss. & Durieu – K – perennial.

4d: 1196 [2] (sterile).

*Verbascum creticum* (L.) Kuntze – DT M VM – biennial, flowers yellow, filament wool and marks on two upper corolla lobes dark purple.

13: 0501 [3]; 20: 0879 [9]; 28: 1084 [3].

*Veronica arvensis* L. – K M NE – annual, flowers blue.

17: 0681 [14]; 19: 0814 [5]; 36: 1231 [10]; 38: 1294 [12].

*Veronica cymbalaria* Bodard – K NE – annual, flowers white, often small.

17: 0657 [8]; 26c: 1013 [12]; 32: 1164 [9]; 34: 1200 [7]; 36: 1247 [14].

*Veronica polita* Fr. – NE – annual.

17: 0657a [2].

### *Solanaceae*

*Datura metel* L. – M – perennial.

21c: 0930 [4] (old fruits).

*Hyoscyamus albus* L. – NE – annual, flowers pale yellow throughout.

17f: 0649 [10].

*Lycium europaeum* L. – CB – shrub, fruit red.

6c: 0239 [10].

### *Tamaricaceae*

*Tamarix africana* Poir. – CB K M NE – shrub or small tree 2-4 m, flowers whitish.

11f: 0399 [11]; 17c: 0701 [11]; 20: 0908 [10]; 32: 1176 [7].

### *Theligonaceae*

*Theligonum cynocrambe* L. – DT K M NE – annual.

16: 0556 [10]; 17: 0726 [5]; 19: 0812 [12]; 34: 1223 [4].

### *Thymelaeaceae*

*Thymelaea argentata* (Lam.) Pau – DT – shrub 0.8 m.

1: 0012 [5].

*Thymelaea hirsuta* (L.) Endl. – CB M – fetid shrub 0.5-1.5 m, flowers pale yellow.

7: 0277 [10]; 10: 0355 [11]; 10: 0356 [13]; 19: 0816 [12].

### *Ulmaceae*

*Ulmus minor* subsp. *canescens* (Melville) Browicz & Ziel. – K – tree 7 m.

32: 1229 [9] (sterile).

### *Umbelliferae*

*Daucus carota* subsp. *fontanesii* Thell. – CB – decumbent perennial, flowers pale pink, central flower dark purple.

10: 0357 [10].

*Ferula communis* L. – NE – perennial, flowers yellow.

17: 0694 [11].

*Helosciadium nodiflorum* (L.) W. D. J. Koch – K – perennial.

4: 1201 [7] (sterile).

*Kundmannia sicula* (L.) DC. – VM – perennial.

28: 1057 [7] (in bud).

*Sanicula europaea* L. – K – perennial, flowers white.

39: 1317 [17].

*Scandix pecten-veneris* L. – CB DT VM – annual, flowers white.

11j: 0395 [5]; 16: 0557 [10]; 28f: 1073 [7].

*Smyrniolum olusatrum* L. – CB VM – perennial, flowers pale greenish yellow.

11h: 0396 [18]; 28: 1082 [10].

*Thapsia garganica* L. – VM – perennial, flowers yellow.

28: 1087 [14].

#### *Urticaceae*

*Parietaria judaica* L. – CB – perennial.

8e: 0331 [2].

*Parietaria lusitanica* L. – DT NE – annual.

16: 0555 [1]; 17: 0689 [18].

*Urtica membranacea* Poir. – CB NE – annual – 6c: 0233 [8]; 7: 0280 [10]; 7: 0282 [12];

8b: 0318 [10]; 25: 0972 [8].

*Urtica pilulifera* L. – DT NE – annual.

5: 0537 [10]; 17: 0661 [8].

*Urtica urens* L. – K – annual.

38: 1309 [11].

#### *Valerianaceae*

*Centranthus calcitrapae* (L.) Dufur. – DT NE – annual, flowers pale pink.

16: 0553 [5]; 25: 0977 [12].

*Centranthus ruber* (L.) DC. – DT – perennial, flowers dark purplish pink.

16: 0563 [7].

*Fedia graciliflora* (L.) Fisch. & C. A. Mey. – CB DT K M NE VM – annual, flowers purplish pink to reddish violet.

5: 0172 [13]; 8: 0300 [16]; 11c: 0378 [10]; 12: 0481 [11]; 16: 0582 [10]; 17: 0654 [7];

17: 0682 [12]; 19: 0828 [11]; 28: 1075 [8]; 31: 1151 [6]; 36: 1249 [4]; 38: 1296 [16].

*Valeriana tuberosa* L. – DT – geophyte, flowers light pink.

12: 0460 [2].

*Valerianella carinata* Lois. – K – annual, flowers whitish.

36: 1244 [12].

*Valerianella discoidea* (L.) Lois. – DT – annual, flowers whitish.

15: 0529 [13].

*Valerianella microcarpa* Loisel. – K NE – annual, flowers pale pink.

17: 0672 [15]; 25: 0979 [12]; 32: 1165 [2].

**Verbenaceae**

*Citharexylum spinosum* L. – **NE** – tree 10 m, planted.

**26bis:** 1016 [9].

*Verbena officinalis* L. – **CB**.

**11e:** 0427 [10] (sterile).

**Violaceae**

*Viola riviniana* Rchb. – **K** – stoloniferous perennial, flowers violet with whitish centre, spur violet.

**34:** 1199 [11]; **39:** 1328 [7]; **42:** 1350 [1]; **43:** 1364 [7].

**MONOCOTYLEDONES****Alismataceae**

*Alisma lanceolatum* With. – **M** – perennial, flowers bluish pink.

**20:** 0877 [8].

**Amaryllidaceae**

*Narcissus tazetta* L. – **CB** – geophyte, flowers white with yellow paracorolla.

**11e:** 0401 [1].

**Araceae**

*Ambrosina bassii* L. – **CB** – geophyte.

**8:** 0297 [2].

*Arisarum vulgare* O. Targ. Tozz. – **DT K VM** – geophyte, spathe whitish green with purplish spots and stripes, spadix yellowish or purplish brown.

**15:** 0528 [1]; **28:** 1029 [8]; **38:** 1298 [2].

*Arum italicum* Mill. – **M VM** – geophyte, spathe pale greenish yellow, spadix yellow.

**20:** 0895 [1]; **21:** 0922 [10]; **28:** 1030 [7].

**Cyperaceae**

*Bolboschoenus maritimus* (L.) Palla – **K** – stoloniferous perennial.

**31:** 1145 [9].

*Carex cuprina* (Heuff.) A. Kern. – **K** – tufted.

**32:** 1178 [15].

*Carex depressa* Link – **K**.

**39:** 1320 [7]; **41:** 1344 [12]; **43b:** 1373 [9].

*Carex distachya* Desf. – **K M** – tufted perennial.

**19:** 0856 [10]; **34:** 1210 [10]; **36:** 1233 [7]; **39:** 1321 [6]; **43:** 1374 [4].

*Carex distans* L. – **K M NE** – tufted perennial.

**32:** 1181 [14].

*Carex divisa* Huds. — stoloniferous perennial.

**18f:** 0792 [10]; **29:** 1101 [4]; **31:** 1144 [8].

*Carex divulsa* Stokes – **K** – perennial.

**37:** 1273 [12].

- Carex flacca* subsp. *serrulata* (Spreng.) Greuter – **CB K M NE** – stoloniferous perennial.  
**5:** 0141 [12]; **10:** 0360 [1]; **18f:** 0791 [17]; **19:** 0855 [10]; **31:** 1146 [10]; **37:** 1278 [14];  
**41:** 1345 [1]; **42:** 1351 [8]; **42:** 1356 [8]; **43:** 1372 [8].
- Carex halleriana* Asso – **CB DT K M** – tufted perennial.  
**1:** 0065 [5]; **5:** 0142 [10]; **19:** 0856a [1]; **34:** 1211 [5]; **39:** 1320a [1].
- Carex pendula* Huds. – **K** – caespitose perennial.  
**32c:** 1172 [6]; **43:** 1371 [4].
- Carex remota* L. – **K M** – tufted perennial.  
**21:** 0942 [4]; **41b:** 1342 [6].
- Carex sylvatica* subsp. *pau* (Sennen) A. Bolòs & O. Bolòs – **K**.  
**39:** 1320b [4]; **41:** 1346 [4]; **43:** 1370 [8].
- Cyperus capitatus* Vand. – **NE** – stoloniferous perennial.  
**18:** 0776 [8]; **26:** 1005 [11].
- Cyperus involucratus* Rottb. – **CB** – perennial, naturalised.  
**11e:** 0402 [10].
- Cyperus longus* subsp. *badius* (Desf.) Asch. & Graebn. – **K** – perennial.  
**32:** 1175 [6].
- Eleocharis palustris* (L.) R. Br. – **K M** – tufted and stoloniferous perennial.  
**20:** 0907 [10]; **31:** 1142 [13]; **32:** 1179 [4].
- Isolepis cernua* (Vahl) Roem. & Schult. – **CB K M** – tufted annual.  
**5:** 0138 [12]; **8:** 0299 [6]; **19:** 0862 [13]; **32:** 1182 [2].
- Schoenus nigricans* L. – **CB** – tufted perennial.  
**5:** 0137 [10]; **6:** 0241 [13]; **10:** 0345 [15].
- Scirpoides holoschoenus* (L.) Soják – **CB NE VM** – tufted perennial, to 1 m.  
**11f:** 0377 [10]; **18f:** 0773 [7]; **28:** 1031 [5].

### *Dioscoreaceae*

- Dioscorea communis* (L.) Caddick & Wilkin – **CB DT M NE** – twining climber, flowers pale green to greenish yellow.  
**5:** 0157 [1]; **12:** 0463 [9] (in bud); **16:** 0621 [7]; **17:** 0751 [1]; **19:** 0841 [8]; **21:** 0923 [1] (sterile).

### *Gramineae*

- Aira caryophyllea* L. – **NE** – annual.  
**25:** 0981 [6].
- Aira cupaniana* Guss. – **M** – annual.  
**20:** 0887 [2]; **21:** 0929 [6].
- Alopecurus bulbosus* subsp. *macrostachyus* (Poir.) Trab. – **K M** – perennial.  
**20:** 0910 [10]; **31:** 1148 [1]; **32:** 1171 [8].
- Amphiphila arenaria* subsp. *arundinacea* H. Lindb. – **CB** – perennial.  
**6:** 0258 [4].
- Ampelodesmus mauritanicus* (Poir.) T. Durand & Schinz – **DT K M VM** – tufted perennial, to 1.5 m.  
**1:** 0059 [2]; **12:** 0443 [7]; **21:** 0928 [9]; **28:** 1038 [9]; **29:** 1091 [10]; **31:** 1141 [10].



*Anthoxanthum gracile* Biv. – **NE** – annual.

17: 0748 [10].

*Anthoxanthum odoratum* L. – **CB** – perennial.

8: 0295 [5].

*Aristida coerulescens* Desf. – **DT**. – tufted perennial.

15: 0524 [1].

*Avena barbata* Link – **CB DT NE** – annual.

6c: 0234 [5]; 7: 0269 [6]; 15: 0513 [5]; 16: 0580 [4]; 17: 0671 [6].

*Brachypodium retusum* (Pers.) P. Beauv. – **CB DT** – straggling perennial.

1: 0061 [10]; 11c: 0380 [5].

*Bromus hordeaceus* L. – **DT NE** – annual.

1: 0063 [5]; 25: 0990 [3]; 27: 1018 [3].

*Bromus madritensis* L. – **DT NE** – annual.

1: 0066 [3]; 15: 0515 [2]; 16: 0567 [1]; 17: 0677 [10]; 25: 0982a [6].

*Bromus rigidus* Roth – **CB NE** – annual.

6d: 0218 [10]; 11: 0365 [2]; 25: 0982 [4].

*Catapodium marinum* (L.) C. E. Hubb. – **CB**.

4: 0133 [3].

*Catapodium rigidum* (L.) C. E. Hubb. – **NE** – annual.

17: 0676 [6].

*Cynodon dactylon* (L.) Pers. – **DT** – prostrate perennial.

15: 0514 [4].

*Dactylis glomerata* subsp. *hispanica* (Roth) Nyman – **DT** – tufted perennial.

16: 0570 [4].

*Echinaria capitata* (L.) Desf. – **CB** – annual, 4 cm.

5: 0169 [2].

*Festuca coerulescens* Desf. – **CB DT K M NE** – tufted perennial.

5: 0207 [2]; 8: 0296 [1]; 12: 0444 [2]; 17: 0685 [4]; 19: 0837 [3]; 20: 0885 [1]; 36: 1239 [7]; 37: 1275 [11].

*Hordeum murinum* subsp. *leporinum* (L.) Arcang. – **CB DT NE** – annual.

1: 0068 [1]; 6c: 0243 [4]; 11: 0366 [6]; 15: 0522 [2]; 17: 0669 [2].

*Hyparrhenia hirta* (L.) Stapf – **CB DT K** – tufted perennial.

1: 0062 [4]; 3: 0096 [2]; 11: 0381 [10]; 31: 1139 [9].

*Lagurus ovatus* L. – **NE** – annual.

25: 0983 [5].

*Lamarckia aurea* (L.) Moench – **K NE** – annual.

17: 0678 [13]; 36: 1252 [4].

*Lolium multiflorum* Lam. – **K** – perennial.

38: 1299 [8].

*Lolium perenne* L. – **NE** – annual (?).

25: 0985 [3].

*Lolium rigidum* Gaudin – **DT NE** – annual.

16: 0568 [3]; 25: 0985a [1].

*Melica magnolii* Gren. & Godr. – **NE** – perennial.

17: 0686 [2].

*Melica minuta* L. – **K M** – stoloniferous perennial.

**20:** 0886 [7]; **31c:** 1140 [3]; **36:** 1241 [3]; **39:** 1319 [14]; **42:** 1348 [2].

*Piptatherum miliaceum* (L.) Coss. – **DT** – tufted perennial.

**16:** 0566 [9].

*Piptatherum thomasi* (Duby) Kunth – **K** – perennial.

**37:** 1276 [6].

*Poa annua* L. – **K M** – annual.

**19:** 0807 [11]; **41:** 1337 [3].

*Poa bulbosa* L. – **CB DT K NE VM** – tufted perennial, to 12 cm.

**5:** 0154 [6]; **12:** 0445 [4]; **17:** 0679 [4]; **28:** 1039 [8]; **36:** 1240 [6].

*Poa infirma* Kunth – **CB** – annual.

**5:** 0175 [13]; **17:** 0670 [9]; **19:** 0808 [5]; **20:** 0888 [11]; **36:** 1253 [5]; **38:** 1301 [11].

*Poa pratensis* L. – **M**.

**24:** 0950 [22].

*Polypogon subspathaceus* Req. – **CB** – annual.

**6e:** 0257 [10].

*Rostraria cristata* (L.) Tzvelev – **NE** – annual.

**17:** 0750 [1].

*Rostraria pubescens* (Lam.) Trin. – **NE** – annual.

**25:** 0991 [2].

*Setaria viridis* (L.) P. Beauv. – **M** – annual.

**23:** 0949 [20].

*Sphenopus divaricatus* (Gouan) Rchb. – **CB**.

**4:** 0132 [2]; **6e:** 0249 [11].

*Stipa capensis* Thunb. – **DT NE** – annual.

**16:** 0571 [5]; **17:** 0687 [9].

*Stipa tenacissima* L. – **CB DT** – tufted perennial.

**1:** 0060 [6]; **10:** 0338 [1].

*Trachynia distachya* (L.) Link – **DT NE** – annual.

**16:** 0569 [10]; **17:** 0684 [2]; **25:** 0984 [5].

*Vulpia ligustica* (All.) Link – **DT NE** – annual.

**15:** 0523 [1]; **16:** 0581 [2]; **25:** 0992 [1].

### *Iridaceae*

*Gladiolus italicus* Mill. – **DT M** – geophyte, flowers purplish pink, three lower tepals with white, dark-bordered median stripe, upper one twice as wide as laterals.

**16:** 0604 [2]; **20:** 0878 [3]; **21:** 0939 [3].

*Iris germanica* L. – **K** – perennial, flowers whitish.

**37:** 1272 [6].

*Moraea sisyrinchium* (L.) Ker Gawl. – **CB NE** – geophyte, flowers violet.

**4:** 0122 [14]; **18d:** 0806 [1].

*Romulea bulbocodium* (L.) Sebast. & Mauri – **CB DT K M NE** – geophyte, flowers pale lavender to purple, whitish outside, throat paler.

**6e:** 0246 [7]; **8:** 0315 [11]; **15:** 0550 [15]; **18e:** 0803 [5] (in fruit); **19:** 0871 [2]; **20:** 0894 [3]; **29:** 1094 [3]; **30:** 1130 [3]; **42:** 1358 [1].

*Romulea ligustica* Parl. – **K** – geophyte, flowers bright lilac.

**37:** 1277 [2].

*Romulea ramiflora* Ten. – **CB K M VM** – geophyte, flowers pale lilac to purplish pink, pale greenish outside.

**8:** 0316 [10]; **21:** 0940 [2]; **28:** 1035 [7]; **31:** 1147 [9].

### *Juncaceae*

*Juncus acutus* L. – **CB K M** – tufted perennial.

**4:** 0125 [11]; **6e:** 0244 [8]; **11f:** 0405 [2]; **19d:** 0867 [10]; **20:** 0896 [10]; **31:** 1143 [5].

*Juncus bufonius* L. – **CB K M** – annual.

**8:** 0322 [3]; **19:** 0861 [5]; **38:** 1297 [10].

*Juncus capitatus* Weigel – **K M** – annual.

**19:** 0860 [12]; **30b:** 1134 [2].

*Juncus conglomeratus* L. – **K** – perennial.

**37:** 1274 [8].

*Juncus effusus* L. – **K** – caespitose, 2 to m.

**41:** 1343 [7].

*Juncus rigidus* Desf. – **CB**.

**4:** 0124 [9].

*Luzula forsteri* (Sm.) DC. – **K** – tufted perennial.

**34:** 1208 [11]; **36:** 1232 [1]; **39:** 1322 [8]; **42:** 1357 [12].

### *Juncaginaceae*

*Triglochin barrelieri* Loisel. – **CB** – geophyte.

**4b:** 0121 [12]; **6e:** 0235 [13]; **10:** 0344 [13].

### *Liliaceae*

*Allium roseum* L. – **CB NE** – geophyte, bulb tuncis pitted, flowers white or pale pinkish with pale purple midvein outside.

**5:** 0213 [1]; **10:** 0359 [2]; **11e:** 0429 [1]; **18:** 0783 [8].

*Allium triquetrum* L. – **M NE VM** – geophyte, tepals white, with green stripe outside, flowers pendulous.

**17:** 0727 [10]; **19:** 0866 [10]; **28:** 1034 [7]; **29:** 1093 [12].

*Asparagus acutifolius* L. – **DT**.

**1:** 0051 [9].

*Asparagus albus* L. – **DT NE** – shrub 1-1.5 m.

**15:** 0517 [12] (sterile); **17:** 0729 [19].

*Asparagus stipularis* Forssk. – **CB**.

**7:** 0276 [11].

*Asphodeline lutea* (L.) Rchb. – **DT** – geophyte, flowers yellow.

**12:** 0461 [4].

*Asphodelus fistulosus* L. – **CB** – annual, tepals pale pink, midvein purple.

**7:** 0274 [10].

*Asphodelus ramosus* L. – **CB DT M VM** – geophyte, flowers white with dirty purplish midvein outside.

**11b:** 0374 [8]; **12:** 0466 [10]; **20:** 0909 [10]; **28:** 1033 [11].

*Bellevalia mauritanica* Pomel – **DT M VM** – geophyte, flowers blue to dirty violet in bud, turning pale to whitish with purplish midvein at anthesis, eventually brownish.

**12:** 0467 [10]; **20:** 0897 [12]; **28:** 1049 [1].

*Colchicum cupanii* Guss. – **DT** –

**1:** 0006 [6] (leaves); **15:** 0518 [12] (in fruit).

*Dipcadi serotinum* (L.) Medik. – **DT** – geophyte, perigon pale brownish purple, inner segments paler.

**15:** 0519 [10].

*Gagea chabertii* A. Terracc. – **K** – geophyte, tepals yellow, outside with green stripe.

**37:** 1288 [2].

*Hyacinthoides kroumiriensis* El Mokni & al. – **K** – geophyte, fruit glabrous. **Type gathering.**

**42:** 1352 [6].

**Note.** – Duplicates of the material collected during the Iter were used by El Mokni & al. (2014) to describe this new species discriminating from *Hyacinthoides aristidis* (Coss.) Rothm.

*Leopoldia comosa* (L.) Parl. – **DT** – geophyte, flowers brownish with yellow tip, buds dirty violet, sterile flowers bluish violet.

**15:** 0521 [7].

*Muscari neglectum* Ten. – **DT** – geophyte, flowers blackish blue with whitish teeth, sterile flowers light blue.

**12:** 0465 [7].

*Ornithogalum algeriense* Jord. & Fourr. – **DT M** – geophyte, tepals white, outside with green stripe, leaves with white median stripe.

**15:** 0520 [5]; **16:** 0578 [14]; **19:** 0869 [4]; **20:** 0913 [3].

*Ornithogalum umbellatum* L. – **VM** – geophyte, tepals white with green stripe outside.

**28:** 1037 [1].

*Ruscus hypophyllum* L. – **CB M NE** – perennial 20 cm, berry red.

**5:** 0156 [2]; **17:** 0742 [5]; **21:** 0917 [3] (sterile).

*Scilla peruviana* L. – **DT M** – geophyte, flowers pale whitish lavender, anthers yellow.

**16:** 0605 [9]; **29:** 1096 [1].

*Simethis mattiazii* (L.) Sacc. – **CB K M NE** – geophyte, flowers white, pale purplish-green to dirty violet outside.

**8:** 0311 [3]; **17:** 0744 [10]; **19:** 0857 [1]; **30:** 1123 [10].

*Smilax aspera* L. – **DT M NE** – woody climber.

**1:** 0036 [8]; **17:** 0741 [10] (sterile); **29:** 1095 [9] (with immature fruits).

*Tulipa sylvestris* subsp. *australis* (Link) Pamp. – **CB DT** – geophyte, flowers yellow tinged reddish outside.

**1:** 0057 [2]; **8:** 0298 [1]; **12:** 0489 [5]; **16:** 0579 [8].

### *Orchidaceae*

*Anacamptis longicornu* (Poir.) Bateman & al. – **DT** – geophyte, flowers white to pink.

**12:** 0468 [7].

*Neotinea maculata* (Desf.) Stearn – **NE** – geophyte, flowers whitish.

**25:** 0966 [1].

*Ophrys bombyliflora* Link – **CB NE VM** – geophyte, perigon green, lip brown-felted.

**5:** 0263 [1]; **9:** 0334 [11]; **18c:** 0797 [6]; **28:** 1032 [1].

*Ophrys fusca* Link – **DT** – geophyte, perigon green, lip brown-felted with very narrow green margin.

**1:** 0075 [1]; **3:** 0092 [1]; **12:** 0470 [1].

*Ophrys lutea* Cav. – **DT NE VM** – geophyte, perigon green, lip brown-felted with wide or narrow yellow border.

**1:** 0016 [6]; **12:** 0469 [3]; **17:** 0754 [1]; **18c:** 0802 [1]; **18c:** 0804 [1]; **28:** 1036 [1]; **28:** 1060 [1].

*Ophrys scolopax* subsp. *apiformis* (Desf.) Maire & Weiller – **CB DT NE** – geophyte, perigon white to pink, outer tepals with green midvein, lip downcurved, strongly ornamented, horns very short.

**5:** 0208 [1]; **10:** 0347 [1]; **12:** 0472 [4]; **17:** 0752 [1].

*Ophrys speculum* Link – **CB DT M NE** – geophyte, perigon green, lip brown with shiny greenish-blue centre.

**1:** 0026 [2]; **5:** 0262 [2]; **12:** 0464 [14]; **17:** 0755 [1]; **18c:** 0790 [10]; **19:** 0846 [1]; **25:** 0964 [16].

*Ophrys subfusca* (Rchb.) Hausskn. – **VM** – geophyte, tepals green, lip intermediate between *Ophrys fusca* and *O. lutea*.

**28:** 1056 [2].

*Ophrys tenthredinifera* Willd. – **DT NE VM** – geophyte, perigon pink, outer tepals with green stripe, lip-felt violet brown, margin yellowish green, gynostemium blunt.

**12:** 0471 [1]; **25:** 0965 [3]; **28:** 1055 [2].

### *Palmae*

*Chamaerops humilis* L. – **CB:** 1 m.

**6b:** 0228 [11].

*Phoenix dactylifera* L. – **CB** – subsontaneous tree, trunk 2 m.

**11f:** 0376 [10].

### *Posidoniaceae*

*Posidonia oceanica* (L.) Delile – **K** – perennial.

**31d:** 1154 [13].

### *Typhaceae*

*Typha domingensis* Pers. – **K** – perennial..

**32b:** 1185 [5].

## Results and discussion

A total of 1374 numbers were collected during the Iter Mediterraneum in Tunisia. These numbers correspond to: 1 alga, 6 gymnosperms belonging to 3 families, 14 pteridophytes belonging to 3 families, and 558 angiosperms: 440 dicotyledons belonging to 60 families and 118 monocotyledons belonging to 12 families. Disregarding planted trees and orna-

mentals, three taxa are new records for Tunisia: *Cerastium diffusum* subsp. *gussonei* (**K**), *Senecio leucanthemifolius* subsp. *mauritanicus* (**CB**, **DT**), and *Ulmus minor* subsp. *canescens* (**K**). All were known from the neighboring countries of North Africa.

New records to single phytogeographical regions are: **Kroumirie (K)**: *Carex sylvatica* subsp. *pau*, *Cyperus longus* subsp. *badius*, *Gagea chabertii*, *Myoporum tenuifolium*, *Ranunculus trichophyllus*, *Romulea ligustica* and *R. ramiflora*. – **Mogods (M)**: *Carex distans*, *Carex flacca* subsp. *serrulata*, *Carex remota*, *Clematis cirrhosa*, *Clematis flammula*, *Cymbalaria muralis*, *Fumaria bicolor*, *Genista aspalathoides*, *Myosotis discolor*, *Orobanche variegata*, *Ruscus hypophyllum*, *Silene tunetana*, *Stachys marrubiiifolia*, *Thymelaea hirsuta*, *Viburnum tinus*. – **Dorsale Tunisienne (DT)**: *Astragalus longicaulis*, *Orobanche variegata*; **Tunisie du Nord-Est (NE)**: *Fumaria bicolor*, *Scrophularia laevigata*, *Valerianella microcarpa*; **Cap Bon (CB)**: *Carduus getulus*, *Cistus creticus* subsp. *eriocephalus*, *Cynoglossum cheirifolium* subsp. *heterocarpum*, *Fumaria bicolor*, *Helichrysum stoechas* subsp. *barrelieri*, *Laphangium luteoalbum*, *Medicago soleirolii*, *Spergularia maritima* subsp. *tunetana*.

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P. Campisi, M. G. Dia, G. Domina & F. M. Raimondo

## **Bryophytes collected during the 12th “Iter Mediterraneum” (Tunisia, 24 March – 4 April, 2014). First contribution**

### **Abstract**

Campisi, P., Dia, M. G., Domina, G. & Raimondo, F. M.: Bryophytes collected during the 12<sup>o</sup> “Iter Mediterraneum” (Tunisia, 24 March – 4 April 2014). First contribution. — *Bocconeae* 27(1): 63-68. 2015. — ISSN: 1120-4060 printed, 2280-3882 online.

Part of the bryophytes collected during Iter Mediterraneum XII is listed. Some noteworthy species were found: *Dicranella howei*, had so far been recorded only doubtfully from Tunisia; *Funaria hygrometrica*, *Grimmia laevigata*, *Grimmia trichophylla*, *Imbricobryum alpinum*, *Pogonatum nanum*, *Rhynchostegium riparioides*, *Scleropodium touretii*, *Scorpiurium circinatum*, *Thamnobryum alopecurum*, *Timmia barbuloidea*, *Tortella squarrosa*, *Tortula muralis* and *Tortula vahliana*, had not been reported from that country for more than half a century.

*Key words*: Flora of Tunisia, Bryophytes, Itinera Mediterranea, OPTIMA.

### **Introduction**

During the 12th Iter Mediterraneum of OPTIMA, held in Tunisia from 24 March to 4 April 2014, bryophyte specimens were collected by G. Domina and F. M. Raimondo. The material, 428 specimens in total, is deposited in the *Herbarium Mediterraneum Panormitanum* (PAL).

In this contribution a preliminary list is presented, limited to the so far identified species. Nomenclature and statement of presence in Tunisia follow Ros & al. (2007) for the liverworts and Ros & al. (2013) for the mosses.

### **Results**

55 taxa (1 hornwort, 11 liverworts, 44 mosses) belonging to 30 genera of 26 families have been identified. The presence of *Dicranella howei*, a species reported from Tunisia but doubtfully, is confirmed. Moreover, 14 taxa that had not been recorded from Tunisia for at least half a century have been found again. They are marked with an asterisk (\*) in the following list. Figures in **bold** refer to the numbered col-

lecting localities detailed in Greuter & Domina (2015: 23-25, Table 1). To make the paper self-contained, locality data are nevertheless repeated here.

#### ANTHOCEROTOPHYTINA (hornworts)

*Phymatoceros bulbiculosus* (Brot.) Stotler & al. – **18**: Gouv. Bizerte, coast c. 6.5 km NNW Bizerte, near the Roman grottos, 0-60 m a.s.l., 37°19'59"N, 9°50'43"E, 29/3/2014, *Raimondo 1*.

#### MARCHANTIOPHYTINA (liverworts)

*Calypogeia fissa* (L.) Raddi – **40**: Gouv. Jendouba, NE of Aïn Draham, 730 m a.s.l., 36°47'23"N, 8°41'22"E, 3/4/2014, *Raimondo 2*.

*Cephaloziella turneri* (Hook.) Müll. Frib. – **40**: Gouv. Jendouba, NE of Aïn Draham, 730 m a.s.l., 36°47'23"N, 8°41'22"E, 3/4/2014, *Raimondo 3*.

*Conocephalum conicum* (L.) Dumort. – **39**: Gouv. Jendouba, 4.5 km S of Aïn Draham, roadside, 680-700 m a.s.l., 36°44'20"N, 8°40'57"E, 3/4/2014, *Raimondo 4*.

*Frullania dilatata* (L.) Dumort. – **40**: Gouv. Jendouba, NE of Aïn Draham, 730 m a.s.l., 36°47'23"N, 8°41'22"E, 3/4/2014, *Raimondo 5*; **41**: Gouv. Jendouba, 2.8 km S of Aïn Draham, c. 1 km NE of the sport training centre, 660-670 m a.s.l., 36°45'16"N, 8°49'17"E, 4/4/2014, *Raimondo 6*.

*Jungermannia gracillima* Sm. – **41**: Gouv. Jendouba, 2.8 km S of Aïn Draham, c. 1 km NE of the sport training centre, 660-670 m a.s.l., 36°45'16"N, 8°49'17"E, 4/4/2014, *Raimondo 7*.

*Lunularia cruciata* (L.) Lindb. – **40**: Gouv. Jendouba, NE of Aïn Draham, 730 m a.s.l., 36°47'23"N, 8°41'22"E, 3/4/2014, *Raimondo 8*.

*Porella platyphylla* (L.) Pfeiff. – **40**: Gouv. Jendouba, NE of Aïn Draham, 730 m a.s.l., 36°47'23"N, 8°41'22"E, 3/4/2014, *Raimondo 9*.

*Reboulia hemisphaerica* (L.) Raddi – **40**: Gouv. Jendouba, NE of Aïn Draham, 730 m a.s.l., 36°47'23"N, 8°41'22"E, 3/4/2014, *Raimondo 10*.

*Riccia gougetiana* Durieu & Mont. var. *gougetiana* – **5**: Gouv. Nabeul, Massif of Jebel Sidi Abderrahmane, c. 9 km NW Al Middah, NW of small village, 200-280 m a.s.l., 36°46'45"N, 10°45'31"E, 25.3.2014, *Domina 11*.

*Targionia hypophylla* L. – **37**: Gouv. Jendouba, El Feidja National Park, track to a small forest house ENE of the Park Centre, 850-865 m a.s.l., 36°30'25"N, 8°19'47"E, 3/4/2014, *Raimondo 12*.

#### BRYOPHYTINA (mosses)

*Barbula unguiculata* Hedw. – **10**: Gouv. Nabeul, c. 1.6 km NW of El Haouaria, coast near the Phoenician-Roman caves, 5-70 m a.s.l., 37°3'28"N, 10°59'46"E, 26/3/2014, *Domina 13*.

*Bryum dichotomum* Hedw. – **5**: Gouv. Nabeul, Massif of Jebel Sidi Abderrahmane, c. 9 km NW Al Middah, NW of small village, 200-280 m a.s.l., 36°46'45"N, 10°45'31"E, 25.3.2014, *Domina 14*.

*Dicranella heteromalla* (Hedw.) Schimp. – **24**: Gouv. Bizerte, city of Bizerta, promenade by the beach hotels, 10 m a.s.l., 37°16'51"N, 9°52'38"E, 31/3/2014, *Raimondo 15*.

- \**Dicranella howei* Renaud & Cardot – **10**: Gouv. Nabeul, c. 1.6 km NW of El Haouaria, coast near the Phoenician-Roman caves, 5-70 m a.s.l., 37°3'28"N, 10°59'46"E, 26/3/2014, *Domina 16*; **21**: Gouv. Bizerte, Cap Serrat, E slope and around houses on the beach, 0-50 m a.s.l., 37°13'13"N, 9°13'24"E, 30/3/2014, *Raimondo 17*.
- Didymodon insulanus* (De Not.) M. O. Hill – **40**: Gouv. Jendouba, NE of Aïn Draham, 730 m a.s.l., 36°47'23"N, 8°41'22"E, 3/4/2014, *Raimondo 18*.
- Didymodon luridus* Hornsch. – **10**: Gouv. Nabeul, c. 1.6 km NW of El Haouaria, coast near the Phoenician-Roman caves, 5-70 m a.s.l., 37°3'28"N, 10°59'46"E, 25.3.2014, *Domina 19*; **17**: Gouv. Bizerte, Jebel Ichkeul, S of Lake Ichkeul, c. 8 km W of Menzel Bourgiba, peninsula N and hill W of the mineral well, 0-100 m a.s.l., 37°8'20"N, 9°41'32"E, 29/3/2014, *Raimondo 20*.
- Encalypta vulgaris* Hedw. – **12**: Gouv. Zaghuan, Massif of Jebel Zaghuan, road to Jebel Zaghuan from the NW side, 500-630 m a.s.l., 36°21'53"N, 10°5'25"E, 27/3/2014, *Domina 21*.
- Fissidens bryoides* Hedw. var. *bryoides* – **21**: Gouv. Bizerte, Cap Serrat, E slope and around houses on the beach, 0-50 m a.s.l., 37°13'13"N, 9°13'24"E, 30/3/2014, *Raimondo 22*.
- Fissidens serrulatus* Brid. – **40**: Gouv. Jendouba, NE of Aïn Draham, 730 m a.s.l., 36°47'23"N, 8°41'22"E, 3/4/2014, *Raimondo 23*.
- Fissidens taxifolius* Hedw. subsp. *taxifolius* – **40**: Gouv. Jendouba, NE of Aïn Draham, 730 m a.s.l., 36°47'23"N, 8°41'22"E, 3/4/2014, *Raimondo 24*.
- \**Funaria hygrometrica* Hedw. – **37**: Gouv. Jendouba, El Feidja National Park, track to a small forest house ENE of the Park Centre, 850-865 m a.s.l., 36°30'25"N, 8°19'47"E, 3/4/2014, *Raimondo 25*; **21**: Gouv. Bizerte, Cap Serrat, E slope and around houses on the beach, 0-50 m a.s.l., 37°13'13"N, 9°13'24"E, 30/3/2014, *Raimondo 26*.
- \**Grimmia laevigata* (Brid.) Brid. – **36**: Gouv. Jendouba, El Feidja National Park, between the Park Centre and the watch tower, on rocks, 710-770 m a.s.l., 36°29'34"N, 8°18'19"E, 3/4/2014, *Raimondo 27*.
- Grimmia lisae* De Not. – **40**: Gouv. Jendouba, NE of Aïn Draham, 730 m a.s.l., 36°47'23"N, 8°41'22"E, 3/4/2014, *Raimondo 28*.
- Grimmia pulvinata* (Hedw.) Sm – **16**: Gouv. Ben Arous, Jebel Ressay, c. 3.5 km SW of Dawwar at Talib 'Ali, 80-200 m a.s.l., 36°36'24"N, 10°19'20"E, 28/3/2014, *Domina 29*.
- \**Grimmia trichophylla* Grev. – **21**: Gouv. Bizerte, Cap Serrat, E slope and around houses on the beach, 0-50 m a.s.l., 37°13'13"N, 9°13'24"E, 30/3/2014, *Raimondo 30*.
- Homalothecium sericeum* (Hedw.) Schimp. – **40**: Gouv. Jendouba, NE of Aïn Draham, 730 m a.s.l., 36°47'23"N, 8°41'22"E, 3/4/2014, *Raimondo 31*; **12**: Gouv. Zaghuan, Massif of Jebel Zaghuan, road to Jebel Zaghuan from the NW side, 500-630 m a.s.l., 37°8'20"N, 9°41'32"E, 27/3/2014, *Domina 32*.
- Hypnum cupressiforme* Hedw. var. *cupressiforme* – **40**: Gouv. Jendouba, NE of Aïn Draham, 730 m a.s.l., 36°47'23"N, 8°41'22"E, 3/4/2014, *Raimondo 33*; **41**: Gouv. Jendouba, 2.8 km S of Aïn Draham, c. 1 km NE of the sport training centre, 660-670 m a.s.l., 36°45'16"N, 8°49'17"E, 4/4/2014, *Raimondo 34*; **21**: Gouv. Bizerte, Cap Serrat, E slope and around houses on the beach, 0-50 m a.s.l., 37°13'13"N, 9°13'24"E, 30/3/2014, *Raimondo 35*.

- \*Imbribryum alpinum* (Huds. ex With.) N. Pedersen – **41**: Gouv. Jendouba, 2.8 km S of Aïn Draham, c. 1 km NE of the sport training centre, 660-670 m a.s.l., 36°45'16"N, 8°49'17"E, 4/4/2014, *Raimondo* 36.
- Kindbergia praelonga* (Hedw.) Ochyra – **40**: Gouv. Jendouba, NE of Aïn Draham, 730 m a.s.l., 36°47'23"N, 8°41'22"E, 3/4/2014, *Raimondo* 37; **37**: Gouv. Jendouba, El Feidja National Park, track to a small forest house ENE of the Park Centre, 850-865 m a.s.l., 36°30'25"N, 8°19'47"E, 3/4/2014, *Raimondo* 38.
- Leptodon smithii* (Hedw.) F. Weber & D. Mohr – **40**: Gouv. Jendouba, NE of Aïn Draham, 730 m a.s.l., 36°47'23"N, 8°41'22"E, 3/4/2014, *Raimondo* 39; **34**: Gouv. Jendouba, 1 km N of Aïn Draham, 770-780 m a.s.l., 36°47'24"N, 8°41'3"E, 2/4/2014, *Raimondo* 40; **25**: Gouv. Bizerte, c. 5 km SW of Bizerta, N Habib Arifa, along the road in parallel to the highway, 20-25 m a.s.l., 37°14'53"N, 9°55'3"E, 31/3/2014, *Raimondo* 41.
- Leucodon sciuroides* (Hedw.) Schwägr. – **40**: Gouv. Jendouba, NE of Aïn Draham, 730 m a.s.l., 36°47'23"N, 8°41'22"E, 3/4/2014, *Raimondo* 42; **37**: Gouv. Jendouba, El Feidja National Park, track to a small forest house ENE of the Park Centre, 850-865 m a.s.l., 36°30'25"N, 8°19'47"E, 03/4/2014, *Raimondo* 43; **34**: Gouv. Jendouba, 1 km N of Aïn Draham, 770-780 m a.s.l., 36°47'24"N, 8°41'3"E, 2/4/2014, *Raimondo* 44.
- Nogopterium gracile* (Hedw.) Crosby & W. R. Buck – **40**: Gouv. Jendouba, NE of Aïn Draham, 730 m a.s.l., 36°47'23"N, 8°41'22"E, 3/4/2014, *Raimondo* 45; **25**: Gouv. Bizerte, c. 5 km SW of Bizerta, N Habib Arifa, along the road in parallel to the highway, 20-25 m a.s.l., 37°14'53"N, 9°55'3"E, 31/3/2014, *Raimondo* 46.
- Orthotrichum affine* Schrad. ex Brid. – **34**: Gouv. Jendouba, 1 km N of Aïn Draham, 770-780 m a.s.l., 36°47'24"N, 8°41'3"E, 2/4/2014, *Raimondo* 47.
- Orthotrichum diaphanum* Schrad. ex Brid. – **40**: Gouv. Jendouba, NE of Aïn Draham, 730 m a.s.l., 36°47'23"N, 8°41'22"E, 3/4/2014, *Raimondo* 48; **25**: Gouv. Bizerte, c. 5 km SW of Bizerta, N Habib Arifa, along the road in parallel to the highway, 20-25 m a.s.l., 37°14'53"N, 9°55'3"E, 31/3/2014, *Raimondo* 49.
- Orthotrichum rupestre* Schleich. ex Schwägr. – **40**: Gouv. Jendouba, NE of Aïn Draham, 730 m a.s.l., 36°47'23"N, 8°41'22"E, 3/4/2014, *Raimondo* 50; **36**: Gouv. Jendouba, El Feidja National Park, between the Park Centre and the watch tower, on rocks, 710-770 m a.s.l., 36°29'34"N, 8°18'19"E, 3/4/2014, *Raimondo* 51.
- \*Pogonatum nanum* (Hedw.) P. Beauv. – **41**: Gouv. Jendouba, 2.8 km S of Aïn Draham, c. 1 km NE of the sport training centre, 660-670 m a.s.l., 36°45'16"N, 8°49'17"E, 4/4/2014, *Raimondo* 52; **21**: Gouv. Bizerte, Cap Serrat, E slope and around houses on the beach, 0-50 m a.s.l., 37°13'13"N, 9°13'24"E, 30/3/2014, *Raimondo* 53.
- Ptychostomum capillare* (Hedw.) Holyoak & N. Pedersen – **40**: Gouv. Jendouba, NE of Aïn Draham, 730 m a.s.l., 36°47'23"N, 8°41'22"E, 3/4/2014, *Raimondo* 54; **24**: Gouv. Bizerte, city of Bizerta, promenade by the beach hotels, 10 m a.s.l., 37°16'51"N, 9°52'38"E, 31/3/2014, *Raimondo* 55; **25**: Gouv. Bizerte, c. 5 km SW of Bizerta, N Habib Arifa, along the road in parallel to the highway, 20-25 m a.s.l., 37°14'53"N, 9°55'3"E, 31/3/2014, *Raimondo* 56; **21**: Gouv. Bizerte, Cap Serrat, E slope and around houses on the beach, 0-50 m a.s.l., 37°13'13"N, 9°13'24"E, 30/3/2014, *Raimondo* 57.
- Ptychostomum torquescens* (Bruch & Schimp.) Ros & Mazimpaka – **1**: Gouv. Ben Arous, Massif of Bou Kornine, c. 3-4 km SSE of Hammam-Lif, 120-300 m a.s.l., 36°42'15"N, 10°20'31"E, 24.3.2014, *Domina* 58.

- \**Rhynchostegium riparioides* (Hedw.) Cardot – **40**: Gouv. Jendouba, NE of Aïn Draham, 730 m a.s.l., 36°47'23"N, 8°41'22"E, 3/4/2014, *Raimondo* 59.
- \**Scleropodium touretii* (Brid.) L. F. Koch – **40**: Gouv. Jendouba, NE of Aïn Draham, 730 m a.s.l., 36°47'23"N, 8°41'22"E, 3/4/2014, *Raimondo* 60; **16**: Gouv. Ben Arous, Jebel Ressay, c. 3.5 km SW of Dawwar at Talib 'Ali, 80-200 m a.s.l., 36°36'24"N, 10°19'20"E, 28/3/2014, *Domina* 61.
- \**Scorpiurium circinatum* (Bruch) M. Fleisch. & Loeske – **24**: Gouv. Bizerte, city of Bizerta, promenade by the beach hotels, 10 m a.s.l., 37°16'51"N, 9°52'38"E, 31/3/2014, *Raimondo* 62; **1**: Gouv. Ben Arous, Massif of Bou Kornine, c. 3-4 km SSE of Hammam-Lif, 120-300 a. s. l., 36°42'15"N, 10°20'31"E, 24.3.2014, *Domina* 63.
- Sphagnum auriculatum* Schimp – **41**: Gouv. Jendouba, 2.8 km S of Aïn Draham, c. 1 km NE of the sport training centre, 660-670 m a.s.l., 36°45'16"N, 8°49'17"E, 3/4/2014, *Raimondo* 64.
- Syntrichia laevipila* Brid. – **40**: Gouv. Jendouba, NE of Aïn Draham, 730 m a.s.l., 36°47'23"N, 8°41'22"E, 3/4/2014, *Raimondo* 65; **34**: Gouv. Jendouba, 1 km N of Aïn Draham, 770-780 m a.s.l., 36°47'24"N, 8°41'3"E, 2/4/2014, *Raimondo* 66.
- \**Thamnobryum alopecurum* (Hedw.) Nieuwl. ex Gangulee var. *alopecurum* – **37**: Gouv. Jendouba, El Feidja National Park, track to a small forest house ENE of the Park Centre, 850-865 m a.s.l., 36°30'25"N, 8°19'47"E, 3/4/2014, *Raimondo* 67.
- \**Timmiella barbulooides* (Brid.) Mönk. – **17**: Gouv. Bizerte, Jebel Ichkeul, S of Lake Ichkeul, c. 8 km W of Menzel Bourgiba, peninsula N and hill W of the mineral well, 0-100 m a.s.l., 37°8'20"N, 9°41'32"E, 29/3/2014, *Raimondo* 68.
- Tortella flavovirens* (Bruch) Broth. var. *flavovirens* – **1**: Gouv. Ben Arous, Massif of Bou Kornine, c. 3-4 km SSE of Hammam-Lif, 120-300 m a.s.l., 36°42'15"N, 10°20'31"E, 24.3.2014, *Domina* 69.
- Tortella nitida* (Lindb.) Broth. – **10**: Gouv. Nabeul, c. 1.6 km NW of El Haouaria, coast near the Phoenician-Roman caves, 5-70 m a.s.l., 37°3'28"N, 10°59'46"E, 25.3.2014, *Domina* 70.
- \**Tortella squarrosa* (Brid.) Limpr. – **1**: Gouv. Ben Arous, Massif of Bou Kornine, c. 3-4 km SSE of Hammam-Lif, 120-300 m a.s.l., 36°42'15"N, 10°20'31"E, 24.3.2014, *Domina* 71.
- Tortula subulata* Hedw. – **40**: Gouv. Jendouba, NE of Aïn Draham, 730 m a.s.l., 36°47'23"N, 8°41'22"E, 3/4/2014, *Raimondo* 72.
- \**Tortula muralis* Hedw. – **1**: Gouv. Ben Arous, Massif of Bou Kornine, c. 3-4 km SSE of Hammam-Lif, 120-300 m a.s.l., 36°42'15"N, 10°20'31"E, 24.3.2014, *Domina* 73.
- \**Tortula vahaliana* (Schultz.) Mont. – **21**: Gouv. Bizerte, Cap Serrat, E slope and around houses on the beach, 0-50 m a.s.l., 37°13'13"N, 9°13'24"E, 30/3/2014, *Raimondo* 74.
- Trichostomum brachydontium* Bruch – **40**: Gouv. Jendouba, NE of Aïn Draham, 730 m a.s.l., 36°47'23"N, 8°41'22"E, 3/4/2014, *Raimondo* 75; **24**: Gouv. Bizerte, city of Bizerta, promenade by the beach hotels, 10 m a.s.l., 37°16'51"N, 9°52'38"E, 31/3/2014, *Raimondo* 76; **17**: Gouv. Bizerte, Jebel Ichkeul, S of Lake Ichkeul, c. 8 km W of Menzel Bourgiba, peninsula N and hill W of the mineral well, 0-100 m a.s.l., 37°8'20"N, 9°41'32"E, 29/3/2014, *Raimondo* 77; **1**: Gouv. Ben Arous, Massif of Bou Kornine, c. 3-4 km SSE of Hammam-Lif, 120-300 a.s.l., 36°42'15"N, 10°20'31"E, 24.3.2014, *Domina* 78.

- Weissia condensa* (Voit) Lindb. var. *condensa* – **5**: Gouv. Nabeul, Massif of Jebel Sidi Abderrahmane, c. 9 km NW Al Middah, NW of small village, 200-280 m a.s.l., 36°46'45"N, 10°45'31"E, 25.3.2014, *Domina* 79; **16**: Gouv. Ben Arous, Jebel Rensas, c. 3.5 km SW of Dawwar at Talib 'Ali, 80-200 m a.s.l., 36°36'24"N, 10°19'20"E, 28/3/2014, *Domina* 80.
- Zygodon rupestris* Schimp. ex Lorentz – **40**: Gouv. Jendouba, NE of Aïn Draham, 730 m a.s.l., 36°47'23"N, 8°41'22"E, 3/4/2014, *Raimondo* 81; **34**: Gouv. Jendouba, 1 km N of Aïn Draham, 770-780 m a.s.l., 36°47'24"N, 8°41'3"E, 2/4/2014, *Raimondo* 82.

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A. Guttová, J. Vondrák, M. Schultz & R. El Mokni

## Lichens collected during the 12th “Iter Mediterraneum” in Tunisia, 24 March – 4 April 2014

### Abstract

Guttová, A., Vondrák, J., Schultz, M. & El Mokni, R: Lichens collected during the 12 “Iter Mediterraneum” in Tunisia, 24 March – 4 April, 2014. — *Bocconea* 27: 69-76. 2015. — ISSN: 1120-4060 printed, 2280-3882 online.

A preliminary list of the so far identified lichens collected during the 12th OPTIMA Iter to Tunisia in 2014 is presented. Altogether 37 collecting sites in the northern part of the country were visited. The lichen collection comprises  $\leq 300$  capsules kept in SAV, of which duplicates are being prepared for the Palermo Herbarium (PAL). Ecological and distributional data are provided for 46 taxa, 23 of which had not been included in the published checklist of lichens of Tunisia (e. g. *Anema nummularium*, *Athallia skii*, *Caloplaca pollinii*, *Heppia adglutinata*, *Scytinium palmatum*, *Leprocaulon microscopicum*, *Solenopsora grisea*, and *S. olivacea* subsp. *olivacea*). In an additional list, samples recently collected in the southern and eastern Mediterranean region are mentioned, which include elements characteristic of the habitats of N African mountains (e.g. the Atlas ranges) and Israel (e.g. *Gloeoheppia turgida*, *Lichinella algerica*, and *Peccania fontqueriana*).

*Key words*: biodiversity, lichenized fungi, North Africa.

### Introduction

Tunisia is situated at the junction of the two basins that make up the Mediterranean – the Mashreq (in Arab: East) and the Maghreb (in Arab: West) and contains many interesting habitats awaiting to be explored from a lichenological point of view (Seaward 1996). The mountain ranges in the north and east are part of the Tell Atlas and Saharan Atlas. The arid high steppes are drained by oueds (wadis), and the semi-arid low steppes end at a flat coastal strip. The bioclimatic zones cover a south-north gradient, from the hyper-arid Saharan area to the humid Mediterranean mountains. Forests and matorral cover 5 % of the land and include oak woods (*Quercus canariensis*, *Q. ilex*, *Q. suber*, *Q. coccifera*) and stands of, e.g., *Olea europaea*, *Pistacia lentiscus*, *Pinus halepensis*, and *Tetraclinis articulata*. Approximately 20 % of the country are covered by steppes dominated among others by *Stipa tenacissima*, *Artemisia herba-alba*, and *Rhanterium sua-veolens* (Ghrabi Gammar 2011).

Seaward (1996) presented a comprehensive overview of Tunisia’s lichen diversity, based on a detailed literature survey, the revision of herbarium material, and his own collections. In the same paper he summarised the history of the country’s lichenological investigation, providing lists of collectors, herbaria, exsiccate, and unpublished reports. The checklist comprises 395 species and additional infraspecific taxa (3 subspecies, 13 varieties, and 4 formae).

The present paper is a contribution to the knowledge of lichen diversity of Tunisia. It includes ecological and distributional data linked to the species so far identified from among the lichen material collected during the 12th OPTIMA Iter to Tunisia in 2014. Examples of taxa with larger, macroscopic thalli are members of *Cladonia*, *Collema*, *Degelia*, *Diploschistes*, *Fulgensia*, *Gyalecta*, *Chrysothrix*, *Nephroma*, *Opegrapha*, *Peltigera*, *Physcia*, *Psora*, *Ramalina*, *Roccella*, *Toninia*, *Umbilicaria*, *Xanthoparmelia*, and *Xanthoria*. In addition, microlichens were also collected (e.g.: *Agonimia*, *Catillaria*, *Gyalecta*, *Lecania*, and *Lecanora*); their identification is in progress, with the objective to prepare a comprehensive paper.

## Material and Methods

During the 12th OPTIMA Iter 2014, we (AG, REM) sampled 37 localities, all in the northern part of Tunisia (Table 1). They cover a wide range of habitats on limestone and siliceous bedrock – saline shores, coastal sand dunes, phrygana and macchia with rocky outcrops, *Tetraclinis articulata* groves, *Quercus* woodlands, from sea level up to an elevation of ca. 880 m a.s.l. We collected lichens from different types of substrate present at these sites: tree bark, decayed wood, soil, bones, rocks. In total, our lichen collection comprises  $\leq 300$  capsules, to be kept in SAV, of which duplicates are being prepared for the Palermo herbarium (PAL). Where indicated, further duplicates are deposited in HBG and in the herb. J. Vondrák. Identification of the material is based on standard light microscopy, molecular markers were also studied in selected samples. The nomenclature, in

Table 1. List of collecting sites (coordinates in degrees, decimal minutes).

No	area	locality	latitude	longitude	altitude	date
1	Cap Bon	Bou Kornine Mt.	36° 42.352'	10° 20.672'	119 m	24/3/2014
2	Cap Bon	Bou Kornine Mt.	36° 42.223'	10° 20.591'	176 m	24/3/2014
3	Cap Bon	Bou Kornine Mt.	36° 42.189'	10° 20.510'	227 m	24/3/2014
4	Cap Bon	Bou Kornine Mt.	36° 43.525'	10° 19.545'	70 m	24/3/2014
5	Cap Bon	Soliman	36° 42.315'	10° 27.378'	11 m	24/3/2014
6	Cap Bon	Massif de Djebel Sidi Abderrahmane	36° 46.661'	10° 45.608'	202 m	25/3/2014
7	Cap Bon	Massif de Djebel Sidi Abderrahmane	36° 47.002'	10° 45.688'	193 m	25/3/2014
8	Cap Bon	Chot Ezzorhou	36° 40.811'	10° 56.237'	10 m	25/3/2014
9	Cap Bon	coastline between Elentoba and Korba	36° 37.129'	10° 53.377'	4 m	25/3/2014
10	Cap Bon	Djebel Haouaria Mt.	37° 04.282'	11° 02.456'	367 m	26/3/2014
11	Cap Bon	Les Grottes	37° 03.451'	10° 59.694'	18 m	26/3/2014



Table 1. continued.

12	Cap Bon	coastline between Kalibia and Sidi Jamel Eddine	36° 48.100'	11° 01.722'	12 m	26/3/2014
13	Cap Bon	ZaghouanMt.	36° 21.883'	10° 05.281'	593 m	27/3/2014
14	Cap Bon	ZaghouanMt.	36° 22.047'	10° 05.390'	618 m	27/3/2014
15	Cap Bon	ZaghouanMt.	36° 21.852'	10° 05.215'	590 m	27/3/2014
16	Cap Bon	Oued Enzit	36° 27.135'	10° 18.233'	190 m	27/3/2014
17	Cap Bon	Djebel Ressayas	36° 35.847'	10° 19.359'	243 m	28/3/2014
18	Les Mogods	Djebel Ichkeul	37° 08.277'	9° 41.511'	55 m	29/3/2014
19	Les Mogods	Djebel Ichkeul	37° 08.230'	9° 41.454'	82 m	29/3/2014
20	Les Mogods	Djebel Ichkeul	37° 07.929'	9° 41.336'	7 m	29/3/2014
21	Les Mogods	Corniche - La Grotte	37° 19.956'	9° 50.593'	27 m	29/3/2014
22	Les Mogods	along the road between Teskrine (Teskraia) and Sejeune, near Fejet Errich	37° 13.550'	9° 29.602'	205 m	30/3/2014
23	Les Mogods	along the road between Teskrine (Teskraia) and Sejeune, near Fejet Errich	37° 13.547'	9° 29.690'	235 m	30/3/2014
24	Les Mogods	Cap Serrat	37° 13.213'	9° 13.374'	15 m	30/3/2014
25	Les Mogods	Cap Serrat	37° 13.362'	9° 13.438'	37 m	30/3/2014
26	Les Mogods	Bizerte	37° 14.941'	9° 54.946'	18 m	31/3/2014
27	Les Mogods	Bizerte	37° 15.245'	9° 55.561'	10 m	31/3/2014
28	Les Mogods	along the road P7 between Sejenane and Oued Zitoun	37° 00.960'	9° 19.617'	402 m	1/4/2014
29	Kroumirie	Tabarka	36° 56.757'	8° 42.445'	194 m	2/4/2014
30	Kroumirie	Tabarka	36° 57.977'	8° 52.592'	38 m	2/4/2014
31	Kroumirie	Ein Draham	36° 47.390'	8° 41.001'	775 m	2/4/2014
32	Kroumirie	Massif de Feidja	36° 29.313'	8° 18.333'	771 m	3/4/2014
33	Kroumirie	Natural Park el Feidja, Ain Soltane	36° 30.330'	8° 20.194'	820 m	3/4/2014
34	Kroumirie	Natural Park el Feidja, Ain Soltane	36° 31.432'	8° 19.681'	876 m	3/4/2014
35	Kroumirie	Ein Draham	36° 44.363'	8° 40.988'	688 m	3/4/2014
36	Kroumirie	Ein Draham	36° 45.255'	8° 41.266'	661 m	4/4/2014
37	Kroumirie	Ein Draham	36° 43.755'	8° 42.314'	562 m	4/4/2014

*Teloschistaceae*, follows Arup & al. (2013), and in *Collemataceae*, Otálora & al. (2014). Species marked by an asterisk (\*) were not reported by Seaward (1996) in his checklist of Tunisian lichens. Figures in **bold** refer to the collecting locality as numbered in Table 1. Collecting numbers (in italics) indicate the sequential numbering of lichens collected by Guttová & El Mokni during the 12th OPTIMA Iter.

## Results

This preliminary list of identified samples comprises 23 taxa that were not reported in the extant checklist of Tunisian lichens (Seaward 1996). They include several *Caloplaca* species, reflecting the big progress recently achieved in the knowledge of this group (e. g., Arup & al. 2013; Joshi & al. 2011; Šoun & al. 2011; Vondrák & al. 2008, 2009a-b, 2010a, 2010b). During the excursion we focused on collecting members of the genus *Solenopsora*, where phylogenetic relationship among Mediterranean species were disclosed recently (Guttová & al. 2014); currently, the phylogeography of the two sister species *S. candicans* and *S. cesatii* is being studied, with an aim to clarify their origin in the Carpathians, at the periphery of their range in continental Europe (Fačkovcová 2015). We added at the end a list of samples recently collected in the southern and eastern Mediterranean region, to document characteristic elements of North African mountain habitats, e.g. in the Atlas ranges, and of Israel. These are mostly members of *Lichinaceae* – common species such as *Lichinella stipatula* or members of the genus *Peccania*, which is in need of revision (Schultz & al. 2009).

- \**Anema nummularium* (Dufour) Nyl. – **13**: semi-natural outcrops of limestone rock along the dirty road bank, on perpendicular rock faces, *106* (SAV, PAL, HBG)
- \**Arthonia cinnabarina* (DC.) Wallr. – **10**: on twigs of *Erica* and *Phyllirea* growing on the cliff tops, *1, 2, 3, 4, 6* (all: SAV)
- Athallia* aff. *holocarpa* (Hoffm.) Arup & al. – **1**: on branches of *Tetraclinis articulata* (SAV, PAL, herb. Vondrák); **10**: on wood of *Erica* and *Phyllirea* branches growing on the cliff tops, *19* (SAV, PAL, herb. Vondrák)
- \**Athallia skii* (Khodos. & al.) Arup & al. – **8**: on fallen trunk of *Phoenix dactylifera*, *80* (SAV, PAL, herb. Vondrák)
- Blastenia* cf. *hungarica* (H. Magn.) Arup & al. – **10**: on wood of *Erica* and *Phyllirea* branches growing on the cliff tops *7, 22* (both: SAV, PAL, herb. Vondrák)
- \**Blastenia coralliza* (Arup & Åkelius) Arup & al. – **34**: on *Quercus* sp., *48* (SAV, PAL, herb. Vondrák)
- Caloplaca aegatica* Giralt & al. – **10**: on wood of *Erica* and *Phyllirea* branches growing on the cliff tops *5, 7, 8, 17* (all: SAV, PAL, herb. Vondrák)
- Caloplaca haematites* (Chaub. ex St.-Amans) Zwackh – **33**: on bark of *Quercus suber*, *57* (SAV, PAL, herb. Vondrák)
- \**Caloplaca pollinii* (A. Massal.) Jatta – **22**: on bark of *Quercus suber*, *53* (SAV, PAL, herb. Vondrák)
- \**Caloplaca stillicidiorum* (Vahl.) Lyngé – **1**: on branches of *Callitris articulate*, *62* (SAV, PAL, herb. Vondrák)

- \**Caloplaca ulcerosa* Coppins & P. James – **5**: on dry twigs among grass 39 (SAV, PAL, herb. Vondrák); **8**: on fallen trunk of *Phoenix dactylifera*, 80 (SAV, PAL, herb. Vondrák)
- \**Flavoplaca austrocitrina* (Vondrák & al.) Arup & al. – **5**: on dry twigs among grass, 39 (SAV, PAL, herb. Vondrák); **8**: on fallen trunk of *Phoenix dactylifera*, 80 (SAV, PAL, herb. Vondrák)
- Flavoplaca* cf. *austrocitrina* (Vondrák & al.) Arup & al. – **5**: on bone lying on the soil, 24 (SAV, PAL, herb. Vondrák); on sandstone rock among grass, 28 (SAV, PAL, herb. Vondrák)
- \**Flavoplaca oasis* (A. Massal.) Arup & al. – **5**: on sandstone rock among grass, 29, 34 (both: SAV, PAL, herb. Vondrák)
- \**Gyalolechia flavorubescens* (Huds.) Arup & al. – **10**: on wood of *Erica* and *Phyllirea* branches growing on the cliff tops, 2, 16 (both: SAV, PAL, herb. Vondrák); **21**: on *Juniperus* twigs, 47 (SAV, PAL, herb. Vondrák)
- \**Haloplaca* aff. *suaedae* (O. L. Gilbert & Coppins) Arup & al. – **5**: on wood of dry bushes, 49 (SAV, PAL, herb. Vondrák); **8**: on branches of *Rhetama* sp., 74 (SAV, PAL, herb. Vondrák); **21**: on *Juniperus* twigs, 41, 43 (both: SAV, PAL, herb. Vondrák)
- \**Heppia adglutinata* (Kremp.) A. Massal. – **24**: sea coast with schistous outcrops and *Quercus suber*, on soil, 93 (SAV, PAL, HBG).
- Hyperphyscia adglutinata* (Flörke) H. Mayrhofer & Poelt – **16**: on bark of *Olea*, *s.n.* (SAV)
- Lecania spadicea* (Flot.) Zahlbr. – **19**: in fissures and on faces of calcareous rocks, *s.n.* (SAV); **20**: in fissures and on faces of calcareous rocks, *s.n.* (SAV)
- \**Leprocaulon microscopicum* (Vill.) Gams ex D. Hawksw. – **25**: on sandstone rock, *s.n.* (SAV)
- Lichinella stipitata* Nyl. – **3**: on hard calcareous boulder with crystalline intrusions, 98 (SAV, PAL, HBG)
- Lobaria amplissima* (Scop.) Forssell – **35**: on bark of *Quercus canariensis*, *s.n.* (SAV)
- Lobaria pulmonaria* (L.) Hoffm. – **31**: on mossy bark of *Quercus canariensis*, *s.n.* (SAV)
- Normandina pulchella* (Borrer) Nyl. – **31**: on mossy bark of *Quercus canariensis*, *s.n.* (SAV)
- Peltula* cf. *euploca* (Ach.) Poelt – **3**: on hard calcareous boulder with crystalline intrusions, 98 (SAV, PAL, HBG)
- Physcia biziana* (A. Massal.) Zahlbr. – **20**: on bark of *Olea*, *s.n.* (SAV)
- Placynthium* sp. – **13**: semi-natural outcrops of limestone rock along the dirty road bank, on perpendicular rock faces, 106 (SAV, PAL, HBG)
- Polychidium muscicola* (Sw.) Gray – **32**: among mosses on crystalline rock, *s.n.* (SAV)
- Psora decipiens* (Hedw.) Hoffm. – **4**: on calcareous soil, *s.n.* (SAV)
- Psorotichia* cf. *diffracta* (Nyl.) Forssell (epruinose form) – **13**: semi-natural outcrops of limestone rock along the dirty road bank, on perpendicular rock faces, 106 (SAV, PAL, HBG)
- \**Scytinium palmatum* (Hudson) Gray – **32**: among mosses on crystalline rock, *s.n.* (SAV)
- \**Scytinium schraderi* (Bernh.) Otálora & al. – **1**: on calcareous soil, 129 (SAV); **3**: on calcareous soil, 112 (SAV); **4** (SAV); **13**: on calcareous soil, 119 (SAV)
- \**Scytinium tenuissimum* (Dicks.) Otálora & al. – **1**: on calcareous soil, 129 (SAV); **3**: on calcareous soil, 109 (SAV); **13**: on calcareous soil, 120 (SAV); **24**: on soil, 124 (SAV)

- \**Scytinium teretiusculum* (Wallr.) Otálora & al. – **24**: on bark of *Quercus suber*, 125, 126 (SAV)
- \**Scytinium turgidum* (Ach.) Otálora & al. – **1**: on calcareous soil, 129 (SAV); **24**: on soil, 127 (SAV)
- Solenopsora candicans* (Dicks.) J. Steiner – **3**: siliceous boulder in open place between scrub vegetation, in fissures of rock, *s.n.* (SAV); **7**: on sheltered parts or in fissures of the sand- stone rock, *s.n.* (SAV); **19**: shaded calcareous outcrops, on rock faces, *s.n.* (SAV); **28**: calcareous outcrops on the pasture, on rock, *s.n.* (SAV)
- \**Solenopsora grisea* (Bagl.) Kotlov – **13**: limestone outcrops among the scrub vegetation, *s.n.* (SAV); **14**: karst formations among the scrub vegetation (*Olea* sp.), on sheltered parts of the rock, *s.n.* (SAV); **17**: sheltered limestone rocks in the pass, in fissures, *s.n.* (SAV); **19**: semi-shaded calcareous outcrops, in fissures and on faces of calcareous rocks, *s.n.* (SAV). – *Additional specimen*: Tunesien: Djebel Zaghouan (NW-Flanke). Felspartien abseits der Straße zur Relaisstation bei 700–780 m, 19/4/1982, *Poelt* as *Solenopsora* sp.(GZU 41–82)
- \**Solenopsora olivacea* (Dufour ex Fr.) Kiliás subsp. *olivacea* – **19**: shaded calcareous outcrops, on rock faces, *s.n.* (SAV)
- Solenopsora vulturiensis* A. Massal. – **7**: on sheltered parts or in fissures of the sandstone rock, *s.n.* (SAV); **10**: on sandstone rocks and surrounding soil, *s.n.* (SAV); **23**: siliceous sandstone outcrops on the summint, in fissures, *s.n.* (SAV); **31**: on siliceous sandstone rocks, *s.n.* (SAV); **32**: sandstone cliffs, in sheltered parts of the rock, *s.n.* (SAV)
- \**Synalissa ramulosa* (Hoffm.) Fr. – **2**: on calcareous rock, 95 (SAV, PAL, HBG). – DNA sample 4724
- \**Teloschistes chrysophthalmus* (L.) Th. Fr. – **35**: on bark of *Quercus canariensis* (SAV – C OPTIMA ITER 2014\_s.n.)
- Tephromela atra* (Huds.) Hafellner – **3**: on hard siliceous metamorphic rock (SAV – C OPTIMA ITER 2014\_s.n.)
- Thelopsis isiaca* Stizenb. – **12**: on bark of *Cupressus* sp., *s.n.* (SAV); **18**: on bark of *Pinus halepensis*, *s.n.* (SAV)
- Tornabea scutellifera* (With.) J. R. Laundon – **10**: on wood of *Erica* and *Phyllirea* branches growing on the cliff tops (SAV – C OPTIMA ITER 2014\_8)
- Variospora aurantia* (Pers.) Arup & al. – **9**: on calcareous rock, 69 (SAV, PAL, herb. Vondrák)

#### Additional samples collected in the southern and eastern Mediterranean region:

- Gloeoheppia turgida* (Ach.) Gyeln. – Morocco, Anti Atlas, Tiznit, near the village Tizoughrane (road R104), open calcareous outcrops above the village Albid, on soil in rock fissures, elev. 862 m, 29°33.655'N 9°21.803'W, 3/5/2013, *Guttová & al.* (SAV)
- Heppia adglutinata* (Kremp.) A. Massal. – Morocco, Anti Atlas, Tiznit, near the village Tizoughrane (road R104), open calcareous outcrops above the village Albid, on soil in rock fissures, elev. 862 m, 29°33.655'N 9°21.803'W, 3/5/2013, *Guttová & al.* (SAV)

- Lichinella algerica*** (J. Steiner) P. P. Moreno & Egea – Morocco, Anti Atlas, Guelmin-Es-Smara, Tata, along the road R109 between Tata and Igheem vádí near Imitek, in fissures of sandstone rock, elev. 714 m, 29°42.207'N 8°6.537'W, 4/5/2013, A. Guttová & al. (SAV, HBG); Israel, Southern District – Negev Desert – Eilat Mts: Eilat, Hidden valley, on shaded sandstone rocks on a mountain pass, elev. 333 m, 29°40.117'N, 34°56.432'E, 5/3/2014 Guttová & al. (SAV)
- Lichinella cribellifera*** (Nyl.) P. P. Moreno & Egea – Morocco, Rabat-Salé-Zemmour-Zaër, Rommani, the valley of the stream Oued el Mechra along the road R404, on soil in rock fissures, elev. 296 m, 33°32.009'N 6°37.671'W, 30/4/2013, Guttová & al. (SAV, HBG).
- Peccania coralloides*** (A. Massal.) A. Massal. – Morocco, Haut Atlas Mts, Meknes Tafilalt, Ar-Rachidia, Gorges du Ziz, the valley of the river Oued Ziz, calcareous outcrops near the tunnel Zaval, on rock, elev. 1158 m, 32°5.722'N 4°22.228'W, 8/5/2013, Guttová & al. (SAV, HBG).
- Peccania fontqueriana*** P. P. Moreno & Egea – Morocco, Anti Atlas, Tiznit, Guttová & al. (SAV)
- Peccania tiruncula*** (Nyl.) Henssen – Morocco, Anti Atlas, Guelmin-Es-Smara, Guttová & al. (SAV, HBG)
- Seiophora contortuplicata*** (Ach.) Frödén – Morocco, Moyen Atlas Mts, Oualegh, limestone cliffs along the road N13 between Timahdite and Oualegh, on rock, elev. 2161 m, 32°59.917'N, 5°4.449'W, 2/5/2013, Guttová & al. (SAV)
- Seiophora villosa*** (Ach.) Frödén – Morocco, NW foot of Anti Atlas Mts, Aït Baiha, along the road R105 from Biougra to Tafraoute, on twigs of *Argania spinosa*, elev. 521 m, 30°6.287'N, 9°13.416'W, 2/5/2013, Guttová & al. (SAV)

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# BOCCONEA– 27 (2)

The Libyan Collections in FI  
(Herbarium Centrale Italicum and Webb Herbarium)  
and Studies on the Libyan Flora by R. Pampanini

Part 1

P. Cuccuini, C. Nepi, M. N. Abuhadra, L. Cecchi, H. Freitag,  
E. Luccioli, M. Maier Stolte, R. Marcucci, L. Peruzzi,  
L. Pignotti, A. Stinca., B., Wallnöfer & J. Wood

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## **The Libyan Collections in FI (Herbarium Centrale Italicum and Webb Herbarium) and Studies on the Libyan Flora by R. Pampanini – Part 1**

*-Historical and Museological Notes*

*-The original material of new taxa conserved in the herbarium*

*-Proposals for typification and documentation of typifications already made (Filices and Phanerogams, families from A to M)*

### **Abstract**

Cuccuini, P., Nepi, C., Abuhadra, M. N., Cecchi, L., Freitag, H., Luccioli, E., Maier Stolte, M., Marcucci, R., Peruzzi, L., Pignotti, L., Stinca., A., Wallnöfer, B. & Wood J.: The Libyan Collections in FI (Herbarium Centrale Italicum and Webb Herbarium) and Studies on the Libyan Flora by R. Pampanini – Part 1. — *Boccone* 27(2): 3-132. 2015. — ISSN: 1120-4052 printed, 2240-4538 online.

Some exceptional collections of Libyan Flora are conserved in the Herbarium Centrale Italicum and Webb Herbarium, for the most part collected by Renato Pampanini and R.E.G. Pichi Sermolli in the 20th century, but also by other great botanists both Italian and of other nationalities. Their studies led to the descriptions of a remarkable number of new taxa, whose names only in small measure were subjected to typification and generally only sporadically. In this contribution we have dealt with the museological aspect of the original collections, taking into account that most of them are actually unknown. Moreover we approached the question of typification when material for the new taxa was available and furnished bibliographical data for those already typified. This investigation concerned in particular the material held in the Florentine Herbaria (FI and FI-W) but in some cases also PAD, PORUN, K, G, P, MPU, ULT and B. The work proved to be extremely complex and so we decided to divide it into two parts. In this first part, which we now publish, typification concerns taxa belonging to families from the letter A to M inclusive, as well as the Filices. A total of 240 new taxa have been indexed and 194 typified; all the material in the original collections has also been listed under the relative ranks. We have proposed taxonomic updates for each taxon.

*Key words:* Museology, nomenclature, taxonomy, typification, Flora of Libya, N. Africa.

## Introduction

Some of the authors of this paper began to study the Libyan Herbarium several years ago, when it was a separate collection in the Herbarium Centrale Italicum (FI), today in the Botanical Section of the Museum of Natural History. This is a very large collection established by Renato Pampanini (1875-1949); this article will illustrate his specimens and studies on the Libyan Flora.

Pampanini held many cultural interests and during his life truly devoted himself to many scientific problems, particularly those associated with the world of botany, to the extent that his greatest admirers criticized him, in our opinion wrongly so, for not dedicating himself exclusively to phyto-geography and ecology, the sciences in which he had proved to excel.

Among other things, Pampanini was a great scholar of botanical collections that he himself had assembled and which today are held in the H.C.I. (Herbarium Centrale Italicum), but he studied also other collections, both in the H.C.I. and various public and private herbaria of the time.

Among the former, those regarding the Libyan Flora definitely deserve mention. Pampanini went to Libya three times: in 1913 to Tripolitania, as botanist in the Franchetti Expedition, in 1933 to Cyrenaica on behalf of the Ministry of Colonies and Government of Cyrenaica for a "Mission on Agricultural Studies" and, in 1934 to Cyrenaica again for the same Ministry, accompanied by Rodolfo E. G. Pichi Sermolli (1912-2005).

This treatise exclusively concerns various aspects of the phanerogams and ferns, although the cryptogams are sometimes mentioned for documentary purposes.

Before speaking about this herbarium in particular, today no longer an autonomous entity, and about the others in Florence, it should be remembered that before Pampanini assembled his own collection, many other Italians had already completed small collections themselves, or offered description of the flora and/or vegetation from various parts of the country. These include A. Cervelli (1811-12 in Cyrenaica), P. Della Cella (1817 in Tripolitania and Cyrenaica), M. Camperio (1881 in Cyrenaica), G. Haimann (1881 in Cyrenaica), P. Mamoli (1881-82 and 1887 in Cyrenaica), R. Spigai (1895 in Tripolitania), G. Laganà (1905 in Tripolitania), but none of them had followed a precise scientific project. When Italy occupied Libya (1911), until then an autonomous province (vilayet) of the Turkish Empire, the Italian scholars began their first serious scientific investigations into both the flora and vegetation, especially during the first years of occupation. The collections concerned both Tripolitania and part of the Cyrenaican coast. The better-known collections are those prepared by A. Andreucci (1913 in Tripolitania), A. Béguinot (1911 in Cyrenaica), A. Borzi (1912 in Cyrenaica). Many soldiers stationed in Libya also made their contributions following the war, as well as civil servants, especially those linked to the Agricultural Offices in Cyrenaica, under the new administration. Among the soldiers there was A. Vaccari, who served along the entire Libyan coast (1911-14). A naval medical Major, he studied the Flora of the country with famous botanists such as Béguinot and A. Trotter (1912, 1913 together with F. Grande 1914 in Tripolitania and northern Fezzan), Antonetti (1913 in Tripolitania), Crocivera (1812-13 in Tripolitania), I. Abatino (1913 in Tripolitania and 1914 in Cyrenaica), R. Nannizzi (1913 ? in Tripolitania), R. De Vita (1914 in Cyrenaica) and finally E. D'Albertis, A. Franchini, M. Longa, C. Manetti, B. Minola, G. Ragazzi, A. Soati, G. Triulzi and T. Testi all in 1912 in Cyrenaica (with Testi also in 1913).

### **The Libyan Herbarium and studies on the Libyan Flora by R. Pampanini**

This herbarium, consisting exclusively of phanerogams and vascular cryptogams, was organized independently in the H.C.I., most probably under the wishes of Giovanni Negri (1877-1960), Director of the Botanical Institute, although no documents exist to authenticate this assumption.

It was kept in two glass cabinets on the second floor of the ex-Botanical Museum together with the Xylological collection. In 1988/89 the herbarium became part of the H.C.I. although the specimens could be recognized by the special covers which were always placed at the end of any foreign material. Furthermore, each specimen was stamped with the words “*Herb. Univ. Florentinae-Herb. Libycum*”. Today all the Libyan material is to be found in a cover called Africa-Libya (Afr.-Li) following the subdivision of foreign material in the H. C. I.

But to understand even better the genesis of this collection we must refer back to the historical events of our country linked to the development of Italian colonialism in Africa and Libya in particular. Indeed, until then any Libyan collections in the Florentine Herbarium were few and far between. The work by Parlatore “*Les Collections Botaniques*” (Parlatore 1874), already testified the total lack (later proved to be false) of any collections originating from the country in the H.C.I. (or indeed in the Webb Herbarium). The first specimen we know coming from Libya arrived at the H.C.I. with the Groves Herbarium in about 1891. This was a phanerogam, “*Medicago hispida* Urban”, collected by a German Botanist, G. F. Ruhmer, in 1883 near Bengasi in Cyrenaica (Fig. 1). It was a duplicate from his collection which he had donated to Henry Groves (1835-1891). Other specimens of Ruhmer came to Florence through other accessions, for example the Levier Herbarium, but only in later years.

Only much later, through the studies of Pampanini, further Libyan material was found to exist both in the Webb and H. C. I. (Pampanini 1914b, 1920, 1925a). This is worth remembering because the Webb Herbarium already held specimens collected by J. Dickson, Medical Officer in the Royal Navy, in the surrounds of Tripoli in 1827, and which Parlatore had overlooked (Fig. 2). Pampanini tells us that Webb received this material from R. Graham of the Edinburgh Botanical Gardens (Pampanini 1914b). It was Pampanini who, on checking the material in the Webb Herbarium, identified most of them, saying he had found 130 specimens belonging to 90 species, although he believed there should have been many more.

### ***The Pampanini Collections***

Renato Pampanini was by far the most remarkable of all the collectors and researchers. In 1913 he was appointed as a botanist in the Franchetti Scientific Expedition to Tripolitania.. It is through him, although not exclusively, that the Libyan collections took shape and provided the bases for the constitution of the “Libyan Herbarium”. These herborisations continued from 14th February to 9th May of 1913 and their study led to the significant work “*Plantae Tripolitanae*” (Pampanini 1914e). Starting from the work by Durand and Barratte (1910), which summarised all the botanical knowledge of Libya

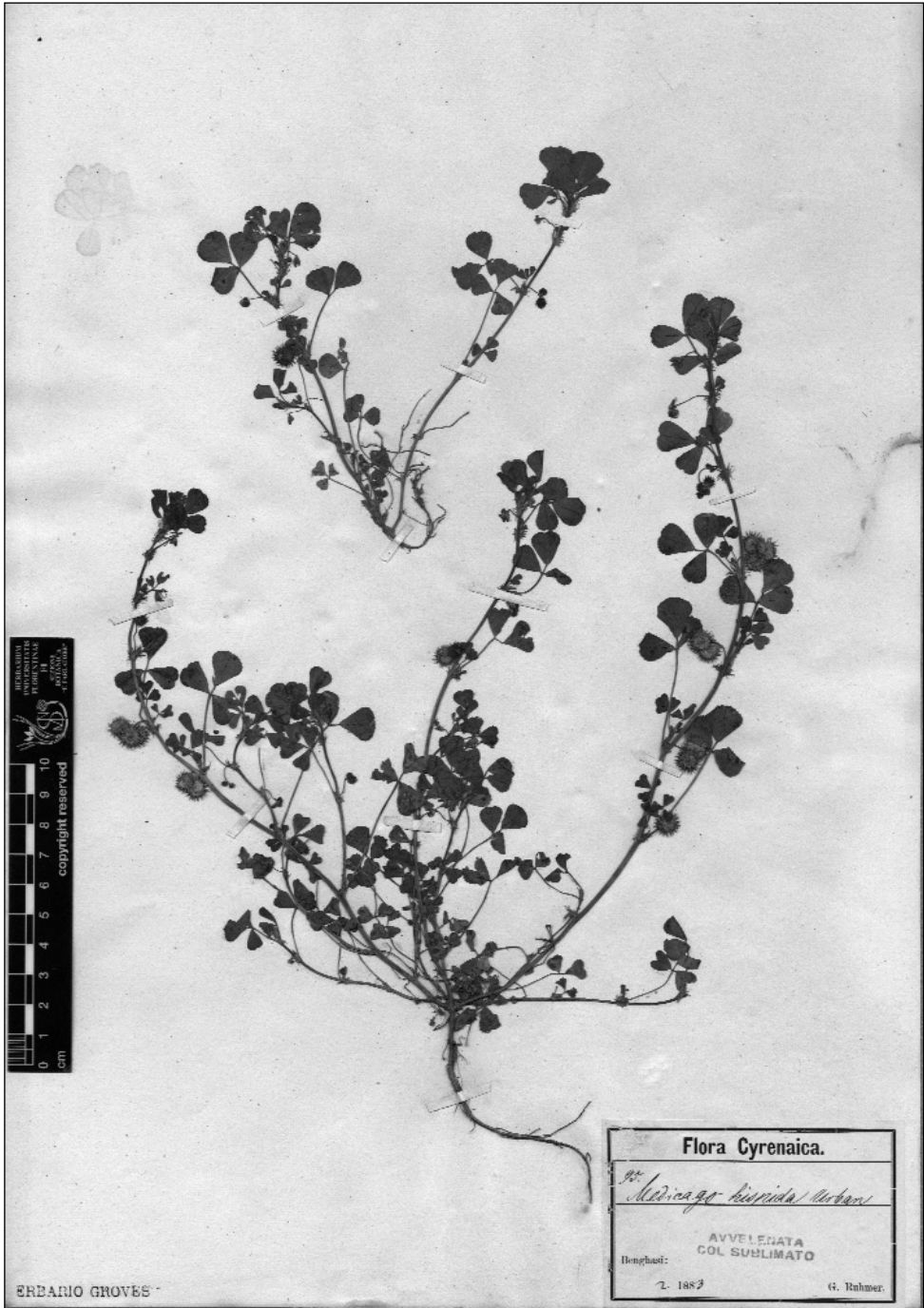


Fig. 1. The first Libyan specimen to arrive in the FI Herbarium in 1881 (*Medicago hispida* Urban, Bengasi, 1883, leg. G. F. Ruhmer).

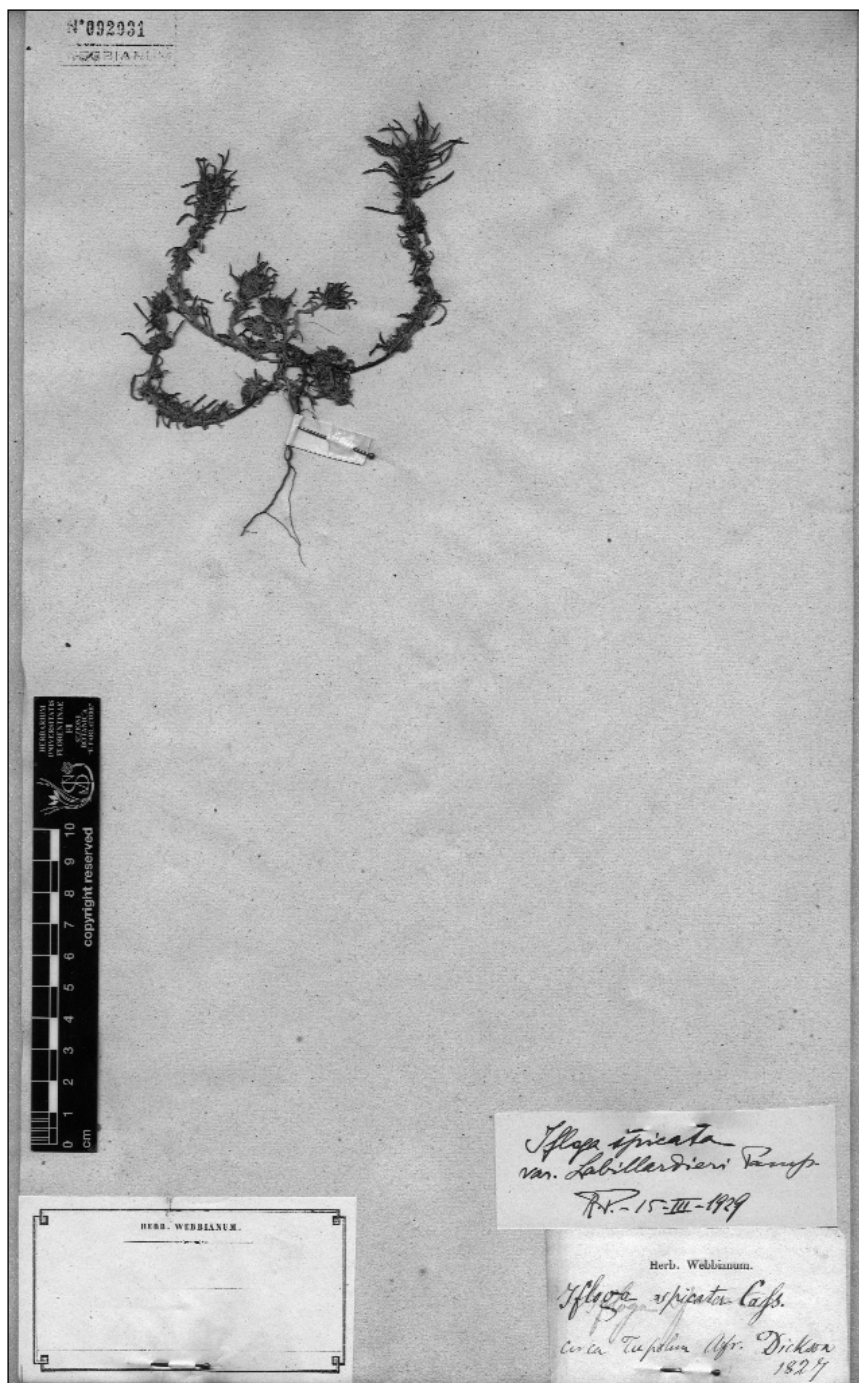


Fig. 2. One of the oldest Libyan specimens in the Florentine Herbaria (H-Webb: *Ifloga spicata* Sch. Bip., Tripoli, 1824, leg. J. Dickson).

known up to the Italian Occupation, his work furnished further knowledge through the study of his own collections as well as all the others, which proved to be new with respect to the results of these Swiss botanists (Pampanini 1914e). Nonetheless, this collection did not immediately lead to the foundation of the Libyan Herbarium, as we can read in Pampanini's note 2 on page XIII of his "Plantae Tripolitanae": "*In questa illustrazione figurano anche alcune piante dei dintorni di Tripoli e (Thymus capitatus) del Mesellata, raccolte le une nel 1892 da Scott Elliot e non ricordate nell'opera di Durand e Barratte, e le altre recentemente dal Dott. Bertinetti e dal sig. G. Lopez. Tutte sono conservate – come pure la collezione mia – nell'Erbario Centrale del R. Istituto botanico di Firenze.*"

Later the number of his studies on the Flora and Vegetation of Libya increased

(Pampanini 1914a, b, c, d, e, 1916, 1917, 1918, 1919a, b-with Zanon 1920, 1921a, b, c, d, 1922 with Zanon 1923, 1924, 1925a, 1925b, 1926a, 1926b, 1927a, 1927b, 1928a, 1928b, 1928c, 1929) to the extent that in 1930, although he had never been to Cyrenaica before (but had studied the flora intensively) he sent "Prodrómo della Flora Cyrenaica" for publication, edited by the Ministry for the Colonies (Pampanini 1930). This important work gave the flora of that territory the same value the work of Durand and Barratte in 1910 had for the whole of Libya (Durand & Barratte 1910).

By that time (1930) almost all his Tripolitanian collections (a small part of his Tripoli collections, 31 specimens, he donated in 1935 to H.C.I.) had entered the Florentine Herbarium amounting to as many as 5,919 specimens (including duplicates and probably the M. Longa collection), relating to specimens from the 1913 campaign. To these specimens can be added those of Bertinetti and Lopez and a few others sent to him by the French and Swiss botanists, a small collection donated by Adriano Fiori (A. Vaccari collector), the collection of A. Vaccari and finally an addition from A. Trotter for a total of 6,414 specimens. This was probably the initial nucleus of the Libyan Herbarium (Additions Registry 1842-1938).

Surprisingly, among the above mentioned collections, the Additions Registry does not mention the V. Zanon collection (678 specimens) or those consisting of only a few, yet extremely important from the scientific point of view, specimens from G. Krueger (254 specimens), all collected in Cyrenaica. Nevertheless, these too were inserted into the Libyan Herbarium. Subsequently, until the end of the second World War the herbarium absorbed the collections of A. Maugini (478 – Cyrenaica) H. Scaetta et al. (75 – Cyrenaica), O. Bargagli Petrucci, the only female collector of Libyan Flora in FI (633 – all Libya), A. Desio (33 – Cyrenaica, Fezzan), G. Zodda (240 – Tripolitania). Considering the phanerogams alone, there is a total of over 9,100 specimens – which included both the Pampanini collections and others he had studied, as well as donation from other botanists. Indeed the majority came from other collectors, to the extent that they make up a true herbarium which can be consulted, without counting the collections Pampanini made in Cyrenaica and those of Corti in Fezzan, already studied and destined for the herbarium, where they arrived shortly afterwards.

### ***Floristic itineraries***

As we have seen, the first collection in Tripolitania was made in 1913 in the regions of Mesellata, Tarhuna and Garian, as well as in the surrounds of Tripoli (from Tagiura to



Zanzur) and on the Suani Beni Adem plain at the feet of the Gebel (Fig. 3). At the end of the expedition, Pampanini tells us that there were as many as 4,982 specimens (Pampanini 1914e) counting both phanerogams and cryptogams. As for the latter, the greater part of the algae were not numbered, only 63 out of at least 236 specimens. From this limited amount of documentation, there are 4,579 specimens of phanerogams, 403 cryptogams, of which 63 Algae (only *Florideae*, *Fucoideae* and *Characeae*), 145 fungi, 33 lichens, 19 liverworts, 97 mosses and 46 pteridophytes s. l.

In 1930 “Prodomo della Flora Cirenaica” was published but until then, no collection by Pampanini existed from that region. The first expedition in 1933 for the most part concentrated on northern Cyrenaica. Pampanini collected along the northern coast, from Bengasi to Tolmeta, to then reach other coastal localities by descending several wadis, for example from Cyrene to El Hania. From Bengasi he headed south, advancing further than Agedabia and El Gtafia, reaching Bir Giofer in Wadi Faregh, south of El Agheila in the Gulf of Sirte. Still in the Bengasi area, he pushed south-east to Soluch and from there as far as Msus, already a pre-desert area of Cyrenaica. He travelled all over the districts of the plateau, in particular those of Barce, El Beda (Beida), Cyrene as far as El Gubba. Before then he had headed for the inland steppe that precedes the desert, to El Mehili, reaching as far south as Bir Tengheder, exploring, among other things, Wadi Ramla and proceeding for the Tarigh Enver Bey lorry route for Tobruk, towards Bir Acheim and Sidi Resegh in Marmarica, as far as Wadi es Sahal between Tobruk and Bardia (Pampanini 1933b).

For the second expedition (1934), with the assistance of R. Pichi Sermolli, he not only covered the coast from Bengasi to Tocra, and the entire northern Cyrenaica plateau, exploring the depths of many wadis in the Merg, El Beda and Cyrene districts as far as Derna, already in part covered in 1933, but he also pressed southwards again to Agedabia, in the Gulf of Sirte, passing the edges of the desert as far as Saumnu.

Although these collections represented an important part of his research in the last part of Pampanini's life, they remained with Rodolfo Pichi Sermolli, who donated them to the H. C. I. where they were only registered in 1953 (Cuccuini & Nepi 1999). There are a total of 11,259 specimens (including several hundred duplicates) that entered directly into the Libyan Herbarium, which by that time was already independent.

In fact Pampanini organised the important studies he carried out from 1936 to 1938 (Pampanini 1936a, 1936b, 1936c 1937, 1938a, 1938b) concerning the material from his journeys as well as other collections from Cyrenaica, along the same lines he had adopted for “Plantae Tripolitanae” (Pampanini 1914e). Indeed, when listing new combinations and new names, (Pampanini 1936a) at first he only used already accepted names to describe them, but incompletely. In 1938 he added the localities and taxonomic updates to his 1936a work, completing *de facto* the protologues for the new entities described in 1936 (Pampanini 1936a, 1938b), whilst at the same time attempting to give the collected material a valid interpretation from the phyto-geographical point of view. But in spite of this, there was still no summary as appears in his “Prodomo”, where all the floristic components of the two collections could be seen. But time did not allow Pampanini to fill these gaps.

In 1933, Pampanini took up his university career accepting the chair of botany at Cagliari. The duties of his new job, the responsibilities for teaching and creating instruments of research such as a herbarium, the imminent start of the war, all distracted him



from his Libyan studies. Indeed, they did not allow him to concentrate his efforts on what should have been the logical outcome of such labour: the Flora of Cyrenaica (if not of Libya), on the lines of similar works by French and English botanists, such as the floras of Tunisia, Algeria or Egypt

This situation prevented him from updating and integrating his “Prodrómo” with all new and museological data that would have clarified the collection itineraries and extension of the study areas. We shall try to accomplish a part of this together, particularly in regard to the valorization of typus material and museological reconstruction of the collection, by revisiting several collections - not his own, but which he studied, most of which were destined to become part of the Libyan Herbarium.

### *The Pampanini collections studied by other Botanists*

A minor part of his material was studied by other famous scholars of the period. In particular the cryptogams s. l. (including the Pteridophytes) were studied by **A. Béguinot** (1914, *Characeae*), **G.B. De Toni and A. Forti** (1914a, 1914b, *Algae* excl. *Characeae*), **E. Mameli** (1913, 1917, 1919, 1922, *Lichens*), **C. Massalongo** (1914, *Hepaticae*), **O. Mattiolo** (1914, in Pampanini 1914a *Fungi-Tuberaceae*), **P. A. Saccardo** (1913a, 1913b, 1913c, *Fungi* excl. *Tuberaceae*) and **G. Zodda** (1913, *Mosses*). Again, a small part of the phanerogams, like the genera *Koeleria* (Tripolitania), *Rubus* (Cyrenaica), *Hedera* (Cyrenaica), *Gagea* (Tripolitania) and *Romulea* (Tripolitania) were studied by **K. Domin**, **J. Hruby**, **F. Tobler**, **A. Terracciano** and **A. Béguinot** respectively, as well as by **A. Berger**, for only *Caralluma europaea* var. *simonis* Berger (Berger 1914).

### *Other collections Pampanini studied now held in FI and other herbaria*

A summary of data about these collections provides the order, personal information on the individual collectors when known, historical settings in which the collections were made, the (historical) events affecting the collections, floristic itineraries, resulting scientific data, content of the collection in the Libyan Herbarium or other herbaria and any notes. The order in which the various collections are numbered relates to the dates when the material was collected.

**Raffaele Spigai** (1850-1895) (Trotter 1912b), was a science teacher who worked in Libya, in Tripoli, from 1884 to 1888. All trace of his collections, especially of phanerogams, was soon lost. Only after his death part of them unexpectedly re-appeared at the Botanical Institute of Pisa (Pampanini 1932a) and consisted of 150 specimens collected between February 1886 and August 1888.

In the years 1886-88, he botanized for both cryptogams and phanerogams in the area. The collection territories ranged from Tagiura to Ain Zara and Zanzur, all situated in the surroundings of Tripoli. Several interesting new records for the Tripolitan flora emerged from these studies. The material is currently held in Pisa.

**M. Longa** (Pampanini 1912) was Petty Officer in an “Alpini” (Alpine) Regiment based in Cyrenaica during the Italo-Libyan conflict. The collection, assembled between

January and April 1911, comes from Wadi Derna on the first spurs of the plateau of the same name (in particular from the first level), as well as from the “Ridotte Piemonte e Lombardia” and the Wadi Homboch area. It was the first collection made after the Italians occupied the country.

It turned out to be very interesting with the description of 3 specific and infraspecific taxa new to science and many new records for Libya or Cyrenaica. The number of specimens is small, just 60, which probably came to the H. C. I. together with the 1919 Tripoli collection of Pampanini.

**Vito Zanon** (1875-1949) Missionary of the Giuseppini (Fathers of St. Joseph) was stationed at the Fuehat Monastery, near Bengasi, from 1914. He collected in the Begasino area in Cyrenaica from 1915 to 1918 (Pampanini 1916; Pampanini in collaboration with V. Zanon 1917; Pampanini & Zanon 1919a, b). He also visited Giok Kebir (to the East) and the pre-desertic area of Berka (to the South) whilst in the westward direction he reached as far as the Raaba steppes. An enthusiast amateur botanist, he alternated between areas very rich in vegetation and sandy or marshy places. He also received specimens from more distant regions of the north-west plateau (El Abiar) from his Arabian collaborators

Still in 1918, he asked an Italian soldier he knew, **Ferruccio Cassinera**, to collect plants in the area of Tobruk, following his instructions. This resulted in a small but quite an important collection of 85 specimens, given that there are 20 new reports, mostly from Marmarica but also the whole of Libya (Pampanini & Zanon 1919).

All things considered, this is the largest collection made in Cyrenaica, after that of Vaccari, until the “Prodromo” was published (Pampanini 1930). The results of the studies led to the description of 20 new specific and infraspecific taxa, and many new records for Libya or the region. The material, relating to 678 specimens of taxonomic entities of various rank, does not mention the date of accession.

It should be noted that since the collection is particularly rich in cryptogams, amounting to about a third, Pampanini sent it to specialists in the various groups who had already assisted him with his collections: P.A. Saccardo for fungi (in Pampanini 1917; in Pampanini & Zanon 1919), E. Mameli for lichens (in Pampanini 1917; in Pampanini & Zanon 1919), G.B. De Toni, A. Forti and C. Massalongo for algae (De Toni 1916; De Toni & Forti in Pampanini 1916, 1917; Massalongo & Forti 1917), C. Massalongo for liverworts (in Pampanini 1917) and C. Bottini for bryophytes (1917, 1928).

The collections pertaining to **Armando Maugini** (1889-1975), first Superintendent and then Director of the Royal Office for Agrarian Services in Cyrenaica, were made in 1918 (spring), 1919 (spring) mostly in the Bengasi area and in June of the last year in the region of Cyrene, at Kuhba and Wadi El Kuf, and at Derna, in Wadi es Sarragh. In 1922 Maugini collected in the Barce region and again in that of Cyrene and the Merg region, at Wadi Umm El Anain and also on the northern border of the Merg Plain, and finally between Zuetina and Agedabia and between Ghemines and Zuetina and occasionally near the coast (Fuehat). In addition, he continued to botanise all over northern Cyrenaica for his studies on hays until 1924. He was assisted in part by Helios Scaetta in the Bengasi region for this collection (particularly in the localities of Hauari and Palmeto).

His collections proved to be extremely interesting (Pampanini 1920; Pampanini in Maugini 1921b, 1921c, 1921d; Pampanini 1924; Mameli-Calvino 1928-*Lichenes*), offering, among other things, 15 new taxa and 51 new records for Libya and Cyrenaica. In all,

the material which arrived in Florence totalled 525 specimens and concerned mostly phanerogams but there were also some fungi (20), lichens (25) and mosses (2). The collection, at least that which remained, was among the most important made in Cyrenaica before that of Pampanini and the second as far as size is concerned, to arrive in Florence after that of Father V. Zanon. Neither does this material, which Pampanini kept for a long time for study purposes, show any evidence of an independent accession, although at the time it was incorporated within the Libyan Herbarium.

Apart from his collaboration with Maugini, **Helios Scaetta** (1894-1941) of the Royal Agrarian Office of Cyrenaica also worked independently on other smaller collections. One of these ensued from his first collaboration with Pampanini. Indeed, in 1920 he sent him a small set of specimens he had collected that year from the surroundings of Zavia Mechili (Pampanini 1920), in a pre-desertic zone of northern Cyrenaica and in the territory of Derna. Overall this comprised material of about ten different taxa, among which he described a new variety.

Later, in 1925, he collected in the Cyrenaica area, starting from Bengasi, in particular at Merg and between the first and second terraces of the plateau. He also explored the Tolmetta Sahal and the road from Merg that leads to and crosses Gebel Abid. This was the first time this area had been inspected. In spite of its size, the collection is rich in taxa cited for the first time and included a new species (Pampanini 1925c). The collection is small, only 60 specimens, but Scaetta sent a further 5 specimens which Major I. Amprimo had given him to the H. C. I., which he had collected along the Tobruk-Giarabub caravan route in July 1922. This was the first small collection from the Cyrenaican desert that had been put together by Italians. The material, was all inserted within the Libyan Herbarium.

The contributions of **Giorgio Krueger**, entomologist at the Royal Agrarian Office at Bengasi, are very interesting as regards knowledge of the Flora of Cyrenaica (including Sirt and Marmarica).

He collected in 1925 at Scegga (or Sciagga), a locality along the caravan route to Giarabub, about 120 km. south-east of Tobruk. The following year he collected at the Giarabub Oasis, an activity that he also continued on his return to Archet El Heira and El Garnai Gren, both localities before Scegga, as far as Port Bardia where he continued to botanise.

Again in 1926 (April), as he was in northern Cyrenaica, he collected in the area of Ain Mara and in the nearby locality of Bir Salem (then in the Gubba district). This collection comprises a small contingent of plants relating to 18 taxa, but, as attested in his other collecting exploits, it is of remarkable interest. In fact, over 2/3 of them had not been found since the times of Rohlfs (1879) and Taubert (1887); furthermore there also turned out to be a new taxon.

In 1927 (20-29 January, 10-27 February) he is in Giarabub again, also collecting on the way to Bardia, and in 1928 once more in East Sirt and the Gialo Oasis with the "Missione topografica dell'Istituto geografico militare di Firenze" (Florence Military Geographical Institute Topographical Expedition). In spring 1931 he was in West Sirt on an entomological expedition. Furthermore, in March 1932 (10-15 March) he collected on his way to East Sirt again, this time inland to the Marada Oasis. Then, on his way back towards El Agheila, he collected between the oasis and Wadi Faregh and the Maaten Giofer Well within the Wadi.

The total of the scientific results was remarkable: 12 new taxa and at least 54 new reports for Libya or for a region or area of the same (Pampanini 1926a, 1926b, 1928c,

1932c ). In all, this is a small collection, considering it is the fruit of at least 5 excursions made over 6 years to very different and until then poorly explored regions, and amounted to just 236 specimens. This collection was added to the Libyan Herbarium but the quantitative data only appear in the publications by Pampanini and not in the Herbarium accessions.

We must also remember the excursions made by Countess **Onorina Bargagli Petrucci**, a noble Florentine lady, with a passion for botany and exotic travels, which she made to Tripolitania, Fezzan and northern Cyrenaica.

The Countess undertook her first journey to Libya in 1930. Napoleone Passerini, in 1931, sent the collected material to the H.C.I. The excursion was concentrated in southern Tripolitania, from the Tripolitan Jebel to Giado as far as Gadames and the Tunin Oasis, near the Algerian border. This collection, consisting of 143 specimens, proved to be of less scientific importance (Pampanini 1931a) even though there are some significant records and confirmation of rare species. Later, material from this collection was used to describe a new taxon.

In 1932 (from 18th April to 12th May) the Countess set out on a long journey, mostly off the usual tourist tracks and marked by an evident “official” tone (Spadaro 2010), in which scientific interest and photographic documentation played an important part, the latter relating to the anthropological aspects of the itinerary (Bargagli Petrucci & Pampanini 1933; Bargagli Petrucci 1934). From Tripoli she arrived at Fezzan via the Misurata – Giofra Oasis – Jebel Soda main road. Then she visited and collected in the oases between Sebha and Marzuq. After exploring both to the east and west of the area, her return journey set off northwards from Brach, but after El Bab (the door to the Sahara) she turned westwards towards Mizda and after crossing the Garian reached Tripoli again.

This collection proved to be valuable with many new records for both Libya and some of its regions, as well as yielding a new taxon. Pampanini (Bargagli Petrucci & Pampanini 1933), recorded 225 specimens, which entered the H. C. I. through the accession of N. Passerini in 1932.

To conclude the subject of the contributions Countess Barbagli Petrucci made to our knowledge of the Libyan Flora, Pampanini (Pampanini 1938a) tells us that in spring 1937 (from 19/05 to 2/06), she took a short journey from Tripoli, taking the Sirte coastal road, to Bengasi, and then heading slightly inland from Tocra to Bomba to then cross the whole of Libyan Marmarica. From Amseat, she then continued ahead for the Giarabub Oasis. On her return, collecting in several places along the way, the only deviation was towards Tarhuna, from where she arrived back in Tripoli.

Her collection did not produce great scientific results, seeing that her route was already well known from the floristic point of view. But in any case, in spite of her short journey, the collection gave fruit to a good number of specimens (a total of 265 specimens, 235 of which from Cyrenaica) and also some important floristic reports, particularly for Cyrenaica.

Among the collections that Pampanini studied, we can mention the one which was the fruit of the expedition to Tripolitania in 1931 (16 March - 25 April) by **Alessandro Marcello** who took the journey mainly to collect material for microbiological studies, but he also botanized for floristic research. The latter material was entrusted to Pampanini (phanerogams) and to A. Forti (Algae and the genus *Potamogeton*). Two

floristic itineraries were followed: after touching part of the Tripolitanian coast as far as Misurata and visiting the various agricultural concessions, Marcello headed inland to Hon, Socna by crossing Gebel Soda, to Sebha in Fezzan. On the return journey, on the road to Mizda, he went back to Tripoli and from there organised the second expedition that took him to Nalut and, via Sinauen, to Gadames in Hammada. On the way back he decided to take the deviation for Derg before making his way to Sinauen again. The collection is quite remarkable with as many as 726 specimens (excluding duplicates) and produced good scientific findings: 28 new records for the region or for Libya and 6 new taxa of various rank (Forti & al. 1932). Apart from a few specimens, the collection is held in the Padua Herbarium (PAD).

To this we can add another collection by Prof. **Silvia Zenari** which she made in 1932 (21-29 March) in Tripolitania starting from the Tripoli coast and working inland in several directions: towards Tescia and Mizda, and towards Sinauen for Tgutta and Gadames. In spite of the unfavourable meteorological conditions, Zenari collected about 240 specimens. The scientific results of the research that followed were modest: a new record for Tripolitania and about ten confirmations of rare species and one probable new species (the specimens were too incomplete to describe in full) (Pampanini 1933a). The collection is held in the Padua Herbarium (PAD).

The last two study commitments of Pampanini on the Libyan collections of others were:

- 1) The study of a small collection assembled by **Ardito Desio** in 1930 at El Aghelia and along the road to Agedabia and later for Marada as far as the oasis of the same name. Ardito Desio (1897-2001) was a geologist at Milan University and a distinguished Italian scientist and explorer who, among other things, produced the geological map for Libya. The following year (summer 1931) he collected at Cufra and further south in the Archrnu Valley, in the Jebel Aueat Valley of Ain Prensi. During his journey to Cufra he also botanized in Tripolitania, along the road from Marada to Uau El Chebir (to Zolla, El Fogha and Temissa), to then head for Cufra. Of the 11 specimens he had collected, almost all of them turned out to be new for that region or area (Pampanini 1932c). The specimens arrived in Florence, in the Libyan Herbarium, in 1931 (Marada collection) and 1932 (Fezzan), with a total of 33 specimens.
- 2) The collection donated by **Giuseppe Zodda** (1877-1968), at the time science teacher at the Grammar School at Bari; he had collected in March 1931 from the surroundings of Tripoli to Ain Zara, Tagiura and further east as far as Sabratha, and on the Garian plateau in the direction of Mizna. From the study of his collection, composed of about 240 plants, three new infraspecific taxa and 6 new records for the region or for Libya emerged (Pampanini & Zodda 1932). Zodda gave his collection to the H. C. I. in Florence in 1932.

### *Specific collections or revisions of already studied material*

To conclude this section, we wish to mention some of the studies Pampanini undertook regarding small collections made by other collectors, in general not always of great scientific interest, or updates of residual material of previously studied collections or critical, questionable specimens that his colleagues had sent him, that are difficult to include in the

previous chapters as individual units. This is important as some of the materials pertaining to new taxa described in these collections, which are not always kept in FI, can be found in the Libyan Herbarium. As a typical example we can cite the communication he presented at the Meeting of the Società Botanica Italiana (Italian Botanical Society), on 10 December 1927, which was then published in the Society's Bulletin for that year (Pampanini 1927a), where among other things he described a new variety: *Evax mauritanica* var. *cyrenaica* Pamp. collected in Cyrenaica at Bir El Gavamis and Got bu Mariam collected by De Cillis in 1919 which he received through Trotter (Pampanini 1927a).

Pampanini also published in a single work (Pampanini 1927b) a study on 4 small collections which we previously mentioned only with regard to the one **G. Krueger** made in 1926 in the Ain Mara area in Cyrenaica.

At the same time he illustrated the results of the other 3: that of **M. Casilli**, a colleague of Krueger, from the Office of Agriculture Services of Cyrenaica in Derna, who in 1923 collected at Bomba, Zavia Umm Rzem, Gubba, Zavia Tert in the Derna region, and at Ghegab, in the Cyrene region; that of a collaborator of Casilli, **G. Palma**, at Derna and in the Wadi of the same name, again in 1923, and finally one pertaining to **V. Giannattasio**, from the Cyrene section of the above mentioned office, at Cyrene and surroundings. In all there were 205 entities but which, except for a very few, never reached Florence. Like the other collectors, here again only the material relative to the newly described taxa were recorded (Casilli).

These studies were followed by others of the same *status*, again regarding collections which were entrusted to him for study and then taken back by the collectors. This happened for the material he received from E. Chiovenda (Pampanini 1920) who in turn had it from General A. Zola. In this case it was a small bundle of plants collected in 1913 by one of Zola's subordinates, Captain **Antonetti**, from Tripolitania in the surroundings of Nalut, regarding 11 taxa of various rank. Although very few in number, they almost all revealed new reports from the investigated area and one of them turned out to be a new taxon (*Coris monspeliensis* var. *syrtica* f. *dentata* Pamp.).

At an assembly of the Italian Botanical Society in 1928 (Pampanini 1928a) Pampanini talked about miscellaneous material received from G. Krueger, G. Palma, V. Giannattasio, A. Maugini, and A. Vaccari, all collected in northern Cyrenaica (as far as the Giarabub Oasis). From the surplus of the collections, he described a new species, *Satureja fortii* Pamp., which he dedicated to his algologist friend, Achille Forti, who at the very same assembly presented a communication on the algal collections G. Krueger had made from the Giarabub Oasis (Forti 1928).

### ***Libyan collections pertaining to other scholars and held in the Libyan Herbarium***

The first important collection to arrive in Florence and not directly described in print, if not in a small part, by Pampanini although checked and cited in his works, was the donation from **A. Vaccari** (1867-1961), already mentioned above, who gathered the largest collection in Cyrenaica (although he also collected in Tripolitania) before 1933. He studied cormophytes with A. Béguinot which led to several works (Béguinot & Vaccari 1912a, 1912b, 1913a, 1913b, 1914). His collection is estimated to contain about 700 specimens



with a conspicuous number of cryptogams (223 specimens) which for the most part are new taxa (136). In 1912 he mainly visited coastal areas around Bengasi, Tolmetta, Marsa Susa, Derna and Tobruk(ch), as well as Tripoli, whilst the following year he also went to Zuara, Sliten and Misurata. In 1919 he sent a consignment of as many as 378 specimens to Florence, almost half of his collection, where 43 specimens had already arrived in 1914 through the hands of Adriano Fiori. We are not able to say whether this consignment was part of the original collection or whether it consisted of duplicates, since the *corpus* of the original collection was left to Prof. Béguinot who then donated it to the Modena Herbarium.

One particular case concerns three botanists who were not in direct contact with the H. C. I. but who nevertheless held relationships with and visited Florence for study purposes. These were **Alessandro Trotter** (1874-1967), professor of Plant Pathology at the University of Naples, **Fridiano Cavara** and **Loreto Grande**, both from the Botanical Institute of the University of Naples (the former Professor of Botany and the latter curator of the local herbarium).

**A. Trotter** went to Libya (Tripolitania) three times. The first in 1912, to the coast between Tripoli and Homs, the second in 1913 together with F. Cavara, on government business. During this expedition, which concentrated on the whole of Tripolitan Gefara, from the Tunisian border to Sirte, and the hilly area east of Garian and part of the inland territory of Tarhuna as far as Sliten, the other members of the contingent also helped to collect material. His third journey in 1914, again as a member of a government deputation, concerned both the highland area of the Tripolitan Jebel as well as many inland areas, including the desert. He headed southwards as far as touching the Fezzan. His scientific results were remarkable both on account of the discovery of new taxa and the publication of hundred of new records for Libya (Trotter 1912a-b, 1915a-b, Cavara & Trotter 1914). Out of his collection of almost a thousand taxa, Trotter only sent 40 specimens to Florence. Unfortunately, as there is not trace of the list of the items sent, it was not possible to map the collecting areas of the material held in FI.

As well as the above mentioned expedition, **F. Cavara** set out on a further 3, all in Cyrenaica, in 1922, 1924 (this time together with **L. Grande**) and 1925. They were interested in Bengasi and surroundings, all the Akhdar Gebel from El Abiar as far as Derna and again, further west, Marmarica with the Tobruk territories, Porto Bardia (and all the plain between the two localities), in Defnia and Amseat (Cavara & Trotter 1914; Cavara 1923; Cavara & Grande 1925; Cavara 1926, 1928). As Cavara himself mentions (Cavara 1928), the amount of material collected was “huge”, but his work was never published as a whole. Cavara limited himself to mentioning the more important findings and newly described taxa (the latter totalling 15), but nevertheless he produced a good number of publications (Cavara & Trotter 1914g; Cavara 1923, 1925, 1926, 1928), as well as an account of the vegetation of Libya (Cavara 1926), curiously entitled “La Flora della Libia”.

Although material from his expeditions, particularly the one to Cyrenaica in 1922 (a small part), 1924 and 1925 are present in the H. C. I., there is inexplicably no trace of its accession nor of the amount of material that arrived. For this reason, we have preferred to map only the material present, relative to new taxa which he described.

But it is even more interesting to speak about the collections of **Roberto Corti** (1909 – 1986), at the time assistant to the Botanical Institute of Florence, from Fezzan and the region of Gat on the Algerian border, in March – April 1933 and February – March 1934,

during the course of botanical expeditions organized by the Italian Royal Geographical Society, in which specialists of other scientific disciplines also participated (Corti 1942). This is a large collection from an area almost unexplored in botanical terms. For the itinerary, we refer the reader to the description by Corti himself (Corti 1942) who excels in his clarity and summary of such a large region. This collection reached Florence very late, in 1950, and comprised 1081 specimens. At the same time, in 1950, a further 78 specimens reached Florence again from Corti, which were the fruit of two small collections gathered in 1933 and 1934 respectively by **L. Di Caporiacco** and **U. Monterim** in the extreme south of Cyrenaica, [the area of Cufra and Tazerbo (the latter only visited by Di Caporiacco), El Auenat and Libyan Tibesti (here only Monterim)], all material which Corti considered in his work. Thanks to Corti's studies, floristic knowledge of the area increased greatly; moreover 8 new taxa were identified both at the specific and infraspecific level. Even greater were results regarding knowledge of the flora, and the comparisons with other floristic areas not limited to Libya but extending to the whole of North Africa and the Near East. Furthermore, their floristic components were treated in both biological and phyto-geographical terms. This collection was first considered as pertaining to the Colonial Herbarium in Florence (today FT), but never actually placed there; it was then sent to the Libyan Herbarium, but was never completely incorporated.

### **Collections assembled or which arrived in FI after the 2nd World War and other information**

The only accessions of Libyan material arriving in Florence after the second World War, and already kept in Libyan Herbarium, were those by Corti (1950) regarding his 1933-34 Fezzan collection and by Pichi Sermolli (1953?) for the Pampanini collections from Cyrenaica in 1933-34, the second of which made together with Pichi Sermolli after the war. Otherwise, no other Libyan material during this period was included in the Libyan Herbarium.

When it was accepted, the new material went directly to the H.C.I. or was never entered if it had not been identified or lacked any data. These collections, which museologically are just as interesting as the others, did not receive the same scientific attention regarding taxonomy and nomenclature. Among these only the collections of Brullo and Furnari (1974), moreover rather scanty in FI, have led to interesting taxonomical studies. Moreover the Ricceri and Steinberg collections (1975, 1977, 1978) have all been identified and recently inserted into the H.C.I. (2013), those of 1978 yielded a business publication (Ricceri & Steinberg 1982) which also concerns the vegetational aspect of the collection. All the rest of the material has only in part been identified and not always inserted into the Herbarium, even though it includes the interesting collections by R. Corti (1933-34) which still lack a considerable amount of data and are partly still unidentified.

For this reason we have decided to organise the data by summarising them in two tables respectively for material which arrived after the 2nd World War and mostly unidentified (Tab. 1) and the other for material of various times which for different reasons has mostly remained incomplete and not always inserted in the herbarium of consultation (Tab. 2).

Table 1. Collections which arrived or were assembled after the Second World War, almost all of which were identified and entered in the Herbarium. Some of the names of the collectors are incomplete due to lack of data.

Collector	Date of Mission	Area Visited	Locality	No. of specimens	Accession	Notes	Status material
R. Pampanini,  A. Rompietti , L. Gaddini, Agricultural Servies (Gaddini ?)	1933-34  1934 1935-38 1937	Cyrenaica, Marmarica, Sirte  Cyrenaica Cyrenaica Cyrenaica	-	415	Pampanini P.O. 1959-60	Material in individual collections not specified	Identified in part
A. Benvenuti	1959	Tripolitania	Tripoli	61	A. Benvenuti 1960		Only <i>Poaceae</i> ident.
H. G. Kieth	1959 1961	Cyrenaica Tripolitania	- Sabratha	6	Ex Kew 1964	Material in individual collections not specified ( <i>Bromus</i> )	Ident.
H. N. Le Houérou	1962-66	Tripolitania	-	10-12	H. N. Le Houérou 1970		Ident.
S. Brullo & F. Furnari	1974	Cyrenaica	> Jebel el Akhdar	10	S. Brullo 1980	Mostly duplicate typus mat.	Ident.
C. Ricceri & C Steinberg	1975	> Marmarica and North Cyrenaica	Zavia Umm Rjkbah, Berka el Bahrya	350-400	C. Ricceri & C Steinberg 1990		Ident..
C. Ricceri & C Steinberg  C. Ricceri & C Steinberg	1977  1978	Fezzan  Fezzan	Brāk, Edri, Sebha, Hun	851	C. Ricceri & C Steinberg 1990	1 expedition  2 expedition	Ident.
Politano	1978	Sirte	-	3	Politano 1981		Ident.
M. Mariotti	1998	Tripolitania	Between Leptis Magna and el Khoms (Homs)	21	M. Mariotti 2001		Ident.

Table 2. Collections with partly incomplete data and unmapped. Some of the names of the collectors are incomplete due to lack of data.

Collector	Date of Mission	Area visited	Locality	No. of Secimens	Accession	Notes	Status
G. Marcello	1912	Tripolitania Marmarica	Gargadesch, Ras Makaber; Tobruk	18	A. Marcello 1964		Not identified
L. Di Caporiacco	1933	S-E. Cyrenaica	Auenat	4	R. Corti 1950		Not identified
R. Corti	1933-34	North Tripolitania	From Misurata to Giofra Oasis; Jebel Nefusa, Garian to El Bab	450-500	Not entered	Only <i>Poaceae</i> ident.	Mostly ident. Some data missing
R. Corti	1933-34	N. Fezzan and Jebel Soda	Jebel Soda	≈ 130	Not entered		Mostly ident. Some data missing
C. Cruciani	1934	S. Tripolitania	Jebel Soda	≈ 40	?		Not. Ident.
A. Rompietti	1935	Cyrenaica	Wadi Derna	30	Pampanini P.O. 1959		Not ident.
Banzi	1936	Tripolitania	Tripoli	7	Banzi 1961		Not ident.
A. Marassi	s. d.	Tripolitania	Tawurga Oasis, Misurata	12	Mostly not entered		Only <i>Poaceae</i> ident.
A. Benvenuti	1959	Tripolitania	Tripoli	50	Benvenuti 1960		Only <i>Poaceae</i> ident
L. Garuglieri	1966	Cyrenaica	Wadi el Kouf	76	L. Garuglieri 1966		Not ident.
A. Hofmann	1975	Fezzan	Brack	4	A. Hofmann 1975		Not ident.
C. Ricceri	1978	Tripolitania	Sabratha, Homs	37	Ricceri 1980		Not ident.
A. Giordano	1979	Fezzan	Hammada el Hamra-a N. Edri	13	A. Giordano 1986		Not ident.
E. Bucelli	1959-60	Tripolitania	Gefara, Jebel Garian	17	Not entered		Ident. p.p.
L. Aiuti	1959-60	Tripolitania	Gefara, Jebel Garian, Mesellata	16	Not entered		Mostly ident.

### *The Libyan Herbarium at its close*

In 1988-1989 this large collection began to be included in the H. C. I. yet at the same time, as we have seen, remaining relatively independent. At that time the Libyan Herbarium counted about 21,500 specimens. After further revision of post second World War material and its recent insertion (Steinberg and Ricceri) into the H.C.I. (2012), together with additions of miscellany of both pre-war material and small exchanges with foreign scholars which, it can reasonably be estimated that the Libyan collections in H. C. I. amount to 22,890 specimens. If we consider also the collections already investigated by Pampanini and conserved in the Webb Herbarium, never considered to be part of the old Libyan Herbarium, we can consider the Libyan collection in the Florentine Herbaria to amount to approximately 23,000 specimens.

### **The collectors of the Libyan collections**

A list follows of all those collectors whose specimens are held in the FI Herbarium. Those not previously mentioned came to Florence through the large donations that arrived during the existence of the H. C. I. and the Webb Herbarium, as for example the Groves, Levier, Martelli, Pampanini, Fiori, Gavioli and Chabert Herbaria.

Moreover, not all the material donated by the various collectors was always first entered into the Libyan Herbarium and then in the H. C. I.

### *List of Collectors*

Trip.=Tripolitania, Cyr.=Cyrenaica, Fez.=Fezzan, Libya=all previous historical regions;  
\*=collectors not mentioned in the text; some names are incomplete due to lack of data.

Aiuti L.: Trip.	De Cillis S.: Cyr.
Amprimo I.: Cyr.	De Horatiis M.: Cyr.
Banzi: Trip.	Desio A.: Cyr.
Bargagli Petrucci O.: Libya	Di Caporiacco L.: Cyr.
*Baseggio C. : Trip. ?	Dickson J.: Trip.
Benvenuti A.: Trip.	*Donati R.: Cyr.
Bertinetti: Trip.	Elliot S.: Trip.
Bornmueller J.: Trip.	Festa E.: Cyr.
Brullo S.: Cyr.	Franchini A.: Cyr.
*Bucelli E.: Cyr.	Furnari F.: Cyr.
Casilli M.: Cyr.	Gaddini L.: Cyr.
Cassinera F.: Cyr.	Garuglieri L.: Cyr.
Cavara F.: Trip., Cyr.	Giannattasio V.: Cyr.
*Celloni: Cyr.	Giordano A.: Fez.
Corti R.: Libya	*Graziosi P.: Cyr.
Cruciani C.: Trip.	Hofmann H.: Fez.

Kieth H. G.: Trip., Cyr.	Pichi Sermolli R.E.G.: Cyr.
*Krause G. Ad.: Trip.	Politano: Sirte (prob. Cyr.)
Krueger G.: Cyr.	*Rampoldi C.: Cyr.
Le Houérou H. N.: Trip.	Ricceri C.: Libya
Longa M.: Trip.	Rompietti A.: Cyr.
Lopez G.: Trip.	Ruhmer F. G.: Trip.
*Maire R. C. J. E.: Cyr.	Scaetta H.: Cyr.
Marassi A.: Trip.	Servizi Agrari della Cirenaica (Gardini ?): Cyr.
Marcello A.: Trip.	Steinberg C.: Cyr.
Marcello G.: Trip.	*Taubert P.: Cyr.
Mariotti M.: Trip.	Trotter A.: Trip.
Maugini A.: Cyr.	Vaccari A.: Trip., Cyr.
*Montelucci G.: Cyr.	Weiller M.: Cyr.
Monterin U.: Cyr.	Zanon V.: Cyr.
Palma G.: Cyr.	Zodda G.: Trip.
Pampanini R.: Trip., Cyr.	

These 63 collectors include a high number of great botanists, as well as amateurs (or non-professional botanists): military personnel, clergymen, agronomists and farming experts, technical personnel of Italian companies and other scholars, especially geologists working in the territory.

#### Notes regarding the Maps

The maps show the itineraries and/or areas where the various collectors botanized:

Their material is kept in whole or in part in the Florentine Herbaria (FI, FI-W), their material was studied in Florence (by R. Pampanini) but then sent back to the authors of the collections. Key/legends: the names of the collectors concerned are marked with an \*.

For maps referring to the collection period, see the relevant captions.(Figs. 4-7)

#### Phytogeographical placing of collecting areas

From the phytogeographical point of view (Quézel 1978), our study material was mostly collected from two domains: the (African) “**Northern Steppes**” occurring particularly in northern Tripolitania, and mostly in Sirte and eastern Mediterranean Cyrenaica. Secondly, but still with a good number of representative taxa, a further 5 domains can be considered, the **North Saharan** in Fezzan and southern Tripolitania, the **Eastern Steppes** (to the north delimited by the Mediterranean and the sea) which includes all Marmarica, as far as north Cyrenaica is concerned, the **North –eastern Saharan** in south -central Cyrenaica.

Moreover a small sector from southern Cyrenaica to south-western Fezzan is part of the **Central Saharian** domain, and a small mountainous area of northern Tibesti is part of the **Saharan –High Mountain** domain in southern Cyrenaica. For a phytogeographical view on Libyan endemism see also Bartolo & al. (2001).

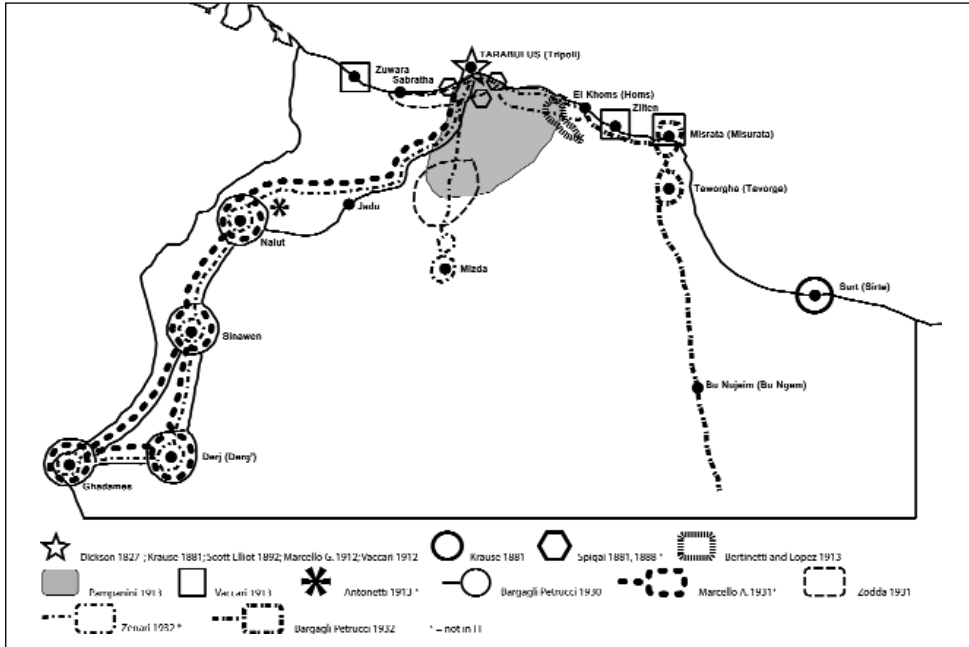


Fig. 4. Collections made in northern Tripolitania before 1945, held (at least in part) or studied in Florence (FI).

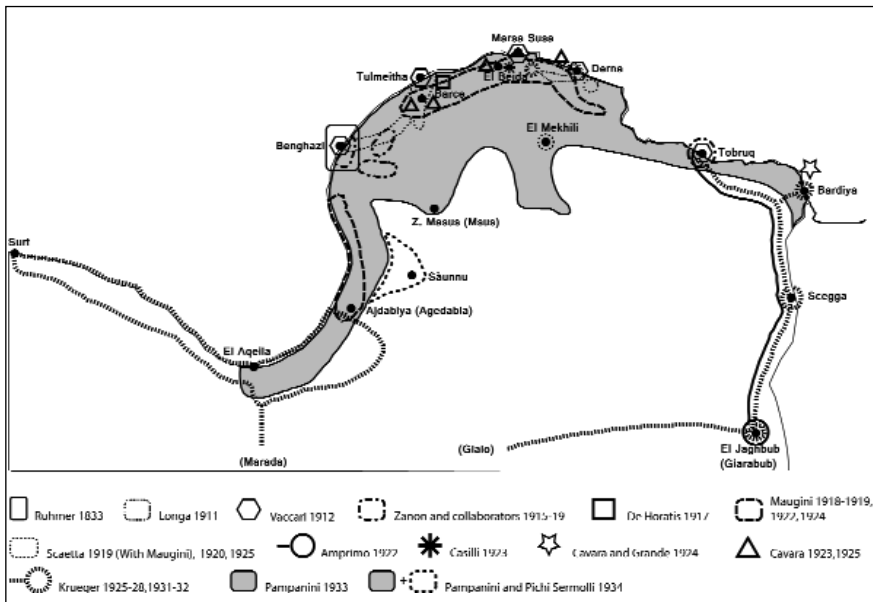


Fig. 5. Collections made in northern Cyrenaica before 1945, held (at least in part) or studied in Florence (FI).

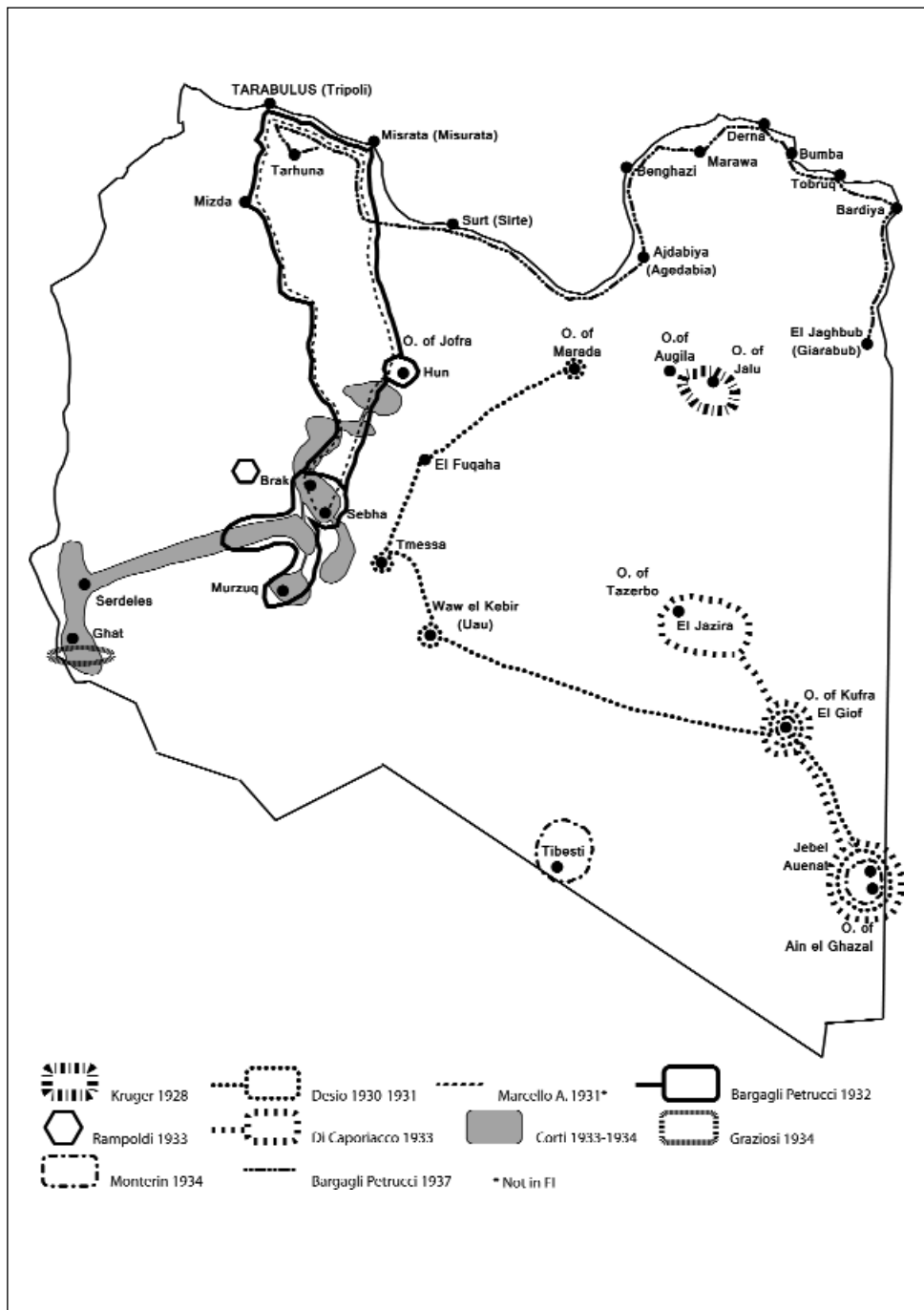


Fig. 6. Collections made over the entire Libyan territory (including Fezzan) before 1945, held (at least in part) or studied in Florence (FI).



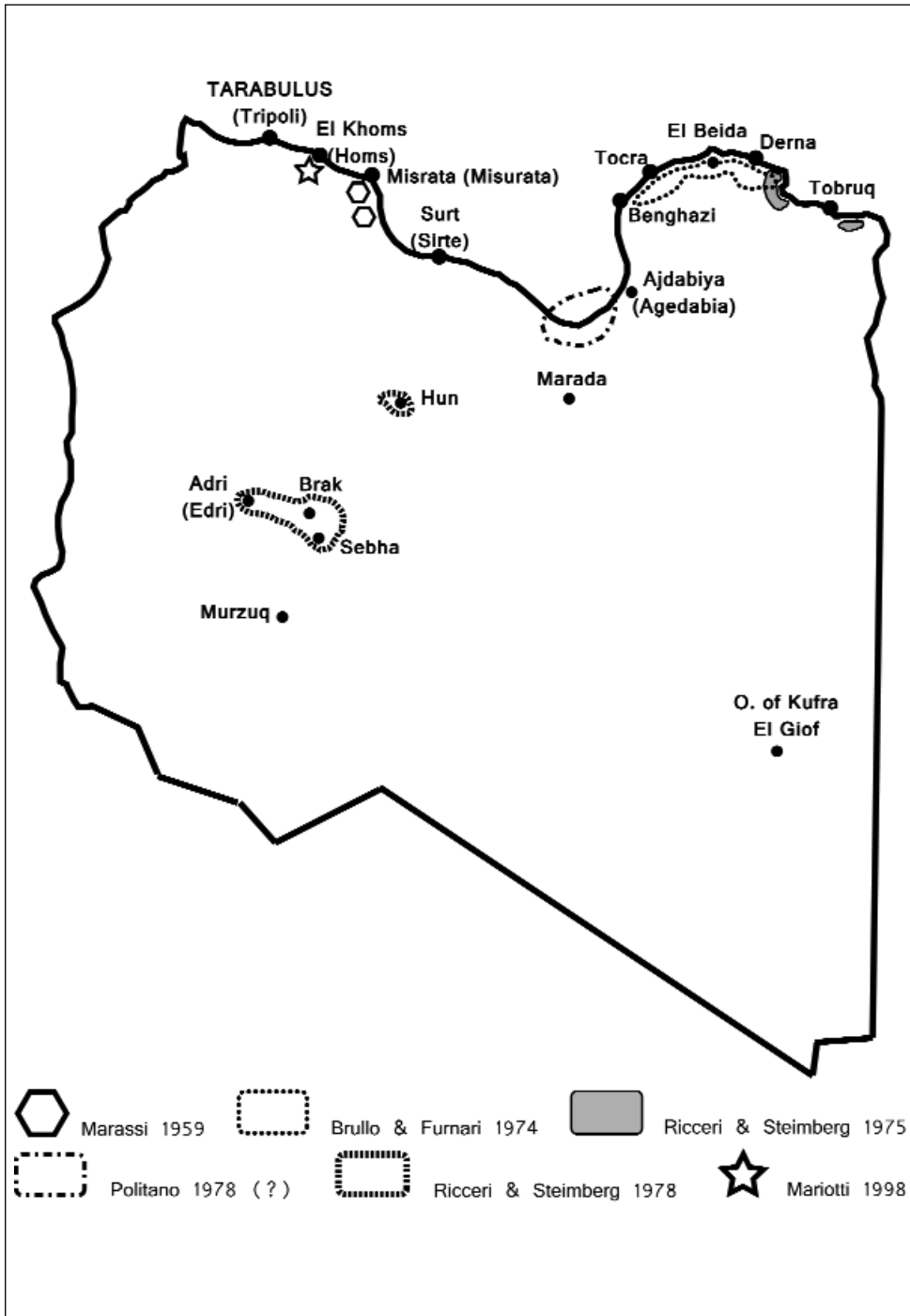


Fig. 7. Collections made in Libya after 1945, held (at least in part) or studied in Florence (FI).

### **Catalogue of the Types of new taxa relating to the Libyan Flora held in the FI Herbaria (ex H. Libico and Webb Herbarium), or in other herbaria described by Pampanini and other authors**

This catalogue lists all specimens from the original collections used to describe new taxa in the collections of the ex “Erbario Libico” and other Libyan collections held in the Botanical Section of the Natural History Museum of Florence, or other Libyan taxa studied by Pampanini and held in other herbaria. New taxa have been typified whenever possible.

The taxa mentioned were described by the following authors: Renato Pampanini, Antonio Béguinot, Antonio Vaccari, G. F. Ruhmer, Fridiano Cavara, Loreto Grande, Maire R. C. J. E, Roberto Corti, Salvatore Brullo, Francesco Furnari, Ernst Durand, Gustave Barratte and Joseph Bornmueller.

#### ***Typification***

As regards typifications, both those proposed by the authors of this work and those previously established are given. In some cases, although the specimens bear a reference to a *typus* rank, we were unable to find any publication and thus a reasonable doubt regarding typification still remains. In such situations we did not proceed to designate a *typus*. In those cases where typification is recorded more than once with different ranks, they are given in chronological order in the notes. All the specialist co-authors of the work are responsible for the groups they studied or checked regarding typification. For all typifications of taxa which could not be attributed to individual specialists, the reader is referred to the coordinators of this work, P. Cuccuini and C. Nepi, who critically compared the original collection material with their protologues and all other useful information in the literature in agreement with the rules of the International Code of Nomenclature in force (McNeill & al. 2012). In this case the authors of the typification are not mentioned. Moreover, the authors of the typifications have always checked the original material in the various herbaria mentioned. Consulting the “Flora of Libya”, we have often come across references to *typus* material but in the great majority of cases they were not typifications but rather more or less complete bibliographical citations.

#### ***Accepted name***

As regards the accepted name, this was in part established by specialists from various groups and/or specialists of Libyan Flora. Where various studied specimens carried recent revisions, these were considered valid. To this end, bibliographical citations from recent Floras and revisions of various groups for North Africa, or other neighbouring areas which covered and clearly indicated the study specimens, were also considered. Finally, for any taxa which did not fall within the previously described cases, we turned to recently published Floras and comprehensive inventories of synonyms used for the flora of northern Africa (Dobignard & Chatelain 2010, 2011a, 2011b, 2012, 2013). The reference works consulted (historical as well as taxonomical and nomenclatural) were several numbers of

“Flora of Libya” and relative check lists, revisions for N. Africa and adjoining territories (e.g. the near East) of the various groups, and/or monographs on the taxa of various rank: Viviani D. (1824), Boissier & Heldreich, (1869), Durand E. & Barratte G. (1910), Muschler (1912), Post G. E. (1932-33), Maire R. C. J. E (1952-1977), Ozenda P. (1958), Quézel P. & Santa S. (1962-63), Zohary M. (1966, 1972, 1978), Scholz H. (1974), Lebrun J-P. & Stork A.L. (1978), Alavi S. A. (1977, 1978, 1983), Ali S.I. (1976, 1977a-c), El Gadi A. (1977a, b, 1978), Erteeb & Sherif (1985), Ghafoor A. (1977a-b, 1978a-b), Boulos (1977, 1979a, 1979b, 1999, 2000, 2002, 2005), Jafri 1977a-k, 1979, 1980, 1985), Guglielmo A. (1983, 1984), Jafri & Rateeb (1981), Jafri & El Gadi (1982), Labani & El Gadi (1980), Qaiser (1979, 1982), Qaiser & Ghafoor (1979), Siddiqi (1977a-c, 1978a-c, 1979, 1985), Qaiser & Siddiqi (1984, 1986), Guglielmo A. & Scalia C. (1984, 85, 86), Sherif & El Taife (1986), Feinbrun-Dohan (1986), Siddiqi & Sherif (1988), Navarro T., El Qualidi J., Cabezudo B. & Fennane H. (2002), Valdés B. & al. (2002), Warwick S. I & al. (2006), Le Floc’h E., Boulos L. & Véla E. (2010), Al-Saghir M. G. & Duncan M. Porter (2012), Dobignard & Chatelain (2010, 2011a, 2011b, 2012), El Qualidi et al. (2012).

When in doubt, revision is followed by “s. l. = sensu lato” or more referring works are quoted.

In any case only the 1st name (quotation) in “Accepted name” is accepted for the authors, while any other identifications are put in minor size.

## ***Organisation of Catalogue and use of Typus ranks***

### ***Catalogue***

The catalogue is synthetically arranged in alphabetical order by Families and thus, for each, the genera and relative species (and/or infraspecific taxa), the *Filices* s. l. come before the Phanerogams. The Family nomenclature is the one found in Dobignard & Chatelain with some exceptions regarding the Capparaceae (or Capparidaceae) Family, (in Dobignard & Chatelain 2011b, it comes under the Brassicaceae) or for Chenopodiaceae (in Dobignard & Chatelain 2011a, under the Amaranthaceae), and following the current use still made of such epithets to also locate the relevant taxa more easily. Nomenclatural updates have been carried out up to September, 2014.

### ***Type Ranks***

With regard to rank of the Types in the material from the original collections, the indications in the Melbourne Code (McNeill & al. 2012) were followed. The ranks found in publications were only used for collections already typified or marked as such. However, the authors, including the coordinators of this work, experienced some difficulty in indicating the remaining material when some was first defined as Syntypes then later designated as Lectotypus. Everybody knows the functional difference between treating remaining material after it has been established as a Holotypus or designated as Lectotypus.

In the first case the rank of Paratypus is instituted, in the second a generic indication of “original material” remains.

In our opinion it would be appropriate to also regulate this second situation, so that it is clear, when typus material in different herbaria are consulted, that it has already been defined.

In this regard it would presumably be more correct to introduce the rank of “Paralectotypus” which would follow the nomenclatural rule applied to duplicates of the “typus”.

The problem, moreover, was raised quite long ago (Hansen & Seberg 1984). The failure of finding a solution produces a sparse orderly advancement, which, notwithstanding citations of “old typifications”, leads to the use of too many terms for the remaining material after typification: syntypus, paratypus, paralectotypus, original material. Moreover the last one may or not be differentiated in published or not published accounts or notes, leading to further hierarchy in the use for substituting lost, missing or destroyed, material.

For this reasons the coordinators of this present edition have not unified the terms for ranks, leaving the various authors to express themselves freely, well aware that at present the various terms can be improper or lacking from the Code (McNeill & al. 2012).

### ***Museological Data***

As this is also a museological reference work, all the specimens in the original collections which were used for describing new taxa are given, whether published or not, and as such recognised in the herbarium data by the various above mentioned authors. Where possible, the rank of the relative typus material is given.

### ***Legends of format***

**Author names** of taxa according to Brummit & al. (1992), and after this date according to International Plant Names Index (IPNI).

**Bibliographical quotations** of taxa according to Bridson, G. D. R. & al. (1991) and after this date according to B.P.H.

**Geographical data:** Libya, Cyrenaica, Tripolitania, Fezzan or smaller areas are shown in full only once for each group of different type ranks, and subsequently abbreviated as follows: Libya=L.; Tripolitania=T.; Cyrenaica=C.; Fezzan=F.; Garian=Ga.; Mesellata=Me.; Tarhuna=Ta.; Marmarica=Ma.; Sirte=Si.; for the extensive urban areas, such as Tripoli=Tr.; Bengasi= Be.

For the **dates**, when referring to the same collection, only the day and month (if present) are given, whilst the year is specified for the last specimen only.

Moreover, the **collector/s** is only mentioned on the last specimen (obviously for the individual ranks of the **Types** or for the material regarding particular cases).

Individual **records** relative to each specimen are separated by a (;)

The **institution** where the typus material is held is found at the end of the entry, which may or may not include the bar code. If it does, the specimen can be found on the Botanical Section of the Natural History Museum of Florence WEB SITE.  
<http://parlatore.msm.unifi.it/Types/search.php>

The format of **each record** is arranged under 4 fields (if all present):

**New taxon**

**Type**

**Accepted name**

**Notes**

**Filices**

**New taxon:** *Cheilanthes fragrans* var. *paleacea* Pamp. in Bull. Soc. Bot. Ital.: 11. (1914a)

**Type:** [Libia], Tripolitania, Tarhuna: Kasr Daun, (n°2334), 07/04/1913. Leg. R. Pampanini, (FI003921), (Lectotypus designated here).

Other syntypes from the Original collection: [Libia], Tripolitania, Mesellata: Msid di Mesellata, (2635), 9/04; T, Garian: Uadi Garian-Ras Omcteba (4381), 29/04/1913. Leg. R. Pampanini

**Accepted name:** *Cheilanthes acrostica* (Balb.) Tod. in Dobignard & Chatelain, 1: 39. (2010)

**Note** The three specimens consist of complete fertile specimens. Among these, no. 2334, essentially for the conservation of the *exsiccatum*, expresses the diagnostic characters most clearly. Because of this, is it designated as Lectotypus.

**Alliaceae**

**New taxon:** *Allium ampeloprasum* var. *caudatum* Pamp. in Arch. Bot. (Forli) XII(2): 21. (1936a); Rend. Sem. Fac. Sc. Univ. Cagliari VIII(3): 63 (1938b)

**Type:** Lectotypus: Libia, Cirenaica: Messa, l.d. Negret Said (1267), 08/05/1934. Leg. Pampanini R. & R.E.G. Pichi Sermolli, (FI003622), by B.E.E. de Wilde-Duyfjes in Meded. Landbouwhogeschool, Wageningen 76-11: 65 (1976).

Syntypi: Libia, Cirenaica, Tolmeta: Sidi Dachil, (1261), 23/4/1933, (FI003623). Leg. R. Pampanini; C.: Marau a est di Barce, steppa a Artemisia (1263), 25/4, (FI003653); C., Cirene: Uadi Hofra (1264), 25/05, (FI003654); C.: Messa-Umm er Rchamm (1265), 08/05, (FI003655); C., tra El Hania e Messa: l.d. Gabr Scegmin (1268), 9/05/1934. Leg. R. Pampanini & R.E.G. Pichi Sermolli, (FI003624)

Original material: material published in Pampanini (1938b), but not cited by B.E.E. De Wilde-Duyfjes (1976)

Cirenaica., Caulan: l.d. Gabr Ali (1262), 20/04/1934. Leg. R. Pampanini & R.E.G. Pichi Sermolli, (FI003652).

**Accepted name:** *Allium ampeloprasum* L. see de Wilde-Duyfjes: 63, 65 (1976); (marked by B.E.E. de Wilde-Duyfjes, 1976)

Incl. in *Allium ampeloprasum* L. subsp. *ampeloprasum* in Dobignard & Chatelain, 1: 62. (2010)

**Note:** marked as Lectotypus by B.E.E. de Wilde-Duyfjes, 1976; specimen: Cirenaica, Uadi Gergerumma: l.d. Brates, (n°1266) is not present in FI; specimens 1262, 1263, 1264 are incomplete and/or partially deteriorated.

**New taxon:** *Allium aschersonianum* f. *ciliatum* Pamp. in Nuovo Giorn. Bot. Ital. n.s. 24: 125. (1917)

**Type:** Holotypus: [Libia] Cirenaica: Fuehat, 3 marzo 1916: Leg. V. Zanon (FI) by B.E.E. de Wilde-Duyfjes, in Meded. Landbouwhogeschool, Wageningen 76-11: 201 (1976)

**Accepted name:** *Allium orientale* Boiss. by B.E.E. de Wilde-Duyfjes: 200, 201 (1976)

**Note:** previously marked as Lectotypus by B.E.E. de Wilde-Duyfjes, s.d. the binomial is also included under *Allium orientale* Boiss in Dobignard & Chatelain, 1: 62. (2010)

**New taxon:** *Allium aschersonianum* f. *laeve* Pamp. in Arch. Bot. (Forli) XII(1): 21. (1936a); Rend. Sem. Fac. Sc. Univ. Cagliari VIII(3): 63 (1938b)

**Type:** Holotypus: Libia, Cirenaica, [Marmarica]: Tobruk (1349), 23/3/1933. Leg. R. Pampanini, (FI003619), by B.E.E. de Wilde-Duyfjes, in Meded. Landbouwhogeschool, Wageningen 76-11: 201 (1976).

Other syntypes from Original collection: [Libia], Cirenaica: Has esc Sceilabi El Bebas (1347), 11/03, (FI003617); C.: esc Sceleidima a est di Bengasi (1348), 20/03, (FI003621); C.: Umm er Rzem a sud est di Bengasi (1351), 8/04, (FI003620); C., [Marmarica], fra Tobruk e Bardia: Uadi es Sahal (n°1350), 23/03/1933. Leg. R. Pampanini, (FI003618).

**Accepted name:** *Allium orientale* Boiss in De Wilde-Duyfjes: 200-201. (1976)

**Note:** previously marked as Lectotypus specimen n°1347, by B.E.E. de Wilde-Duyfjes, (prob. in 1976); specimen 1348 is incomplete and partly deteriorated. Probably, since there are 5 different specimens in FI from the original collection all cited by B.E.E. de Wilde-Duyfjes as *A. orientale*, in our opinion it would have been more appropriate to choose a Lectotypus (as the same author did with specimen n°1347 in the first place).

**New taxon:** *Allium erdeli* var. *pilosum* Pamp. in Nuovo Giorn. Bot. Ital. n.s., XXIV: 125 (1917)

**Type:** Holotypus: [Libia], Cirenaica: Bengasi (333), 27/1/1883; Leg. Ruhmer, (FI003882), by B.E.E. de Wilde-Duyfjes, in Meded. Landbouwhogeschool, Wageningen 76-11: 121 1976.

Isotypus: (FI003883).

**Accepted name:** *Allium erdeli* Zucc. see B.E.E. de Wilde-Duyfjes: 121 (1976); (marked by F. Kollmann, 20/07/1969); also in Dobignard & Chatelain, 1: 64. (2010)

**New taxon:** *Allium longanum* Pamp. in Bull. Soc. Bot. Ital.: 116-17 (1912)

**Type:** Holotypus: [Libia, Cirenaica]: Derna - sponde cespugliose, sull' Uadi Derna e sul Halg Ben- Rues, febbraio - marzo 1912. Leg. M. Longa, (FI), by B.E.E. de Wilde-Duyfjes, in Meded. Landbouwhogeschool, Wageningen 76-11: 143. 1976

**Accepted name:** *Allium longanum* Pamp. see B.E.E. De Wilde Duyfjes: 143. (1976); also in Dobignard & Chatelain, 1: 65. (2010) and El-Gadi, in Fl. Lib. 33: 12. (1977); marked by De Wilde Duyfjes, 10/1973

**Note:** previously marked (in sched.) as Holotype by B.E.E. de Wilde-Duyfjes, 10/1973.

**New taxon:** *Allium nigrum* var. *papillosum* Pamp. in Bull. Soc. Bot. Ital.: 13 (1914a); Pl. Tripol. p.: 46-47 (1914e)

**Type:** Lectotypus: [Libia], Tripolitania, Tarhuna: Ras Ghenai (1564), 25 marzo 1913. Leg. R. Pampanini, (FI) by B.E.E. de Wilde-Duyfjes, in Meded. Landbouwhogeschool, Wageningen 76-11: 201. (1976)

Syntypus: [Libia], Tripolitania: Colline ad est di Kasr Tarhuna (2111), 4 aprile 1913. Leg. R. Pampanini. (FI)

**Accepted name:** *Allium orientale* Boiss. by B.E.E. de Wilde-Duyfjes: 200, 201. (1976); also in Fl. Lib. 33: 5. (1977)

**Note:** in Pl. Tripol (1914e), Pampanini had already allocated the taxon he had shortly before described as a synonym of *Allium aschersonianum* Barbey. For this reason the material of the original collection only carries this second epithet.

**New Taxon:** *Allium ruhmerianum* Asch. ex E. A. Durand & Barratte, in Fl. Lib. Prodr.: 234, Fig. 18. (1910)

**Type:** Isotypus: Libya, Cyrenaica: Benghazi, 15/12/1882 (332). Leg. G. Ruhmer (FI, G), see De Wilde-Duyfjes B.E.E. in Meded. Landbouwhogeschool, Wageningen 76-11: 182 (1976); marked by De Wilde-Duyfjes B.E.E., 10/1973. Holotypus (G)

**Accepted name:** *Allium ruhmerianum* Asch. ex E. A. Durand & Barratte in De Wilde-Duyfjes B.E.E.: 182. (1976)

**Note:** In FI there are 2 specimens (Iso).

**New taxon:** *Allium tenuiflorum* var. *pseudotenuiflorum* Pamp. in Bull. Soc. Bot. Ital.: 13 (1914a); Pl. Tripol.: 48 (1914e)

**Type:** Lectotypus [Libia], Tripolitania, Mesellata: Colline a N. W. di Cussabat (2968), 12/04/1913. Leg. R. Pampanini, (FI), by B.E.E. De Wilde-Duyfjes, in Meded. Landbouwhogeschool, Wageningen 76-11: 98. 1976.

Other syntypes from the Original collection: [Libia], Tripolitania, Mesellata: Cussabat, verso Sliten a Kasr Buharb (3157), 13/04; T.: fra Gherrim e Sindara (3350), 15/04; T., Tarhuna: Uadi Ksea sul Ras Argobinani (2420), 08/04; T. Garian: Uadi Garian (3911), 27/04; T.: Uadi El Arbaa presso Tebedut (4173), 01/05; T.: Ras Bu Ganus (3990), 27/04/1913; Leg. R. Pampanini (all in FI)

**Accepted name:** *Allium paniculatum* L. see B.E.E. De Wilde-Duyfjes: 95, 98. (1976); (marked by B.E.E. De Wilde-Duyfjes, 1976)

**Note:** in Dobignard & Chatelain, 1:71 (2010), the binomial is recognised as correct, but the occurrence of the taxon in Libya is considered dubious. Previously marked as Lectotypus by B.E.E. De Wilde-Duyfjes 1976, the specimen n° 2968 and, as syntypi, only specimens n° 3157, 3350.

### *Anacardiaceae*

**New taxon:** *Pistacia lentiscus* var. *typica* f. *nervosa* Pamp. in Arch. Bot. (Forli); XII(1): 35. (1936a); Rend. Sem. Fac. Sc. Univ. Cagliari VIII(3): 70 (1938b)

**Type:** Libia, Cirenaica: El Gubba (4789), 7/04/1933. Leg. R. Pampanini, (FI003866), (Lectotypus designated here).

Other syntype from the Original collection: Libia, Cirenaica, El Gubba: Uadi Marascersera (4790), 6/05/1934. Leg. R. Pampanini & R.E.G. Pichi Sermolli, (FI003867).

**Accepted name:** *Pistacia lentiscus* L. subsp. *lentiscus*, in Al Saghir & Porter, 2012. Amer. J. Pl. Sci. 3: 12-32. (2012).

**Note:** in Pampanini (1938b) the taxon is recognised as *P. lentiscus* L. var. *genuina* K. Shneid. f. *nervosa* Pamp.

**New taxon:** *Pistacia lentiscus* var. *latifolia* f. *obovata* Pamp. in Arch. Bot. (Forli) XII(1): 35. (1936a); Rend. Sem. Fac. Sc. Univ. Cagliari VIII(3): 70 (1938b)

**Type:** Libia, Cirenaica fra El Garib e Tolmeta: U. El Fahaga (4773), 14/04/1933. Leg. R. Pampanini, (FI003861), (Lectotypus designated here).

Other syntypes from the Original collection: Libia, Cirenaica, Tocrá: Uadi Bakur (4776), 6/04, (FI003863); C., El Beda: Uadi El Kuf l.d. Umm El Fachar (4775), 27/04,

(FI003864); C.: Uadi El Atrun (4777), 14/05/1934. Leg. R. Pampanini & R.E.G. Pichi Sermolli, (FI003865).

Original material: Libia, C.: fra Tecniz e Maraua (4774), 17/04/1933. Leg. R. Pampanini, (FI003862).

**Accepted name:** *Pistacia lentiscus* L. subsp. *lentiscus*, in Al Saghir & Porter, 2012. Amer. J. Pl. Sci. 3: 12-32. (2012).

**Note:** although belonging to the original collection, specimen 4774 was not cited in Pampanini (1938b).

### *Apiaceae*

**New taxon:** *Ammoides verticillata* var. *pentamera* Pamp. in Arch. Bot. (Forli) XII(1): 40. (1936a); Rend. Sem. Fac. Sc. Univ. Cagliari VIII(3): 72 (1938b)

**Type:** Holotypus: Libia, Cirenaica, tra Bengasi e Tocra: Driana (5404), 5/04/1933. Leg. R. Pampanini, (FI003868).

**Accepted name:** *Ammoides pusilla* (Brot.) Breistr. s. l.

**New taxon:** *Bupleurum protractum* var. *heterophyllum* f. *simplex* Pamp. in Bull. Soc. Bot. Ital.: 14 (1914a); Pl. Tripol. p.: 162 . 1914e (sub *Bupleurum subovatum* Link var. *heterophyllum* Boiss f. *simplex* Pamp. comb nov.)

**Type:** [Libia], Tripolitania, Tarhuna: Uadi Msaaba, (1481 on label, and confirmed in Pl. Tripol.), 22 /03/1913 (on label). Leg. R. Pampanini, (FI003677), (Lectotypus designated here).

Other syntypes from the Original collection:[Libia], T., Ta.: Uadi Msaaba (806), 18/03; T., Ta: Uadi Zafrania (2905), 12/04 (on the label); T., Garian: Uadi Guassem (on he label) ad Ain Binga (4267), 02/05/1913; Leg. R. Pampanini.

**Accepted name:** *Bupleurum lancifolium* Hornem, in Dobignard & Chatelain, 2: 70 (2011) and Fl. Lib. 117: 62. (1985)

**Note:** The choice of specimen 1481 as lectotypus is linked to the fact that it is the only one that clearly interprets the second part of the protologue. Moreover, the number on the specimen is clearly 1481 (and not 1841 as appears in Bull. Soc. Bot. Ital.: 14 (1914a), as shown on the specimen and subsequently in Pl. Tripol., (1914e) – this was simply a transposition.

In general the collecting data are partly contradictory. We favoured the data on the labels because they better matched the diaries of the collectors (e.g. Pampanini never collected in Tarhuna in the second half of April, contrary to the information published in Pl. Tripolitanae (1914e), regarding specimen 2905. No specimen carries the first determination.

**New taxon:** *Bupleurum protractum* var. *longifolium* Pamp. in Bull. Soc. Bot. Ital.: 14 (1914a); Prod. Pl. Tripol.: 162 (1914e)

**Type:** Tripolitania, Tarhuna: Uadi Tenziua-nelle messi (1962), 1/04/1913. Leg. R. Pampanini, (FI001162), (Lectotypus designated here).

Other syntype from the Original collection: T., Ta.: Ras Ghenai (1619), 25/03/1913. Leg. R. Pampanini, (FI001161).

**Accepted name:** *Bupleurum subovatum* Link ex Spreng.



**Note:** in. Pl. Tripol. (1914e) Pampanini synonymised the taxon with *Bupleurum subovatum* Link ex Spreng.

**New taxon:** *Malabaila suaveolens* f. *delileana* Pamp. in Arch. Bot. (Forli) XII(1): 40. (1936a); Rend. Sem. Fac. Sc. Univ. Cagliari VIII(3): 72 (1938b)

**Type:** Libia, Cirenaica, Martuba: Uadi El Bgar(5618), 8/04/1933. Leg. R. Pampanini, (FI003871), (Lectotypus designated here).

Other syntypes from the Original collection: Libia, Cirenaica, Derna: U. Naga (5619), 9/04, (FI003870); C., Apollonia: l.d. Rgua (5620), 11/04, (FI003869); C. Cirene, U. Buten (5621), 18/04/1933. Leg. R. Pampanini, (FI003872); C., Derna: Chersa (5622), 16/04, (FI003873); C., Derna: Uadi en Naga (5623), 16/04, (FI003874); C.: Uadi Latrun (5624), 14/05/1934. Leg. R. Pampanini & R.E.G. Pichi Sermolli, (FI).

**Accepted name:** *Leiotulus alexandrinus* Ehrenb. in Dobignard & Chatelain, 2: 104 (2011)

**Note:** The specimen: Cyrenaica, Wadi bu Meddas (prob. No. 5625) is not present in FI. There is a typewritten note and copy of a table on specimen 5618 with the description of *Malabaila suaveolens* Coss, and a picture of the plant, respectively. Moreover, the field note that Pampanini wrote to indicate the name of the new taxon to be described is pinned to the left side of the page.

**New taxon:** *Malabaila suaveolens* f. *cossoniana* Pamp. in Arch. Bot. (Forli).XII(1): 40. (1936a); Rend. Sem. Fac. Sc. Univ. Cagliari VIII(3): 72 (1938b)

**Type:** Libia, Cirenaica, Bengasi: Has es Sceilabi El Bebas (5590), 11/03/1933. Leg. R. Pampanini, (FI003840), (Lectotypus designated here).

Other syntypes from the Original collection: C., Bengasi: esc Sceleidima (5591), 20/03, (FI003839); C., Tocra: Uadi Bakur (5594), 6/04, (FI003836); C., Gerdes El Abid: Uadi Benia (5592), 29/03, (FI003838); C., Cirene: es Saf-Saf (5598), 18/04, (FI003833); C., Tolmeta: Uadi Bu Msceifa (5600), 23/04, (FI003831); C., Apollonia: l.d. Rgua (5597), 11/04, (FI003832); C., fra Derna e Mechili: Gat ed Dghigh (5596), 10/04, (FI003835); C.: Umm er Rzem a sud est di Barce (5595), 8/04, (FI003834); C.: Mechili (5593), 29/03/1933. Leg. R. Pampanini, (FI003837); C., tra Bengasi e Agedabia: Sidi Ahmed El Magrun (5601), 7/04, (FI003841); C., Umm er Rzem a sud est di Barce: Uadi esc Suenia (5602), 18/04, (FI003856); C., fra Derna e El Mechili: Bir Bu Arzagh (5603), 19/04, (FI003855); C.: Gabr-Ali presso Caulan (5605), 20/04, (FI003853); C., Cirene: es Saf Saf (5607), 21/04, (FI005607); C.: Lamluda (5604), 21/04, (FI003854); C., El Beda: Uadi Messaf saf –Ain Legueila (5606), 22/04, (FI003852); C.: U. Beregd (5608), 24/04, (FI005608); C.: Slonta (5609), 25/04, (FI005609); C., El Beda: U. El Kuf l.d. Umm Fachar (5610), 27/04, (FI003848); C., Messa: Uadi Tmista (5612), 29/04, (FI003842); C., Messa: Gasr ez Zaarura (5613), 03/05, (FI003843); C., El Abrach: Mghernes (5614), 04/05, (FI003844); C., El Beda: U. Scisu (5615), 07/05, (FI003845); C., Messa a ovest di Cirene-Sfonta: l.d. Ruheina (5616), 08/05, (FI003846); C., El Beda: U. Msuria (5617), 10/05/1934. Leg. R. Pampanini & R.E.G. Pichi Sermolli, (FI003847).

Original material: Cirenaica: U. Buten (5599), 18/04/1933. Leg. R. Pampanini; C.: El Ghegab a sud di Cirene (5611), 28/04/1934. Leg. R. Pampanini & R.E.G. Pichi Sermolli (all in FI).

**Accepted name:** *Leiotulus alexandrinus* Ehrenb., in Dobignard & Chatelain, 2: 104 (2011)

**Note:** the specimen: Cyrenaica, Wadi Bu Meddas (no. ?) Leg. Pampanini is not present in FI; specimens no. 5599 and 5611 are part of the original collection but not published.

**New taxon:** *Orlaya maritima* var. *tarhunensis* Pamp. in Bull. Soc. Bot. Ital.: 15 (1914a); Pl. Tripol.: 165-66 (1914e)

**Type:** Holotypus: [Libia], Tripolitania, Tarhuna: colline a est di Kasr Tarhuna (1791), 28/04/1913; Leg. R. Pampanini. (FI).

**Accepted name:** *Pseudorlaya pumila* (L.) Grande, in Dobignard & Chatelain, 2: 107 (2011)

**New taxon:** *Pachyctenium* Maire & Pampanini. in Arch. Bot. (Forlì) XII(1): 176. (1936c)

**Type:** *Pachyctenium mirabilis* Maire & Pampanini.

“*Habitat haud rarum in saxosis aridissimis oropedii Cyrenaici centralis nec non circa Berenicem, hodie Bengasi*”.

**New taxon:** *Pachyctenium mirabilis* Maire & Pampanini. in Arch. Bot. (Forlì) XII(1): 176-78. (1936c); Rend. Sem Fac. Sc. Univ. Cagliari VIII(3): 72 (1938b)

**Type:** Libia, Cirenaica, El Beda: Uadi Beregd (5637), 27/04/1934. Leg. R. Pampanini & R. Pichi Sermolli. (FI). (Lectotypus designated here, plant on the top at right) Isolectotypus (FI) (on the same sheet of Lectotypus)

Other syntypes from Original collection: L., C.: Slonta, steppa sassosa (5633), 17/03; C.: Slonta, steppa Poterium (5634), 17/03; C., Cirene: Borgù l.d. Melchifaf (5632), 7/04/1933. Leg. R. Pampanini. C.: Slonta, macchia (5636), 25/04; C., Cirene: Borgù (5838), 30/04; C., El Beda (5641), 15/05; C., El Beda: l.d. Ain Relleg (5635), 24/04; C., El Beda: Uadi Scisu (5640), 07/05; C., El Abrach: Mghernes (5639), 4/05/1934. Leg. R. Pampanini & R.E.G. Pichi Sermolli (all material in FI).

**Accepted name:** *Pachyctenium mirabilis* Maire & Pampanini see S. M. H. Jafri in Fl. Lib. 117: 128 (1985) and also in Dobignard & Chatelain, 2: 107 (2011)

**Note:** The taxon protologue (Pampanini 1936c) does not mention any specimen but gives a description of the area where it can be found: “*Habitat haud rarum in saxosis aridissimis oropedii Cyrenaici centralis nec non circa Berenicem, hodie Bengasi*”.

The material from the original collection relating to the taxon and found in the herbaria are as follows: 1 specimen in MPU in the R. Maire Herbarium (MPU010127): “Cirenaïque: Haut plateau près de Cyrène lieux arides pierreux (2571, by pen and 7 by pencil, n<sup>ers</sup> of Maire Herbarium editor’s note), s.d. Leg. R. Pampanini”. Some photographic and graphic documents are strictly related to the specimen. As can be seen from the documents on the herbarium sheet, the specimen was disinfected before it was accepted in the herbarium in 1933. The sheet also specifies it as *typus*. Therefore, as the specimen was collected by Pampanini, it was collected in 1933, the year of his first journey to Cyrenaica.

However, there is no mention of the date in the protologue, therefore the material collected together with Pichi Sermolli, still in Cyrenaica in 1934, must also be ascribed to the original collection, considering that both collections are from Cyrenaica. There are a total of 10 specimens, of which 3 were collected in 1933. They are all held in FI.

There is also a table attached to the protologue consisting of a photo of an *exsiccatum* (Fig. 8) of the new taxon without any documentation. We attempted to check whether there was any specimen among the material which in some way could be identified with this picture. This specimen was identified with a plant on sheet n° 5637 (Fig. 9), in particular the specimen on the upper right. It has partly deteriorated in respect to when it was first set on the sheet, but as can be seen from our reconstruction of the missing part in (Fig. 10), it is undoubtedly the one used in the table in the protologue.

Also the specimen present in MPU (Herbier Maire): Cirenaïque: Haut plateau près de Cyrène leaux arides pierreux, ( 2571, by pen and 7 by pencil, n<sup>ers</sup> of Maire Herbarium editor's note), s.d. (prob., 1933, editor's note). Leg. R. Pampanini, labelled as *typus*, is a *Syntypus* (sub *Daucus mirabilis* Maire & Pampanini – nom. nud.). On the sheet there is an autographic label by R. Maire. In Arch. Bot. (Forli) XII(1): 176 as *P. mirabile*.

**New taxon:** *Ptychotis ammoides* var. *pusilla* Pamp. in L'Agr. Coloniale XV(6): 331 (1921)

**Type:** [Libia], Cirenaica: steppa fra Agedabia e Zuetina, 04/1919. Leg. A. Maugini, (FI003858), (Lectotypus designated here).

Other syntypes from the Original collection: [Libia], Cirenaica: Bengasi, presso il lago salato (121), 7/04/1913. Leg. A. Vaccari, (FI003859) (sub *P. ammoides* Kock); C., Be: Fuehat, pascoli aridi (75), 05/1915. Leg. V. Zanon, (FI003860) (sub *P. ammoides* Kock); Tripolitania, Misurata: Bir Gardabia, 14/04/1913. Leg. A. Trotter, (FI003857) (sub *P. ammoides* Kock).

**Accepted name:** *Ammoides pusilla* (Brot.) Breist. In Dobignard & Chatelain, 2: 112 (2011) [= *Seseli pusillum* Brot.], and also in Le Floch (2010)

**Note:** The lectotypus of *Ptychotis ammoides* var. *pusilla* Pamp. is the only specimen of this taxon collected by Maugini in Cyrenaica but in Pampanini (1921b), the locality quoted is: "Steppa fra Ghemines e Zuetina". In fact Maugini collected in the area between Ghemines and Agedabia (Zuetina is enclosed in this area) in April 1919, so, probably, the published area is partially wrong ;

The specimen: Cyrenaica, Bengasi, between Punta Giuliana and Punta Buscaiba, 1912. Leg. Vaccari is not present in FI. There are a further three specimens in the Herbarium which Zanon collected in 1916 in the Bengasi area and can probably be considered as belonging to the original collection.

### *Araceae*

**New taxon:** *Biarum bovei* var. *zanonii* Pamp. in Nuovo Giorn. Bot. Ital. n.s., XXIV: 124 (1917)

**Type:** [Libia], Cirenaica, Bengasi: Raaba, nella steppa (216), 2/12/ 1915. Leg. V. Zanon, (FI) (Lectotypus designated here)

Isolectotypus (FI) (see note)

Other syntype from the Original collection: [Libia, Cirenaica]: Guarcia (189), 27/12/1916. Leg. V. Zanon, (FI)

**Accepted name:** *Biarum dispar* (Schott) Talavera in P. C. Boyce (2006) also in Dobignard & Chatelain, 1: 85 (2010).

As *Biarum bovei* Blume in El Gadi A., Fl. Lib. 41: 4. (1977b)

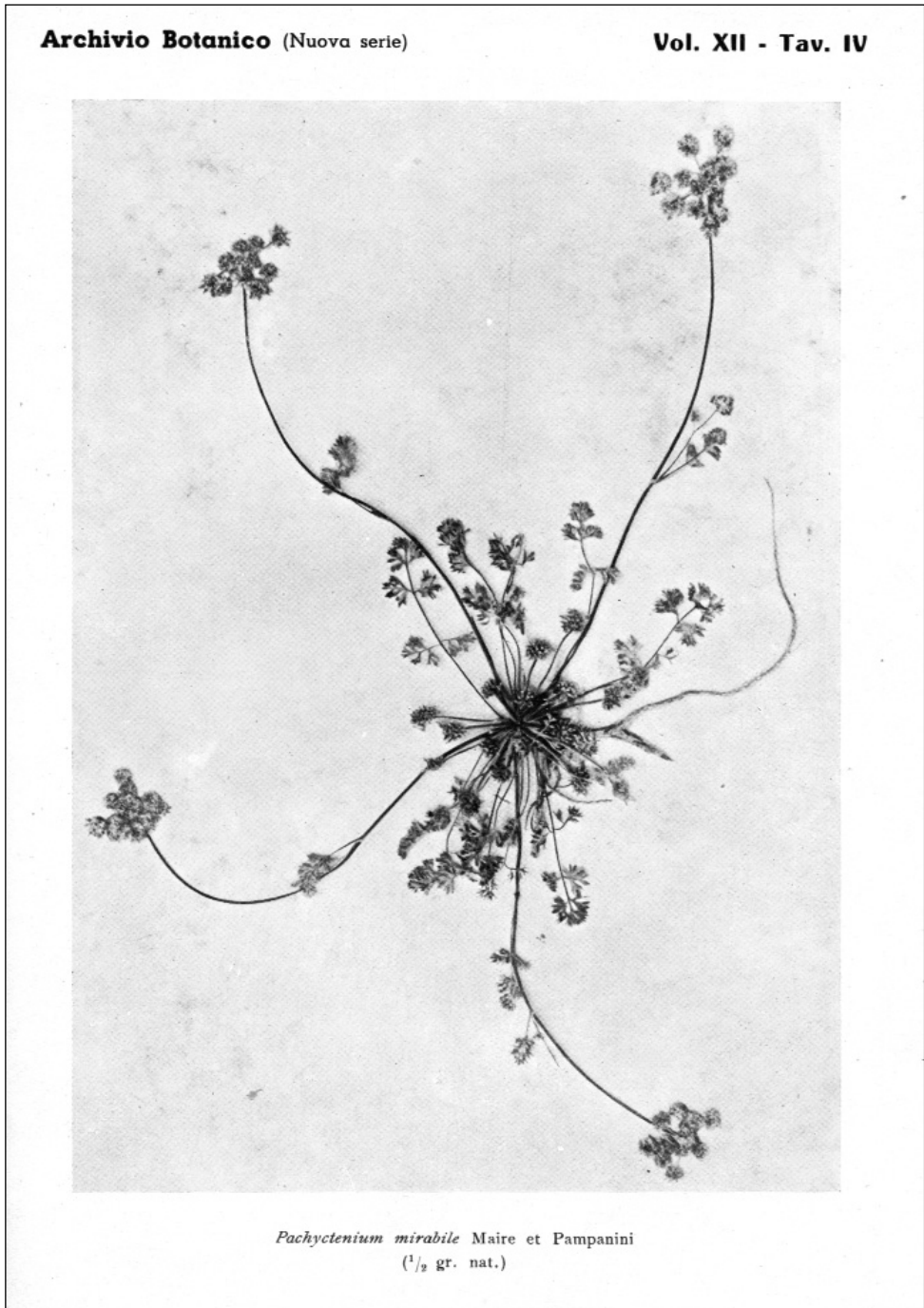


Fig. 8. Original photograph of a specimen of *Pachyctenium mirabile* Maire & Pamp., from Arch. Bot. (Forlì) 12 (1)-table 4. (1936).

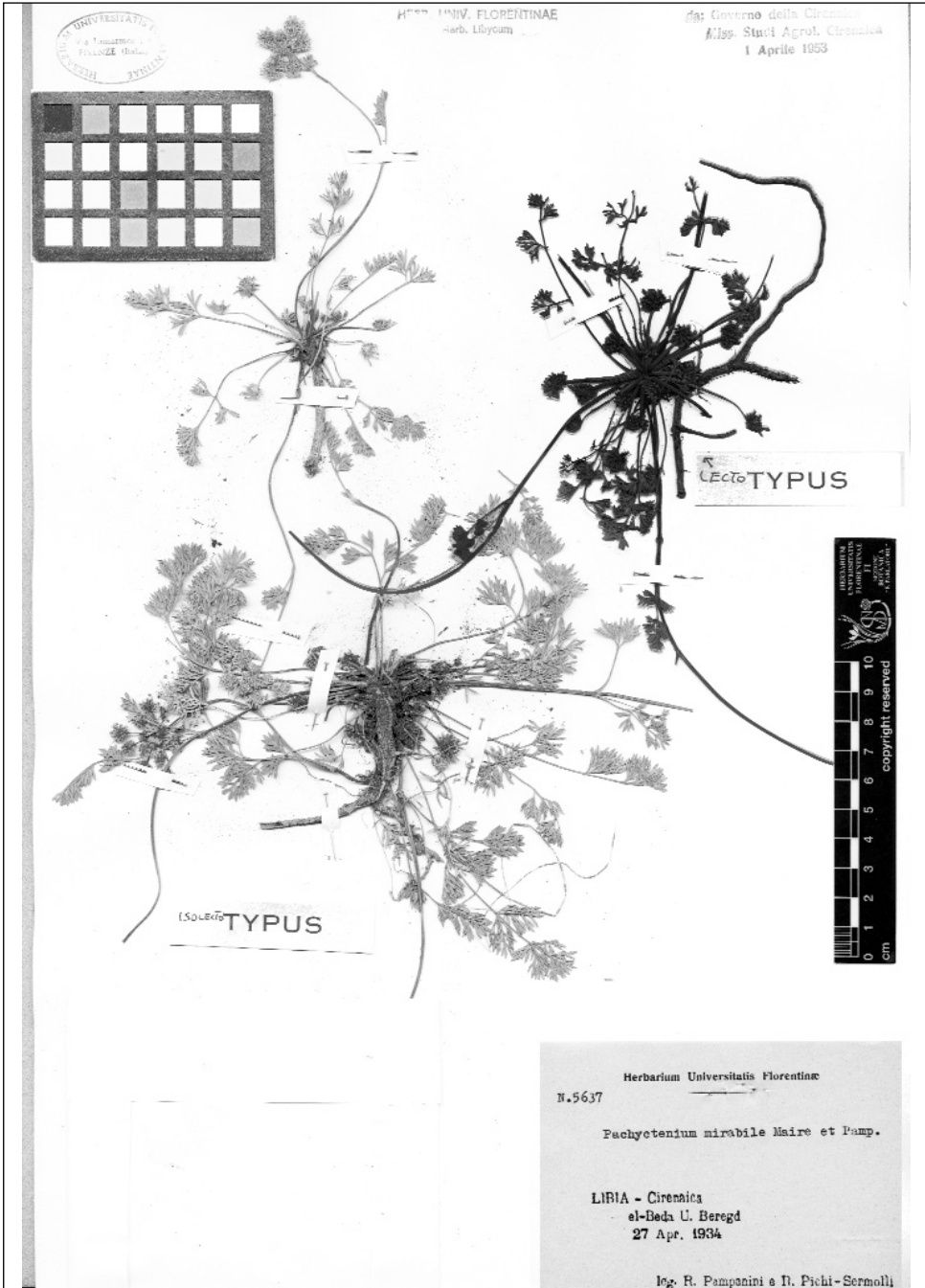


Fig. 9. Specimen n° 5637, collected in Libya in 1933 by R. Pampanini and containing the specimen of *Pachyctenium mirabile* Maire & Pampanini photographed in Arch. Bot. 12(2). 1936, emphasised top right on sheet.

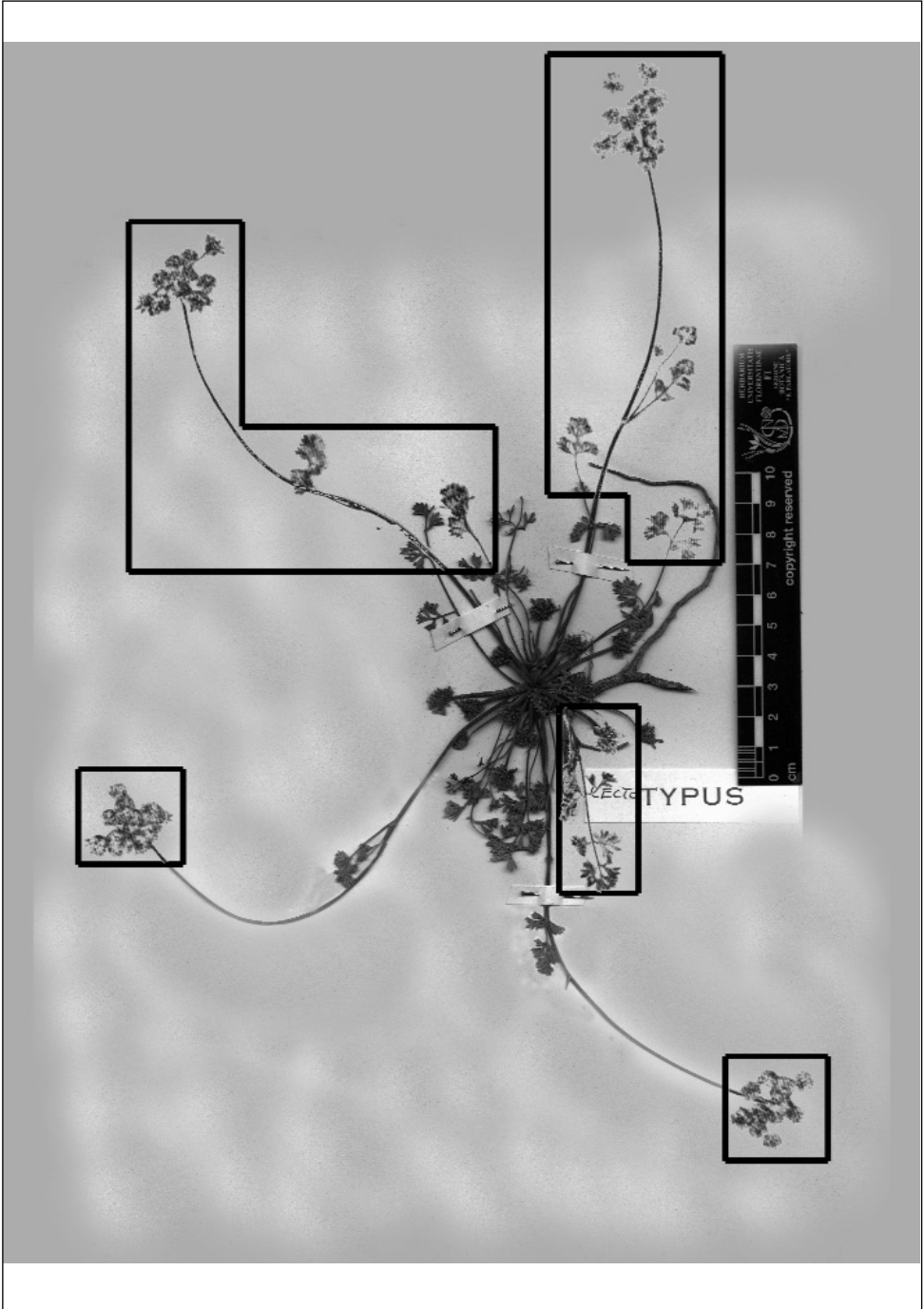


Fig. 10. Reconstruction of the specimen of *P. mirabile*, showing the parts missing today with respect to the original (see Fig. 8).

**Note:** Among the specimens collected at Raaba (n. 216), one (isolectotypus) has the original label from the Zanon Herbarium of the Missionary Institute “Istituto agricolo della missione Giuseppina. Fueyat-Bangasi” (Agricultural Institute of the Giuseppina Mission. Fuevat-Bengasi). It is signed and in pencil is written “see also the *pugillo* on the sand”. The specimen chosen as lectotype, as it fits the protologue better, also has a signed field label. Specimen no. 189 is erroneously numbered 2016, but all the data on the signed field label refer to n° 189 (see Pampanini 1917a).

### *Asteraceae*

**New taxon:** *Amberboa crupinoides* var. *libyca* f. *alba* Pamp. in Arch. Bot. (Forlì), XII (1): 45. (1936a); Rend. Sem. Fac. Sc. Univ. Cagliari VIII(3): 76 (1938b)

**Type:** Holotypus: Libia, Cirenaica, Martuba a sud est di Barce: Uadi Bgar (7908), 8/4/1933. Leg. R. Pampanini, (FI003399).

**Accepted name:** *Volutaria crupinoides* (Desf.) Maire, in Dobignard & Chatelain, 2: 144 (2011); (marked by Wagenitz G., 4/5/1990)

**Note:** in Dobignard & Chatelain, 2. 2011, infraspecific taxa below the rank of variety are generally not considered and are included in the immediately higher rank, as in this case.

**New taxon:** *Amberboa lippii* var. *intermedia* Pamp. in Arch. Bot. (Forlì), XII (1): 45. (1936a); Rend. Sem. Fac. Sc. Univ. Cagliari VIII(3): 76 (1938b)

**Type:** Holotypus: Libia, Cirenaica: fra Bir Acheim e Mechili-Tvigh Enver Bei-Giof Bu Asher (7912), 26/03/1933. Leg. R. Pampanini, (FI003400).

**Accepted name:** *Volutaria lippii* (L.) Maire s. l. (marked by G. Wagenitz, 4/5/1990)

**Note:** Too damaged by insects for exact determination – G. Wagenitz, 04/05/1990.

**New taxon:** *Anacyclus alexandrinus* f. *capillifolius* Pamp. in Bull. Soc. Bot. Ital.: 19 (1914a); Pl. Tripol.: 243-44 (1914e)

**Type:** [Libia], Tripolitania, Tripoli: Suani Beni Aden (217), 25/02/1913. Leg. R. Pampanini, (FI001187), (Lectotypus designated here).

Other syntypes from the Original collection: [L.], T., Tripoli: Suani Beni Aden al Saniet Mohamed (236), 25/02, (FI001213); T., Tarhuna: Uadi Msaaba a Kars Doga (4557), 18/03/1913. Leg. R. Pampanini, (FI001214).

**Accepted name:** *Anacyclus monanthos* (L.) Thell., in Fl Lib. 107: 157 (1983)

**Note:** specimen 4557 is badly damaged; in Dobignard & Chatelain, 2: 145 (2011) the Libyan material for *A. alexandrinus* Wild. collected in Tripolitania are considered  $\equiv$  *A. monanthos* subsp. *cyrtolepidioides* (Pomel) Humphries in Bull. Brit. Mus. (Nat. Hist.) Bot. 7: 118. (1979).

**New taxon:** “*Anacyclus alexandrinus* var. *pseudovalentinus* Pamp.” (FI Herb., in sched.).

Original material: [Libia], Tripolitania: Giado, 10-12/04/1930. Leg. O. Bargagli Petrucci, (FI).

**Note:** This is material already identified by Pampanini as *Anthemis kruegeriana* Pamp. (Pampanini 1931) and subsequently described as a new taxon, *Anacyclus kruegerianus* Pamp., together with other material collected by Zenari in Tripolitania in 1932 (Pampanini 1933). Later, still in 1933, Pampanini (in FI Herb. sched.) used these spec-

imens and others in the PAD Herbarium (Marcucci in *litteris*, 10-04-2014) to identify a new taxon: *Anacyclus alexandrinus* Willd. var. *pseudovalentinus* Pamp. which he confirmed in 1937 from the FI. specimens. No publication on these handwritten indications ever followed.

**New taxon:** *Anacyclus alexandrinus* f. *tomentosus* Pamp. in Arch. Bot. (Forlì), XII (1): 45. (1936a); Rend. Sem. Fac. Sc. Univ. Cagliari VIII(3): 76 (1938b)

**Type:** Holotypus: Libia, Cirenaica, Agedabia: U. Faregh ad El Haseiat (7956), 9/4/1934. Leg. R. Pampanini & R.E.G. Pichi Sermolli, (FI001188).

**Accepted name:** *Anacyclus monanthos* (L.) Thell. subsp. *cyrtolepidioides* (Pomel) Humphries in Dobignard & Chatelain, 2: 145 (2011), according to material collected in Tripolitania of *A. alexandrinus* Willd.

**New taxon:** *Anacyclus kruegerianus* Pamp. in Arch. Bot. Sist. 9: 101. 1933; Arch. Bot. (Forlì), VII: 105 (1931a)

**Type:** [Libia], Tripolitania: “serir” a sud di Sinauen (pochi giorni dopo la pioggia-rugiada notturna abbondante), 28/03/1932. Leg. S. Zenari, (PAD) (Lectotypus designated here). Other syntypes from Original collection: [Libia], Tripolitania: Giado, 10-12/04/1930. Leg. O. Bargagli Petrucci, (FI001190); T., fra Tescia e Mizda: sulle “gare” calcaree e basaltiche di Caf El Berber (predeserto fiorito), 24/03; T.: Oasi di Sinauen , al margine fra oasi e deserto (pochi giorni dopo la pioggia), 26/03/1932. Leg. S. Zenari, (PAD).

**Accepted name:** *Anacyclus monanthos* (L.) Thell. s.l.

**Note:** The specimen Countess O. Bargagli Petrucci collected at Giado (Tripolitania) in 1930 (cfr Pampanini, 1931a) and first identified by Pampanini as *Anthemis kruegeriana* Pamp., in 1933 Pampanini specified as an immature form of the new taxon *Anacyclus kruegerianus* Pamp., as described in the protologue (which cites the wrong Bibliographic reference for “1932”) also using, for the description, more mature material (2 specimens) which Silvia Zenari collected in 1932.

Therefore at PAD it appears that there are as many as 3 specimens that can refer to *Anacyclus kruegerianus* Pamp. (by R. Marcucci & P. Cuccuini).

**New taxon:** *Anthemis cyrenaica* var. *radiata* Pamp. in Arch. Bot. (Forlì), XII (1): 46. (1936a); Rend. Sem. Fac. Sc. Univ. Cagliari VIII(3): 76 (1938b)

**Type:** Lectotype: (Libya) “Cirenaica, fra Bir Acheim e Mechili: l.d. Bir Zeidan (7933), 26/03/1933. Leg. R. Pampanini, (FI001186), by Ch. Oberprieler in Boccone 9: 194 (1998)

**Accepted name:** *Anthemis cyrenaica* Coss., see Ch. Oberprieler in Boccone 9: 194. (1998), also in Dobignard & Chatelain, 2: 155 (2011) and in Fl. Lib. (Alavi, 1983)

**Note:** This taxon previously marked in FI by Ch. Oberprieler (07/04/1998) as *Anthemis cyrenaica* var. *radiata* Pamp.

**New taxon:** *Anthemis indurata* var. *angulata* Pamp. in Bull. Soc. Bot. Ital.: 19 (1914a); Pl. Tripol.: 245 (1914e)

**Type:** Lectotypus:[Libya], Tripoli: Gargaresc (3425), 21/04/1913. Leg. R. Pampanini, (FI001185), by C. Oberprieler in Boccone 9: 199. (1998).



Syntypus : [Libya], Tripolitania: fra Tripoli e Gargaresc (15), 14/02/ 1913, Leg. Pampanini, (FI003461).

**Accepted name:** *Anthemis glareosa* E. Durand & G. Barratte (marked by Oberprieler, 7/4/1998); see C. Oberprieler in Bocconea 9: 198 (1998), also in Dobignard & Chatelain, 2: 155 (2011)

**Note:** according to *The Plant List* (2013). Version 1.1. (checked 05/2014)= *A. indurata* Delile; in Fl. Lib. is = *Anthemis secundiramea* Biv. (Alavi S. A. 1983).

**New taxon:** *Anthemis kruegeriana* Pamp. in Agric. Colon. 10: 365-366 (1928)

**Type:** Lectotypus: [Libia], Cirenaica, Sirtica or.: Fra l'Uadi Faregh e Maatan Risam, 18/04/1928. Leg. G. Krueger, (FI001183) see C. Oberprieler, in Bocconea 9: 203 (1998); (marked as Lectotypus in FI by Ch. Oberprieler 8/4/1998).

Syntypus: [Libia], Cirenaica, Sirtica or.: a sud di Gasr es Sahabi, 20/4/1928. Leg. G. Krueger, (FI003462).

**Accepted name:** *Anthemis kruegeriana* Pamp. see Ch. Oberprieler in Bocconea 9: 203 (1998).; also Fl. Lib. 107: 132 (1983) and Dobignard & Chatelain, 2: 155 (2011)

**Note:** The herbarium sheet with the designated Lectotypus bears a second, published in (Pampanini, 1928c) with collection data signed by Kreuger. As the specimen is complete, perfectly matches the description by Pampanini and is provided with the collection data including the signatures of the collector, perhaps (considering that Oberprieler declares not to have read the protologue, Oberprieler, 1988) it would have been better to designate this specimen as Lectotypus.

**New taxon:** *Anthemis pichii* Pamp. in Arch. Bot. (Forlì), XII (1): 47. (1936a), sub *A. tauberti*, Prodr. Fl. Cir.: 490 (p.p.: specim. Vaccari [Tobruk])

**Type:** Holotypus: [Libia, Cirenaica], Marmarica: Tobruk, arene marittime (419), 18/4/1912. Leg. A. Vaccari, (FI001198), see Oberprieler, in Bocconea 9: 217 (1998), (marked as Lectotypus by Oberprieler, 08-04-1998, specimen with autographic label of Vaccari);

Isotypus: ibid. (FI001199). (marked as Isolectotypus by Oberprieler, 08-04-1998, with autographic label of R. Pampanini)

**Accepted name:** *Anthemis taubertii* Durand & Barratte by Oberprieler in Bocconea 9: 215, 217 (1998); also in Dobignard & Chatelain, 2: 158 (2011) and in Alavi S. A. (1983), (marked by Ch. Oberprieler, 8/4/1998)

**Note:** specimen FI001199 (Isotypus), as Pampanini intended, is indicated as a new species, “*Anthemis marmarica* Pamp.”, never published (Pamp., in sched. Herb. Flor., 1935).

**New taxon:** *Anthemis rotata* var. *auriculata* Pamp. in Arch. Bot. (Forlì), XII (1): 46. (1936a); Rend. Sem. Fac. Sc. Univ. Cagliari VIII(3): 77 (1938b)

**Type:** Lectotypus: Libia, Cirenaica: El Agheila (8019), 14/03/1933. Leg. R. Pampanini, (FI001184). (marked by Ch. Oberprieler, 8/4/1998); see Ch. Oberprieler, in Bocconea 9: 203 (1998).

Other original material: L., C.: Saniet El Hamar a sud est di Agedabia (8016), 12/03; C., fra Agedabia e Gtafia : l.d. Bir Gelulia (8018), 13/03; C.: Sidi Ahmed El Magrun a nord di Bengasi (8017), 12/03/1933. Leg. R. Pampanini, (FI); L., C.,

[Sirte], Marsa El Brega: Sidi Mohamed Scerif (8020), 8/04/1934. Leg. R. Pampanini & R.E.G. Pichi Sermolli, (FI).

**Accepted name:** *Anthemis kruegeriana* Pamp. by Oberprieler, in *Bocconea* 9: 203 (1998); also Dobignard & Chatelain, 2: 159 (2011), (marked by Ch. Oberprieler 8/4/1998)

**New taxon:** *Anthemis scaettae* Pamp. in *Bull. Soc. Bot. Ital.*: 75 (1925c)

**Type:** Holotypus: [Libia], Cirenaica: Merg, ciglione del II° terrazzo, 10/03/1925 [on the specimen there is only the year (editor's note)]. Leg. H. Scaetta, (FI001182), see Oberprieler, in *Bocconea* 9: 215, 217 (1998); (previously marked as Lectotypus by Ch. Oberprieler 8/4/1998).

**Accepted name:** *Anthemis taubertii* E. A. Durand & Barratte, see Ch. Oberprieler in *Bocconea* 9: 215 (1998); (marked by Ch. Oberprieler 8/4/1998)

In *Fl. Lib.* (Alavi S. A., 1983) and in Dobignard & Chatelain, 2: 159 (2011) as *Anthemis taubertii* Durand & Barratte

**Note:** the author (Pampanini, 1938b) had already created a comb. nov. and stat. nov.  $\equiv$  *A. tauberti* f. *scaettae* (Pamp.) Pamp.

**New taxon:** *Anthemis taubertii* var. *arenicola* Pamp. in *Rend. Sem. Fac. Sc. Univ. Cagliari* VIII(3): 77 (1938b)

**Type:** Holotypus: Libia, Cirenaica: Hania (8044), 7/04/1934. Leg. R. Pampanini & R.E.G. Pichi Sermolli, (FI), see Oberprieler, in *Bocconea* 9: 217 (1998), (previously marked as Lectotypus by Ch. Oberprieler, 7/4/1998).

**Accepted name:** *Anthemis taubertii* Durand & Barratte, see Oberprieler, in *Bocconea* 9: 215, 217 (1998); also in Dobignard & Chatelain, 2: 160 (2011); (marked by Ch. Oberprieler, 8/04/1998).

**Note:** in *Fl. Lib.* (Alavi S. A., 1983) = *A. taubertii* Durand & Barratte; in *Webbia* 34(1): 171. 1979b,  $\equiv$  *A. taubertii* subsp. *arenicola* (Pamp.) Brullo & Furnari.

**New taxon:** *Anthemis taubertii* var. *coronata* Pamp. in *Rend. Sem. Fac. Sc. Univ. Cagliari* VIII(3): 77 (1938b)

**Type:** Lectotypus: Libia, Cirenaica, Tecnis a est di Barce: El Gsur (8047), 15/04/1934. Leg. R. Pampanini & R.E.G. Pichi Sermolli, (FI), by Oberprieler, in *Bocconea* 9: 217 (1998), (marked by Chr. Oberprieler, 7/04/1998).

Other material: Syntypi: [Libia], Cirenaica : Gerdes El Abid (8045), 29/03; Cirenaica : Bu Gassal a sud-est di Barce (8046), 29/03/1933. Leg. R. Pampanini; [Libia], Cirenaica, Tra Bengasi e Tocra: Driana, (8048), 15/04; C.: Maraua a est di Barce (8049), 25/04/1934, Leg. R. Pampanini & R.E.G. Pichi Sermolli, (all material in FI).

**Accepted name:** *Anthemis tauberti* E. A. Durand & Barratte, see Oberprieler, in *Bocconea* 9: 215, 217 (1998); also in Dobignard & Chatelain, 2: 160 (2011) and in *Fl. Lib.* (Alavi S. A., 1983); (marked by Chr. Oberprieler, 7/04/1998)

**New taxon:** *Artemisia marcelli* Pamp. in *Atti Ist. Veneto Sci. Lett. Arti*, XCII: 232 (1932)

**Type:** [Libia], Fezzan, Gebel Soda: incrocio delle carovaniere El Gaf-Brach-Sciuref, serir Ben Aafen, 4/4/1931. Leg. A. Marcello, (PAD- H0040938), (Lectotypus designated here).

Isolectotypi: H0040936, H0040937 (PAD)

**Accepted name:** *Artemisia herba-alba* Asso s. l.

**Note:** This taxon is not present in FI. All original material is in PAD (three specimens, Marcucci *in litteris*, 10-04-2014). (By R. Marcucci, P. Cuccuini)

**New taxon:** *Asteriscus pygmaeus* f. *exilis* Pamp. in Bull. Soc. Bot. Ital.: 19 (1914a); Pl. Tripol.: 248 (1914e)

**Type:** Holotypus: [Libia], Tripolitania, Garian: Ras Bu Ganus (3929), 27/04/1913; Leg. R. Pampanini, (FI).

**Accepted name:** *Pallenis hierichuntica* (Michon) Greuter s. l., see Greuter in Fl. Mediter. 7: 47. (1997), and in Dobignard & Chatelain, 2: 172 (2011)

**Note:** The collection consists of 8 herbaceous plants that positively correspond to the data in the protologue and coincide well with both the flowering and fruiting phases.

**New taxon:** *Atractylis phazaniae* Corti in. Reale Soc. Geografica Italiana I: 262-63 (1942)

**Type:** [Libia], Fezzan occidentale: Tasili del Nord e Uadi marginali, nell'Uadi in roccia che scende nell'Uadi Iséien (420), 15/03/1934. Leg. R. Corti, (FI003463), (Lectotypus designated here).

Isolectotypi: (419, FI003465); (421, FI003464).

Syntypi: [Libia], Fezzan Settentrionale: tra Bir El Ghelania e Brach, (411) 14/02, (FI001206); L., Fe. occidentale: Reg. di Sérdeles-staz. rocciosa 5 km. a W. di Sérdeles (422), 20/03, (FI001208); L. Fe. occidentale: Uadi Iséien, margini dell'Uadi in stazione rocciosa (418), 15/3/1934. Leg. R. Corti, (FI001207).

**Accepted name:** *Atractylis phazaniae* Corti., in Fl. Lib. 107: 208-09 (1983); also in Dobignard & Chatelain, 2: 176 (2011)

**Note:** Specimens n° 419 and 421 are duplicates of the Lectotypus (420), the specimens on the field card all carried the abbreviation FZ 000342, later Corti obviously numbered the specimens to organise the collection material. However he had already given all of them the partial identification “*Atractylis* sp. nov.” They must therefore all belong to the same collection and are considered isolectotypes. In the Fl. Lib. all the specimens of the original collection are indicated as Syntypes (see Alavi S. A., in Fl. Lib. 107: 208.09. 1983) although the nos. of the specimens are not given.

**New taxon:** *Carduncellus eriocephalus* var. *glaucescens* Cavara in Bull. Orto. Bot. Nap. 9(1): 52. (1928)

**Type:** Original Material: [Libia], Cirenaica, Dune a nord di Agedabia (on the label), Ridotta Tilgher presso Agedabia, 1925, (in: Cavara 1928), 28/04/1925. Leg. F. Cavara, (FI003404).

**Accepted name:** *Carthamus eriocephalus* (Boiss.) Greuter; see Greuter (2003), also in Dobignard & Chatelain, 2: 191 (2011)

**Note:** The original collection is in NAP. The specimen in FI is considered part of the original collection because the locality on the label signed by Cavara is where the “ridotta Tilgher” is located.

**New taxon:** *Carduncellus eriocephalus* f. *pumilus* Pamp. in Bull. Soc. Bot. Ital.: 19. (1914a); Pl. Tripol.: 252 (1914e)

**Type:** Holotypus: [Libia], Tripolitania, Garian: Ras Bu Ganus (3947), 27/04/1913. Leg. R. Pampanini, (FI003403).

**Accepted name:** *Carthamus eriocephalus* (Boiss.) Greuter

**New taxon:** *Carduus pycnocephalus* f. *rhizocephalus* Pamp. in Atti Reale Ist. Veneto Sci. Lett. Arti, XCII: 233 (1932)

**Type:** Original collection: [Libia], Tripolitania, Carovaniera Tripoli-Nalut: Gasr El-Hag, 11/04/1931. Leg. A. Marcello.

**Note:** This taxon is not present in PAD (Marcucci *in litteris*, 05/11/2014).  
(By R. Marcucci & P. Cuccuini)

**New taxon:** *Carduus tenuiflorus* var. *orientalis* Pamp. in Arch. Bot. (Forli). XII (1): 47. (1936a); Rend. Sem. Fac. Sc. Univ. Cagliari VIII(3): 77 (1938b)

**Type:** Holotypus: Libia, Cirenaica: Bu Gassal a sud est di Barce (8325), 29/03/1933. Leg. R. Pampanini, (FI003879).

**Accepted name:** *Carduus tenuiflorus* Curtis

**New taxon:** *Carduus tenuiflorus* var. *orientalis* f. *albiflorus* Pamp., in Arch. Bot. (Forli). XII (1): 47. (1936a); Rend. Sem. Fac. Sc. Univ. Cagliari VIII(3): 77 (1938b)

**Type:** Holotypus: Libia, Cirenaica, Uadi El Kuf: fra Gasr Beni Gdam e Sidi Abd El Uahed (8326), 11/04/1933. Leg. R. Pampanini, (FI003878).

**Accepted name:** *Carduus tenuiflorus* Curtis s. l.

**New taxon:** *Carduus tenuiflorus* var. *orientalis* f. *simplex* Pamp., in Arch. Bot. (Forli).XII (1): 47. (1936a); Rend. Sem. Fac. Sc. Univ. Cagliari VIII(3): 77 (1938b)

**Type:** Libia, Cirenaica: Chaulan (8328), 20/04/1934. Leg. R. Pampanini & R.E.G. Pichi Sermolli, (FI003877), (Lectotypus designated here).

Other syntype from the Original collection: L., C., El Mechili: Uadi Ramla (8327), 27/03/1933. Leg. R. Pampanini, (FI003876).

**Accepted name:** *Carduus tenuiflorus* Curtis s. l.

**New taxon:** *Carlina sicula* var. *libyca* Pamp. in L'Agr. Colon. XV(7): 376-77 (1921)

**Type:** [Libia], Cirenaica: Piana di Merg, 06/1919. Leg. A. Maugini, (FI), (Lectotypus designated here).

Other syntypes from the Original collection: [Libia], Cirenaica: fra Ghemines e Zuetina, 04/1919; C.: Uadi Uardama, 06/1919. Leg. A. Maugini (FI) ; sub. *C. sicula*, [C.], Marmarica: Tobruk, costa sud in collibus aridis saxosis calcareis, 08/1913 (213- sched. F. Lib. Exsic.). Leg. A. Vaccari. (all material in FI).

**Accepted name:** *Carlina sicula* Ten. (marked by H. Meusel & A. Kärstner, 10/10/1971); also in Fl. Lib. 107: 200. (1983).

Subsequently as *Carlina sicula* Ten. subsp. *mareotica* (Asch. & Schweinf.) Greuter in Willdenowia 33(1): 52 (2003), also in Dobignard & Chatelain, 2: 200 (2011)

**Note:** None of the material that Pampanini cites in the protologue and published in Bull. Soc. bot. Fr. 36: 10. 1889; Durr & Barr. Fl. Lib. Prodr.: 138 (1910); Bég. & Vaccari

Contr. Fl. Lib.: 67. 1912 (sub. *C. macrocephala* Coss.), and in Bég. & Vaccari Ann. Bot. 12 (1): 122 (1913b) (sub. *C. sicula*), are held in FI.

**New taxon:** *Carthamus divaricatus* Bég. & Vaccari in Spec. Nuove o rar. Fl. Lib.: 3. (1912); Contr. Fl. Lib. Ministero degli Affari Esteri, Monografie e Rapporti coloniali 16: 68, tav. X, fig. 2. (1912)

**Typus:** Original material: Libia, Cirenaica: Derna, Uadi Derna, 24/05/1912. Leg. A. Vaccari (FI), see Note.

**Accepted name:** *Carthamus creticus* L., in Dobignard & Chatelain, 2: 202 (2011).

As *Carthamus divaricatus* Bég. & Vaccari in Fl. Lib. 107: 306 (1983)

**Note:** the material held in FI is a card index of the Exsiccata Series “Flora Libica Exsiccata n° 226”. The material from the original collection is held in MOD but is difficult to access.

**New taxon:** *Carthamus lanatus* var. *longifolius* Pamp. in Pampanini, Nuovo Giorn. Bot. Ital. 31: 228-229 (1924)

**Type:** [Libia], Cirenaica Bengasi: Rahba, 05/05/1922. Leg. A. Maugini, (FI) (Lectotypus designated here).

Other syntypes from the Original collection: C., Regione di Bengasi: Benina, Bu Mariam, Regima, fra Regima e Benina, 04/1922; C.: Guarscià, 01/03; C.: Rahba, 13/03; C., Regione di Merg: Sidi Gibrin, 17/03, 09/04; C.: bosco Zorda-limite orient, merid-orientale, 18/03; C.: Uadi Seil El Got, 18/03; C.: piana a sud di Merg, 22/03; C.: El Aueila, 23/03; C.: El Gharib, 26/3; C.: Gasr El Maharuga, 31/03; C.: Ridotta Zorda, 30/03; C.: piana a ovest di Merg-ciglione sett., 27/05/1922. Leg. A. Maugini.

Original material: L., C.: piana a ovest di Merg, 9/04; C.: Merg: fra Silina e Sidi Bu Zaid, 31/03; C., Merg: El Gatres, 5/04/1922. Leg. A. Maugini.

**Accepted name:** *Carthamus lanatus* L., by Alavi in Fl. Lib. 107: 309. (1983); see also in Med- Checklist 2: 78. (2008)

Subsequently as *Carthamus creticus* L. in Dobignard & Chatelain, 2: 203 (2011)

**Note:** The material sub “Original material” is not published in Pampanini (1924).

**New taxon:** *Centaurea alexandrina* f. *albiflora* Pamp. in Nuovo Giorn. Bot. Ital. n.s. 24: 157. (1917)

**Type:** Holotypus: [Libia, Cirenaica]: Fuehat (554), 23/03/1916. Leg. V. Zanon (FI).

**Accepted name:** *Centaurea alexandrina* Delile in Dobignard & Chatelain, 2: 206 (2011), also in Fl. Lib. 107: 298 (1883)

**Note:** in Pampanini (1917) this specimen is numbered n° 554bis, whilst the label signed by Zanon only gives n° 554. This can be explained by the fact that on the same day in the same place Zanon collected two specimens of *Centaurea alexandrina*, the first with white flowers and the second with red, the typical colour of *C. alexandrina*. Zanon mentions this characteristic on the field card for this specimen, crossing out the phrase “White flower”. Subsequently in the publication, to distinguish the two specimens (both in FI) relating to two separate taxa, he added the suffix “bis” to the typical specimen and taxon “ter” to the new one.

**New taxon:** *Centaurea alexandrina* f. *basiantha* Cavara in Bull. Orto Bot. Univ. Napoli 9 (1): 52 (1928)

**Typus:** Syntypus: [Libia], Cirenaica: Piana di Gasr Gebeila (Terr di Got es Sas), 14/04/1925. Leg. Cavara, (FI003389), (sub *C. dimorpha* var *polycephala* Cavara).

**Accepted name:** *Centaurea alexandrina* Delile, see Alavi in Fl. Lib. 107: 298 (1983)

**Note:** the original label is signed by Cavara, the indication for locality slightly differs in form from that published (Gasr Gebeila sulla carovaniera Merg-Gerdes). Most part of the original collection (1924-1925) is in NAP.

**New taxon:** *Centaurea alexandrina* f. *brevispina* Pamp. in Arch. Bot. (Forli). XII (1): 47. (1936a); Rend. Sem. Fac. Sc. Univ. Cagliari VII(3): 77-78 (1938b)

**Type:** Libia, Cirenaica, Tolmeta: Uadi Bu Musceifa (8455), 23/4/1933. Leg. R. Pampanini, (FI003391), (Lectotypus designated here).

Other syntypes from the Original collection: L., C.: Driana, fra Bengasi e Tocra (8453), 05/04, FI003394; C. Bengasi: Benina (8452), 11/3, FI003393; C.: fra Tocra e Tolmeta (8454), 23/04/1933 Leg. R. Pampanini. (FI003392); C.: Driana, fra Bengasi e Tocra (8456), 15/04, (FI003390); C., Cirene: Uadi Hofra (8457), 05/05, (FI003395); C.: El Hania (8458), 08/05/1934. Leg. R. Pampanini & R.E.G. Pichi Sermolli, (FI003396).

**Accepted name:** *Centaurea alexandrina* Delile

**Note:** specimen n° 8452 has attached the first signed indication by Pampanini of the new taxon on a sheet of newspaper.

**New taxon:** *Centaurea alexandrina* var. *serratifolia* Bég. & Vaccari in Ann. Bot. (Rome) 12: 123. (1913b)

**Type:** Syntypus: [Libia], Cirenaica: Tolmetta nei campi incolti (941), 15/4/1913. Leg. A. Vaccari, (FI003397).

**Accepted name:** *Centaurea alexandrina* Delile, in Dobignard & Chatelain, 2: 206 (2011)

**Note:** The specimen mentioned in the protologue: Cyrenaica: Marsa Susa in fields (n° ?), 07/06/1913. Leg. A. Vaccari, is not present in FI, probably, like the rest of the original collection, it can be found in MOD.

**New taxon:** *Centaurea contracta* f. *caulescens* Pamp. in Arch. Bot. (Forli).XII(1): 48. (1936a); Rend. Sem. Fac. Sc. Univ. Cagliari VII(3): 78 (1938b)

**Type:** Holotypus: Libia, Cirenaica, El Mechili: sbocco dell'Uadi Tanamlu (8500), 28/3/1933. Leg. R. Pampanini, (FI003398).

**Accepted name:** *Centaurea glomerata* Vahl s. l. in Dobignard & Chatelain, 2: 210 (2011)

**Note:** in Fl. Lib (Alavi, 1983) is = *Centaurea glomerata* Webb & Berthel.

**New taxon:** *Centaurea dimorpha* f. *albiflora* Pamp. in Bull. Soc. Bot. Ital.: 19 (1914a); Pl. Tripol.: 254 (1914e)

**Type:** Holotypus: [Libia], Tripolitania, Tarhuna: pianura dell'Uadi Ksea (2401), 07/04/1914. Leg. R. Pampanini, (FI003401).

**Accepted name:** *Centaurea dimorpha* Viv.

**New taxon:** *Centaurea dimorpha* var. *major* Pamp. in Bull. Soc. Bot. Ital.: 19 (1914a); Pl. Tripol.: 254 (1914e)

**Type:** Holotypus: [Libia], Tripolitania, Tripoli: Gargaesc (3435), 21/04/1913. Leg. R. Pampanini, (FI003402).

**Accepted name:** *Centaurea dimorpha* Viv.

**Note:** in Arch. Bot. (Forlì), XII(2): 48. (1936a), it appears as comb. nov. “*Centaurea dimorpha* Viv. f. *major* (Pamp.) Pamp.

**New taxon:** *Chrysanthemum fuscatum* var. *tripolitanum* Pamp. in Bull. Soc. Bot. Ital.: 19 (1914a); Pl. Tripol.: 256 (1914e)

**Type:** Holotypus: Tripolitania, Tarhuna: Uadi Tenziua (“Tersiva” on the specimen) sul Ras Maader (1996), 01/04/1913. Leg. R. Pampanini, (FI001205).

**Accepted name:** *Heteromera philaenorum* Maire & Weiller in Dobignard & Chatelain, 2: 233 (2011)

**Note:** Le Houéron in Bull. Soc. Bot. France 116: 282. 1970 quotes as stat. nov. *Chrysanthemum tripolitanum* (Pamp.) Le Houéron, subsequently in Fl. Lib. (Alavi, 1983) as a synonym of *Tripleurospermum fuscatum* (Desf.) Schult. Bip.

**New taxon:** *Chrysanthemum trifurcatum* var. *microcephalum* Bég. & Vaccari in Specie nuove o rare Fl. Lib.: 3 (1912); Contributo alla Fl. della Lib. Monografie e Rapporti Coloniali, 16: 66. (1912)

**Type:** Syntypus : [Libia, Tripolitania], Tripoli: tombe dei Caramanli (2), 21/10/1911. Leg. A. Vaccari, (FI).

Isosyntypus: (FI001203).

**Accepted name:** *Chrysanthoglossum trifurcatum* (Desf.) B.H.Wilcox, K. Bremer & Humphries, in Bull. Nat. Hist. Mus. London, Bot. 23 (2): 143. (1993), also in Dobignard & Chatelain, 2: 236 (2011)

**Note:** the specimen in FI given as syntypus is signed by Vaccari, the isosyntypus is handwritten by A. Fiori (and numbered 2bis since Fiori realised he had made a duplicate of the original).

The material of the original collection is in MOD.

**New taxon:** *Cichorium pumilum* f. *rhizocephalum* Pamp. in Nuovo Giorn. Bot. Ital. n.s. 24: 157. (1917)

**Type:** Holotypus: [Libia], Cirenaica: Fuehat ( 558, on the label), fra i sassi, 18/04/1916. Leg. A. Zanon, (FI).

**Accepted name:** *Cichorium endivia* L.

**Note:** Considerable confusion exists between the published data and herbarium material. In this case we report the data as they appear on the original label, signed by Zanon. In Pampanini (1917) the specimen n° 558 refers to a different taxon: “*Hymenocarpus nummularius* Boiss, collected in Raaba, in the ditch of the Wadi on 20/03/1916”. Furthermore, in the publication our specimen is numbered n° 558<sup>bis</sup>, a practice Pampanini often followed when he had to organize other people’s collections which were already numbered, in order to distinguish them. As well as the difficulty of read-

ing the data on the signed label, the month of collection is also confusing, i.e. April and not September, as appears in the publication. In fact from the publication and herbarium data, all specimens from n° 500 to 600 were collected during March and April 1916.

**New taxon:** *Cirsium chamaepeuce* var. *gnaphaloides* [gnaphalioides] f. *albiflorum* Pamp. in Arch. Bot. XII(1): 48. (1936a); Rend. Sem. Fac. Sc. Univ. Cagliari VIII(3): 78 (1938b)

**Type:** Lectotypus: [Libya], Cirenaica, El Beda: Uadi Msuria (8651), 10/5/1934. Leg. R. Pampanini & R.E.G. Pichi Sermolli, (FI001209), see W. Greuter, in Boissiera 22: 120-122 (1973).

**Accepted name:** *Ptilostemon gnaphaloides* (Cyr.) Sojak subsp. *gnaphaloides* by Greuter in Boissiera 22: 120-121 (1973); also in Dobignard & Chatelain, 2: 239 (2011)

**New taxon:** *Cladanthus arabicus* f. *pygmaeus* Pamp. in Bull. Soc. Bot. Ital.: 19 (1914a); Pl. Tripol.: 257 (1914e)

**Type:** Holotypus: [Libia], Tripolitania, Garian: Ras Bu Ganus (3975), 27/04/1914. Leg. R. Pampanini, (FI001202).

**Accepted name:** *Cladanthus arabicus* Cass., in Fl. Lib. 107: 153 (1983)

**New taxon:** *Crepis radicata* var. *erecta* Pamp. in Arch. Bot. (Forli). XII(1): 48. (1936a); Rend. Sem. Fac. Sc. Univ. Cagliari VIII(3): 78 (1938b)

**Type:** Libia, Cirenaica: El Gubba (8699), 07/04/1933. Leg. R. Pampanini, (FI003547), (Lectotypus designated here).

Other syntypes from Original collection: L., Cirenaica, Apollonia: l.d. Rgua (8700), 11/04, (FI003545); C., Mechili: Uadi Ramla (8698), 27/3/1933. Leg. R. Pampanini, (FI003548); C., Tecnis: a est di Barce ElGsur (8701), 15/04, (FI003546) ; C., El Abrach: Mghernes (8702), 04/05/1934. Leg. R. Pampanini & R.E.G., (FI003549).

**Accepted name:** *Crepis nigricans* Viv. in Dobignard & Chatelain, 2: 249 (2011)

**Note:** Specimen n° 8698 carries, on newspaper, the first signed indication by Pampanini, of the new taxon.

**New taxon:** *Crepis radicata* f. *gigantea* Pamp. in Nuovo Giorn. Bot. Ital. n.s. 24: 158 (1917)

**Type:** Holotypus: [Libia, Cirenaica], Bengasi: Fuehat (794), 29/02/1916. Leg. V. Zanon, (FI).

**Accepted name:** *Crepis nigricans* Viv. see in Fl. Lib. 107: 422 (1983), also in Dobignard & Chatelain 2: 249 (2011)

**Note:** The specimen does not carry the name given in the publication by Pampanini, but his first hypothesis indirectly indicated in the protologue as “*Luxurians, caulibus usque 30 cm. altis*”, i.e. *Crepis radicata* Forsk. f. *luxurians* Pamp. later to become “f. *gigantea* Pamp.”. Moreover, there is no typical field card which usually gave the collection number.

**New taxon:** *Crepis radicata* var. *nuda* Pamp. in Bull. Soc. Bot. Ital.: 19 (1914a), here sub *C. radiata* (sic); Pl. tripol.: 258 (1914e)



**Type:** Holotypus: [Libia], Tripolitania, Garian: Ras Tecut (3796), 36/04/ 1913. Leg. R. Pampanini, (FI003550).

**Accepted name:** *Crepis senecioides* Delile in Dobignard & Chatelain, 2: 249 (2011), also in Fl. Lib. 107: 417 (1983)

**New taxon:** *Crepis taraxacifolia* var. *libyca* Pamp. in N. Giorn Bot. Ital. n.s. 24: 158 (1917)

**Type:** [Libia], Cirenaica, Bengasi: Suani Osman, presso il lago Bedafam (528), 09/03/1916. Leg. V. Zanon, (FI003552), (Lectotypus: designated here).

Other syntypes from the Original collection: C., Bengasi: Cafis (574), 24/04, (FI003551); C., Bengasi: Giok Kebir (606), 23/04/1916. Leg. V. Zanon, (FI003553).

Original material: Cirenaica, Bengasi, s.d., s.n.. Leg. Zanon, (FI003555).

**Accepted name:** *Crepis libyca* (Pamp.) Shabet., in Shabetai (1938), also in Fl. Lib. 107: 415 (1983), Boulos (2002) and in Dobignard & Chatelain, 2: 250 (2011)

**Note:** the “Original material” mentions a specimen of Zanon, probably part of the original collection, but without any data, number or locality p.p. This could be the specimen: Bengasi, Raaba, 13/04/1916 (562ter).

**New taxon:** *Crepis taraxacifolia* var. *libyca* f. *glandulosa* Pamp. in Arch. Bot. (Forlì). XII(1): 48. (1936a); Rend. Sem. Fac. Sc. Univ. Cagliari VIII(3): 78 (1938b)

**Type:** Holotypus: Libia, Cirenaica, fra Bengasi e Soluch: Giardina (8738), 10/03/1933. Leg. R. Pampanini, (FI003556).

**Accepted name:** *Crepis libyca* (Pamp.) Shabet, see Shabet et al. in Ministr. Agric. Egypt, Tech. & Sci. Service Bull. 197: 3. (1938)

**Note:** the typus specimen is damaged, making identification difficult.

**New taxon:** *Cynara sibthorpiana* & Heldr. var. *elata* Bég. & Vaccari in Ann. Bot. (Rome) 12(1): 122-123 (1913b)

**Type:** Syntypus: [Libia], Cirenaica: Marsa Susa nei colli calcarei (1016), 07/06/1913. Leg. A. Vaccari, (FI003388).

**Accepted name:** *Cynara cornigera* Lindl., see Wiklund, in Bot. Journ. of Linn. Soc. 109 (1): 101. (1992), also in Dobignard & Chatelain, 2: 255 (2011)

**Note:** the specimens: [Libia, Cirenaica], Marmarica: Tobruk lungo la costa meridionale del golfo (n° ?), 13/1, 8/6/1913. Leg. A. Vaccari, are not in FI (probably kept in MOD).

**New taxon:** *Cynara sibthorpiana* var. *mauginiana* Pamp. Agric. Colon. XV(7): 378 (1921)

**Type:** Holotypus: [Libia], Cirenaica: Piana di Merg, comune, 07/1919. Leg. A. Maugini, (FI003387).

**Accepted name:** *Cynara cornigera* Lindl. see in Dobignard & Chatelain, 2: 255 (2011). Previously in Wiklund, Bot. Journ. of Linn. Soc. 109 (1): 101. (1992), as *Cynara cyrenaica* Maire & Weiller.

**New taxon:** *Evax mauritanica* var. *cyrenaica* Pamp. in Bull. Soc. Bot. Ital: 961-62 (1927)

**Type:** [Libia], Cirenaica: Bir El Gavamis, 14/3/1919. Leg. E. De Cillis, (PORUN), (Lectotypus designated here).

Isolectotypus: (FI001181).

Other syntypes from Original collection: [Libia, Cirenaica], Got bu Mariam, 1919. Leg. De Cillis, (PORUN).

**Accepted name:** *Filago desertorum* Pomel, see in Dobignard & Chatelain, 2: 265 (2011); also in Le Floch et al. (2010), and L. Boulos (2002)

As *Filago mauritanica* (Pomel) Dobignard in Fl. Lib. 107: 38 (1987) (see note).

**Note:** The taxonomical position of the taxon in question is still controversial, indeed the recent and important work on the nomenclature of the Flora of N. Africa (Dobignard & Chatelain, 2: 265 2011; Le Floch et al. 2010) includes it under *Filago desertorum* Pomel. However, until a few years ago, before the genus *Evax* converged with *Filago*, it was considered a synonym of *Evax mauritanica* (Pomel) Batt. (Fl. Lib., 102:56.1987). Besides, Dobignard himself, prior to his recent work with Chatelain, had instituted the new comb. *Filago mauritanicus* (Pomel) Dobignard, (Dobignard, 2007) which was later included in the Med-Checklist 2: 222. (2008).

In our opinion, this uncertainty on the taxonomical position conveys the doubts S.A. Alavi had already expressed in Fl. Lib. 107: 56-57 (1983) regarding where to place the taxon Pampanini had described within the genus *Evax*, and particularly under *E. mauritanica*. After Alavi had included *E. mauritanica* var. *cyrenaica* among the synonyms for *E. mauritanica*, he felt the need to justify this inclusion and recognised both the diagnostic characters that effectively linked the taxon to the genus *Evax* as well as those that pointed it more in the direction of *Filago*. Regarding the latter, he quoted: “...presence of the pappose florets in the centre at the apex of the receptacle.....” and also pointed out that the flowers in the centre of the receptacle “...appear to be functionally male alone.” were common to the generalities of species included under *Evax*. He concluded that it was not easy to decide the true position of the taxon because of, in his opinion, the insufficient description and, more to the point, the unavailability of the original material. We have seen all the original material available in FI and PORUN and confirm the observations made by S.A. Alavi; consequently any inclusion of the taxon under *F. desertorum* definitely seems artificial, unless the taxonomical limits of the genus are considerably stretched. In our opinion, the specific description Pampanini gave and the observations made by Alavi “Cluster of capitula terminal and at the base of the dichotomies (sessile in the latter case.....Male florets pappose.)” are characters that do not occur in *F. desertorum* (as appears in the specimen chosen as lectotypus), thus allowing the taxon to remain as *Filago mauritanica* (Pomel) Batt. or also include the infraspecific characterization by Pampanini under this new combination, who moreover suggests it is endemic to Cyrenaica. Obviously far more material relating to *Filago mauritanica* and *F. desertotum* from Cyrenaica would have to be studied and verified for this solution, but that is beyond the main scope of this work.

The label on the specimens from PORUN are signed by Pampanini, the data of the collector (De Cillis) are in print, data for the localities signed by Trotter. The label for the specimen in FI is the original one of Portici herbarium, the data are signed by Trotter. (by P. Cuccuini & A. Stinca).

**New taxon:** *Hedypnois globulifera* var. *tubaeformis* f. *gussonei* sf. *depressa* Pamp. in Arch. Bot. (Forli). XII(1): 50 (1936a); Rend. Sem. Fac. Sc. Univ. Cagliari VIII(3): 78 (1938b)

**Type:** Libia, Cirenaica, Bengasi: Sceilabi El Bebas (9002), 11/03/1933. Leg. R. Pampanini, (FI003526), (Lectotypus designated here).

Other syntypes from the Original collection: L., Cirenaica., fra Derna e Mechili: Uadi Hiscia (9007), 10/4/1933. Leg. Pampanini, (FI003521); C., Beda: U. Geruillat (9010), 27/4/1934. Leg. R. Pampanini & R.E.G. Pichi Sermolli, (FI003522).

Original material: C., Barce: Sidi Ahmed El Cheila (9005), 06/04, (FI003523); C., Gerdes El Abid: Uadi El Benia (9004), 29/03, (FI003525); C., Slonta (9008), 17/04, (FI003523); C., Cirene: l.d. Melchifaf (9006), 10/04, (FI003524); C., Mechili: Uadi Ramla (9003), 27/3/1933. Leg. R. Pampanini, (FI003527); C., Barce: Bu Gseir (9013), 15/05, (FI003518); C.: Driana (9009), 15/04, (FI003520); C., Messa: l.d. Neget Said (9011), 08/05, (FI003519); C., Hania (9012), 08/05/1934. Leg. R. Pampanini & R.E.G.Pichi Sermolli, (FI003517).

**Accepted name:** *Hedypnois rhagadioloides* (L.) F.W. Schmidt s. l. see in Dobignard & Chatelain, 2: 281. (2011)

**Note:** on the lectotypus sheet note of new taxon signed by Pampanini. The most part of the material from the original collection, later mentioned by the author, was placed under “Original material” and, however they exhibit substantial differences in at least one diagnostic character mentioned in the protologue, in particular (“...caulis nullis vel subnullis.” and “...et capitula glabra), when instead there are “cauli conspicui” and “capitula” more or less “hispidopilose”.

**New taxon:** *Hedypnois polymorpha* var. *tubaeformis* f. *elata* Pamp. in Nuovo Giorn. Bot. Ital. 31: 230 (1924)

**Type:** [Libia], Cirenaica, Bengasi: Regima, primavera 1922. Leg. A. Maugini, (FI003535). (Lectotypus designated here).

Other syntypes from the Original collection: L., C., Bengasi: fra Regima e Benina, aprile, (FI003537); C., B.: Uadi Ingar, 02/03, (FI003532); C., Be.: Guarscià, 01/03, (FI003536); C., Merg: Ridotta Sidi Abdalla (Tolmetta), 15/03, (FI003531); C., Merg: Bosco Zorda-limite merid.-orient., 18/03, (FI003529); C., Merg: El Gatres, 05/04, (FI003534); C., Cirene: Ain El Balag, 24/05, (FI003530); C., Derna: Bu Msafer, 05/1922. Leg. A. Maugini, (FI003533).

**Accepted name:** *Hedypnois rhagadioloides* (L.) F.W. Schmidt s. l., see in Dobignard & Chatelain, 2: 281 (2011)

**New taxon:** “*Hedypnois polymorpha* var. *tubaeformis* f. *intermedia* Cavara” (in FI Herb., Sched.)

**Original material:** [Libia], Cirenaica: Merg, nei campi d’orzo, 19/4/1925. Leg. F. Cavara, (FI003538).

**Note:** the specimen carries the original label from the Scientific Mission in Cyrenaica of 1925 with handwritten data, signed by Cavara. There is also a revision dated 1935 signed by Pampanini. Further material present in NAP.

**New taxon:** *Hyoseris radiata* var. *puberula* Pamp. in Bull. Soc. Bot. Ital.: 19 (1914a); Pl. Tripol.: 266 (1914e)

**Type:** Holotypus: [Libia], Tripolitania, Garian: Kasr Garian ad Ain Turki (3898), 26/04/1913; Leg. R. Pampanini, (FI003405).

**Accepted name:** *Hyoseris lucida* L. in Dobignard & Chatelain, 2: 292 (2011)

**Note:** in Alavi S. A. (1983), as *Hyoseris radiata* L.

**New taxon:** *Ifloga spicata* var. *labillardieri* Pamp. in Nuovo Giorn. Bot. Ital. 36: 245. (1929)

**Type:** [Libia], Cyrenaica, Benghasi (179), 04/1883. Leg. G. Ruhmer, (FI) (Lectotypus designated here).

Other syntypes from Original collection: Libia, Marmarica: Tobruk (190), 20/04; [Libia]; Cirenaica, Bengasi: fra Punta Giuliana e Punta Buscaiba (190), 31/03/1912. Leg. A. Vaccari; [Libya], Cyrenaica, Benghasi (177), 01/03/1883; (179), 04/1883. Leg. G. Ruhmer, (all specimens in FI-H.C.I.); [Tripolitania]: circa Tripolim, 1827. Leg. Dickson, FI-W (sub *I. spicata*).

**Accepted name:** *Ifloga labillardierei* (Pamp.) Fayed & Zareh, see Fayed & Zareh, in Willdenowia 17(1-2): 122. (1988)

Previously as *Ifloga spicata* (Forsk.) Schultz. Bip. subsp. *labillardieri* (Pamp.) Chrtek in Preslia 41: 242. (1969), also in LeFloc'h et al. (2010) and in Dobignard & Chatelain, 2: 296 (2011)

**Note:** After an interesting taxonomic revision of the species *Ifloga spicata* (Forsk.) Schultz. Bip. (Pampanini, 1929), Pampanini also described the var. *labillardieri*. He demonstrated that it was in fact absent from the eastern Mediterranean basin, but occurred on a par with the typical var. in the central Mediterranean area, Tunisia and Tripolitania, whilst its diffusion epicentre was between Libya and Egypt, reaching as far as Persia. In its distribution epicentre, between Libya and Egypt, the new variety was largely dominant, particularly in Cyrenaica, whilst it grew together with, but was dominated by, the typical var. in Egypt. Pampanini dedicated the new var. to J.J.J. Labillardière as he was the first to collect *I. spicata* in the eastern Mediterranean Basin (sub *Gnaphalium cauliflorum* Desf.), and to notice a differentiation from the type (a difference that later Pampanini did not hold as valid in his revision), and whose specimens turned out to belong to the new taxon. In our opinion, however, the clear-cut dominance observed in eastern Libya convinced us to choose the lectotypus from this area as it is probably the centre of differentiation, together with Egypt, for the taxon in FI.

As well as the syntypes cited for the Libyan Flora, the Florentine herbaria hold many others both in FI-H.C.I. and FI- collected in North Africa and the Near East, Spain and Iran. We believe that it is worthwhile summarising them here. Tunisia, Djerba, s.d. ad turrem Nadour, 1854, L. Kralik, FI-W (sub *I. fontanesii*). Egypt: Alessandria, J.D. Samaritani, 1856, [n° 3127, only in Pampanini, (1929)] (6 specimens); G.F. Scott Elliot, n°3601; Prope Biaket Haggi, Figari, FI-H.C.I. Lebanon: Beirut, Labillardière (sub *I. fontanesii* Coss.); Blanche, 1853, n° 1987, (sub *I. fontanesii* Coss.), FI-W.

In addition, part of the original collection that Pampanini revised but which was not published in Pampanini (1929) includes: Egypt: prope Cairo, J. D. Samaritani, 1861, FI-H.C.I. (2 specimens).

Published in Pampanini (1929) but not mentioned for FI. Southern Spain: Almeria, 1879 (n° 509), Huter, Porta & Rigo. Iran: Bender Abbas, 1893 (n° 382), J. Bornmüller FI-H.C.I. (3 specimens).

In Fl. Lib. (Alavi 1983) as *Ifloga spicata* (Forssk.) Schultz. Bip.

The Libyan material from Tripolitania and Cyrenaica, which Pampanini confirmed (Pampanini 1929) and held in B and the Trotter herbarium (PAD and PORUN), can no longer be found in the above centres.

**New taxon:** *Kalbfussia hispidula* f. *platyphylla* Pamp. in Arch. Bot. (Forli).XII(1): 51(1936a); Rend. Sem. Fac. Sc. Niv. Cagliari VIII(3): 78 (1938b)

**Type:** Libia, Cirenaica: Gtafia a sud di Agedabia (9134), 13/03/1933. Leg. R. Pampanini, (FI003557), (Lectotypus designated here).

Other syntypes from the Original collection: L., C., tra Agedabia e El Agheila: Melchen Nogra, (9135), 15/03, (FI003558); C., Mechili: Uadi Ramla (9136), 23/3/1933. Leg. R. Pampanini, (FI003559); C., Shabi a sud di Agedabia (9137), 9/4/1934. Leg. R. Pampanini & R.E.G Pichi Sermolli, (FI003560).

**Accepted name:** *Scorzoneroides hispidula* (Delile) Greuter & Talavera, see in Dobignard & Chatelain, 2: 300 (2011)

**Note:** the specimen (Lectotypus) n° 9134 is partially damaged, and on the sheet there is the original epithet of taxon, in Pampanini own hand.

**New taxon:** *Launaea glomerata* f. *minima* Pamp. in Atti Reale Ist. Veneto di Sc. Lett. Arti. XCII (2): 236 (1932)

**Typus:** Holotypus: Libia, Fezzan: Oasi di Sebha, 03/04/1931. Leg. A. Marcello (PAD) see Kilian, in Englera 17: 296 (1997).

**Accepted name:** *Launaea capitata* (Spreng.) Dandy, see Kilian in Englera 17: 296. (1997) (by R. Marcucci & P. Cucuini)

**New taxon:** *Launaea resedifolia* var. *marmarica* Pamp. in Arch. Bot. (Forli). XII(1): 51 (1936a); Rend. Sem. Fac. Sc. Univ. Cagliari VIII(3): 78 (1938b)

**Type:** Holotypus: [Libya], Cirenaica [Marmarica], fra Tobruk e Bardia: l.d. Sidi Bu Amud (9188), 23/3/1933. Leg. R. Pampanini, (FI003566), see Kilian, in Englera 17: 377 (1997).

**Accepted name:** *Launaea fragilis* (Asso) Pau subsp. *fragilis*, see Kilian N. in Englera 17: 376-77 (1997)

**New taxon:** *Launaea resedifolia* var. *pulchella* Pamp. in Agric. Colon., XXII(10): 364, 366 (1928)

**Type:** Holotypus: [Libya, Cirenaica], Sirtica orientale: Fra l'Uadi Faregh e Maatan Risam, 18/04/1928. Leg. G. Krueger, (FI003568), see Kilian, in Englera 17: 401 (1997); (marked as Holotype by N. Kilian, 02/1990)

Other Original material: [L., C.], Sirtica orientale: Maatan Risam: Gasr es Sahabi, 18/04/1928. Leg. G. Krueger, (FI003567).

**Accepted name:** *Launaea mucronata* (Forssk.) Muschl. subsp. *mucronata* see Kilian, in Englera 17: 401. (1997), [marked by N. Kilian in 02/1990 as *L. mucronata* (Forssk.) Mueschler].

As *Launaea fragilis* (Asso) Pau in Dobignard & Chatelain, 2: 310 (2011)

**Note:** Neither of the two specimens from the original collections mentioned by Pampanini

(1928) and held in FI, although both revised by Dr. Kilian, have been considered in the typification. In fact, in our opinion a more thorough examination of the material would suggest that the material chosen as type would better be attributed the rank of Lectotypus, since there are two obvious and already mentioned Syntypes present. Probably an oversight in the sizeable work by Dr. Kilian.

**New taxon:** *Notobasis syriaca* var. *inermis* Pamp. in Arch. Bot. (Forlì).XII(1): 51 (1936a); Rend. Sem. Fac. Sc. Univ. Cagliari VIII(3): 79 (1938b)

**Type:** Libia, Cirenaica: fra Bengasi e Tocra: Driana (9240), 15/04/1934. Leg. R. Pampanini & R.E.G. Pichi Sermolli, (FI003881), (Lectotypus designated here).

Other syntypes from Original collection: L., Cirenaica, Cirene: Uadi Bu Nabej (9241), 15/05/1934. Leg. R. Pampanini & R.E.G. Pichi Sermolli, (FI003880).

**Accepted name:** *Notobasis syriaca* (L.) Cass. s. l. in Fl.Lib. 107: 236. (1983)

**New taxon:** *Onopordon confusum* Pamp. in Bull. Soc. Bot. Ital.: 19. (1914a); Pl. Tripol.: 271 (1941e)

**Type:** [Libia], Tripolitania, Mesellata: dintorni di Gherrim (3326), 15/04/1913. Leg. R. Pampanini, (FI001210), (Lectotypus designated here).

Other syntypes from Original collection: [L.], T., Tarhuna: Ain Scersciara (4551), 14/03, (FI001211); T., Mesellata: Cussabat (2897), margini dei campi, 11/04, (FI001204); T., Garian: Kasr Garian a Slilia (4320), 04/05/1913. Leg. R. Pampanini, (FI001212).

**Accepted name:** *Onopordon nervosum* Boiss. subsp. *platylepis* (Cosson) Murb. (marked by H. N. G. Houérou, 19/07/1966 and Hein, 2001).

As *Onopordum platylepis* (Cosson ex Murb.) Murb. in Dobignard & Chatelain, 2: 330 (2011)

**Note:** in Fl. Lib. 107: 243, 245. (1983) all the specimens are given as syntypes (Alavi S. A. 1983).

**New taxon:** *Pallenis spinosa* f. *rhizocephala* Pamp. in Arch. Bot. (Forlì). XII(1): 52 (1936a); Rend. Sem. Fac. Sc. Univ. Cagliari VIII(3): 79 (1938b)

**Type:** Holotypus: [Libya], Cirenaica, Umm er Rzem a sud est di Barce: Uadi Suenia (9322), 18/4/1934. Leg. R. Pampanini & R.E.G. Pichi Sermolli, (FI001189).

**Accepted name:** *Pallenis spinosa* (L.) Cass. s. l. in Dobignard & Chatelain, 2: 334 (2011)

**Note:** the specimen has a piece of newspaper with the name of the taxon, signed by Pampanini.

**New taxon:** *Pallenis spinosa* var. *villosa* Pamp. in Arch. Bot. (Forlì). XII(1): 52 (1936a); Rend. Sem. Fac. Sc. Univ. Cagliari VIII(3): 79 (1938b)

**Type:** Libia, Cirenaica: Slonta (9323), 17/4/1933. Leg. R. Pampanini, (FI001191), (Lectotypus designated here).

Other syntype from Original collection: L., Cirenaica: El Ghegab a sud est di Cirene (9324), 28/4/1934. Leg. R. Pampanini & R.E.G. Pichi Sermolli, (FI001192).

**Accepted name:** *Pallenis spinosa* (L.) Cass., in Fl Lib. 107: 106. (1983)

**Note:** the specimen has a piece of newspaper with the name of the taxon, signed by Pampanini.

**New taxon:** *Picris* (Helminthia) *mauginiana* Pamp. in Nuovo Giorn. Bot. Ital. 31: 231 (1924)

**Type:** Lectotypus: [Libia], Cirenaica, Bengasi: fra Regima e Benina, 04/1922. Leg. Maugini, (FI003540), see H. W. Lark, in Diss. Univ. Wien: 116: 152. 1975; marked by H. W. Lack as Lectotypus in 1972, (also the Syntypi).

Syntypi: L., Cirenaica, Bengasi: Regima, primavera 1922, (FI003543); C., Bengasi: Bu Mariam, primavera 1922, (FI003541); C., Merg: Gasr El Maharuga, 31/3/ 1922. Leg. A. Maugini, (FI003542).

**Accepted name:** *Picris mauginiana* Pamp. see H. W. Lack in Diss. Univ. Wien: 116: 152. (1975), also Alavi S. A. in Fl. Lib. 107: 357-58 (1983) and in Dobignard & Chatelain, 2: 346 (2011); (marked by Lack, 1972)

**Note:** on the Lectotypus sheet there is a fragment of a specimen that Lack indicated as Syntypus. It is probably a fragment of one of the specimens set on the other sheet but it is difficult to indicate which.

**New taxon:** *Rhagadiolus stellatus* var. *pubescens* Pamp. in Arch. Bot. (Forli). XII(1): 52 (1936a), [sub *R. stellatus* var. *hebelaeamus* in Prodr. Fl. Cir.: 470 (1930), p.p. specim. Maugini e loc. Zavia Tert; El Gatres]; Rend. Sem. Fac. Sc. Univ. Cagliari VIII(3): 79 (1938b)

**Type:** [Libia], Cirenaica, Merg: El Gatres, 5/04/1922. Leg. A. Maugini (Lectotypus designated here) (FI)

Other syntypes from Original collection: [Libia], Cirenaica, Cirene: Zavia Ter, 24/04; C.: Bengasi: Rahba, primavera 1922 and 15/03; C., Bengasi: Benina, primavera 1922 (2 specimens). Leg. A. Maugini.

Original material: Libia, Cirenaica, El Beda: Uadi Beregd (9448), 24/04, (FI003406); C., El Beda: Uadi Gereuilat (9449), 27/04/1934. Leg. R. Pampanini & R.E.G. Pichi Sermoll., (all material in FI).

**Accepted name:** *Rhagadiolus stellatus* (L.) Gaertn. s. l.

**Note:** all handwriting on the specimens is in the hand of R. Pampanini, except for the specimen “Rahba, 15/03/1922, Maugini”, where the data are written by Maugini. The material included under “Original material” was collected and revised as *Rhagadiolus stellatus* Willd. var. *pubescens* Pamp. by Pampanini before 1936 (date of protologue publication), but they were only published in Rend. Sem. Fac. Univ. Cagliari 8(3): 79 (1938b).

**New taxon:** *Scorzonera undulata* var. *alexandrina* f. *planifolia* Pamp. in Arch. Bot. (Forli).XII(1): 52 (1936a); Rend. Sem. Fac. Sc. Univ. Cagliari VIII(3): 79 (1938b)

**Type:** Libia, Cirenaica: esc Sceleidima, a sud est di Bengasi (9502), 20/03/1933. Leg. R. Pampanini, (FI003574), (Lectotypus designated here).

Other syntypes from Original collection: L., C.: Msus (9503), 20/03, (FI003573); C.: Sirual: l.d. Zauiet El Hamama (9504), 29/3/1933, (FI003572). Leg. R. Pampanini; C.: fra Bengasi e Agedabia, Sidi Ahmed El Magrun (9505), 07/04, (FI003571); C.: Chaulan (9506), 20/04, (FI003570); C.: El Ghegab (9507), 28/4/1934. Leg. R. Pampanini & R.E.G. Pichi Sermolli, (FI003569).

**Accepted name:** *Scorzonera undulata* Vahl subsp. *undulata*, see in Dobignard & Chatelain, 2:367 (2011).

As *Scorzonera undulata* Vahl in Fl. Lib. 107: 364. (1983)

**Note:** The Lectotypus sheet carries, on newspaper, the first indication of the new taxon signed by Pampanini.

**New taxon:** *Senecio coronopifolius* var. *subdentatus* f. *cydmicus* Pamp. in Atti Reale Ist. Veneto Sci. Lett. Arti, XCII: 237 (1932)

**Type:** [Libia], Tripolitania: Uadi di Gadames, 18/4/1931. Leg. A. Marcello, (PAD-H0040942), (Lectotypus designated here).

Isolectotypi: (PAD-H040940, H0040941, H0040944) (Marcucci *in litteris*, 10-04-2014)

**Accepted name:** *Senecio glaucus* L. subsp. *glaucus* s. l. in Dobignard & Chatelain, 2: 370 (2011), (by R. Marcucci & P. Cuccuini)

**New taxon:** *Silybum marianum* f. *album* Pamp. in Arch. Bot. (Forli). XII(1): 53 (1936a); Rend. Sem. Fac. Sc. Univ. Cagliari VIII(3): 79 (1938b)

**Type:** Holotypus: Libia, Cirenaica: Lamluda (9609), 9/4/1933. Leg. R. Pampanini, (FI003386).

**Accepted name:** *Silybum marianum* (L.) Gaertn. in Medchecklist 2: 721 (2008) and in Dobignard & Chatelain, 2: 381 (2011)

**Note:** the specimen is mounted on two sheets, the first carries the epithet of the taxon on newspaper signed by Pampanini.

**New taxon:** *Sonchus oleraceus* var. *lacerus* f. *meridionalis* Pamp. in Agric. Colon. 22: 361 (1928)

**Type:** [Libia], Cirenaica: Giarabub, 24/02/1927. Leg. G. Krueger, (FI003565), (Lectotypus designated here)

Other syntype from Original collection: C.: Giarabub, 22/02/1927. Leg. G. Krueger, (FI003564).

**Accepted name:** *Sonchus oleraceus* L. in Fl. Lib. 107: 398. (1983)

**Note:** in Boulos, Bot. Notiser, 126 (2) (1973), and Greuter in Medchecklist 2 (2008), the taxa belonging to *Sonchus* which Pampanini described for Libya are not treated.

**New taxon:** *Sonchus oleraceus* var. *triangularis* f. *monocephalus* Pamp. in Nuovo Giorn. Bot. Ital. n.s. 24: 161 (1917)

**Type:** [Libia], Cirenaica, Bengasi: Giok Kebir (418), ingresso alla grotta, 06/03/1916. Leg. V. Zanon, (FI003563), (Lectotypus designated here).

Other syntype from Original collection: C., Bengasi: Giok Kebir -Giardino Osmanli (469), 03/1916; Leg. V. Zanon, (FI003561).

**Accepted name:** *Sonchus oleraceus* L. in Fl. Lib. 107: 398 (1983)

**Note:** in Boulos, Bot. Notiser, 126 (2) (1973), and Greuter in Medchecklist 2 (2008), the taxa belonging to *Sonchus* which Pampanini described for Libya are not treated.

In Agric. Colon. 22 (10): 363. 1928, Pampanini added a third specimen to those in the original collection, mentioned in Pampanini (1917), which Krueger later collected at Giarabub in Cyrenaica in 1926, and identified in part as “*Sonchus oleraceus* L. var. *triangularis* Wallr. forma...” ascribable to this taxon even though it had three capitula. To do this, he corrected the first description, although keeping the same name. But as the protologue is described in Nuovo Giorn. Bot. Ital. n.s. 24: 161 (1917), the extra specimen cannot be part of the original collection.



**New taxon:** *Spitzelia coronopifolia* f. *fontanesii* Pamp. in Arch. Bot. (Forli). XII(1): 53 (1936a); Rend. Sem. Fac. Sc. Univ. Cagliari VIII(3): 79 (1938b)

**Type:** Holotypus: Libia, Cirenaica, Bengasi: Sceilabi (9697), 11/3/1933. Leg. R. Pampanini, (FI00354), in : H. W. Lack, Diss. Univ. Wien 116: 154. 1974 (1975), (marked by H. W. Lack, 1972).

**Accepted name:** *Picris mauginiana* Pamp., see H. W. Lack in Diss. Univ. Wien 116: 152. 1974(1975), also in Med-Checklist 2: 558. (2008); (marked by Lack, 1972)

**Note:** the specimen carries the new epithet on a piece of newspaper pinned to the sheet and signed by Pampanini.

**New taxon:** *Spitzelia coronopifolia* var. *glabra* Pamp. in Arch. Bot. Sist. VIII: 118 (1932)

**Type:** Libia, Tripolitania: Steppa di Sabratha, 18/3/1931. Leg. G. Zodda, (FI), (Lectotypus designated here).

Isolectotypus: *ibid.* (FI).

**Accepted name:** *Picris asplenioides* L. in Fl. Lib. 107: 355. 1983 (Alavi, 1983)

**Note:** the specimen with the label signed by G. Zodda has been chosen as Lectotypus; the second specimen, although a duplicate of the first, carries the data of the Herbarium of the Museum of Florence on its label, signed by R. Pampanini.

**New taxon:** *Spitzelia saharae* var. *cyrenaica* Pamp. in Agric. Colon. 22(10): 366 (1928c)

**Type:** Lectotypus: [Libia], Cirenaica, Sirtica: Fra l'Uadi Faregh e Maatan Risam, 18/04/1928. Leg. G. Krueger, (FI003539) by H. W. Lack in Diss. Univ. Wien 116: 154. 1974 (1975), (marked by H. W. Lack, 1972).

Other syntype from Original collection: L., Cirenaica, Sirtica: a Sud di Gasr Es Sahabi (a 50 km a sud dell'Uadi Faregh), 20/04/1928. Leg. G. Krueger (FI).

**Accepted name:** *Picris cyrenaica* (Pamp.) Lack by H. W. Lack, in Diss. Univ. Wien 116: 126. 1974 (1975); also in Dobignard & Chatelain, 2: 389 (2011); (marked by Lack, 1972).

**Note:** already in Prodr. Fl. Cir.: 477. 1930, Pampanini placed this taxon in the genus *Picris* creating a new comb., *Picris saharae* (Coss. & Kralik.) Batt. var. *cyrenaica* (Pamp.) Pamp.; H.W. Lack does not mention the Syntypus we have indicated.

**New taxon:** *Tolpis virgata* subsp. *apolloniae* Brullo & Furnari Webbia 34(1): 171 (1979b)

**Typus:** Isotypus: Libia, Cirenaica: Cirene, 13/05/1974. Leg. S. Brullo et F. Furnari (FI). Holotypus (CAT).

**Accepted name:** *Tolpis virgata* Bert. subsp. *apolloniae* Brullo & Furnari; also in Dobignard & Chatelain, 2: 397 (2011)

### **Boraginaceae** (by L. Cecchi)

**New taxon:** *Alkanna tinctoria* f. *alba* Pamp. in Bull. Soc. Bot. Ital.: 15 (1914a); Pl. Tripol.: 192 (1914e)

**Type:** [Libia], Tripolitania, Garian: Uadi Garian (3856), 26/04/1913. Leg. R. Pampanini. (FI), (Lectotypus designated here).

Paralectotypi: [Lybia], Tripolitania, Garian: Kasr Garian, nei campi incolti (4150), 30/04; L., T., Ga.: Uadi El Arbaa presso Tebedut (4199), 28/04/1913. Leg. R. Pampanini, (FI).

**Accepted name:** *Alkanna tinctoria* subsp. *tripolitana* (Bornm.) Qaiser.

**New taxon:** *Alkanna tripolitana* Bornm. in Mag. Bot. Lapok 33: 86 (1934)

**Typus:** [Lybia, Tripolitania] (Tripolis) in planitie elatae Garian, in decliv. rupestr., 6-700 m. (833), 13-21/04/1933. Leg. J. Bornmüller (B 10 0176952), (Lectotypus designated here).

**Isolectotypi:** [Lybia, Tripolitania] (Tripolis) in planitie elatae Garian, in decliv. rupestr., 6-700 m (833), 13-21/04/1933. Leg. J. Bornmüller (B 10 0176950, B 10 0176951, GH 93288 ; “Tripolitania: ad Garian, c. 600 m. (833)” FI; K 418875, S12-12673).

**Accepted name:** *Alkanna tinctoria* subsp. *tripolitana* (Bornm.) Qaiser.

**New taxon:** *Echinosperrum spinocarum* var. *inerme* Pamp. in Arch. Bot. (Forli).12(1): 41 (1936a); Rend. Sem. Fac. Sc. Univ. Cagliari 8(3): 74 (1938b)

**Type:** Holotypus: Libia, Cirenaica, [Libia] Cirenaica: Uadi Faregh: l.d. Maaten Giofer (6488), 08/04/1934. Leg. R. Pampanini & R.E.G. Pichi Sermolli, (FI001150).

**Accepted name:** *Lappula spinocarpos* (Forssk.) Asch. ex Kuntze.

**Note:** the Holotype is the sole specimen mentioned by Pampanini (1938b: 74) in his later contribution to the flora of Cyrenaica, and the only one labelled as “var. *inerme*”. Despite being sharply distinct from the typical variety in the lack of horn-like tubercles on the nutlets’ surface, we think it represents a mere phenotypical race with no taxonomic importance. Indeed, a rather high infraspecific polymorphism in this species had been already noticed by Brand (1931) and is also suggested by the mixture of horned and non-horned individuals among the specimens collected on 10<sup>th</sup> April 1934 by Pampanini and Pichi Sermolli themselves in a single collection locality (6487: [Lybia], Cyrenaica, Saumnu: a nord-est di Agedabia; FI).

**New taxon:** *Echium arenarium* var. *debile* Pamp. in Bull. Soc. Bot. Ital.: 15 (1914a); Pl. Tripol.: 195 (1914e)

**Type:** Holotypus: [Libia], Tripolitania: Abiar Milgha a Migi (527), 28/02/1913. Leg. R. Pampanini (FI).

**Accepted name:** *Echium arenarium* Guss.

**Note:** the holotype is the sole specimen mentioned by Pampanini (1914a: 195) in his later contribution to the flora of Tripolitania. It represents a juvenile and incompletely developed individual, differing from typical *E. arenarium* for the long, lanceolate bracts overtopping the calyx.

**New taxon:** *Echium italicum* var. *scaettae* Pamp. in Nuovo Giorn. Bot. Ital. 31: 223 (1924)

**Type:** [Libia], Cyrenaica, Merg: Piana di Merg, ciglione sett., 27/05/1922. Leg. A. Maugini, (FI), (Lectotypus designated here).

**Isolectotype:** (FI001149)

**Accepted name:** *Echium italicum* L. subsp. *scaettae* (Pamp.) Greuter & Burdet.

**New taxon:** *Echium suffruticosum* f. *albiflorum* Pamp., in Arch. Bot. (Forli). 9: 307 (1932)

**Type:** Holotypus: [Libia], Cyrenaica, Sirtica: fra l’oasi di Marada e l’Uadi Faregh a 8 km a sud dell’Uadi Faregh, 13/03/1932. Leg. G. Krueger, (FI).

**Accepted name:** *Echium suffruticosum* Barratte, Expl. Sci. Tunisie, Cat. Pl.: 300. 1896.

**Note:** despite the distinctiveness of characters such as the very dense appressed indumentum and perennial habit, this species is not mentioned in Fl. Lyb. (Qaiser 1979) maybe due to a misapplied or too much extensive specific concept for *E. humile* Desf. It is possibly related to *E. albicans* Lag. & Rodr. from Southern Spain.

**New taxon:** *Lithospermum hispidulum* var. *cyrenaicum* Pamp. in Arch. Bot. (Forlì).12(1): 41 (1936a); Rend Sem. Fac. Sc. Univ. Cagliari 8(3): 74 (1938b)

**Type:** Libia, Cirenaica, El Abrach: Mghernes (6512), 04/05/1934. Leg. R. Pampanini & R.E.G. Pichi Sermolli. (FI) (Lectotypus designated here).

Paralectotypi: Libia, Cirenaica, Apollonia, Rgua (6510), 11/04/1933. Leg. R. Pampanini; L., C., Apollonia: U. Scerchaba (6511), 01/05; L., C.: U. El-Atrun (6513), 14/05/1934. Leg. R. Pampanini & R.E.G. Pichi Sermolli. (all material in FI).

**Accepted name:** *Lithodora hispidula* (Sibth. & Sm.) Griseb. subsp. *cyrenaica* (Pamp.) Brullo & Furnari in Brullo & Furnari (1979b)

**Note:** no specimen in FI is labelled with “uadi Bu Nabeħ”, which is the only other type locality mentioned by Pampanini (1938: 74) in his later contribution to the flora of Cyrenaica.

### *Brassicaceae*

**New taxon:** *Biscutella didyma* var. *ciliata* f. *macrocarpa* Pamp. in Arch. Bot. (Forlì). XII(1): 27 (1936a); Rend. Sem. Fac. Sc. Univ. Cagliari VIII(3): 65 (1938b)

**Type:** Libia, Cirenaica: Uadi El Kuf, fra Gasr Beni Gdam e Sidi Abd El Uahed (2905), 06/04/1933. Leg. R. Pampanini, (FI003479), (Lectotypus designated here).

Other syntypes from Original collection: L., Cirenaica, Martuba, a est di Barce: Uadi El Bgar (2908), 08/04, (FI003482); C., Apollonia: l.d. Rgua (2909), 11/04, (FI003483); C., Cirene: l.d. Melchifaf (2907), 07/04, (FI003481); C., El Gubba: Siret Bettamer (2906), 07/04/1933. Leg. R. Pampanini. (FI003480); C.,: Derna (2910), 21/04, (FI003484); C.,: Lamluda (2911), 28/04, (FI003485); C., Apollonia: Uadi Scechaba (2912), 01/05/1934. Leg. R. Pampanini & R.E.G. Pichi Sermolli. (FI003486).

**Accepted name:** *Biscutella didyma* L., in Dobignard & Chatelain, 3: 58 (2011) and Fl. Lib. (S.M.H. Jafri, 1977a).

**Note:** pinned to the sheet of the Lectotypus is a piece of newspaper with the name of the taxon in pencil, signed by Pampanini. This taxon is recognized in Flora de l’Afrique du Nord (C. Maire 13: 132. 1967) as accepted name. The material cited by Pampanini as *Biscutella didyma* L. var. *ciliata* (DC.) Vis. f. *macrocarpa* Pamp. in the protologue of the taxon and not collected by Maugini is not in FI.

**New taxon:** *Biscutella didyma* var. *lenticularis* Pamp. in Arch. Bot. (Forlì). XII(1): 27 (1936a); Rend. Sem. Fac. Sc. Univ. Cagliari VIII(3): 65 (1938b)

**Type:** Libia, Cirenaica: Apollonia l.d. Rgua (2917), 11/04/33. Leg. R. Pampanini, (FI003803), (Lectotypus designated here).

Other syntypes from Original collection: L., Cirenaica, Uadi El Kuf: fra Gasr Beni Gdam e Sidi Abd El Uahed (2918), 06/04/33, (FI003804); C., Barce: l.d. Sidi Ahmed El Cheila (2919), 06/04/1933. Leg. R. Pampanini. (FI003805); C., El Beda: Uadi El Kuf l.d. Bu Breica (2920), 24/04/1934. Leg. R. Pampanini & R.E.G. Pichi Sermolli, (FI003806).

**Accepted name:** *Biscutella didyma* L. in Dobignard & Chatelain, 3: 58 (2011)

**Note:** pinned to the sheet of the Lectotypus is a piece of newspaper with the name of the taxon in pencil, signed by Pampanini. This taxon is recognized in Flora del'Afrique du Nord (C. Maire 1965) as accepted name.

**New taxon:** *Diceratella sahariana* Corti in Nuovo Giorn. Bot. Ital. 45: 212 (1938)

**Type:** Holotypus: [Libia, Cirenaica meridionale], Reg. Auen'at: depressione fra Auen'at e l'Uadi El Gaz'al a 12 km da quest'ultimo (624), 15/4/1933. Leg. L. Di Caporiacco, (FI001173), by Jafri & Sabah (1980).

**Accepted name:** *Morettia sahariana* (R. Corti) Jafri & Sabah, in Jafri & Sabah (1980)

**Note:** as *Morettia phileana* DC. (marked by C. Steinberg 22/4/1980).

In Jafri 23: 191 (1977a) the species is marked as dubious, and considered very similar to *Morettia*, whilst in Candollea 34: 43. 19, is considered accepted name by L. Boulos. In any case in our opinion the specimen is too poor to permit any definite decision.

**New taxon:** *Diploaxis erucooides* var. *cyrenaica* f. *intermedia* Pamp. in N. Giorn Bot. Ital. n.s. 26: 210 (1919a)

**Type:** [Libia], Cirenaica, Bengasi: Fuehat (s.n.) 23/03/1916. V. Zanon (FI,) (Lectotypus designated here).

Other syntypes from Original collection: [L.], C., Bengasi: Fuehat (s.n.) , 17/02/1916; C., B.: Fuehat (71 c), 03/1918. Leg. V. Zanon (FI).

Original Material: L., C., Bengasi: Auen (or Auari) (s.n.), 09/03/1916. Leg. V. Zanon (FI)

**Accepted name:** *Diploaxis virgata* (Cav.) DC. subsp. *cyrenaica* (Dur. & Barr.) Nègre, in Dobignard & Chatelain, 3: 90 (2011).

In FI Lib. (Jafri, 1977a) as *Diploaxis virgata* (Cav.) DC.

**Note:** the material held in "Original material" is part of the original collection but was not published in Pampanini (1919a). Later Pampanini (1931a) created a new comb. as *D. brachycarpa* Godr. f. *intermedia* (Pamp.) Pamp.

**New taxon:** *Enarthrocarpus pterocarpus* var. *hispidus* Pamp. in Arch. Bot. (Forlì). XII(1): 27 (1936a); Rend. Sem. Fac. Sc. Univ. Cagliari VIII(3): 66 (1938b)

**Type:** Holotypus: Libia, Cirenaica: Bir Tengeder a sud di El Mechili, (3078), 21/3/1933. Leg. R. Pampanini, (FI003478).

**Accepted name:** *Enarthrocarpus pterocarpus* (Pers.)DC., in Dobignard & Chatelain, 3: 98 (2011).

**Note:** Pinned on the sheet of the Lectotypus is a piece of newspaper with the name of the taxon in pencil, signed by Pampanini. This taxon is recognized as accepted in "Flora de l'Afrique du Nord" (C. Maire, 12: 339. 1965 ).

**New taxon:** *Matthiola incana* subsp. *cyrenaica* Brullo & Furnari in Webbia 34(1): 158-59 (1979b)

**Type:** Isotypus: Libia, Cirenaica: Sbocco a mare di un Uadi fra Susa e Ras El Hilal, 23/03/1975. Leg. S. Brullo & F. Furnari. (FI). Holotypus (CAT).

**Accepted name:** *Matthiola incana* (L.) R. Br. subsp. *cyrenaica* Brullo & Furnari in Webbia 34: 161. 1979b.

As *Matthiola sinuata* (L.) R. Br. subsp. *glandulosa* (Vis.) Vierh. in Dobignard & Chatelain, 3: 134 (2011)

**Note:** the same work, more up to date from the nomenclatural point of view, that indicates our taxon (Dobignard & Chatelain, 2011), expresses some doubt regarding its inclusion in *M. sinuata* (L.) R. Br. subsp. *glandulosa* (Vis.) Vierh.

**New taxon:** *Matthiola pseudoxycceras* f. *vestita* Pamp. in Arch. Bot. (Forli). XII(1): 27 (1936a); Rend. Sem. Fac. Sc. Univ. Cagliari VIII(3): 66 (1938b) [sub *M. kralikii* Pomel f. *vestita* (Pamp.) Pamp. comb. nov.].

**Type:** Holotypus: Libia, Cirenaica: fra Agedabia e El Agheila: Melch an Nogra (3160), 15/03/1933. Leg. R. Pampanini, (FI003783).

**Accepted name:** *Lonchophora kralikii* (Pomel) Jafri, see Fl. Lib. (Jafri, 1977a).

As *Matthiola kralikii* Pomel in Dobignard & Chatelain, 3: 137 (2011)

**Note:** the new comb. of *M. kralikii* Pomel f. *vestita* (Pamp.) Pamp. had already been established in Pampanini (1938b).

**New taxon:** *Maresia doumetiana* var. *cydmica* Pamp., in Atti Reale Ist. Veneto Sci. Lett. Arti, XCII: 2121924. (1932)

**Type:** Holotypus: Libia, Tripolitania: Oasi di Gadames, 18/04/1931. Leg. A. Marcello (PAD).

**Accepted name:** *Malcolmia doumetiana* Pomel, in Warwick, Francis & Al Shehbaz, (2006).

Recently as *Malcolmia doumetiana* (Coss.) Rouy, in Dobignard & Chatelain, 3: 130 (2011).

**Note:** in Fl. Lib. (Jafri, 1977a) is quoted our taxon, but for Jafri this quotation may be *Maresia nana* (DC.) Batt. (because of its variability for pedicels), very similar with *M. doumetiana* (Coss.) Batt. (by R. Marcucci & P. Cuccuini).

**New taxon:** *Moricandia nitens* var. *longisiliqua* Pamp. in Arch. Bot. (Forli). XII(1): 27 (1936a); Rend. Sem. Fac. Sc. Univ. Cagliari VIII(3): 66 (1938b)

**Type:** Holotypus: Libia, Cirenaica: El Mechili (3177), 19/4/ 1934. Leg. R. Pampanini & R.E.G. Pichi Sermolli, (FI003458).

**Accepted name:** *Moricandia nitens* (Viv.) Dur. & Barr.

**Note:** pinned on the sheet of the typus is a piece of newspaper with the name of the taxon in pencil, signed by Pampanini.

### *Capparaceae*

**New taxon:** *Capparis sicula* var. *kruegeriana* Pamp. in Agric. Colon. XX(2): 459. (1926)

**Type:** Holotypus: Libia, Cirenaica: Porto Bardia, 20 Jul. 1926. Leg. G. Krüger (FI).

**Accepted name:** *Capparis ovata* Desf. subsp. *ovata*, see Inocencio et al. in Ann. Missouri Bot. Gard. 93 (1): 137 (2006); also in Le Floch et al. (2010) and in Dobignard & Chatelain, 3: 74 (2011)

**Note:** as *Capparis spinosa* L. subsp. *orientalis* (Duh.) Jafri var. *kruegeriana* (Pamp.) Jafri, see Jafri S.M.H., in : Fl. Lib. 12: 4, 6 (1977b), moreover in Fl. Lib. 12: 6. (1977b) there

is a bibliographical quotation of *typus*.

In *Prodromo della Flora Cirenaica*: 234. (1930), Pampanini had already indicated the considered taxon as a comb. et stat. nov. as *C. spinosa* var. *rupestris* f. *krugeriana* (Pamp.) Pamp.

### **Caprifoliaceae**

**New taxon:** *Lonicera persica* var. *occidentalis* Pamp. in Bull. Soc. Bot. Ital.: 581-82 (1928), [sub *L. arborea* in Agric. Colon. XV(7): 376. (1921); Nuovo Giorn. Bot. Ital. 31: 227 (1924); Libya III(2): 143 (1927), and sub *L. biflora* in Bull. Soc. Bot. Ital. (1-2): 11 (1923)].

**Type:** [Libia], Cirenaica, Cirene: Mattan Borgu, nei boschetti presso la ridotta, 04/1922. Leg. F. Cavara, (sub *L. persica*) (FI) (Lectotypus designated here).

Other syntypes from Original collection: (sub *L. arborea*) L., C.: Pressi dell' Uadi Surrak, 06/1919, Leg. A. Maugini; C., Cirene: Uadi El Kuf, 24/04/1922, Leg. A. Maugini; C., Cirene: Ghegab, 03/1923, Leg. M. Casilli. (sub *L. biflora* then changed by Pampanini as *L. persica*) L., C., Derna: Uadi Chersa, nei boschetti della macchia, 04/1922. Leg. F. Cavara (all in FI).

**Accepted name:** *Lonicera nummulariifolia* Jaub. & Spach subsp. *occidentalis* (Pamp.) Brullo & Furnari, see Brullo & Furnari, in *Webbia* 34(1): 171. (1979b); also in Dobignard & Chatelain 3: 190 (2011).

**Note:** from the material of Cavara which Pampanini mentioned, the following are not in FI: Cirenaica, Uadi El Kuf, sulla via nuova tra El Merg e Messa, 04/1922; C., Cirene: Uadi Sambar, 04/1922, Leg. F. Cavara, probably at NAP. Although they are mentioned in the work (Cavara, 1928) they were reviewed in the first place by Pampanini as *L. persica* and for this reason bear this name on the label.

### **Caryophyllaceae** (by Dr. M. N. Abuhadra)

**New taxon:** *Dianthus serrulatus* var. *cyrenaicus* Pamp. in Arch. Bot. (Forlì) XII (1): 24 (1936a). Rend. Sem. Fac. Sc. Univ. Cagliari VIII(3): 64 (1938b)

**Type:** Holotypus: Libia, Cirenaica: Saumnu a N. E. di Agedabia (2442), 10/4/1934 R. Pampanini & R.E.G. Pichi Sermolli, (FI).

**Accepted name:** *Dianthus serrulatus* Desf. (marked by M. N. Abuhadra, 09/11/2012)

**Note:** In Flora of Libya the plant reported only from Tarhuna (it is a city about 80 km south of Tripoli); there is no herbarium sheet of *Dianthus serrulatus* in the Libyan National Herbarium (ULT).

**New taxon:** *Minuartia procumbens* var. *glabrescens* Pamp. in Arch. Bot. (Forlì). XII (1): 24 (1936a); Rend. Sem. Fac. Sc. Univ. Cagliari VIII(3): 64 (1938b)

**Type:** Holotypus: Libia, Cirenaica, Bengasi: Lete (Giocchi El Kebir) [sic, Giok ] (2459), 9/03/1933. Leg. R. Pampanini, (FI).

**Accepted name:** *Minuartia geniculata* Thell. (marked by M. N. Abuhadra, 9/11/2012)

**Note:** Topotype (68591202), 5km. from Susa on the way of Sahat, 20.6.1972, S. I. Ali, no. 780, in (ULT).

**New taxon:** *Petrorhagia rupestris* Brullo & Furnari in Webbia 34(1). 156-58 (1979b)

**Type:** Holotypus: [Libya], Cirenaica: Wadi El Cuf, 14/09/1974. Leg. S. Brullo & F. Furnari (CAT)  
Isotypus (FI).

**Accepted name:** *Petrorhagia rupestris* Brullo & Furnari

**New taxon:** *Silene apetala* var. *berenicea* Pamp. In Nuovo Giorn. Bot. Ital. n.s. 24: 130 (1917)

**Type:** Holotypus: [Libia], Cirenaica: Fuehat (330 bis), 03/03/1916. Leg. V. Zanon (FI).

**Accepted name:** *Silene apetala* Will. (marked by M. N. Abuhadra, 9/11/2012)

**Note:** Topotype (68591410), the material collected “from Mirawa in the east of Benghazi, 2.3.1973, S. I. Ali, n° 1217”, in (ULT).

**New taxon:** *Silene apetala* var. *villosa* Pamp. in Arch. Bot. (Forlì).VIII: 110 (1932)

**Type:** [Libia], Tripolitania, Tripoli: Suk El Giama 20/3/1931. Leg. G. Zodda, (FI), (Lectotypus designated here).

Isolectotypus: (FI).

Other syntype from Original collection: [Libia], Tripolitania: Steppe di Zuaga, a sud est di Sabratha, 18/03/1931. Leg. G. Zodda (FI). (see note)

**Accepted name:** *Silene gallica* L. (marked by M. N. Abuhadra, 9/11/2012)

**Note:** the specimen that Zodda collected at Suk El Giama with the label signed by the collector has been chosen as lectotypus, whilst the Isolectotypus is a duplicate but the data are signed by Pampanini. The same situation occurs among the paratypes.

Topotype (68591406), “ Hadba Sharqia in Tripolia, 30.2.1977, S. M. Jafri, n° 6460”, in (ULT).

**New taxon:** *Silene fruticosa* subsp. *cyrenaica* Bég. & Vaccari in Sp. nuove o rare per la Fl. della Libia, 2 (1912)

**Type:** Syntypus: nell’Uadi Derna, 24 maggio 1912. Leg. A. Vaccari, (FI).

**Accepted name:** *Silene fruticosa* L. (marked by M. N. Abuhadra, 9/11/2012)

**Note:** Specimens from the FI. Lib. Exsiccata have been distributed to various herbaria and moreover the original collection of the specimens is probably held in MOD.

In Flora of Libya the plant species (*Silene fruticosa*) reported only by Pampanini and Keith from Wadi Derna; there is no herbarium sheet of this species in Libyan National Herbarium (ULT).

**New taxon:** *Silene marmarica* Bég. & Vaccari in Ann. Di Bot. XII(1): 100-101 (1913b); (III centuria Fl. Libica, 59).

**Type:** [Libia], Cirenaica, Marmarica: Tobruk, costa sud, 8/6/1913. Leg. A. Vaccari (FI) (Lectotypus designated here).

Isolectotypus: (FI) see note

**Accepted name:** *Silene marmarica* Bég. & Vaccari (marked by M. N. Abuhadra, 9/11/2012).

**Note:** The material with the label written in hand by Vaccari has been chosen as Lectotypus. The duplicate is an exsiccatum from the F. Lib. Exsiccata (n° 59).

It is an endemic species, there is no herbarium sheet in (ULT) herbarium; it is known from the Type gathering only.

**New taxon:** *Silene setacea* var. *glabrescens* Pamp. in Arch. Bot. (Forli). XII (1): 24 (1936a); Rend. Sem. Fac. Sc. Univ. Cagliari VIII(3): 64 (1938b)

**Type:** Libia, Cirenaica: Bir Achim-Arcoma: l.d. es Sedra (2522), 22/03/1933. Leg. R. Pampanini, (FI003487), (Lectotypus designated here).

Other syntypes from Original collection: Cirenaica: fra Amseat e El Mechili (2525), 29/03, (FI003490); C.: Trigh Enver Bei, Sidi Resegh (2523), 25/03, (FI003488); C.: Mechili : fra Bir Acheim e Mechili, Trigh Enver Bei, Bir Bu Usceica (2524), 26/03, 1933. Leg. R. Pampanini, (FI003489). Cirenaica, Tra Bengasi e Agedabia: Sidi Ahmed El Magrun (2526), 7/4/1934. Leg. R. Pampanini & R.E.G. Pichi Sermolli, (FI003491).

**Accepted name:** *Silene viviani* Steud. (marked by M. N. Abuhadra, 9/11/2012)

**Note:** The name of the taxon is written in pencil and on a piece of newspaper signed by Pampanini pinned to the sheet for the typus.

There is no herbarium sheet in (ULT).

**New taxon:** *Tunica compressa* f. *levis* Pamp. in Arch. Bot. (Forli) XII (1): 24 (1936a); Rend. Sem. Fac. Sc. Univ. Cagliari VIII(3): 64 (1938b)

**Type:** Holotypus: Libia, Cirenaica, Bengasi: Has esc Scelabi El Bebas (2569), 11/3/1933. Leg. R. Pampanini, (FI003498).

**Accepted name:** *Petrorhagia illyrica* (Ard.) Ball & Heywood (marked by M. N. Abuhadra, 9/11/2012), see Ball & Heywood, in Bull. Brit. Mus. Nat. Hist. (Bot.) 3(4): 133. 1964.

**Note:** The name of the taxon is written on a piece of newspaper signed by Pampanini and pinned to the sheet for the typus.

The genus *Tunica*, inserted in the new genus *Petrorhagia*, is treated together with this taxon from the nomenclatural point of view in the important work by P.W. Ball and V.H. Heywood (1964), although it lacks any typifications of the specific and infraspecific taxa, and only considers the definition of the section and subsections of the genus. Later only typifications of single taxa were tackled.

Topotype (68591801), "Abu Ghilan at the foot of Nafusa mountain in the south west of Libya, 28.11.1978, S. I. Ali, no. 2953", in (ULT).

**New taxon:** *Tunica scoparia* Pamp. in Arch. Bot. (Forli). XII (1): 25 (1936a); Rend. Sem. Fac. Sc. Univ. Cagliari VIII(3): 64 (1938b)

**Type:** Holotypus: Libia, Cirenaica, El Beda: Uadi Scisu (2578), 7/5/1933. Leg. R. Pampanini, (FI003495).

**Accepted name:** *Petrorhagia illyrica* (Ard.) P. W. Ball & Heywood (marked by M. N. Abuhadra, 9/11/2012), also in Fl.Lib. 59: 111. (1978)

**Note:** as *Petrorhagia illyrica* subsp. *angustifolia* (Poir.) Ball & Heywood in Ball & Heywood (1964) and in Dobignard & Chatelain 3: 290 (2011).

Topotype (68591801), "Abu Ghilan at the foot of Nafusa mountain in the south west of Libya, 28.11.1978, S. I. Ali, no. 2953", in (ULT).



**New taxon:** *Tunica scoparia* f. *glabra* Pamp. in Arch. Bot. (Forli). XII (1): 25 (1936a); Rend. Sem. Fac. Sc. Univ. Cagliari VIII(3): 64 (1938b)

**Type:** Libia, Cirenaica: Messa a ovest di Cirene: Uadi Tmista (2579), 29/04/1934. Leg. R. Pampanini & R.E.G. Pichi Sermolli, (FI003496), (Lectotypus designated here).

Other syntype from Original collection: Cirenaica, Messa: Umm er-Rcham (2580), 08/05/1934. Leg. R. Pampanini & R.E.G. Pichi Sermolli, (FI003497).

**Accepted name:** *Petrorhagia illyrica* (Ard.) P. W. Ball & Heywood (marked by M. N. Abuhadra, 9/11/2012)

**Note:** The name of the taxon is written in pencil on a piece of newspaper signed by Pampanini and pinned to the sheet of the typus.

Topotype (68591801), “Abu Ghilan at the foot of Nafusa mountain in the south west of Libya, 28.11.1978, S. I. Ali, no. 2953”, in (ULT).

**New taxon:** *Tunica thessala* var. *cyrenaica* f. *pubescens* Pamp. in Arch. Bot. (Forli). XII (1): 25 (1936a); sub *T. compressa* var. *australis*, Pamp. (1917) (p.p.: specim. Zanon 598); sub *T. compressa*, Pamp. (1921); Prod. Fl. Cir.: 200 (1930), (p. p. specim. Zanon, 1916 [Auà Added] Maugini)

**Type:** [Libia], Cirenaica, Bengasi: Auà Added, sul ciglio della buca (598), 22/05/1916. Leg. V. Zanon, (FI003884), (Lectotypus designated here)

Other syntype from Original collection: [Libia], Cirenaica: U. Uardama, 06/1919. Leg. A. Maugini, (FI003769).

Original material: Cirenaica, Bengasi: Giok Kebir, Auà Added, (398), 22/05, (FI003885); C.: Auà Added (604), 22/05, (FI003887); C., Bengasi: Auà Added (597, 597bis), 22/05/1916. Leg. A. Zanon, (FI003886, FI003888).

**Accepted name:** *Petrorhagia cyrenaica* (E. A. Durand & Barratte) P.W. Ball & Heywood, (Lectotypus, Syntypus), *Petrorhagia illyrica* (Ard.) P. W. Ball & Heywood, (Original material) (marked by M. N. Abuhadra, 9/11/2012)

**Note:** Regarding the material of the original collection, the citations given in Pampanini (1936a) to indicate the material he considered for describing the taxon are insufficiently clear and do not always allow a choice of the material. For typification, as well as diagnosis, we considered the material that could be recognized with certainty from the citations the author gives. Moreover, since the original collection is mixed, such material belongs to two taxa: the specimens of Maugini s.n. and Zanon 598, the only ones cited with certainty, turns out to be *Petrorhagia cyrenaica* (Durr. & Barr) P. W. Ball & Heywood, whilst all the other are *Petrorhagia illyrica* (Ard.) P. W. Ball & Heywood. Since Pampanini intended to describe a form of the var. *cyrenaica*, and to date *Tunica thessala* Boiss. var. *cyrenaica* E. A. Durand & Barratte is included under *P. cyrenaica*, it is this to which any reference must be made, as indeed Pampanini does when he describes the form here given. For this reason, we have limited our choice for designating the lectotypus after checking the data given in the protologue, to the two specimens ascribable to this taxon.

Topotype (68591803),” Gebel Akhdar area, 20.10.1977, M. A. Siddiqi, no. 99”, in (ULT).

**Chenopodiaceae** (in Dobignard et al. 2: 14 2011, enclosed in *Amaranthaceae*)

**New taxa:** *Atriplex halimus* L. f. *pulverulenta* Corti in. Flora e Vegetazione del Fezzan e della regione di Gat.: 78-81. 1942

**Typus:** Holotypus: Fezzan-Depressione di Sebha: presso Temenhint al margine dell'Hatia (243), 19/02/1934. Leg. R. Corti, (FI003914).

**Accepted name:** *Atriplex halimus* L. *sensu* Fl. of Libya (but it is not considered for Fezzan in this "Flora").

**Note:** the slight differences from the typus described by Corti and the scantiness of the material (only one specimen and no duplicate) mean that any satisfactory taxonomic definition is extremely difficult.

### *Cistaceae*

**New taxon:** *Helianthemum tunetanus* var. *acutifolium* Pamp. in Arch. Bot. Sist..VII: 102, 106 (1931); Arch. Bot. Sist..VII: 243 (1931)

**Type:** Holotypus: [Libia], Tripolitania: fra Nalut e Sinuen, 10/04/1930. Leg. O. Bargagli Petrucci, (FI).

**Accepted name:** *Helianthemum crassifolium* Pers., in Fl. Lib. (Jafri, 1977c)

**Note:** also in Dobignard & Chatelain, 3. 2011 all the taxa linked to *H. tunetanus* Coss. & Kral. are incl. in *H. crassifolium* Pers.

**New Taxon:** *Helianthemum tunetanus* var. *crinitum* Pamp. in Arch. Bot. (Forli). IX: 306 (1932)

**Type:** Holotypus: Libia, Cirenaica: Fra l'oasi di Marada e l'Uadi Faregh, a 16 km. A sud dell'Uadi Faregh, 13 marzo 1932. Leg. G. Krueger, (FI).

**Accepted name:** *Helianthemum crassifolium* Pers. subsp. *sphaerocalyx* (Gaub & Janch.) Maire, in Dobignard & Chatelain, 3: 325 (2011)

**Note:** in, Pampanini, (1937), as comb. and stat. nov., *H. crassifolium* Pers. var. *sphaerocalyx* (Gaub & Janchen) Pamp. f. *crinitum* (Pamp.) Pamp.

**New Taxon:** *Helianthemum tunetanus* var. *crinitum* f. *syrticum* Pamp. in Arch. Bot. (Forli). IX: 306 (1932)

**Type:** [Libia], Cirenaica, Sirtica: fra l'oasi di Marada e l'Uadi Faregh, a 16 km. A sud dell'Uadi Faregh, 13 marzo 1932. Leg. G. Krueger, (FI), (Lectotypus designated here). Other syntype from Original collection: [Libia], Cirenaica, Sirtica: Uadi Faregh l.d. Maaten Giofer, 14/03/1932. Leg. G. Krueger, (FI).

**Accepted name:** *Helianthemum crassifolium* Pers. subsp. *sphaerocalyx* (Gaub & Janch.) Maire, in Dobignard & Chatelain, 3: 325 (2011)

**Note:** in Pampanini (1937) already indicated as a new comb. and st. nov. *H. crassifolium* Pers. var. *sphaerocalyx* (Gaub & Janchen) Pamp. f. *crinitum* (Pamp.) Pamp.; the lectotypus carries a card signed by G. Krueger.

**New taxon:** *Helianthemum tunetanus* var. *crinitum* Pamp. f. *tripolitanum* Pamp. in Atti Reale Ist. Veneto Sci. Lett. Arti, XCII: 222 (1932)

**Type:** Holotypus: [Libia], Tripolitania: Carovaniera Tripoli-Nalut: Gasr El Hag, 11/4/1931. Leg. A. Marcello, (PAD).

**Accepted name:** *Helianthemum crassifolium* Pers. subsp. *sphaerocalyx* (Gaub & Janch.) Maire s. l. (Marcucci *in litteris*, 10-04-2014)

**Note:** The material is not present in FI. (By R. Marcucci & P. Cuccuini).

**New taxon:** *Helianthemum tunetanum* var. *crinitum* f. *vestitum* Pamp. in Atti Reale Ist. Veneto Sci. Lett. Arti, XCII: 223 (1932)

**Type:** Holotypus: [Libia], Tripolitania, Sirtica: Carovaniera Gheddahia-Bu Ngem: bivio Buerat, 01/04/1931. Leg. A. Marcello, (PAD).

**Accepted name:** *Helianthemum crassifolium* Pers. subsp. *sphaerocalyx* (Gaub & Janch.) Maire s. l.

**Note:** The material is not present in FI. (By R. Marcucci & P. Cucuini).

**New taxon:** *Helianthemum tunetanum* var. *latifolium* f. *orientale* Pamp. in Arch. Bot. Sist., IX: 307 (1932)

**Type:** Holotypus: [Libia], Cirenaica, Sirtica: Uadi Faregh, l d. Maten Giofer, 14 marzo 1932. leg. G. Krueger, (FI).

**Accepted name:** *H. crassifolium* Pers. subsp. *sphaerocalyx* (Gaub & Janchen) Maire s. l.

**Note:** there is also a label signed by G. Krueger on the specimen. Pampanini (1937) gives a new comb.: *H. crassifolium* Pers var. *sphaerocalyx* (Gaub & Janchen) Pamp. f. *orientale* (Pamp.) Pamp.

**New taxon:** *Helianthemum virgatum* var. *ciliatum* f. *eciliatum* Pamp. in Arch. Bot. (Forlì). XII(1): 39 (1936a); Rend. Sem. Fac. Sc. Univ. Cagliari VII(4): 46-47 (1937); Rend. Sem. Fac. Sc. Univ. Cagliari VIII(3): 71 (1938b)

**Type:** Libia, Cirenaica: Mechili (5248), 29/03/1933. Leg. R. Pampanini, (FI003797), (Lectotypus designated here).

Other syntypes from Original collection: L., C., Marsa Brega: Mohamed Scerif (5249), 08/04, (FI003794); C., Agedabia: Sahabi (Saniet El Hammar)(5251), 09/04, (FI003795); C.: Ez Zuetina (5252), 11/04, (FI003796); C.: Maraua (5253), 25/04/1934. Leg. R. Pampanini & R.E.G. Pichi Sermolli, (FI003798).

Original material: C.: El Grein presso Marsa el Brega (5250), 8/04/1934. Leg. Pampanini & Pichi Sermolli, (FI).

**Accepted name:** *Helianthemum virgatum* Pers. subsp. *ciliatum* (Desf.) Murb. s. l.

**Note:** the specimen: C., Agedabia, (5254), s.d. (?). Leg Pampanini & Pichi Sermolli, is not in FI, and specimen 5250, although part of the original collection, was not published in Pampanini, (1938b). The lectotypus has a piece of newspaper with the name of the taxon signed by Pampanini.

**New taxon:** *Helianthemum virgatum* var. *ciliatum* f. *eciliatum* sf. *glabrum* Pamp. in Arch. Bot. (Forlì).XII(1): 39 (1936a); Rend. Sem. Fac. Sc. Univ. Cagliari VII(4): 47 1937; Rend. Sem. Fac. Sc. Univ. Cagliari VIII(3): 71 (1938b)

**Original material:** Libia, Cirenaica: Tra Agedabia e Antelat a Bag Lia, (5054), 10/04/; C., Ridotta Tilger a 10 km da Agedabia, (5055), 7/04/1934. Legit Pampanini & Pichi Sermolli (Both specimens are in FI).

**Accepted name:** *Helianthemum virgatum* subsp. *ciliatum* (Desf.) Murb.s. l.

**Note:** Pampanini, (1938b), mentions the following two specimens regarding this taxon: Cirenaica, Agedabia; Agedabia: Sahabi 1934. Leg. R. Pampanini & R.E.G. Pichi Sermolli. Actually, two specimens are identified as such, with the designation of the new taxon signed by Pampanini. However, although the localities can be ascribed to the

area, they cannot be identified with certainty. For this reason we prefer to specify the material as from the original collection but not proceed to definite typification.

**New taxon:** *Helianthemum virgatum* var. *ciliatum* f. *marmaricum* sf. *glabrifolium* Pamp. in Arch. Bot. (Forli), XII(1): 38-39 (1936a); Rend. Sem. Fac. Univ. Cagliari VII(4): 47-48 (1937); Rend. Sem. Fac. Sc. Univ. Cagliari VIII(3): 71 (1938b)

**Type:** Holotypus: Libia, Cirenaica: fra Agedabia e Antelat: l.d. Bag Lia, (5292), 10/04/1934. Leg. R. Pampanini & R.E.G. Pichi Sermolli, (FI003799).

**Accepted name:** *Helianthemum virgatum* subsp. *ciliatum* (Desf.) Murb.s. l.

**Note:** the specimen has a piece of newspaper with the name of the taxon, signed by Pampanini, and in Pampanini (1937) is indicated as *H. virgatum* Pers. var. *ciliatum* (Desf.) Coss. f. *pseudovesicarium* Gross. sf. *glabrifolium* (Pamp.) Pamp., new. comb.

**New taxon:** *Helianthemum virgatum* var. *vesicarium* f. *glabrescens* Pamp. in Arch. Bot. (Forli). XII(1): 39 (1936a); Rend. Sem. Fac. Sc. Univ. Cagliari VII(4): 49 (1937); Rend. Se. Fac. Sc. Univ. Cagliari VIII(3): 71 (1938b)

**Type:** Holotypus: Libia, Cirenaica: tra Agedabia e Antelat: Bag Lia, (5280), 10/04/1934. Leg. R. Pampanini & R.E.G. Pichi Sermolli, (FI003800).

**Accepted name:** *H. vesicarium* Boiss., in Dobignard & Chatelain, 3: 326 (2010)

**Note:** the specimen has a piece of newspaper with the name of the taxon, signed by Pampanini; in Pampanini (1938b) comb. nov. *H. virgatum* Pers. var. *vesicarium* (Boiss) E. A. Durand & Barratte f. *cyrenaicum* sf. *glabrescens* (Pamp.) Pamp.

**New taxon:** *Helianthemum virgatum* var. *vesicarium* f. *puberulum* Pamp. in Arch. Bot. (Forli). XII(1): 39 (1936a). Rend. Sem. Fav. Sc. Univ. Cagliari VIII(3): 72 (1938b)

**Type:** Libia, Cirenaica: Gerdes El Abid, (5293), 29/03/1933. Leg. R. Pampanini, (FI003801), (Lectotypus designated here).

Other syntype from Original collection: L., C.: Slonta, macchia (5295), 25/04/1934. Leg. R. Pampanini & R.E.G. Pichi Sermolli, (FI003802).

Original material: C.: El Beda-U. Beregd: (5294), 24/04/1934. Leg. R. Pampanini & R.E.G. Pichi Sermolli, (FI)

**Accepted name:** *Helianthemum vesicarium* Boiss.

**Note:** the specimen: Cirenaica: Maraua (n° ?), 1934. Leg. Pampanini & Pichi Semolli, is not in FI; specimen n° 5294 is in FI, it is part of the original collection but not published in Pampanini, (1938b).

### *Convolvulaceae* (by J. R. I. Wood)

**New taxon:** *Convolvulus althaeoides* f. *albiflorus* Pamp. in Arch. Bot. (Forli). XII(1): 40 (1936a); Rend. Sem. Fac. Sc. Univ. Cagliari VIII(3): 73 (1938b)

**Type:** Holotypus: [Libia, Cirenaica] Derna: Feteiah (6190), 19/4/1934. Leg. R. Pampanini & R.E.G. Pichi Sermolli, (FI001148).

**Accepted name:** *Convolvulus althaeoides* L. (by J.R.I. Wood *in litteris*, 25th April 2014)

**Note:** in original label the date is handwritten by Pichi Sermolli. As described, merely a white-flowered form. As far as I know it is only recognised by Pampanini but white flowered forms are occasionally noted by collectors.

**New taxon:** *Convolvulus althaeoides* var. *angustisectus* Pamp. in Bull. Soc. Bot. Ital.: 15 (1914a); Pl. Tripol.: 199 (1914e)

**Type:** Holotypus: [Tripolitania, Garian]: Ras Tecut (3729), 26/04/1913. Leg. R. Pampanini.

**Accepted name:** *Convolvulus althaeoides* L. subsp. *althaeoides* (by J.R.I. Wood *in litteris*, 25th April 2014)

**Note:** *Convolvulus althaeoides* shows a wide range of variation in its leaf morphology and this variety is not worthy of recognition

**New taxon:** *Convolvulus arvensis* var. *ciliatus* Pamp, nom. nud. in Rend. Sem. Fac. Sc. Univ. Cagliari VIII(3): 73 (1938b)

Material Present in FI: [Libia], Cirenaica, El Abrach: Mghernes (6199), 4/05/ 1934. Leg. R. Pampanini & R.E.G. Pichi Sermolli.

**Note:** the name is only cited (without protologue) in Rend. Sem. Fac. Sc. Univ. Cagliari VIII(3): 73 (1938b). In this work the reference to Pampanini (1931) is false.

Probably only a hirsute form of this widespread and variable weed.

**New taxon:** *Convolvulus lineatus* f. *albus* Pamp. in Bull. Soc. Bot. Ital.: 15 (1914a); Pl. Tripol.: 200 (1914e)

**Type:** Holotypus: [Tripolitania], Garian, Kasr Garian, margini dei campi (4318), 04/05/1913. Leg. R. Pampanini, (FI001146).

**Accepted name:** *Convolvulus lineatus* L. (by J.R.I. Wood *in litteris*, 25th April 2014)

**Note:** as described, merely a white-flowered form.

**New taxon:** *Convolvulus maireanus* Pamp. in Arch. Bot. (Forli). XII (2): 178-180 (1936c); Rend. Sem. Fac. Sc. Univ. Cagliari VIII(3): 74 (1938b)

**Type:** Libia, Cirenaica, Messa a ovest di Cirene: Gfonta: l.d. Ruheina (6207), 8/05/1934. Leg. R. Pampanini & R.E.G. Pichi Sermolli, (FI), (Lectotypus designated here)

Other material:

Syntypi: [Libia], Cirenaica, Tolmeta: Uadi Bu Msceifa (6204), 23/04/1933. Leg. R. Pampanini; [Libia], C.: Uadi Laidiebi (6208), 8/04; C., El Beda: Uadi Messaf-saf Ain Legmeila (6205), 22/04; C.: Uadi Tmista (6206), 24/05; C.: Uadi Msuria (6209), 10/05; C., Cirene: Uadi Bu Nabeih (6210), 15/05/1934. Leg. R. Pampanini & R.E.G. Pichi Sermolli, (all in FI).

**Accepted name:** *Convolvulus maireanus* Pamp. (by J.R.I. Wood *in litteris*, 25<sup>th</sup> April 2014)

**Note:** A very interesting and distinctive endemic species only known from Cyrenaica, remarkable for sometimes having three stigmas.

**New taxon:** *Convolvulus oleifolius* var. *angustifolius* Bég. & Vaccari in Piante nuove e rare Fl. Libia: 2 (1912a); Contributo Fl. Libia: 57 (1912b)

**Type:** Holotypus: [Libia, Cirenaica], Derna, 20/04/1912. Leg. A. Vaccari, (FI).

**Accepted name:** *Convolvulus oleifolius* Desr. var. *angustifolius* Bég. & Vaccari (by J.R.I. Wood *in litteris*, 25th April 2014)

**Note:** I think *C. oleifolius* var. *angustifolius* is an older name for the same taxon as *C.*

*oleifolius* var. *deserti*. The protologues of *C. oleifolius* var. *deserti* and *C. oleifolius* var. *oleifolius* fits both varieties perfectly. The only significant difference is “*Rami...nudi, aphilly..*” for var. *deserti*, but looking at the Type of this variety this only refers to the lower part of the stem and may be result of ageing so I don’t think it is very significant.

**New taxon:** *Convolvulus oleifolius* var. *deserti* Pamp. in Arch. Bot. (Forli). XII(1): 40 (1936a); Rend. Sem. Fac. Sc. Univ. Cagliari VIII(3): 74 (1938b)

**Type:** Holotypus: [Libia], Cirenaica, Mechili: l.d. Got Breiber (6233), 20/4/1934. Leg. R. Pampanini & R.E.G. Pichi Sermolli, (FI001145).

**Accepted name:** *Convolvulus oleifolius* Desr. var. *angustifolius* Bég. & Vaccari (by J.R.I. Wood in *litteris*, 25th-April 2014)

**Note:** This variety is recorded from Turkey (Aykurt & Sümbül 2011) as hybridising with *Convolvulus boissieri* subsp. *compactus* (Boiss.) Stace, the hybrid being named *C. x pseudocompactus* C. Aykurt & Sümbül. Also recorded for Cyprus, see Meikle, Flora of Cyprus 2; 1168 (1985). See also Note under *C. oleifolius* var. *angustifolius* Bég. & Vaccari

**New taxon:** *Convolvulus oleifolius* var. *pumilus* Pamp. in Arch. Bot. (Forli). XII(1): 41 (1936a); Rend. Sem. Fac. Sc. Univ. Cagliari VIII(3): 74 (1938b)

**Type:** Holotypus: [Libia], Cirenaica, Apollonia: Rgua (6234), 11/4/1933. Leg. R. Pampanini, (FI001144).

**Accepted name:** *Convolvulus oleifolius* Desr. var. *pumilus* Pamp. (by J.R.I. Wood in *litteris*, 14th-April 2014)

**Note:** also recorded for Cyprus, Meikle, Flora of Cyprus 2; 1168 (1985).

**Crassulaceae** (by M. N. Abuhadra)

**New taxon:** *Cotyledon horizontalis* [*Umbilicus horizontalis*] var. *micranthus* Pamp. in Nuovo Giorn. Bot. Ital. N.s. 24: 137. (1917)

**Type:** [Libia], Cirenaica, Bengasi: Giok Kebir, giardino Osmanli, fra le rocce in luogo ombroso (544), 16/03/1916. Leg. V. Zanon, (FI005900), (Lectotypus designated here). Other syntype from Original collection: L., C., Bengasi: Auà Zarda (474), 03/03/1916. Leg. V. Zanon, (FI005901).

**Accepted name:** *Umbilicus horizontalis* (Guss.) DC.

**New taxon:** *Sedum laconicum* f. *elongatum* Pamp. in Arch. Bot. (Forli). XII(1): 28 (1936a); Rend. Sem. Fac. Sc. Univ. Cagliari VIII(3): 66 (1938b)

**Type:** Libia, Cirenaica, El Beda: Uadi Uardama (3310), 02/05/1934. Leg. R. Pampanini & R.E.G. Pichi Sermolli, (FI003460), (Lectotypus designated here). Isolectotypus: K (on the slip “SyntisoType”- [sic]- by Byalt V., 03/2011) Original material: L. Cirenaica: El Beda-U. El Kuf: Bu Breica (3309), 27/4/1934. Leg. Pampanini & Pichi Sermolli, (FI003959).

**Accepted name:** *Sedum laconicum* Boiss. & Heldr.

**Note:** specimen: C.: Slonta (n° ?), 1934. Pampanini & Pichi Sermolli, is not in FI. Specimen n° 3309 is part of the original collection but not published.

In Flora du Afrique du Nord XIV: 348. (1976), Quetzel had already affirmed that the

taxon Pampanini had established was only a (higher) ecotype of *S. laconicum* Boiss. & Heldr. found in Cyrenaica.

**New taxon:** *Sedum mirum* Pamp. in Arch. Bot. (Forlì). XII(1): 28 (1936a); Rend. Sem. Fac. Sc. Univ. Cagliari VIII(3): 66 (1938b)

**Type:** Libia, Cirenaica, El Beda: Uadi Msuria (n° 3311-790), 10/5/1934. (FI 003457). Leg. R. Pampanini & R.E.G. Pichi Sermolli, (Lectotypus designated here).

Isolectotypi: (FI, K det. by Byalt V., 18-03-2011 ) (see Note)

**Accepted name:** *Umbilicus mirus* (Pamp.) Greuter, Greuter in Willdenowia 11(2): 277-76 (1981); also in : Fl. Lib.87: 19 (1981)

**Note:** although the isolectotypus is a true copy of the typified specimen, it does not have the same number (3312-789); however this is not uncommon in the Pampanini collection and is due exclusively to the identification numbers of the field collection given to the specimens in order to organise the material. Since the material belongs to the same taxon and confirmed by Pampanini, we retain it is an Isolectotypus and not a Syntypus. Due to an obvious oversight, the specimens have wrong, different review labels which were handwritten by W. Greuter but do not correspond to the paper cited (Greuter 1981).

**Cyperaceae** [By B. Wallnöfer (*Carex*), L. Pignotti (*Cyperus*)]

**New taxon:** *Carex distachya* var. *pedunculata* Pamp. in Arch. Bot. (Forlì). XII (Nuova serie: vol. 2): 21 (1936a); Rend. Sem. Fac. Sc. Univ. Cagliari VIII(3): 62 (1938b)

**Type:** Libia, Cirenaica, Messa a ovest di Cirene, Gasr es Zaarura (1330), 3/05/1934. Leg. R. Pampanini & R.E.G. Pichi Sermolli, (FI003592), (Lectotypus designated here).

Further type material: Syntypi: L., C. El Beda: Uadi Scisu (1331), 7/05, (FI003993); L., C., Messa a ovest di Cirene: Sfonta, l.d. Ruheina (1332), 8/05/1934. Leg. R. Pampanini & R.E.G. Pichi Sermolli, (FI003594).

**Accepted name:** *Carex illegittima* Ces.

**New taxon:** *Carex hispida* var. *erostris* Pamp. in Arch. Bot. (Forlì). XII (Nuova serie: vol. 2): 21 (1936a); Rend. Sem. Fac. Sc. Univ. Cagliari VIII(3): 62 (1938b)

**Type:** Holotypus: Libia, Cirenaica, Cirene: l.d. Ain Midisch (1161), 15/5/1934 R. Pampanini & R.E.G. Pichi Sermolli, (FI003591).

**Accepted name:** *Carex flacca* Schreb. subsp. *erytrostachys* (Hoppe) Holub

**New taxon:** *Cyperus laevigatus* var. *pulvinatus* Corti. in Real. Soc. Geogr. Ital.: 60-61 (1942)

**Typus:** Holotypus: [Libia], Fezzan, El- Hòfra: Traghen m.400 (695), 13/05/1933. Leg. R. Corti.

**Accepted name:** *Cyperus laevigatus* L.

**Dipsacaceae**

**New taxon:** *Scabiosa oberti-manettii* Pamp. in Bull. Soc. Bot. Ital.: 18 (1914a); Pl. Tripol. p.: 238-39 (1914e)

**Type:** [Libia], Tripolitania, Garian: Kasr Garian a Slilia (4326E), 04/05/1913. Leg. R.

Pampanini (FI), (Lectotypus designated here).

Isolectotypi: (4326A-FI001193, 4326 B, 4626C, 4326D) (all in FI)

Syntypi: T., Garian: Uadi El Arbaa presso Tebedut (4025), 28/04, (FI001194); T., Ga.: Uadi El Arbaa presso Tebedut (4213) 01/05, (FI001197); T., Ga.: Uadi Garian (4346), 07/05/1913. Leg. R. Pampanini, (FI001196) (all in FI)

**Accepted name:** *Lomelosia oberti-manettii* (Pamp.) Greuter & Burdet in Willd. 15(1): 75. 1985, comb. nov.; also in Dobignard & Chatelain, 3: 399 (2011)

**Note:** in Fl. Lib.(S.A. Alavi 1978) as *Scabiosa oberti-manetti* Pamp.

**Ephedraceae** (by Freitag H. & Maier-Stolte M.)

**New taxon:** *Ephedra altissima* var. *tripolitana* Pamp. in Bull. Soc. Bot. Ital.: 11 (1914a); Pl. Tripol.: 5 (1914e)

**Type:** [Libia], Tripolitania, Tarhuna: Uadi Sart (2122), (♂, ♀), 03/04/1913. Leg. R. Pampanini., (FI006618), (Lectotypus designated here).

The Lectotypus is one sheet with a female specimen and fragments of male and female flowers of the same individual in the envelope.

Isolectotypus: [Libia], T., Ta., Uadi Sart (2122) ,(♀), 03/04/1913. Leg. R. Pampanini, (FI003924).

Other syntype from Original collection: [Libia], T-Ta.: Uadi Msaaba (809) (♂). Leg. R. Pampanini, (FI003929).

Original Material: [Libia], T-Ta.: Abiar Milgah a Migi (1010), 19/03 (sterile), (FI003926); T.: Ras Bu Tanuil (1309), 21 marzo (sterile), (FI003928); T.: Kasr Daun (2303), 7 aprile (sterile), (FI003927); T., Mesellata: Msid di Mesellata(2546), 9 aprile (sterile), (FI003925); T., Cussabat, verso Sliten: a Kasr Buharb (3199), 13 aprile (sterile), (FI007134); [Libia], T., Garian: Ras Tecut (3697), 26 aprile 1913 (sterile). Leg. R. Pampanini, (FI003930).

**Accepted name:** *Ephedra altissima* Desf. var. *tripolitana* Pamp. The specimens 2122 (1st and 2nd sheet), 809.

Other material (sterile) probably *Ephedra altissima* Desf. var. *tripolitana* Pamp.

**Note:** According to our experience we agree with the varietal rank given by Pampanini, but subspecies rank would be tolerable. The case of the elongated and screw-like micropyle in *E. altissima* var. *tripolitana* parallels the conditions known from the Alps in *E. distachya* subsp. *distachya* and *E. distachya* subsp. *helvetica*. It is repeated in Algeria also by *E. fragilis* and *E. wettsteinii*, with the latter one reduced to varietal rank by Maire but curiously enough recently (Euro + Me PlantBase) considered as a synonym of *E. altissima*. On the other hand, we think the complete absence of any formal rank, as adopted by Sherif & El Taife (Fl. Libya, 1986), in Med Checklist and in the new Euro+Med PlanBase is not justified because shape and length of micropyle have some significance, in a few cases even for defining species (e.g. *E. intermedia*).

**Ericaceae**

**New taxon:** *Arbutus pavari* Pamp. in Arch. Bot. (Forli). XII (2): 132-134 (1936b)

**Type:** Libia, Cirenaica, tra El-Garib e Tolmeta: U. El Fahaga, (5836), 14/04/1933. Leg. R. Pampanini, (FI), (Lectotypus designated here).

Other syntypes from Original collection: L., Cirenaica: Lamluda, macchia (5833),



09/04; L., C., tra El Garib e Tolmeta: U. Gaal (5835), 14/04; C.: Lamluda, (5832), 09/04; C., Tocra. U. Bakur (5829), 06/04; C., Tolmeta: U. Ziuana (5828), 04/04; C., Barce: Sidi Ahmed El Cheila (5830), 06/04; C.: El Gubba (5831), 07/04; C., Apollonia: Rgua (5834), 11/04; C., U. El Kuf: fra Gasr Beni Gdam e Sidi Abd El Uahed (5837), 11/04; C., Tolmeta: Sidi Dachil (5838), 23/04/1033. Leg. R. Pampanini; C., El Beda, U. El Kuf: Bu Breica (5842), 27/04; C., El Beda: Sfeiat (5847), 04/05; C., Messa a ovest di Cirene: U. Tmista (5843), 29/04; C., Messa a ovest di Cirene: Gasr es Zaarura (5846), 03/05; C., El Beda: U. Uardama (5845), 02/05; C., Apollonia: U. Scechaba (5844), 01/05; C., El Abrach: Meghernes, macchia (5848), 04/05; C., El Beda: U. Scisu (5849), 07/05; C., Slonta: Bir Gahasci (5840), 25/04; C., El Beda: U. Msuria (5852), 10/05; C., tra El Hania e Messa: Mregheb (5851), 09/05; C., Messa a ovest di Cirene Sfonta: Ruheina (5850), 08/05; C.: U. El Atrun (5853), 14/05; C.: tra El Gubba e U. El Atrun: Argub Dasc (5854), 14/05; C., Cirene: U. Bu Nabeh (5855), 15/05; C., El Beda: U. Messaf saf, Ain Legmeilia (5839), 22/04; C., El Beda, U. El Kuf: Umm El Fachar (5841), 27/04/1934. Leg. R. Pampanini & R. Pichi Sermolli; [Libia], Cirenaica, Merg: fra Merg e Tolmetta, 03/1917. Leg. M. De Horatii; [Libia], Cirenaica: Carovaniera Cirene – Beda, 06/1919. Leg. A. Maugini; [Libia], Cirenaica, Bengasi: a Tocra (499), 02/1916. Leg. V. Zanon (all in FI).

**Accepted name:** *Arbutus pavari* Pamp. by Siddiqi M.A. In *Fl Lib.* 54: 1-8. (1978); also in Dobignard & Chatelain, 3: 407 (2010)

**Notes:** in his work “L’*Arbutus* della Cyrenaica (Pampanini, 1936b), actually a revision of the Mediterranean *Arbutus*, Pampanini recalls that he first became aware of some of the peculiar characteristics of the new taxon in an excursion he made in 1934. “...*insieme al collega e amico Prof. Aldo Pavari... (14 aprile) da El Garib a Tolmeta, scendendo per gli uadin Gaal, Fahaga e Bu Msceica*”. He later extended his research by collecting a remarkable number of *Arbutus* in northern Cyrenaica and reviewed material from several Italian (including Florence) and foreign Herbaria but without mentioning the specimens he examined. Neither, in his work, did he specifically refer to any of the specimens, but only mentions the area of the new taxon: “... *inde abundans a Teuchira (hodie “Tocra”) usque Darnin (hodie “Derna”) et a litore usque culminem l.d. Slonta*”. The material which can be documented as used for his definition of the new taxon are those held in FI, which do not have any revisions. The revision of the material in question, already in part revised by Le Houérou in 1966 and later all the FI material by P. Cuccuini in 2014, prove that all the material in his original collection and that first cited by Pampanini can be attributed to *Arbutus pavari* Pamp. Moreover, to better document *Arbutus pavari*, Pampanini published a table, n° 3, that shows a composition of plant specimens (Fig. 11) among which a flowering branch can be seen. This *exsiccatum* has been identified as part of specimen n° 5836 which corresponds to the one mentioned in the excursion to Cyrenaica on 14th April 1933, together with his previously mentioned friend Pavari, and in particular to the material from Wadi Fahaga (Fig. 12). For this reason it has been chosen as Lectotype for the new species.

### *Euphorbiaceae*

**New taxon:** *Euphorbia bivonae* var. *intercedens* Pamp. in *Bull. Soc. Bot. Ital.* (1-3): 15 (1914a); *Prod. Pl. Tripol.*: 180 (1914e)

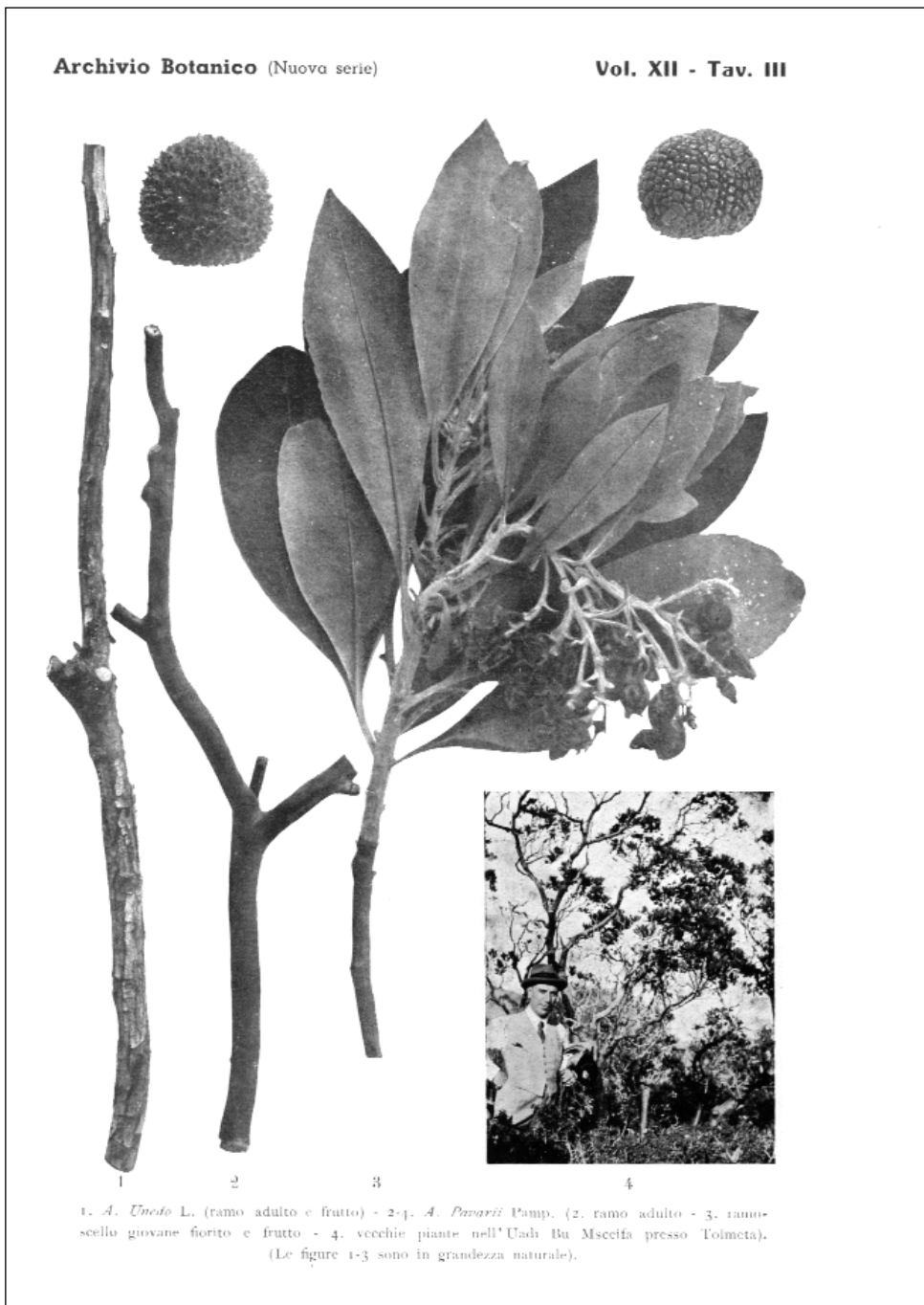


Fig. 11. Original photograph, and other plant products, of *Arbutus pavarii* Pamp., from Arch. Bot. (Forli) 12 (1)-table 3. (1936).



Fig. 12. Specimen n° 5836 collected in Libya in 1933 in Wadi Fahaga by R. Pampanini, and which contains the specimen of *Arbutus pavarii* Pamp., photographed in the Arch. Bot. (Forli) 12 (1) 1936.

**Type:** [Libia], Tripolitania, Tarhuna: Uadi Msaaba (1424), 22/03/1913. Leg. R. Pampanini, (FI003671), (Lectotypus designated here).

Other syntypes from Original collection: L., T., Tarhuna: Ras Ghenai (1602), 25/03, (FI003670); T., Garian: Uadi Garian sul Ras Omcteba (4113), 29/04/1913. Leg. R. Pampanini, (FI003672).

**Accepted name:** *E. bivonae* Steud. subsp. *bivonae*, in Dobignard & Chatelain, 3: 414 (2011); also in Govaerts R., Frodin D.G. & Radcliffe-Smith A., (2000).

As *E. bivonae* Steud. subsp. *tunetana* Murb. in J. S. Pallisé & J. V. Fandos: 663 (1999)

**Note:** in Pampanini (1936a) comb. et stat. nov. as *E. bivonae* Steud. var. *papillaris* Boiss. sf. *intercedens* (Pamp.) Pamp.

For specimen n° 4133 Pampanini says “the leaves are narrower than those of the other specimens”.

In J. S. Pallisé & J. V. Fandos: 609. 1999, this taxon was mistakenly considered as appearing in a “non valid publication”. In all probability the authors were confused by the nov. comb. and stat. nov. which they found when checking the material.

**New taxon:** *Euphorbia bivonae* var. *melitensis* sf. *major* Pamp. in Arch. Bot. (Forli). XII(1): 35 (1936a); Rend. Sem. Fac. Sc. Univ. Cagliari VIII(3): 69 (1938b)

**Type:** Holotypus: Libia, Cirenaica, Messa a ovest di Cirene: G(S)fonta l.d. Scendira (4635) 8/5/1934. Leg. R. Pampanini & R.E.G. Pichi Sermolli, (FI003898).

**Accepted name:** *Euphorbia melitensis* Parl. s. l.

**Note:** the name of the taxon is written on a piece of newspaper on the specimen, signed by Pampanini.

In J. S. Pallisé & J. V. Fandos: 608, (1999), this taxon is mistakenly considered as appearing in a “non valid publication”.

**New taxon:** *Euphorbia bivonae* var. *papillaris* f. *bertolonii* Pamp. in Bull. Soc. Bot. Ital. (1-3) : 15 (1914a); Pl. Tripol.: 181 (1914e)

**Type:** [Libia], Ttripolitania, Garian: Ras Tecut (3678), 26/04/1913. Leg. R. Pampanini, (FI003674), (Lectotypus designated here).

Other syntype from Original collection: L., T., Tarhuna: Uadi Ksea sul Ras Argobinani (2426), 06/04/1913. Leg. R. Pampanini, (FI003673).

**Accepted name:** *Euphorbia bivonae* Steud. subsp. *tunetana* Murb. in Dobignard & Chatelain, 3: 414 (2011), and in J. S. Pallisé & J. V. Fandos: 663. 1999.

**Note:** as *E. papillaris* (Boiss.) Raffaelli & Ricceri in Webbia 42(1): 7. 1988; in J. S. Pallisé & J. V. Fandos: 608, (1999), this taxon is mistakenly considered as appearing in a “non valid publication”.

**New taxon:** *Euphorbia bivonae* var. *papillaris* f. *bertolonii* sf. *luxurians* Pamp. in Arch. Bot. (Forli). XII(1): 35 (1936a)

**Type:** Holotypus: Libia, Cirenaica: El Abrach-Mghernes macchia (4625), 4/5/1934. Leg. R. Pampanini & R. Pichi Sermolli, (FI003889).

**Accepted name:** *E. bivonae* Steud. subsp. *tunetana* Murb. in Dobignard & Chatelain, 3: 414 (2011)

**Note:** the name of the taxon is written on a piece of newspaper on the specimen, signed by Pampanini. In *Webbia* 42(1): 7. 1988, as *E. papillaris* (Boiss.) Raffaelli & Ricceri.

**New taxon:** *Euphorbia bivonae* var. *papillaris* f. *genuina* sf. *pinguis* Pamp. in Arch. Bot. (Forli). XII(1): 34 (1936a); Rend. Sem. Fac. Sc. Univ. Cagliari VIII(3): 69 (1938b)

**Type:** Holotypus: Libia, Cirenaica, El Beda: Uadi Scisu (4615), 7/5/1934. Leg. R. Pampanini & R.E.G. Pichi Sermolli, (FI003901).

**Accepted name:** *E. bivonae* Steud. subsp. *tunetana* Murb. in Dobignard & Chatelain, 3: 414 (2011)

**Note:** the name of the specimen is written on a piece of newspaper on the specimen, signed by Pampanini. In *Webbia* 42(1): 7. 1988, as *E. papillaris* (Boiss.) Raffaelli & Ricceri.

**New taxon:** *Euphorbia gebelica* Brullo in Boll. Accad. Gioenia Sci. Nat. Catania 27(347): 258. (1996)

**Type:** Isotypus: Libia, Cyrenaica: Gebel Abo presso Barce, 20/03/1975. Leg. S. Brullo, (FI)

Holotypus: CAT

**Accepted name:** *Euphorbia gebelica* Brullo in Brullo & Furnari (1996)

**New taxon:** *Euphorbia parvula* var. *linearifolia* Pamp. in Arch. Bot. (Forli). XII(1): 35 (1936a); Rend. Sem. Fac. Sc. Univ. Cagliari VIII(3): 70 (1938b)

**Type:** Libia, Cirenaica: esc Sceleidima, a est di Bengasi (4693), 20/3/1933. Leg. R. Pampanini, (FI003900), (Lectotypus designated here).

Other syntype from Original collection: L., Cirenaica: Birr El Giocch: fra Agedabia e Saumnu (4694), 10/4/1934. Leg. R. Pampanini & R.E.G. Pichi Sermolli, (FI003899).

**Accepted name:** *Euphorbia parvula* Delile

**Note:** the name of the taxon is written on a piece of newspaper on the specimen, signed by Pampanini. The two typus specimens are mounted on the same sheet.

**New taxon:** *Euphorbia parvula* var. *linearifolia* f. *elata* Pamp. in Arch. Bot. (Forli). XII(1): 35 (1936a); Rend. Sem. Fac. Sc. Univ. Cagliari VIII(3): 70 (1938b); sub *E. parvula* Delile f. *major* Pamp.

**Type:** Holotypus: Libia, Cirenaica, [Marmarica], Trigh Enver Bei: Sidi Resegh (4695), 23/3/1933. Leg. R. Pampanini, (FI003892).

**Accepted name:** *Euphorbia parvula* Delile s. l.

**Note:** the name that appears on the specimen *E. parvula* f. *major* Pamp. is a nomen nudum, which has never been published apart from the indication on the Herbarium card. On the contrary, two publications relating to the material Pampanini collected in Cyrenaica mention *E. parvula* f. *elata* Pamp. which is apparently in FI. When comparing the exsiccatum with the protologue for f. *elata*, it fully corresponds to the data for the description [*Cauli simplex circ. 15 cm. Altus, foliis bracteisque majoribus quam in typo* [ca. 1, 2-1,5 times, (editor's note)]]]. It is true that Pampanini (1938b) formally gives two localities "Fra Amseat and Mechili; Trigh Enver Bei". But if we examine what is written about the locality for f. *major* we can read "Trigh Enver Bei Sidi Resegh". To say that a specimen was collected between Amseat and Mechili means it was collected along or

in the vicinity of a heavy vehicle road built by the Turks, the “Trigh-Enver Bei”. Instead of writing this absolutely generic description on the card, in our opinion Pampanini wanted to say where he collected the material along the heavy vehicle road, i.e. at Sidi Resegh. Therefore the publication does not refer to two localities, but only one. There is a typing error, “un” (one) instead of “di” (of). Moreover, confirmation of the epithet “*elata*” definitely lies in the fact that the author stressed the very obvious greater height (*elata*) of the plant with respect to the *typus*.

**New taxon:** “*Euphorbia parvula* f. *major* Pamp.” (in FI Herb., sched.)

**Original material:** Libia, Cirenaica: fra Amseat e Mechili; Cirenaica: Trigh Enver Bei, 1933 or -34. Leg. R. Pampanini or Pampanini & R.E.G- Pichi Sermolli.; Libia, Cirenaica, [Marmarica]: Trigh Enver Bei – Sidi Resegh (4695), 23/3/1933. Leg. R. Pampanini, (FI003892.).

**Note:** see *E. parvula* Delile f. *elata* Pamp.

**New taxon:** *Euphorbia parvula* var. *purpurea* Pamp. in Arch. Bot. (Forli). XII(1): 35 (1936a); Rend. Sem. Fac. Sc. Univ. Cagliari VIII(3): 70 (1938b)

**Type:** Libia, Cirenaica, Mechili: Gara El Gafsa (4697), 28/03/1933. Leg. R. Pampanini, (FI003893), (Lectotypus designated here).

Other syntypes from Original collection: L., C., Bengasi: Has esc Sceilabi El Bebas (4696), 11/03/1933. Leg. R. Pampanini, (FI003894.); L., C.:Sidi Ahmed El Magrun (4699), 7/4, (FI003896); C., Martuba: Uadi Bgar (4698), 8/4, (FI003895); C.: Maraua (4700), 25/4/1934. Leg. R. Pampanini & R.E.G. Pichi Sermolli, (all in FI)

**Accepted name:** *Euphorbia parvula* Delile in Dobignard & Chatelain, 3: 426 (2011)

**Note:** the name of the taxon is written on a piece of newspaper on the specimen, signed by Pampanini.

### *Fabaceae*

**New taxon:** *Astragalus armatus* var. *libycus* Pamp. in Bull. Soc. Bot. Ital.: 18-19 (1920)

**Type:** Holotypus: Lybia, Cirenaica: Zavia Mechili, primavera 1920. Leg H. Scaetta, (FI001163), in Podlech D., Thesaurus Astragalorum: 29 (2008), (marked as Holotypus by Podlech, 2001).

**Accepted name:** *Astragalus spinosus* (Forssk.) Muschl. see in Podlech D., Thesaurus Astragalorum: 29 (2008); (marked by Podlech, 2001).

**Note:** the bar code appeared on the sheet after typification by Podlech.

**New taxon:** *Astragalus caprinus* var. *glaber* f. *intermedius* Pamp. in Arch. Bot. (Forli). XII(1): 30 (1936a); Rend. Sem. Fac. Sc. Univ. Cagliari VIII(3): 67 (1938b)

**Type:** Holotypus: Lybia, Cirenaica: Uadi El Atrum (3496), 14/5/1934. Leg. R. Pampanini & R.E.G. Pichi Sermolli, (FI003444).

**Accepted name:** *Astragalus boreoaffricanus* Podlech & Zarre, in Podlech & Zarre (2013, 1: 523)

**Note:** the taxon is not mentioned in the Astragalorum Thesaurus (2011) by Podlech; a piece of newspaper on the specimen bears the name of the taxon, signed by Pampanini.

**New taxon:** *Astragalus franchii* var. *kruegeri* Pamp. in Arch. Bot. Sist. IX: 304-305 (1932)

**Typus:** Holotypus: [Libia], Cirenaica, Sirtica: fra l'oasi di Marada e l'Uadi Faregh, a 70 km a sud dell'Uadi Faregh, 13/3/1932. Leg. G. Krueger, (FI 003758).

**Accepted name:** *Astragalus trigonus* DC. see Podlech in Thesaurus Astragalorum: 106, (2008, 2011)

**Note:** in FI as well as the typus there are three specimens of the taxon which Pampanini collected: Cyrenaica: Bir Tengheder a sud di El-Mechili (3315), 21/03/1933, (FI001155); C.: in testata del Wadi El Mrah, 22/03/1933 (3516), (FI003757); C.: Wadi Faregh Maaten Giofer a sud di El-Agheila, 15/03/1933, (FI003758). Pampanini did not publish anything about these. Later, D. Podlech in "Thesaurus Astragalorum, 2008, 2011" noted the first two specimens listed. The first (n°3515) bears a handwritten revision label which, together with the taxonomic update, states that the material is the Lectotype for the taxon *Astragalus franchii* Trotter var. *kruegeri* Pamp. But this is not the specimen that was typified (and published) in the end but the second (n°3516), even though the author declares that he was unable to read the work where the Protologue of the taxon appears. The authors (Cuccuini & Nepi) wrote to Podlech. He agrees that the material mentioned is not the typus for the taxon and confirms that he had not found the paper where it was published (Podlech in litt, 2013).

For this reason, as the material from the original collection was not considered for typification, (article 7.8 of ICN, McNeill & al., 2012), the typification is null. Therefore the authors went ahead with the typification, establishing as Holotype the only specimen Pampanini used to describe the taxon: Cirenaica, Sirtica: fra l'oasi di Marada e l'Uadi Faregh, a 70 km a sud dell'Uadi Faregh, 13/3/1932. Leg. G. Krueger.

**New taxon:** *Astragalus hamosus* f. *falcatus* Pamp. in Arch. Bot. Sist. XII(1): 30 (1936a).

**Type:** Libia, Cirenaica, Agedabia: l.d. Gtafia (3540), 13/03/1955. Leg. R. Pampanini, (FI003441), (Lectotypus designated here).

Other syntypes from Original collection: C.: Acroma-90 km da Tobruk (or:"a ovest di Tobruk", on the label, n.d.r.) (3541), 22/03, (FI003442); C., fra Tobruk e Bardia: Uabi Sahal (3542), 23/3/1933. Leg. R. Pampanini, (FI003443), (all in FI).

**Accepted name:** *Astragalus hamosus* L. see Podlech (2008)

**Note:** although this taxon is mentioned in Podlech (2008), which states the typus specimens were seen (the number "352" for the third is wrong, but this is clearly an oversight), it was not typified by Podlech (2008); the name of the taxon is written on a piece of newspaper, signed by Pampanini.

**New taxon:** *Astragalus lanigerus* f. *intermedius* Pamp. in Pl. Tripol.: 130 (1914e)

**Type:** Holotypus: [Libia], Tripolitania, Tarhuna: Pianura di Kasr Doga (792), 18/03/1913. Leg. R. Pampanini (FI)

**Accepted name:** *Astragalus caprinus* L. subsp. *caprinus*

**Note:** the taxon is not mentioned in Podlech (2008).

**New taxon:** *Astragalus lanigerus* var. *subglabratus* f. *elongatus* Pamp. in Pl. Tripol.: 131 (1914e)

**Type:** [Libia], Tripolitania, Tarhuna: Ras Ghenai (1581), 25/03/1913. R. Pampanini (FI), (Lectotypus designated here)

Other syntypes from Original collection: L., T., Ta.: U. Msaaba (800), 18/03; Ta.: Pianura di Kom El Gaar, (1875), 31/03; T., Tripoli: U. Megenin al Fonduc El Scerif (294), 26/02; Tri.: Fonduc ben Gascir (250), 25/02; Tripolitania, Mesellata: Colline a nord-ovest di Cussabat (3040), 12/04/1913. Leg. R. Pampanini.

**Accepted name:** *Astragalus caprinus* L. subsp. *caprinus*

**Note:** not in Podlech (2008, 2011)

**New taxon:** *Astragalus sinaicus* var. *pedunculatus* Pamp. in Bull. Soc. Bot. Ital.: 14 (1914a); Pl. Tripol.: 132 (1914e)

**Type:** Holotypus: [Libia], Tripolitania, Mesellata: Msid di Mesellata (2562), 9 aprile 1913. Leg. R. Pampanini, (FI001164), by D. Podlech, in Thesaurus Astragalorum.: 255 (2008), Ibidem : 264 (2011); (marked as Holotypus by D. Podlech, 2001).

**Accepted name:** *Astragalus stella* L., in Podlech (2008, 2011); (marked by D. Podlech, 2001)

**New taxon:** *Astragalus taubertianus* Asch. & Barbey ex Dur. & Barr. in: Fl. Libyc. Prodr.: 82. (1910)

**Type:** Lectotypus: [Libia], Cyrenaica: Benghasi, 01/1883, (115). Leg. G. Ruhmer; (FI001165), by Podlech, in Mitt. Bot. Staatss. München 29: 541-72 (1990).

**Accepted name:** *Astragalus taubertianus* Asch. & Barbey ex Dur. & Barr. in Podlech (1990, 2008, 2011); (marked by R. Jobst, 1986)

**Note:** the same specimen is given as typus in Fl. Lib. (Jafri S. M. H. 1980) , and described as *A. taubertianus* Asch. & Barbey ex Dur. & Barr.

**New taxon:** *Astragalus tribuloides* var. *platycarpus* Pamp. in Nuovo Giorn. Bot. Ital. n.s. 26(3): 213 (1919)

**Type:** Holotypus: [Libia], Cirenaica, Bengasi: Fuehat (80), 03/1918. Leg. V. Zanon, (FI001154), by Podlech, in Thesaurus Astragalorum: 282 (2008).

**Accepted name:** *Astragalus tribuloides* Delile by D. Podlech (2008, 2011); (marked in 2001 by D. Podlech).

**Note:** the data on the typus in Podlech (2008, 2011) are incomplete and partly mistaken, in fact, although it was checked, the specimen has neither the collection date nor the specimen number. Furthermore, obviously due to an oversight, the locality is given as “Bengasi, Fuehat [Fuehat]” and specified as being in Tripolitania. This, in our opinion, could lead to uncertainty.

In Dobignard & Chatelain, (2012) as *A. stella* L.

**New taxon:** *Dorycnium hirsutum* var. *crispum* Pamp. in Arch. Bot. Sist. XII(1): 30 (1936a); Rend. Sem. Fac. Sc. Univ. Cagliari VIII(3): 67 (1938b)

**Type:** Holotypus: Libia, Cirenaica: Uadi El Kuf, fra Gasr Beni Gdam e Sidi Abd El Uahed (3493), 6/04/1933. Leg. R. Pampanini, (FI003440).

**Accepted name:** *Dorycnium hirsutum* (L.) Ser. by Jafri S.M.N. in Fl. Lib. 86: 112 (1980)

**New taxon:** *Hippocrepis bicontorta* var. *glabra* Pamp. in Bull. Soc. Bot. Ital.: 14 (1914a); Pl. Tripol.: 136-37 (1914e)



**Type:** [Libia], Tripolitania, Tarhuna: colline a e. di Kasr Tarhuna (1833), 28/03/1913. Leg. R. Pampanini, (FI), (Lectotypus designated here).

Other syntypes from Original collection: L., Tripolitania, Tripoli: Oasi di Tripoli ad Henni (3538), 23/04; T., Mesellata: fra Gherrim e Sindara (3363), 15/04; T., Tarhuna: Ain Scercsiara (642 and 753), 14/03; T., Ta.: Abiar Milgah (1658), 26/03; T., Ta.: Kasr Tarhuna (2096), 02/04; T., Ta.: pianura di Kam El Gaar (1882), 31/03; T., Ta.: Uadi Tersiva, nei luoghi sassosi (4487), 01/04; T., Ta.: Uadi Tersiva, sul Ras Maader (2027), 01/04/1913. Leg. R. Pampanini (all specimens in FI).

**Accepted name:** *Hippocrepis areolata* Desv. in Dobignard & Chatelain 5: 78 (2012)

**Note:** the specimen: Tarhuna: Uadi Msaaba (841), 18/03/1913. Leg. R. Pampanini, is not in FI.

**New taxon:** *Hippocrepis bicontorta* f. *intermedia* Pamp. in Arch. Bot. Sist. XII(1): 31 (1936a); Rend. Sem. Fac. Sc. Univ. Cagliari VIII(3): 68 (1938b)

**Type:** Libia, Cirenaica : Bir El Giocch fra Agedabia e Saunnu (3536), 10/4/1934. Leg. R. Pampanini & R.E.G. Pichi Sermolli, (FI003422), (Lectotypus designated here).

Other syntypes from Original collection: L., Cirenaica: El Gtafia a sud di Agedabia (3529), 13/03, (FI003414); C.: fra El Agheila e Maaten Giofer (3531), 15/03, (FI003417) ; C., Uadi Faregh: l.d. Maaten Giofer a sud di El Agheila (3530), 15/03, (FI003416); C.: Amseat a sud di Bardia (3533), 24/03/1933. Leg. R. Pampanini, (FI003418); C.: El Grein presso Marsa El Brega (3534), 08/04, (FI003420); C., tra Agedabia e El-Haseiat: Chor El-Meghial (3535), 09/04. Leg. Pampanini R & R.E.G. Pichi Sermolli, (FI003421).

Original material: C.: Saniet El Hamar a sud est di Agedabia (3528), 12/03, (FI003415); C., tra Agedabia ed El Agheila: Melch en Nogra (3532), 15/3/1933. Leg. R. Pampanini, (FI003419).

**Accepted name:** *Hippocrepis areolata* Desv. s. l.

**Note:** the material indicated as “original material” is part of the original collection, but not published.

**New taxon:** “*Hippocrepis cyclocarpa* var. *glabra* Pamp.” (FI Herb., in sched.) .On the label quoted in Pl. Tripol.: 138. (1914e) sub *E. cyclocarpa* Murb.

**Original material:** [Libia], Tripolitania, Tarhuna: Uadi Tersiva, Ras Mader (2015), 01/04/1913. Leg. R. Pampanini (FI).

**Note:** the bibliographical reference given by Pampanini on the label actually refers to *H. cyclocarpa* Murb. (Pampanini, 1914e).

**New taxon:** *Hippocrepis cyclocarpa* f. *glabrescens* Pamp. in Arch. Bot. Sist. XII(1): 31 (1936a); Rend. Sem. Fac. Sc. Univ. Cagliari VIII(3): 68 (1938b)

**Type:** Libia, Cirenaica, Gubba: Bir Salem (3562), 7/4/1933. (FI003411). Leg. R. Pampanini, (Lectotypus designated here).

Other syntypes from Original collection: L., Cirenaica, Bengasi: Has esc Sceilabi El Bebas (3559), 11/03, (FI003412); C., tra Bengasi e Soluch : Giardina (3558), 10/03, (FI003413); C. : Benina a est di Bengasi (3560), 11/03, (FI003409); C. : El Gubba (3561), 07/04, (FI003410); C. : Messa: Uadi Tmista (3563), 29/4/1934. Leg. R. Pampanini & R.E.G. Pichi Sermolli, (FI003408).

**Accepted name:** *Hippocrepis cyclocarpa* Murb.

**Note:** the name of the taxon is written on a piece of newspaper on specimen 3559, signed by Pampanini.

**New taxon:** *Hippocrepis cyclocarpa* var. *leiocarpa* Pamp. in Nuovo Giorn. Bot. Ital. n.s. 26(3): 213. (1919) sub *H. cyclocarpa*, Pamp. in Pl. Tripol.: 138 (1914a)

**Type:** [Libia], Cirenaica, Bengasi: Fuehat (75), 15/03/1918; Leg. V. Zanon, (FI), (Lectotypus designated here).

Other syntypes from Original collection: [Libia], Tripolitania, Tarhuna: Uadi Tersiva, Ras Mader (2015), 01/04/1913 (sub *H. cyclocarpa* Murb. in Pl Tripol, but also sub *H. cyclocarpa* var. *glabra* Pamp. in Herb. Sched. – in Herb. Sched.); [L.], T., Mesellata: Cussabat, sul Ras Gelà (4486), 13/04/1913. (sub *H. cyclocarpa*) Leg. R. Pampanini (both in FI)

**Accepted name:** *H. cyclocarpa* Murb., in Dobignard & Chatelain, 5: 79 (2012), also in Fl. Lib. (Jafri, 1980)

**Note:** as well as n° 75 on the specimen original label, it seems to the authors there is also the letter “C”; both data were written harder in pencil later.

**New taxon:** *Hippocrepis cyclocarpa* var. *pubescens* Pamp. in Bull. Soc. Bot. Ital.: 14 (1914a); Pl. Tripol.: 138. (1914e)

**Type:** Holotypus: [Libia], Tripolitania, Mesellata: Cussabat sul Ras Gelà (3090), 13/04/1913. Leg. R. Pampanini, (FI).

**Accepted name:** *Hippocrepis cyclocarpa* Murb., in Dobignard & Chatelain, 4: 79 (2012), also in F. Lib. (Jafri, 1980).

**New taxon:** *Lathyrus cicera* var. *tenuifolius* f. *macrocarpus* Pamp. in Arch. Bot. (Forlì). XII(1): 31 (1936a); Rend. Sem. Fac- Sc. Univ. Cagliari VIII(3): 68 (1938b)

**Type:** Holotypus: Libia, Cirenaica, [Marmarica]: fra Tobruk e Bardia : Uadi Sahal (3614), 23/3/1933. Leg. R. Pampanini, (FI003891).

**Accepted name:** *Lathyrus cicera* L., in Dobignard & Chatelain, 4: 85-86 (2012)

**Note:** the specimen bears a piece of newspaper with the name of the taxon, signed by Pampanini.

**New taxon:** *Lathyrus pseudocicera* Pamp. in Nuovo Giorn. Bot. Ital. 31: 213-215 (1924)

**Type:** [Libia], Cirenaica, Bengasi: Rahba, 13/03/1922. Leg. A. Maugini, (FI), (Lectotypus designated here).

Other syntypes from Original collection: L., C.: Rahba, 3, 13/03; C., Bengasi: Karmu, 28/02; C., Bengasi: Selmani e Lete , 04, (on the labe “Selmani, primavera 1922”); C., Bengasi: fra Selmani e Hauari (Suani)Osman, 12/02; C., C., Bengasi: Hauari, 02/ 1922. Leg. A. Maugini (the last, as collector, also Scaetta); [L.], C., Bengasi: Rahba, 03/1918; C., Bengasi: Rahba, luoghi aridi sassosi, 04/1915 (57); C., Bengasi: Fuehat, selvatica in giardino Missione, 04/1915 (39). Leg. V. Zanon.; [Libia], Cirenaica, [Marmarica]: Tobruk, 24/01/1912 (36). Leg. A. Vaccari, (all in FI)

Original material: Cirenaica, Bengasi: Rahba, primavera 1922. Leg. A. Maugini (FI)

**Accepted name:** *Lathyrus pseudo-cicera* Pamp., by Jafri S.M.H. in Fl. Lib. 86: 283-84 (1980) In Dobignard & Chatelain, 4: 89 (2012), as *L. gorgonii* Parl.

**Note:** specimens of the original material which were not published in Pampanini (1924) are found in the Original material; the name of the taxon is written on the back of the label for the Lectotypus, signed by Pampanini.

**New taxon:** *Lotus pusillus* var. *vivianii* Pamp. in Libya III (2): 143 (1927)

**Type:** Holotypus: [Libia], Cirenaica, Derna: Ain Mara (Gubba), altezza 500 m., 04/1926; Leg. G. Krueger, (FI).

**Accepted name:** *Lotus halophilus* Boiss. & Spruner, in Fl. Lib. (Jafri, 1980), see also in Dobignard & Chatelain, 4: 105 (2012)

**New taxon:** *Onobrychis armata* Pamp. in Arch. Bot. (Forli). XII(1): 31 (1936a); Rend. Sem. Fac. Sc. Univ. Cagliari VIII(3): 68 (1938b)

**Type:** Libia, Cirenaica, [Marmarica]: Uadi Hasi El Hamar presso Bomba(3801), 08/04/1933. Leg. R. Pampanini, (FI003759), (Lectotypus designated here).

Other syntypes from Original collection: L., C.: Umm er Rzem a sud est di Barce (3802), 8/04/1933. Leg. R. Pampanini, (FI003761); C.: Fra Agedabia e Saunnu- B. El Giocch (3803), 10/04, (FI); C., [Marmarica]: El Gefar presso Bomba, (3804), 17/04/1934. Leg. R. Pampanini & R.E.G. Pichi Sermolli, (FI003760), (all in FI).

**Accepted name:** *Onobrychis crista-galli* Lam. var. *armata* (Pamp.) Le Houér., marked by H. N. Le Houérou 24/07/1966.

In Dobignard & Chatelain, 4: 129 (2012) as *Onobrychis crista-galli* Lam.

**Note:** this taxon is mentioned in a note in Fl. Lib., but its morpho-anatomical characters are not considered sufficient to characterise it at even the infraspecific level (Jafri in Fl. Lib. 86: 144. 1980) so it appears in syn. with *O. cristagalli* Lam.

**New taxon:** *Onobrychis caput-galli* var. *tripolitana* Pamp. in Bull. Soc. Bot. Ital.: 14 (1914a); Pl. Tripol.: 148. (1914e)

**Type:** [Libia], Tripolitania, Garian: Uadi Garian (4344), 07/04/1913. Leg. R. Pampanini, (FI), (Lectotypus designated here).

Other syntypes from Original collection: T., Garian: Ras Tecut (3714), 26/04; Ga.: Ras Bu Ganus (3986), 27/04; Ga.: Uadi El Arbaa presso Tebedut (4034), 28/04; Ga.: Uadi El Arbaa presso Tebedut (4210) 01/05; Ga.: Uadi Guassem sul Ras Tobi (4164), 30/04/1913. Leg. R. Pampanini (all in FI)

**Accepted name:** *Onobrychis caput-galli* Lam., in Dobignard & Chatelain, 4: 129 (2012)

**New taxon:** *Ononis angustissima* var. *garianica* Pamp. in Bull. Soc. Bot. Ital.: 14 (1914a); Pl. Tripol.: 149. (1914e)

**Type:** [Libia], Tripolitania, Garian: Uadi Garian (3867), 26/04/1913. Leg. R. Pampanini, (FI), (Lectotypus designated here).

Other syntypes from Original collection: [L.], T., Garian: Uadi El Arbaa presso Tebedut (4028), 28/04; T., Ga.: U. El Arbaa, Ain Marisc (4485), 01/05; Ga.: Kasr Garian, nei maggesi (4148), 30/04; Ga.: U. Garian (4065), 29/04/1913. Leg. R. Pampanini (all in FI)

**Accepted name:** *Ononis angustissima* Lam., in Fl. Lib. (Jafri, 1980).

In Dobignard & Chatelain, 4: 132 (2012) as *Ononis angustissima* Lam. subsp. *falcata* (Viv.) Murb.

**Note:** the specimen collected on 20/04/1913 in fallow land at Kasr Garian is indicated with 1481 in Pampanini (1914a), while Pampanini (1914e) and the label specify n° 4148. Considering the numerical succession and the collecting dates for the other specimens, the second number is definitely correct.

**New taxon:** *Ononis angustissima* var. *tripolitana* Pamp. in Bull. Soc. Bot. Ital.: 14 (1914a); Pl. Tripol.: 149-150. (1914e)

**Type:** Holotypus: [Libia], Tripolitania, Tripoli: Fra Tripoli e Gargaresc (9), 14/02/1913. Leg. R. Pampanini. (FI)

**Accepted name:** *Ononis angustissima* Lam. subsp. *falcata* (Viv.) Murb. in Dobignard & Chatelain, 4: 133 (2012)

**Note:** in Fl. Lib (Jafri, 1980) as *Ononis angustissima* Lam.

**New taxon:** *Ononis vaginalis* var. *rotundifolia* Bég. in Bull. Soc. Bot. Ital. 6: 132. (1912)

**Type:** Original material: [Libia], Tripolitania: Homs, rocce marittime, (252), 26/02/1912. Leg. A. Vaccari, (FI003752).

**Accepted name:** *Ononis vaginalis* Vahl, in Dobignard & Chatelain, 4: 153 (2012)

**Note:** most part of original collection is probably in MOD.

**New taxon:** *Ononis vaginalis* var. *rotundifolia* f. *macrophylla* Pamp. in Atti Reale Ist. Veneto Sc. Lett. Arti. XCII (2): 218 (1932)

**Type:** Holotypus: [Libia], Ttripolitania: Leptis Magna, scavi, 18/3/1931. Leg. A. Marcello. (PAD)

**Accepted name:** *Ononis vaginalis* Vahl s.l, in Dobignard & Chatelain, 4: 153 (2012). (by R. Marcucci & P. Cuccuini)

**New taxon:** *Ononis vaginalis* var. *vivianii* Bég., in Bull. Soc. Bot. Ital. (6): 130-132 (1912) [sub *H. glabra* var. *subciliata*, Prodr. Fl. Cir.: 191. (1930)]

**Type:** [Libia], Cirenaica, [Marmarica]: Tobruk, arene marittime, (61), 24/01/1912. Leg. A. Vaccari, (FI003754), (Lectotypus designated here)

Other syntypes from Original collection: C., Marmarica: Tobruk, 18/04/1912, (FI003753); C., Marmarica: Tobruk, in arenosis maritimis (F.L.Ex. 106), 18/03/1912. Leg. A. Vaccari, (FI003755).

**Accepted name:** *Ononis vaginalis* Vahl, in Dobignard & Chatelain, 4: 153 (2012)

**Note:** as well as the material in FI there may be other *exsiccata* in MOD, moreover the material of Viviani Herbarium has been destroyed (GE).

Specimen (FI003755) is a copy of the series of *exsiccata* Flora Lybica Exsiccata, whilst the labels of the other are signed by Vaccari.

**New taxon:** *Trifolium arvense* var. *cyrenaicum* Pamp. in Nuovo Giorn. Bot. Ital. 31: 217 (1924)

**Type:** [Libia], Cirenaica, Merg: Bosco Zorda, 5 aprile 1922. Leg. A. Maugini, (FI), (Lectotypus designated here)

Other syntypes from Original collection: [L.], C., Merg: Al Aueila, 26/03; C., Merg: Ridotta Zorda, 30/03; C., Merg: piana a N.W. di Merg, 16/04; C., Merg: El Gatres 05/04; C., Cirene: Uadi El Kuf, 24/04/1922. Leg. A. Maugini, (all in FI).

Original material: Merg: Piana a sud di Merg, 22/03/1922. Leg. A. Maugini, (FI).

**Accepted name:** *Trifolium arvense* L. in Fl. Lib., Jafri (1980), and in Dobignard & Chatelain, 4: 174 (2012)

**Note:** the specimen: Piana a sud di Merg, 22/03/1922. Leg. A. Maugini, can be found in the “Original Material” conserved in FI, it is part of the original collection but not published.

**New taxon:** *Trifolium scabrum* var. *glabrum* Pamp. in Nuovo Giorn. Bot. Ital. n.s. 26: 214 (1919)

**Type:** Holotypus: [Libia], Cirenaica: Fuehat, 15/03/1918. Leg. V. Zanon, (FI).

**Accepted name:** *Trifolium scabrum* L., in Dobignard & Chatelain, 4: 185 (2012)

**New taxon:** *Trigonella aschersoniana* f. *parvula* Pamp. in Nuovo Giorn. Bot. Ital. n.s. 24: 141 (1917)

**Type:** Holotypus: [Libia], Cirenaica, Bengasi: Fuehat (297), 24/02/1916; Leg. V. Zanon, (FI).

**Accepted name:** *Medicago hypogaea* E. Small nom. nov., see Small E. & al. in Taxon 33(4): 633. 1984

**Note:** there is also a field label on the sheet, signed by V. Zanon; in Fl. Lib. (Jafri, 1980) as *Factorovskya aschersoniana* (Urb.) Eig.

**New taxon:** *Trigonella stellata* var. *micrantha* Pamp. in Arch. Bot. (Forli). XII(1): 32 (1936a); Rend. Sem. Fac. Sc. Univ. Cagliari VIII(3): 68 (1938b)

**Type:** Libia, Cirenaica: Bir Acheim-Acroma: l.d. Sedra (4192), 22/03/1933. Leg. R. Pampanini, (FI003428), (Lectotypus designated here).

Other syntypes from Original collection: C., Sidi Frag a nord di Agedabia (4187), 11/03, (FI003424); C.: El Agheila (4188), 14/03, (FI003423); C.: El Agheila, giardini (4190), 15/03, (FI003425); (C-A) Agedabia: l.d. Sidi Frag (4187), 11/03; (C-?) BirTengeder a sud di El Mechili (4191), 21/03; C., [Marmarica]: Amseat a sud di Bardia (n° 4193-4194), 24/03, (FI003429, FI003430); C.: Sidi Omar-Hagfet El Behi (4195), 24/03, (FI003431); C.: Trigh Enver Bei – Bir Uazen (4196), 25/03, (FI003432); C.: Bir Acheim (4199), 26/03, (FI003435); C., Bir Acheim: l.d. Bir Belamed (4200), 26/03, (FI003436); C.: Bir Acheim l.d. Bir Zeidan (4198), 26/03, (FI003434); C., Trigh Enver Bai Sidi Resegh (4197), 25/03, (FI003433); C., El Mechili: Uadi Ramla (4202), 27/03, (FI003438); C., El Mechili: Gara El Gafsa (4203), 28/03, (FI003439)1933. Leg. R. Pampanini.

Original material: [Libia], Cirenaica, Uadi Faregh: Maaten Giofer a sud di El Agheila, (4189), 15/03, (FI003426); C., tra Bir Acheim e Trigh Enver Bei: Gof Bu Ascher, (4201), 26/03 /1933. Leg. R. Pampanini, (FI003437).

**Accepted name:** *Trigonella stellata* Forssk.

**Note:** the following published specimens are not in FI: C., Messa: l.d. Umm Rcham; Cirenaica: fra Amseat e Mechili; C.: fra Bir Acheim e Mechili. 1933. Leg. R. Pampanini; the specimens inserted under “Original material” are part of the original collection, but were not published in Pampanini (1938b).

**New taxon:** *Vicia calcarata* var. *heterophylla* Pamp. in Arch. Bot. (Forlì). XII(1): 32 (1936a); Rend. Sem. Fac. Sc. Univ. Cagliari VIII(3): 68 (1938b)

**Type:** Holotypus: Libia, Cirenaica: Saumnu a nord-est di Agedabia, (4215), 10/4/1934. Leg. R. Pampanini & R.E.G. Pichi Sermolli, (FI003890).

**Accepted name:** *Vicia monantha* Retz. subsp. *monantha*, in Dobignard & Chatelain, 4: 196 (2012)

**Note:** the name of the taxon is on a piece of newspaper on the specimen, signed by Pampanini.

### *Fagaceae*

**New taxon:** *Quercus coccifera* var. *stenocarpa* Pamp. in Arch. Bot. (Forlì). XII(2): 22 (1936a); Rend. Sem. Fa. Sc. Univ. Cagliari VIII(3): 63 (1938b), nom illeg., (non A. Albert, in A. Albert & É. Jahandiez, Cat. Var: 445, 1908)

**Type:** Libia, Cirenaica: tra El Gubba e l'uadi El Atrun, l.d. Argub Gazal (1751), 14/05/1934. Leg. R. Pampanini & R.E.G. Pichi Sermolli, (FI003641), (Lectotypus designated here).

Other syntypes from Original collection: Cirenaica, Messa a ovest di Cirene: Uadi Tmista (1742), 29/04, (FI003632); C., Messa a ovest di Cirene: l. d. Umm er Rcham (1747), 08/05, (FI003637); C., El Beda: Uadi Messaf-saf Ain Legmeila (1739), 22/04, (FI003634); C., El Beda: Uadi Msuria (1748), 10/05, (FI003638); C., El Beda: Uadi Geruillat (1741), 27/04, (FI003631); C., El Beda: Uadi El Kuf, l.d. Breica (1740), 27/04, (FI003630 and FI003629); C., El Beda: Uadi Uardama (1744), 02/05, (FI003635); C., El Beda: Uadi Scisu (1745), 07/05, (FI003636); C., Messa a ovest di Cirene: (S)Gfonta, Uadi Laidiebi (1746), 08/05, (FI003643); C., Apollonia: Uadi Schechaba (1743), 01/05, (FI003633); C.: tra Hania e Messa, l.d. Mregheb (1749), 09/05, (FI003639); C.: tra Hania e Messa, l.d. Gabr Scegmin (1750), 09/05/1934. Leg. R. Pampanini & R.E.G. Pichi Sermolli, (FI003640).

Original material: C., Cirene: Uadi Bu Nabeh (1752), 15/5/1934. Leg. Pampanini & R. E. G. Pichi Sermolli, (FI003642).

**Accepted name:** *Quercus coccifera* L., by Jafri S.M.H. in Fl. Lib. 27: 2 (1977), also in Dobignard & Chatelain, 4: 212 (2012)

**Note:** the following specimens from the original collection are not in FI: Cirenaica: fra El Garib e Tolmeta; C.: Uadi El Kuf; C.: Lamuda; C., Derna: Uadi Naga. Leg. Pampanini & Pichi Sermolli; however, specimen 1752 is in FI, although not published.

**New taxon:** *Quercus coccifera* var. *stenocarpa* f. *parvifolia* Pamp. in Arch. Bot. (Forlì). XII(1): 22 (1936a); Rend. Sem. Fac. Sc. Univ. Cagliari VIII(3): 64 (1938b)

**Type:** Holotypus: Libia, Cirenaica: fra El Gubba e l'Uadi El Atrum, l.d. Argub Gazal (1753), 14/05/1934. Leg. R. Pampanini & R.E.G. Pichi Sermolli, (FI003628).

**Accepted name:** *Quercus coccifera* L.

### *Geraniaceae*

**New taxon:** *Erodium bonacellii* Pamp. in Agric. Colon., 22(10): 364-365, 367 (1928); Prod. Fl. Cir.: 297 (1930)

**Original material:** [Libia], Cirenaica, Sirtica orientale: Fra l'Uadi Faregh e Maatan Risam, 18/04/1928; C.: a sud di Gasr es Sahabi, 20/04/1928. Leg. G. Krueger.

**Accepted name:** *Monsonia nivea* (Decne) Webb., in Le Floch et al., (2010), also in Dobignard & Chatelain, 4: 229 (2012)

**Note:** the material Pampanini mentioned (1928) is probably lost.

**New taxon:** *Erodium chium* var. *deserti* Pamp. in Arch. Bot. (Forli). XII(1): 32 (1936a); Rend. Sem. Fac. Sc. Univ. Cagliari VIII(3): 69 (1938b)

**Type:** Libia, Cirenaica: Msus (4270), 20/03/1933. Leg. R. Pampanini, (FI003780), (Lectotypus designated here).

Other syntypes from Original collection; C.: Uadi Ramla (4273), 27/03, (FI003782); C.: Bir Acheim. l.d. Bir Belamed (4272), 26/03/1933. Leg. R. Pampanini, (FI003781).

**Accepted name:** *Erodium touchyanum* Delile s. l.

**Note:** the following specimens mentioned in Pampanini (1938b) are not in FI: Cirenaica: Mechili; C., Mechili (4271): Gara Gasfa (4274), 1933. Leg. R. Pampanini.

**New taxon:** *Erodium glaucophyllum* var. *cinerascens* f. *macranthum* Pamp. in Arch. Bot. (Forli). IX: 307 (1932b)

**Type:** Holotypus: [Libia], Cirenaica, Sirtica: Uadi Faregh, l. d. Maaten Giofer, 14/03/1932. Leg. G. Krueger, (FI).

**Accepted name:** *Erodium chevallieri* Guitt., in Dobignard & Chatelain, 4: 233 (2012)

**Note:** the specimen has two labels: the first is signed by Pampanini, with all the collection data (14th March) and the name of the new taxon, data also mentioned in Pampanini (1932b); the second, signed by Krueger, gives the date as 13th March.

**New taxon:** *Erodium glaucophyllum* var. *glabrum* f. *dubium* Pamp. in Arch. Bot. (Forli). XII(1): 32 (1936a); Rend. Sem. Fac. Sc. Univ. Cagliari VIII(3): 69 (1938b)

**Type:** Holotypus: Libia, Cirenaica: Uadi Faregh l.d. Maaten Giofer a sud di El Agheila (4297), 15/3/1933. Leg. R. Pampanini, (FI003804).

**Accepted name:** *Erodium glaucophyllum* (L.) L'Hér. in Dobignard & Chatelain, 4: 233 (2012)

**Note:** the name of the taxon is written on a piece of newspaper on the specimen, signed by Pampanini.

**New taxon:** *Erodium glaucophyllum* var. *syrticum* Pamp. in L'Agr. Col., 24(10): 364 (1928)

**Type:** Holotypus: [Libia], Cirenaica, Sirtica: Fra l'Uadi Faregh e Maatan Risam, 18/04/1928. Leg. G. Krueger, (FI).

**Accepted name:** *Erodium glaucophyllum* (L.) L'Hér. in Dobignard & Chatelain, 4: 233 (2012); marked by H. N. Houérou, 20/07/1966 as *Erodium glaucophyllum* (L.) L'Her. var. *cinerascens* Chev.

**New taxon:** *Erodium gruinum* f. *cyrenaicum* Pamp. in N. Giorn Bot. Ital. n.s. 23: 279 (1916)

**Original material:** Cirenaica: Fuehat, aprile 1915; Leg. V. Zanon.

**Note:** the material is probably lost.

- New taxon:** *Erodium hirtum* var. *cyrenaicum* Pamp. Prod. Fl. Cyrenaica: 295 (1930)
- Type:** [Libia], Cirenaica, Derna: primo gradino dell'altipiano e al sommo, gennaio-febbraio 1912. Leg. Longa, (FI003779), (Lectotypus designated here). On the sheet there are 2 specimens, the Lectotypus is on low part of the sheet with autographic label of Longa p.p.; the determination is autographic by Pampanini.  
Isolectotypus: (FI003778). (the 2<sup>nd</sup> specimen kept on the top of sheet with Lectotypus)  
Other syntype from Original collection: [Libia, Cirenaica]: Derna (203), 21/02/ 1912, (FI003776); C.: Derna, locis aridis saxosis, solo calcareo, alt. 20-200 m. (134, sched. F. Lyb. Exs.), 18/01/1914. Leg. A. Vaccari, (FI003777).
- Accepted name:** *Erodium cyrenaicum* (Pamp.) Guitt., in Proc. Int. Geraniac. Symp. (ed. P. Vorster): 76. 1990; also in Dobignard & Chatelain, 4: 234 (2012)
- Note:** the specimens: Cirenaica, Derna: scendendo al faro, 1924, Leg. Cavara e Grande; C., Uadi Bent, 1922. Leg. Cavara, although mentioned by Pampanini (1930), are not in FI.
- New taxon:** *Erodium hirtum* var. *glabriusculum* f. *intercedens* Pamp. in: Arch. Bot. (Forlì), XII(1): 32 (1936a)
- Type:** [Libia], Cirenaica, Marmarica: Tobruk, 1918. Leg. F. Cassinera, (FI003762), (Lectotypus designated here).
- Other syntypes from Original collection: [Libia], Cirenaica, Bengasi: Sceilabi El Bebas [989(3)], 18/11, (FI003766); C.: Fuehat (938), 03/09/1916. Leg. V. Zanon, , (FI003767); C.: Dahar El Halfa, 13/01, (FI003765); C.: Rahba, 13/03, (FI003764); C.; Driana, 20/02/1922. Leg. A. Maugini, (FI003763).
- Accepted name:** *Erodium cyrenaicum* (Pamp.) Guitt., see Guittonneau in Proc. Int. Geraniac. Symp.: 76 (1990)
- Note:** the specimens of original collection: Cirenaica: Suani Osman (734), 9/03/1916; C.: Casa Auari (735), 24/02/1916. Leg. V. Zanon, are not in FI.
- New taxon:** *Erodium hirtum* f. *rubriflorum* Pamp. in Bull. Soc. Bot. Ital.: 15. (1914a); Pl. Tripol.: 173 (1914e)
- Type:** Holotypus:[Libia], Tripolitania, Garian: Ras Tecut (3692), 26/04/1914. Leg. R. Pampanini, (FI003768).
- Accepted name:** *Erodium crassifolium* L'Hér. s. l.
- New taxon:** *Erodium laciniatum* var. *bovei* f. *bracteatum* Pamp. in Bull. Soc. Bot. Ital.: 15 (1914a); Pl. Tripol.: 174 (1914e)
- Type:** Holotypus: [Libia], Tripolitania, Tarhuna: Uadi Ksea sul Ras Argobinani (2461), 08/04/1913. Leg. R. Pampanini, (FI003774).
- Accepted name:** *Erodium pulverulentum* (Cav.) Willd. subsp. *tunetanum* (DC.) Guitt., in Dobignard & Chatelain, 4: 235 (2012)
- New taxon:** *Erodium laciniatum* var. *pilosum* Pamp. in Arch. Bot. (Forlì). XII(1): 33 (1936a); Rend. Sem. Fac. Sc. Univ. Cagliari VIII(3): 69 (1938b)
- Type:** Libia, Cirenaica, Uadi esc-Suenia: Umm er Rzem a sud est di Barce (4409), 18/04/1934. Leg. R. Pampanini & R.E.G. Pichi Sermolli, (FI003905), (Lectotypus designated here).



Other syntype from Original collection: C., Beda: Uadi El Kuf l.d. Fachar (4410), 27/04/1934. Leg. R. Pampanini & R.E.G. Pichi Sermolli, (FI003906).

**Accepted name:** *Erodium laciniatum* Willd.

**Note:** the name of the taxon is written on a piece of newspaper on the specimen, signed by Pampanini.

**New taxon:** *Erodium laciniatum* var. *pseudomalachoides* Pamp. in Bull. Soc. Bot. Ital.: 15 (1914a); Pl. Tripol.: 174 (1914e)

**Type:** Holotypus: [Libia], Tripolitania, Tarhuna: Kasr Daun (2329), 07/04/1913. Leg. R. Pampanini, (FI003775).

**Accepted name:** *Erodium pulverulentum* (Cav.) Willd. subsp. *tunetanum* (DC.) Guitt. in Dobignard & Chatelain, 4: 235 (2012)

**Note:** in db “Flora” as: *E. laciniatum* (Cav.) Willd. subsp. *laciniatum*.

**New taxon:** *Erodium nervosum* Pamp. in Arch. Bot. (Forli). XII(1): 33 (1936a); Rend. Sem. Fac. Sc. Univ. Cagliari VIII(3): 69 (1938b)

**Type:** Holotypus: Libia, Cirenaica: testata dell’ Uadi Mrah (4434), 22/3/1933. Leg. R. Pampanini, (FI003903).

**Accepted name:** *Erodium guttatum* (Desf.) Willd., see Fl. Lib. (Abdul Ghafoor 1978); also in Dobignard & Chatelain, 4: 238 (2012).

### ***Illecebraceae***

**New taxon:** *Herniaria glabra* var. *cyrenaica* Pamp. in Arch. Bot. (Forli). XII(1): 24 (1936a), sub *Herniaria glabra* var. *subciliata* in Prodr. Fl. Cir. p.: 191 (1930)

**Type:** [Libia], Cirenaica, Bengasi: Giok [Kebir],(150), 03/1918. Leg. V. Zanon, (FI), (Lectotypus designated here).

Other syntypes from Original collection: (sub *Herniaria glabra* L. var. *subciliata* Bab.) : Cirenaica, Bengasi: Raaba, pascoli aridi (3(9)8), 05/1915; C., Bengasi: Fuehat, (345), 14/02/1916; C., Bengasi: Giok [Kebir] (150), 03/1918. Leg. V. Zanon ; Cirenaica: Raaba, 19/02; C.: Forte Lohesci, 19/02/1922. Leg. Maugini; Cirenaica: Cirene, 26/04/1926. Leg. Giannattasio. (all in FI)

Original collection: Libia, Cirenaica, Bengazi: Has esc Sceilabi El Bebas (2418), 11/03 ; C., Bengasi: Gicchi El Kebir (Lete), (2417), 9/03/1933; C., Bengasi: Siret Karmu, (2419), 11/03/1933; C.: Tecasis, (2420), 29/03/1933; (C., Cirene: es Saf-saf, (2421), 18/04/1933. Leg. R Pampanini.; C.: El Abrach-Mghernes, (2422), 04/05/1934. Leg. R. Pampanini & R.Pichi Sermolli (All specimens in FI)

**Accepted name:** *Herniaria cyrenaica* Hermann, in Fedde Report 42: 210. (1937), by Abdul Ghafoor. in Fl. Lib. 37: 26, 28 (1977)

As *Herniaria cyrenaica* Hermann subsp. *cyrenaica* by Chaudri (1968)

**Note:** the material Pampanini collected in 1933-34 concerning the *H. glabra* group is only given in Pampanini (1938b) and then only for var. *intermedia*. Moreover, Chaudri revised it as *H. cyrenaica* Hermann subsp. *cyrenaica* (Chaudri, 1968). The same year, Chaudri typified the taxon *Herniaria glabra* L. var. *cyrenaica* Pamp. during a revision of the Paronychiinae and established the specimen “Pampanini 2418” held in FI as Holotypus.

Subsequently this material, including Pampanini 2418, appears in FI. Lib. (A. Ghafoor 1977). One specimen, identified by Pampanini as *H. glabra* L. var. *cyrenaica* Pamp., is indicated as the “typus” for the taxon, mentioning the two herbaria (FI and G, both revised by Chaudri) without stating anything more precise. In this manner, Ghafoor only indicates the presence of two syntypes. Moreover, these specimens are also found at K and therefore should eventually be added to the other two as material pertaining to the original collection. Consequently some reasonable doubt arises regarding the real typus.

Moreover, when Chaudri examined the material in FI he did not find (or perhaps had not consulted the protologue) the material that Pampanini expressly cited in his Protologue (Pampanini 1936a-sub *Herniaria glabra* var. *subciliata* in Prodr. Fl. Cir.: 191. 1930) for this taxon.

Since in the protologue (Pampanini 1936a) Pampanini clearly cites all the material consulted to describe the new taxon, and does not mention any specimens in the publication to which he refers (Pampanini 1938b) for the identification of the specimens in the original 1933-34 collection, he indirectly suggests that although this material exists it is superfluous for this purpose. Considering also article 7.8 of the Nomenclature Code (McNeill & al. 2012), any taxon whose nomenclatural point of departure is after 1/05/1753, “...is to be typified by an element selected from the context of its valid publication.”, typification must be considered as null. For this reason we proceeded to the lectotypification of the specimen: [Libya], Cyrenaica, Bengasi: Giok [Kebir] (150), 03/1918. Leg. V. Zanon, held in FI. The specimen we designated as Lectotypus (Zanon 150) is mounted on the same sheet as the specimen (Zanon 345), one of the original Syntypes.

The material included in the “Original collection” is unpublished.

**New taxon:** *Herniaria glabra* f. *intermedia* Pamp. in Arch. Bot. (Forlì). XII(1): 23 (1936a). Rend. Sem. Fac. Sc. Univ. Cagliari VIII(3): 64 (1938b)

**Type:** Libia, Cirenaica, Cirene: Saf Saf (2414), 18/04/1933. Leg. R. Pampanini, (FI003682), (Lectotypus designated here).

Other syntypes from Original collection: Cirenaica, Beda : Uadi Messaf-saf-Ain Legmeila (2415), 22/04, (FI003681); C., Messa: I.d. Umm Rcham, (2416), 08/05/1934. Leg. R. Pampanini & R.E.G. Pichi Sermolli, (FI003683).

**Accepted name:** *Herniaria glabra* L.

**Note:** on the sheet of the Lectotypus is written on a piece of newspaper the name of the taxon, signed by Pampanini. This taxon is not present in Chaudri (1968).

**New taxon:** *Herniaria hemistemon* var. *glabrescens* Pamp. in Bull. Soc. Bot. Ital.: 13 (1914a); Pl. Tripol.: 73 (1914e)

**Type:** Holotypus: [Libia], Tripolitania, Mesellata: da Gherrim e Sindara (3337), 15 aprile 1913. R. Pampanini, in Chaudri, M.N.: A revision of Paronychiinae - Med. Bot. Mus. Utrecht 285: 390 (1968); (marked as Holotypus by by M. N. Chaudri, IX/1968), (FI)

**Accepted name:** *Herniaria fontanesii* J. Gay var. *fontanesii* subv. *glabrescens* (Pamp.) Chaudri, comb. et stat. nov., in Chaudri 285: 390. 1968; (marked by M.N. Chaudri, IX/1968)

**Note:** as *Herniaria fontanesii* J. Gay in Dobignard & Chatelain 3: 220 (2011).

**New taxon:** *Paronychia chlorothyrsa* var. *tarhunensis* Pamp. in Bull. Soc. Bot. Ital.: 13 (1914a); Pl. Tripol.: 75 (1914e)

**Type:** Holotypus: [Libia], Tripolitania, Tarhuna: Colline ad est di Kasr Tarhuna (4430), 28/03/1913. Leg. R. Pampanini, (FI003684), in M.N. Chaudri: A revision of Paronychiinae - Med. Bot. Mus. Utrecht 285: 286 (1968); marked as Holotypus by M. N. Chaudri, VIII/1968.

**Accepted name:** *Paronychia capitata* (L.) Lam. var. *tarhunensis* (Pamp.) Chaudri, see in Chaudri, 285: 284-86. 1968; (marked by M.N. Chaudri, Utrecht, X/1968)

**Note:** as *Paronychia capitata* (L.) Lam. subsp. *capitata* in Dobignard & Catelain 3:253. 2011

**New taxon:** *Paronychia chlorothyrsa* var. *tarhunensis* f. *intermedia* Pamp. in Bull. Soc. Bot. Ital.: 13 (1914a); Pl. Tripol.: 75 (1914e)

**Type:** Holotypus: [Libia], Tripolitania, Mesellata: Cussabat, verso Sliten a Kasr Buharb (3185), 13/04/1913. Leg. R. Pampanini, (FI).

**Accepted name:** *Paronychia capitata* (L.) Lam. var. *capitata* (marked by M.N. Chaudri, X/1968).

In Dobignard & Chatelain 3: 236 (2011) as *Paronychia capitata* (L.) Lam. subsp. *capitata*

**Note:** although Chaudri had revised this specimen already, in his work he cites it as a typical form of *Paronychia capitata* (L.) Lam. var. *capitata* (Chaudri, 285: 286 1968), however since he did not consider it as taxonomically important, he did not typify it.

### *Iridaceae*

**New taxon:** *Iris sisyriuchium* var. *major* Pamp. in Bull. Soc. Bot. Ital.: 13 (1914a); Pl. Tripol.: 59 (1914e), nom. illeg., (non Cambess. in Mém. Mus. Hist. Nat. 14: 314, 1827)

**Type:** Holotypus: [Libia], Tripolitania, Tripoli: Uadi Megenin, nella steppa al Fonduc el Scerif (288), 26/02/1913. Leg. R. Pampanini, (FI).

**Accepted name:** *Moraea sisyriuchium* (L.) Ker Gawl. see in Dobignard & Chatelain, 1: 153 (2010)

**Note:** the sole specimen is incomplete even though the author declares to have seen and described it when it was whole, in fact the original labels says: “*L'esemplare era fiorito ma il fiore mi andò smarrito – R. Pampanini.*”; in Pampanini (1936a) comb. et stat. nov. as *Iris sisyriuchium* L. var. *fugax* f. *major* Pamp.

**New taxon:** *Iris sisyriuchium* var. *marmarica* Pamp. in Arch. Bot. (Forli). XII(1): 22 (1936a); Rend. Sem. Fac. Sc. Univ. Cagliari VIII(3): 63 (1938b)

**Type:** Holotypus: Libia, Cirenaica, [Marmarica]: Fra Tobruk e Bardia, l.d. Sidi Bu Amud (1687), 23/3/1933. Leg. R. Pampanini, (FI003627).

**Accepted name:** *Moraea sisyriuchium* (L.) Ker Gawl. in Dobignard & Chatelain, 1: 153 (2010)

**Note:** the specimen is mounted on 4 sheets pinned together; this taxon was recognized as correct in Fl. Afrique N. 6: 168. 1960.

**New taxon:** *Romulea ligustica* subsp. *vaccarii* Bég. in Bull. Soc. Bot. Ital., p. 106-107 (1912)

**Type:** [Libia], Cirenaica: Tobruk, arene marittime (59), 24 gennaio 1912. Leg. A. Vaccari, (FI) (Lectotypus designated here).

Isolectotypi (FI, MOD- non vidit).

**Accepted name:** *Romulea ligustica* Parl. subsp. *vaccarii* Bég. in Dobignard & Chatelain, 1: 157 (2010)

**Note:** there are two specimens alike in FI, one of which is signed by Vaccari, this second was chosen as Holotypus, other material of the original collection is in MOD; in Fl. Afrique N. 6: 1960, as *Romulea bulbocodium* (L.) Seb. & Mauri subsp. *vaccari* (Bég.) Maire, comb. nov., or in “Catalogue Life” (Kew) as *R. ligustica* Parl.

### **Juncaceae** (by L. Pignotti)

**New taxon:** *Juncus acutus* var. *kruegerianum* Pamp. in Agric. Colon. XX(12): 457 (1926)

**Type:** Libia, [Cirenaica], Oasi di Giarabub, Jun. 1926; leg. G.Krueger, (FI), (Lectotypus designated here).

Isolectotypus: Ibid. (FI).

**Accepted name:** *Juncus rigidus* Desf.

**New taxon:** *Juncus bufonius* var. *laxus* f. *bracteatus* Pamp. in Arch. Bot. (Forli). XII(1): 21 (1936a); Rend. Sem. Fac. Sc. Univ. Cagliari VIII(3): 62 (1938b)

**Type:** Libia, Cirenaica, El-Beda-Ain Messaf-saf (1256), 22/04/1934. Leg. R. Pampanini & R.E.G. Pichi Sermolli, (FI003626), (Lectotypus designated here).

Syntypus: Libia, Cirenaica, El Abrach (1255), 9/04/1933. Leg. R. Pampanini, (FI).

**Accepted name:** *Juncus* cfr. *hybridus* Brot.

### **Lamiaceae**

**New taxon:** *Amaracus pampaninii* Brullo & Furnari in Webbia 34(1): 439-40 (1979a)

**Type:** Isotypus: [Libia], Cirenaica: Wadi Gattar (Barce-Cirenaica), 21/05/1974. Leg. S. Brullo & F. Furnari, (FI).

Holotypus (CAT)

**Accepted name:** *Amaracus pampaninii* Brullo & Furnari in Brullo & Furnari (1979a)

**Note:** as *Origanum pampaninii* (Brullo & Furnari) Ietsw., comb. nov. in Leiden Bot. Ser., 4: 127. (1980); as *Origanum cyrenaicum* Bég. & Vaccari in Dobignard & Chatelain, 4: 262 (2012).

**New taxon:** *Ballota andreuzziana* Pamp. in L’Agr. Col. XV(7): 373-74 (1921)

**Type:** [Libia], Cirenaica, regione di Cirene: Uadi Uardama, giugno 1919. Leg. A. Maugini, (FI), (Lectotypus designated here).

Isolectotypi: (FI)

Type, not available: [Regi(one) di Cirene]: Uadi Uardama, Maugini, giugno 1916 (sic) (P) [it is 1919 ! editor’s note] by M.A.Siddiqi. in Fl. Lib. 118: 75. (1985)

**Accepted name:** *Ballota andreuzziana* Pamp. see M.A.Siddiqi in Fl. Lib. 118: 75 (1985); also in Dobignard & Chatelain, 4: 263 (2012)

**Note:** M.A.Siddiqi in: Fl. Lib. 118: 75 (1985), indicates the following collection as Typus for *Ballota andreuzziana* Pamp.: [Regi(on) of Cyrene]: Wadi Uardama, Maugini, June 1916 (sic) (P) [it is 1919 ! (editor’s note)]. However, this material held in P is probably lost (M. Jeanson in *litteris* 14/01/2015).

We therefore went ahead with lectotypification [see article 9.11 and 9.12 of ICN (McNeill & al, 2012)] of the collection held in the FI Herbarium and part of the origi-

nal collection, a duplicate of the P specimen, in its place. From the three specimens present we chose the one with handwriting of Maugini.

**New taxon:** *Nepeta ucranica* f. *pallida* Pamp. Arch. Bot. (Forli). XII(1): 41 (1936a); Rend. Sem. Fac. Sc. Univ. Cagliari VIII(3): 74 (1938b)

**Type:** Libia, Cirenaica: Tecnis a est di Barce, (6683), 24/04/1934. Leg. R. Pampanini & R.E.G. Pichi Sermolli, (FI003817), (Lectotypus designated here).

Other syntypes from Original collection: L., Cirenaica: Barce, (6681), 15/04, (FI003815); C., Tecnis a est di Barce: El Gsur (6682), 15/04/1934. Leg. R. Pampanini & R.E.G. Pichi Sermolli, (FI003816).

**Accepted name:** *Nepeta ucranica* L.

**Note:** Pampanini collected *Nepeta ucranica* L. in Cyrenaica in 1933 and 1934 and he described its presence as casual. In our opinion it remains so today, occasionally occurring in Libya and indeed it is not part of the Flora of the country. Moreover many of the characters described in the identification are not discernable in dried specimen “*interdum tantum vix dilute cyanei*”.

**New taxon:** *Origanum cyrenaicum* Bèg. & Vaccari in Ann. Bot (Roma) 12(1): 117 (1913b)

**Type:** Lectotypus: Libia, Cyrenaica, Derna: in collibus calcareis ripae dexeterae Uadi Giarabba prope ostium Uadi Derna, 20-06-1912, (180). Leg. Vaccari, See Brullo & Furnari in Webbia 34(1): 442 (1979) (PAD), (first step); (second step) (Lectotypus designated here): Derna: in collibus calcareis ripae dexeterae Uadi Giarabba prope ostium Uadi Derna, 20-06-1912, (180), (PAD- H0042364). (Brullo *in litteris*, and Cuccuini, 2014) see note

Isolectotypi: (FI, PAD)

**Accepted name:** *Amaracus cyrenaicum* (Bèg. & Vaccari) Rech. f. ex Brullo & Furnari in Webbia 34(1): 442 (1979)

As *Origanum cyrenaicum* Bèg. & Vaccari in Dobignard & Chatelain 4: 296 (2012)

**Note:** The typus material cited is held in PAD, there are two specimens in the herbarium but the data for the typification appear on neither of them. Although the typification must be accepted, to better clarify the situation and after consultation with Prof. Brullo (Brullo *in litteris*, 2014), he and Cuccuini decided on a subsequent lectotypification and designated the specimen PAD-H0042364 as Lectotypus under Article 9.17 of ICN (McNeill. & al., 2012).

**New taxon:** *Rosmarinus officinalis* var. *pubescens* Pamp. in Bull. Soc. Bot. Ital.: 16 (1914a); Pl. Tripol.: 216-17 (1914e)

**Type:** [Libia], Mesellata: colline ad est di Cussabat (2836, on the label 2826), 11/04/1913. Leg. R. Pampanini, (FI), (Lectotypus designated here).

Other syntypes from Original collection: [L.], Tripolitania, Mesellata: a nord-ovest di Cussabat (2945), 12/04; T., Me.: Uadi Gherrim (3276), 15/04; Me.: fra (da) Gherrim e Sindara (3421), 15/04; T., Tarhuna: Uadi Msaaba (830), 18/03; T., Ga.: Ras Bu Ganus (3962), 27/04/1913. Leg. R. Pampanini.

Original material: [L.], Tarhuna.: Ras Bu Tauil (1334), 21/03; L., T., Garian: Ras Tecut (3789), 26/04/1913. Leg. R. Pampanini, (all in FI).

**Accepted name:** *Rosmarinus eriocalyx* Jordan & Four., see Rosù J.L., in *Lagascalia* 14(2): 179-187 (1986); also in Dobignard & Chatelain, 4: 302 (2012)

**Note:** Rosù J.L. saw the material of Pampanini at MPU; specimen 3789 was not published in Pampanini (1914a) but only later in “*Plantae Tripolitanae*” (Pampanini 1914e). Number 1334 is also reported in Pampanini (1914e), with doubt and for these reasons both have been included under “Original Material”. Moreover the Lectotypus is numbered n° 2826 as indicated on the label and in “*Plantae Tripolitanae*” and not 2636 as mistakenly appears in Pampanini (1914a), a number which does not exist for this collection.

**New taxon:** *Rosmarinus officinalis* var. *pubescens* f. *rosea* Pamp. in *Bull. Soc. Bot. Ital.*: 16 (1914a); *Pl. Tripol.*: 217 (1914e) (sub f. *roseus* Pamp. in *Pl. Tripol.* and on the specimens)

**Type:** Holotypus: [Libia], Tripolitania, Tarhuna: Abiar Milgha sul Ras Neb (492), 28/02/1913. Leg. R. Pampanini, (FI).

**Accepted name:** *Rosmarinus eriocalyx* Jord. & Four., see Rosù J.L., in *Lagascalia* 14(2): 179-187. (1986) p.p.

**New taxon:** *Salvia lanigera* var. *bicolor* Pamp. *Arch. Bot. (Forli)*. XII(1): 41 (1936a); *Rend. Sem. Fac. Sc. Univ. Cagliari* VIII(3): 74 (1938b)

**Type:** Holotypus: Libia, Cirenaica, Mechili: Gara El Gafsa, (6859), 28/03/1933. Leg. R. Pampanini, (FI003814).

**Accepted name:** *Salvia lanigera* Poir.

**Note:** the name of the taxon is given on a piece of newspaper, signed by Pampanini.

**New taxon:** *Satureja conferta* var. *pseudonervosa* Pamp. *Arch. Bot. (Forli)*. XII(1): 42 (1936a); *Rend. Sem. Fac. Sc. Univ. Cagliari* VIII(3): 74 (1938b)

**Type:** Libia, Cirenaica, Bengasi : Giocchi [sic] El Chebir (Lete), (6918), 09/03/1933. Leg. R. Pampanini. (FI003811), (Lectotypus designated here).

Other syntype from Original collection: Libia, Cirenaica, Tolmeta: Uadi Bu Msceifa, (6919), 23/04/1933. Leg. R. Pampanini, (FI003810).

**Accepted name:** *Micromeria conferta* (Coss. & Daveau) Stefani

**Note:** in Bräuchler et al. (2008), *Micromeria conferta* (Coss. & Daveau) Stefani and *Micromeria juliana* (L.) Benth. ex Reichenb, are treated separately and both are substantively recognized as accepted, however the specific Fl. of Libya descriptions (Siddiqi 118: 108 1985) and Dobignard & Chatelain, 4: 314 (2012), do not treat them the same way. In fact Siddiqi includes the former (*M. conferta*) in the second, also evident in his description of the species. On the contrary, Dobignard treats them separately and it appears that *M. conferta*, furthermore accepted but with some doubt on the nomenclature used, is only present for Libya, thus confirming the observations by Pampanini regarding the difference between *Satureja conferta* and *S. juliana* (Pampanini 1936a), and even more so regarding the variety he described which underlines the characteristics of *M. conferta* regarding the very evident veining and weak tomentum of the leaves, until finally becoming a slight pubescence. For this reason the

binomial *M. conferta* (Coss. & Daveau) Stefani has been chosen as the accepted name. On the sheet for the Lectotypus is a piece of newspaper with the name of the taxon signed by Pampanini.

**New taxon:** *Satureja fortii* Pamp. in Bull. Soc. Bot. Ital.: 418-419 (1928); Prod. Fl. Cir.: 398 (1930)

**Type:** Holotypus: [Libia, Cirenaica], Barce: presso Zorda, 20/05/1926. Leg. A. Maugini, (FI001152), (by M. A. Siddiqi in Fl. Lib. 118: 102. 1985).

**Accepted name:** *Satureja fortii* Pamp. by M. A. Siddiqi in Fl. Lib. 118: 102. 1985.

In Dobignard & Chatelain, 4: 315 (2012), as *Micromeria nervosa* (Desf.) Benth.

**Note:** On the typus sheet there is a note written by Maugini referring to the collection date. The authenticity of the note is confirmed in a second note, again handwritten by Pampanini.

**New taxon:** *Satureja thymbra* f. *albiflora* Pamp. Arch. Bot. (Forlì). XII(1): 42 (1936a); Rend. Sem. Fac. Sc. Univ. Cagliari VIII(3): 74 (1938b)

**Type:** Holotypus: Libia, Cirenaica, Apollonia: l.d. Rgua, (6999), 11/04/1933. Leg. R. Pampanini, (FI003812).

**Accepted name:** *Satureja thymbra* L. f. *albiflora* Pamp., by N. Feinbrun-Dothan, in Fl. Palestina 4: 147. 1978).

As *Satureja thymbra* L. in Fl. Lib. (Siddiqi, 1985)

**Note:** There are two notes on the typus sheet, the first, on a piece of newspaper, gives the name of the taxon, the second on a coloured sheet, gives a summary, in Italian, of the taxon diagnosis. Both are signed by Pampanini.

**New taxon:** *Satureja thymbra* var. *calvescens* Pamp. Agric. Colon. XV(7): 375 (1921)

**Type:** Holotypus: [Libia, Cirenaica]: Uadi Zenedi (Zneidi, on the label), 06/1919. Leg. A. Maugini, (FI003813).

**Accepted name:** *Satureja thymbra* L., in Dobignard & Chatelain, 4: 318 (2012)

**New taxon:** *Stachys tournefortii* f. *alba* Pamp. Arch. Bot. (Forlì). XII(1): 42 (1936a); Rend. Sem. Fac. Sc. Univ. Cagliari VIII(3): 75 (1938b)

**Type:** Libia, Cirenaica, El Beda: Uadi Beregd, (7044), 24/04/1934. Leg. R. Pampanini & R.E.G. Pichi Sermolli, (FI003818), (Lectotypus designated here).

Other syntype from Original collection: Libia, Cirenaica, Messa a ovest di Cirene: Ain Seilun, (7045), 29/04/1934. Leg. R. Pampanini & R.E.G. Pichi Sermolli, (FI003819).

**Accepted name:** *Stachys tournefortii* Poir. in Fl. Lib. (Siddiqi, 1985)

**Note:** the name of the taxon is written on a piece of newspaper, signed by Pampanini.

**New taxon:** *Teucrium barbeyanum* var. *purpureum* Pamp. in Nuovo Giorn. Bot. Ital. n.s, 23: 284 (1916)

**Type:** [Libia], Cirenaica, Bengasi: Sulla montagna di Regima (Jebel) (67), 05/1915. Leg. V. Zanon (FI), (Lectotypus designated here). See note.

Other syntype from Original collection: [Libia], Cirenaica, Bengasi: Fuehat (73), 05/1915. Leg. V. Zanon

**Accepted name:** *Teucrium barbeyanum* Asch. & Taub., see Dobignard & Chatelain, 4: 337-338 (2012); also in Fl. Lib. (Siddiqi, 1985)

**Note:** the Lectotypus is the specimen on the bottom right of the sheet; together with the Syntypus (n°73) and a third specimen also collected by Zanon, referring to the same taxon, but not part of the original collection. The original labels for the two typus specimens are signed by Zanon.

**New taxon:** *Teucrium fruticans* f. *lilacinum* Pamp. in Bull. Soc. Bot. Ital.: 17 (1914a) as f. *lilacinum*; Pl. Tripol. p.: 219-20 (1914e) (as var. *lilacinum*, stat. nov., also on the specimen).

**Type:** [Libia], Tripolitania, Garian: Uadi Garian (3837), 26/04/1913. Leg. R. Pampanini, (FI), (Lectotypus designated here).

Other syntypes from Original collection. L., T., Garian: Ras Tecut (3724), 26/02; Ga.: U. Garian: sul Ras Omcteba (4117), 29/04; Ga.: Uadi Guassem sul Ras Tobi (4165), 30/04; Ga.: Uadi El Arbaa presso Tebedut (4183), 01/05/1913. Leg. R. Pampanini. (all in FI).

**Accepted name:** *Teucrium fruticans* L. in Fl. Lib. (Siddiqi 1985)

**Note:** the only data on the specimens is stat. nov.: *Teucrium fruticans* L. var. *lilacinum* (Pamp.) Pamp. published in Pl. Tripol.: 219-20. 2014, moreover it is impossible to check the data for the diagnosis (*Flore pallide lilacini nec coerulei....*) on dried specimens.

The specimen from the original collection: Garian: Uadi Gassem ad Ain Binga, 02/05/1913. Leg. R. Pampanini, is not in FI.

**New taxon:** *Teucrium lini-vaccari* Pamp., Bull. Soc. Bot. Ital.: 17-18 (1914a); Pl. Tripol.: 220-21 (1914e)

**Type:** [Libia], Tripolitania, Tarhuna: Kasr Daun (2331A), 07/04/1913. Leg. R. Pampanini, (FI), (Lectotypus designated here).

Isolectotypi:(2331B), (2331C) (FI).

Other syntypes from Original collection: L., T., Mesellata: Msid di Mesellata (2606), 09/05; L., T., Tarhuna: Ras Ghenai (1526), 25/03; Uadi Ksea sul Ras Argobinani (2487), 08/04/1913. Leg. R. Pampanini, (all in FI).

**Accepted name:** *Teucrium lini-vaccari* Pamp. see M. A. Siddiqi in Fl. Lib. 118: 27. (1985); also in Dobignard & Chatelain, 4: 344 (2012)

**Note:** Pampanini in his description for this new taxon (Pampanini 1914a) obviously refers to all the morpho-anatomical characteristics of the plant and later, in Pl. Tripol. (Pampanini 1914e), he clearly describes the differences and similarities between the various close entities to delineate their taxonomical positions. In the protologue (and on the specimens) he assigns a single number to the collection of 7th April at Kars Daun, although there are three distinct specimens. To distinguish them, he gives each a letter from A to C. This could mean that he intended all three specimens to serve for a better vision of the specimen, or else he used a specific numeration to better manage and examine the collected material. Having chosen material from this collection to use for typification, we wondered whether he had considered it all as a single specimen. When we checked the diagnoses in the protologue, all the described characters can be identified in specimen n° 2331A, whilst the other two lack various parts. For this reason we have chosen specimen n° 2331A as Lectotypus, and consider the other two as duplicates (Isolectotypi).



**New taxon:** *Teucrium polium* var. *pseudohyssopus* f. *luteum* Pamp. in Bull. Soc. Bot. Ital.: 17 (1914a); Pl. Tripol.: 221-22 (1914e)

**Type:** [Libia], Tripolitania, Garian: Assaba (4000), 28/04/1913. Leg. R. Pampanini, (FI), (Lectotypus designated here).

Other syntypes from Original collection: L., T., Garian: Uadi Garian sul Ras Omcteba (4106), 29/04; Ga.: Kasr Garian, nei campi incolti (4141), 30/04; Ga.: Uadi El Arbaa presso Tebedut (4195), 01/05/1913. Leg. R. Pampanini.

**Accepted name:** *Teucrium polium* L. subsp. *polium*

**New taxon:** *Teucrium polium* var. *pseudohyssopus* f. *spicatum* Pamp., Bull. Soc. Bot. Ital.: 17. (1914a); Pl. Tripol.: 222 (1914e)

**Type:** [Libia], Tripolitania, Mesellata: Colline ad N.W di Cussabat (2951), 12/04/1913. Leg. R. Pampanini, (FI), (Lectotypus designated here).

Other syntype from Original collection: L., Tripolitania, Garian: Uadi Garian sul Ras Omcteba (4118), 29/04/1913. Leg. R. Pampanini, (FI).

**Accepted name:** *Teucrium polium* L. subsp. *polium*.

**Note:** Pampanini in Pl. Tripol. (1914e), with regard to the original collection, cites another 3 specimens (all kept in FI) but which he indicates of “uncertain identity”: Tripolitania, Tarhuna: Abian Milgat a Migi (1048), 19/03; Ta.: U. Ksea , Ras Argobinani (2491), 18/04; Mesellata: Cussabat, Ras Gelà (3094), 13/04/1913. Leg. R. Pampanini

**New taxon:** *Teucrium polium* var. *tripolitanum* Pamp., in Bull. Soc. Bot. Ital.: 17 (1914a); Pl. Tripol.: 222 (1914e)

**Type:** [Libia], Tripolitania, Mesellata: Uadi Gherrim (3261), 15/04/1913. Leg. R. Pampanini, (FI), (Lectotypus designated here).

Other syntype from Original collection: L., T., Me.: Cussabat, verso Sliten a Kasr Buharb (3189), 13/04/1913. Leg. R. Pampanini, (FI).

**Accepted name:** *Teucrium polium* L. subsp. *polium* see in Dobignard & Chatelain, 4: 348 (2012)

**Note:** in Pl. Tripol. (1914e), with regard to the original collection of this taxon, a further three specimens (all kept in FI) are mentioned with doubt: T., Me.: Cussabat, sul Ras Gelà (3094), 13/04; T., Tarhuna: Abiar Milgha a Migi (1048), 19/03; Ta.: Uadi Ksea sul Ras Argobinani (2491), 08/04/1913. Leg. R. Pampanini.

**New taxon:** *Teucrium polium* var. *tripolitanum* f. *comosum* Pamp. in Bull. Soc. Bot. Ital.: 17 (1914a); Pl. Tripol.: 222 (1914e)

**Type:** Holotypus: [Libia], Tripolitania, Tarhuna: Uadi Sart (2110), 03/04/1913. Leg. R. Pampanini, (FI).

**Accepted name:** *Teucrium polium* L. subsp. *polium*

**New taxon:** *Teucrium zanonii* Pamp. in Nuovo Giorn. Bot. Ital. n.s. 24: 153 (1917)

**Type:** [Libia], Cirenaica, Bengasi: Cimitero Nuovo (580), 26/04/1916. Leg. V. Zanon (FI), (Lectotypus designated here).

Type, probably lost: Bengasi: Cimitero nuovo, Zanon, 26 April (P), by M.A. Siddiqi in Fl. Lib.: 118: 29 (1985).

**Accepted name:** *Teucrium zanonii* Pamp. see M.A. Siddiqi in Fl. Lib.: 118: 29 (1985.), also in Dobignard & Chatelain, 4: 353 (2012)

**Note:** this taxon is typified by M.A. Siddiqi in Fl. Lib.: 118: 29. 1985, and the type is reported as in P. However, this material cannot be located (M. Jeanson *in litteris*, 14/01/2015). Moreover in Hadjikyriakou & Hand (2008) is quoted the Holotype of this taxon in FI [FI photo !] but the authors pointed out the typification with a doubt (?).

We therefore went ahead with lectotypification [see article 9.11 and 9.12 of ICN (McNeill & al., 2012)] of the specimen held in the FI Herbarium and part of the original collection, a duplicate of the P specimen, in its place.

### *Liliaceae* (by L. Peruzzi)

**New taxon:** *Gagea* × *pampaninii* A.Terracc. in Pamp., Pl. Tripol.: 53 (1914e)

**Type:** Lectotypus (designated by Peruzzi & Tison, 2006: 295): [Libya] Tarhuna, Uadi Milgah (301), 26/2/1913. Leg. R. Pampanini (upper second specimen from right), (FI). Isolectotypi: (marked by Peruzzi, 26/2/1913) (remaining specimens, FI).

Syntypi: [Libya] Tarhuna, colline a E. di Kasr Tarhuna (4900), 27/2/1913, Leg. R. Pampanini; Tarhuna: Abiar Milgah (414), 28/2/1913, Leg. R. Pampanini, (all in FI)

**Accepted name:** *Gagea pampaninii* A.Terracc. in Pamp., Pl. Tripol.: 53 (1914e) [pro hybr.]

**Notes:** This taxon was originally described as a hybrid, but can be considered as a distinct species, related to *Gagea dayana* Chodat & Beauverd and in need of further studies on living topotypical material (Peruzzi & Tison, 2006).

**New taxon:** *Gagea reticulata* subsp. *eureticulata* f. *latifolia* A.Terracc. in Pamp. Pl. Tripol.: 54 (1914e)

**Type:** [Libya] Tarhuna: Ras Ghenai (1516), 25/03/1913, Leg. R. Pampanini (individual on top left), (FI), (Lectotypus designated here).

Isolectotypi: (marked by Peruzzi, 25/03/1913, remaining three individuals, FI)

Syntypi: [Libya] Tarhuna: Ain Scersciara (668), 14/03/1913, Leg. R. Pampanini; Tarhuna: Kasr Daun (766), 15/03/1913, Leg. R. Pampanini; Tarhuna: Uadi Msaaba (1452), 22/03/1913, Leg. R. Pampanini, (all in FI)

**Accepted name:** *Gagea fibrosa* (Desf.) Schult. & Schult.f., in Syst. Veg. 7(1): 552 (1829).

**Notes:** All the collections cited in the protologue (668, 766, 1452 and 1516) are original material and seemingly represent the same systematic unit. Among them, one well developed and complete individual from the collection 1516 is selected to serve as the lectotype for the name. In agreement with the arguments exposed by Peruzzi & Tison (2007), *Gagea reticulata* subsp. *eureticulata* f. *latifolia* can be applied to well-developed individuals of *G. fibrosa*, similarly to the name *G. reticulata* subsp. *africana* A.Terracc. (Peruzzi, 2007).

**New taxon:** *Ornithogalum fimbriatum* subsp. *libycum* Bég. & Vaccari, Ann. Bot. (Roma) 13: 16. (1915)

≡ *Ornithogalum libycum* (Bég. & Vaccari) Bég. & Vaccari, Flora Libyca Exsiccata [in schedis] (1914)

≡ *Ornithogalum fimbriatum* Willd. var. *libycum* (Bég. & Vaccari) Pamp., Nuovo Giorn. Bot. Ital., n.s., 31: 250. 1924.

**Type:** [Libya] Loc. Cirenaica, 01/03/1913 (843). Leg. A. Vaccari. (FI-with autographic label by A. Vaccari), (Lectotypus designated here):

Original material: [Libya] Loc. Cirenaica. – Marsa Susa in campis incultis saxosis prope Apolloniae rudera, 14/2/1914, Leg. A. Vaccari. (FI) (Sched. Fl. Lib. Exs. 25)

**Accepted name** [provisional]: *Ornithogalum trichophyllum* Boiss. & Heldr., Diagn. Pl. Orient., sér. 2, 4: 108. 1859 see also Dobignard & Chatelain (2010).

**Notes:** from the same place and date of specimen collected at Marsa Susa the authors describe also a var. *glabrum* Bég. & Vaccari, for which we were not able to trace any original material in FI. The typical material shows some difference respect with the description of *O. trichophyllum* as reported by Boulos (2005), i.e. leaves 2-3 mm wide and sparsely ciliate, smaller flowers. Moreover, the latter author considers *O. trichophyllum* as occurring in Egypt and Palestine only. Hence, *O. fimbriatum* subsp. *libycum* deserves further biosystematic studies on living topotypical populations.

**New taxon:** *Scilla autumnalis* var. *cyrenaica* Pamp., in Nuovo Giorn. Bot. Ital., n.s. 24: 127 (1917)

≡ *Scilla cyrenaica* (Pamp.) Bartolo, Brullo, Pavone & Terrasi, Webbia 38: 613 (1984)

≡ *Prospero cyrenaicum* (Pamp.) Speta, Speta in Phytion (Horn) 38: 116 (1998)

**Type:** [Libya], Cirenaica, Aua Zarda (Luesci), fra le rocce (206), 1/11/1916, Leg. V. Zanon, (FI), (Lectotypus designated here).

Isolectotypus: (FI), (marked by Peruzzi, 25/3/1913).

**Accepted name:** *Prospero cyrenaicum* (Pamp.) Speta, Phytion (Horn) 38: 116 (1998)

**Notes:** the specimen chosen as the lectotype shows, evidently a misprint, a different year with respect to that cited in the protologue (and in the isolectotype). Otherwise, it fully agrees with the data presented in the protologue (including exact locality and collection number) and shows the most complete and informative individuals.

### Linaceae

**New taxon:** *Linum decumbens* var. *parviflorum* Pamp. in Nuovo Giorn. Bot. Ital. 31: 221. (1924)

**Original material:** [Libia], Cirenaica: Bu Mariam, Bulghema, aprile 1922; C.: Uadi Ingar, 02/03; C.: Regima alla ridotta Gebel, 09/02/1922; Leg. A. Maugini.

**Note:** the material has probably been lost in FI.

### Malvaceae

**New taxon:** *Hibiscus geranioides* var. *darnicus* Pamp. in Bull. Soc. Bot. Ital.: 119-120 (1912)

**Type:** [Libia], Cirenaica, Derna: primo gradino dell'altipiano (di Derna, editor's note), gennaio 1912. Leg. A. Longa, (FI), (Lectotypus designated here).

Other syntype from Original collection; C.: al sommo dell'altipiano, febbraio 1912. Leg. A. Longa, (FI).

**Accepted name:** *Hibiscus geranioides* A. Cunn. ex Benth. s. l.

**Note:** Pampanini (1912), in the notes that follow his diagnosis and after examining some morpho-anatomical characters (the aspect of the sheaf, calyx and seeds), puts the plant under the *Kemtia* sec. of the genus *Hibiscus*, a section that includes many cultivated

species and which in any case serves as a base for obtaining numerous cultivars. Although certain differences led Pampanini to describe a new taxon, he considers it near to *H. geranioides* A. Cunn. ex Benth.. Furthermore, the distribution area of the taxon is well beyond that considered in our work, from its widest distribution in tropical and southern Africa it reaches as far as America, Australia and south east Asia. Also considering our material as belonging in s. l. to *H. geranioides*, we can therefore consider it as a adventive species and not part of the Libyan Flora.

**New taxon:** *Lavatera olbia* subsp. *cyrenaica* Pamp. in Arch. Bot. (Forlì). XII(1): 37 (1936a), sub *L. olbia* and *L. unguiculata* in Prod. Fl. Cir: 317 (1930) [(Bull. Soc. Bot. Ital.: 74. 1925- sub *L. olbia*); (Nuovo Giorn. Bot. Ital. 31: 22. 1924- sub *L. unguiculata*)].

**Type:** [Libia], Cirenaica, Barce: U. Um El Anain, 28/05/1922. Leg. A. Maugini, (FI: sub. *L. unguiculata*), (Lectotypus designated here).

Other syntype from Original collection: [Libia], Cirenaica, Barce: Uadi Farzuga, 1925. Leg. Scaetta (sub *L. olbia*) (FI).

Original material: Libia, Cirenaica: Uadi El Atrum, 14/05/1934 (4878), leg. Pampanini & Pichi Sermolli, (G, K, FI?).

**Accepted name:** *Lavatera bryoniifolia* Mill., see Ali S. L. in Fl. Lib. 10: 17. (1977).

As *Malva unguiculata* (Desf.) Alef.in Dobignard & Chatelain, 4: 386 (2012)

**Note:** the typus material for the taxon “Libya, Cirenaica: U. El Atrum, 14/5/1934 (4878), leg. Pampanini & Pichi Sermolli” was chosen by Ali S. L. in Fl. Lib. 10: 17. (1977), mentioning its presence in 3 herbaria: FI, K, G (though there is now no sign of its presence in FI ). Since Ali had not really chosen the seat of the “typus” he did not carry out any typification, but only mentioned that three possible Syntypes may exist. We have used the term “possible” because the scholar had not consulted the protologue for this taxon described by Pampanini or if he had, he must have done so inattentively because in Arch. Bot. (Forlì), XII(1): 37 (1936a), before the diagnosis, the author cites the material used to describe the new taxon as they were already published specimens (by Pampanini himself as can be observed in the bibliography) respectively sub. *Lavatera olbia* and *L. unguiculata*. These are the only specimens from the original collection (among other things Pampanini does not mention any other material for this taxon in his future work on his 1933-34 collections). Therefore the former indication of the presumed Types contravenes article 7.8 of the ICN (McNeill & al, 2012), and in our opinion the typification is null.

For this reason we establish the specimen from the original collection: [Libia], Cirenaica, Barce: U. Um El Anain, 28/05/1922. Leg. A. Maugini, (sub. *L. unguiculata*) held in (FI) as lectotype of name. Specimen Pampanini 4878 is part of original collection but is not published.

**New taxon:** *Lavatera olbia* subsp. *cyrenaica* var. *vestita* Pamp. in Arch. Bot. (Forlì). XII(1): 37.(1936a); Rend. Sem. Fac. Sc. Univ. CagliariVIII(3): 70 (1938b)

**Type:** Libia, Cirenaica: fra El Garib e Tolmeta: U. El Fahaga (4882), 14/04/1933, R. Pampanini, (G00386736), (Lectotypus designated here), (marked as syntypus by Ali S. L. in Fl. Lib. 10: 15-17. 1977).

Isolectotypi: (K, FI ?).

Original material: Cirenaica, Barce: Gasr Beni Gdam, Garib l.d. Schehami; C.: fra Garib e Tolmeta; C., Beda : Uadi Uardama; (C.) Lamluda 1933-34. Leg. R. Pampanini & R.E.G. Pichi Sermolli ?

**Accepted name:** *Lavatera bryoniifolia* Mill. see Ali S. L. in Fl. Lib. 10: 17 (1977)

**Note:** the same situation applies to this taxon as for the subsp. *cyrenaica*. Ali S. L. in Fl. Lib. 10: 15-17 (1977) mentioned the typus for “var. *vestita* Pamp.” placing it in three herbaria (FI, G, K). So doing he does not typify the taxon but underlines the existence of three syntypes

It should also be noted that this time Pampanini (1938b), when speaking of the original collection carried out in Cyrenaica (which included the specimen chosen as typus), cites 3 specimens: Cyrenaica, Barce: Gasr Beni Gdam, Garib l.d. Schehami; Cyrenaica, El Beda : Uadi Uardama; Cyrenaica: Lamluda. As none of these, including the types, are actually in FI we cannot say whether they are part of the 1933 Pampanini collection or that of 1934, also carried out by Pichi Sermolli. In any case they are all part of the original collection.

**New taxon:** *Malva aegyptia* subsp. *iljinii* Pamp. in Arch. Bot. (Forli). XII(1): 37 (1936a); Rend. Sem. Fac. Sc. Univ. Cagliari VIII(3): 70 (1938b)

**Type:** Libia, Cirenaica: Sidi Omar-Hagfet El Bdehi (4938), 23/03/1933. Leg. R. Pampanini, (FI003773), (Lectotypus designated here).

Other syntypes from Original collection: Libia, Cirenaica: Bir. Tengeder (4936), 21/03, FI003772; C.: testata dell’Uadi Mrah (4937), 22/03/1933. Leg. R. Pampanini, (FI003771).

**Accepted name:** *Althaea ludwigii* L. (marked by P. Escobar Garcia, XII/2008); also in Dobignard & Chatelain, 4: 389 (2012)

**Note:** in the last general works on the genus *Malva* and associates: Ray (1995) and Escobar Garcia et al. (2009), the taxon we considered is not treated and, in general, no typifications made.

### **Myrtaceae** (by M. Abuhadra)

**New taxon:** *Myrtus communis* var. *imbricatus* Pamp. in Arch. Bot. (Forli). XII(1): 39 (1936a); Rend. Sem. Fac. Sc. Univ. Cagliari VIII(3): 72 (1938b)

**Type:** Holotypus: Libia, Cirenaica: fra Gubba e L’Uadi El Atrun l.d. Argub Dasc (5365), 14/05/1934. Leg. R. & R.E.G. Pichi Sermolli, (FI003680).

**Accepted name:** *Myrtus communis* L. subsp. *communis*, in Dobignard & Chatelain, 4: 348 (2012)

**Note:** in Fl. Lib. 122: 2-5 (1886), all the specimens from Cyrenaica are referred to as *Myrtus communis* L.

**List of non-validly published names**, according to article 24.3 of ICN (McNeill & al. 2012), by R. Pampanini, which material is held in FI. These names are not in the Taxonomic Index.

### **Alliaceae**

*Allium aschersonianum* Barbey f. *genuina* Pamp. in Nuovo Giorn. Bot. Ital. n.s. 24 (3): 125 (1917)

**Brassicaceae**

*Biscutella didyma* L. var. *ciliata* (DC.) Hal. f. *genuina* Pamp. in Arch. Bot. (Forlì). XII(1): 27 (1936a)

**Caryophyllaceae**

*Tunica thessala* Boiss. var. *cyrenaica* E. A. Durand & Barratte f. *genuina* Pamp. in Arch. Bot (Forlì). XII (1): 24 (1936a)

**Euphorbiaceae**

*Euphorbia bivonae* Steud. var. *typica* Pamp. In. Arch. Bot. (Forlì). XII(1): 34 (1936a)

*Euphorbia bivonae* Steud. var. *typica* f. *genuina* Pamp. In. Arch. Bot. (Forlì). XII(1): 34 (1936); Rend. Sem. Fac. Sc. Univ. Cagliari VIII(3):69 (1938b)

*Euphorbia bivonae* Steud. var. *papillaris* Boiss. f. *genuina* Pamp. In. Arch. Bot. (Forlì). XII(1): 34 (1936a)

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### Index of localities and relative collections

**Legend:** the localities are those published or given on the specimen labels.

Sometimes the same locality is written with a different spelling, e.g.: Gfonta or Sfonta, Maaten or Maten, Sceilabi or Sciallabi, U. Messaf-saf or Saf Saf, Kasr or Gasr . Both versions are given in the list.

- Abiar Milgha (*Hippocrepis bicontorta* var. *glabra*)  
 Abiar Milgha a Migi (*Echium arenarium* var. *debile*, *Ephedra altissima* var. *tripolitana*)  
 Abiar Milgha sul Ras Neb (*Rosmarinus officinale* var. *pubescens* f. *roseus*)  
 Acroma (*Astragalus hamosus* f. *falcatus*)  
 Agedabia (*Anthemis rotata* var. *auriculata*, *Kalbfussia hispidula* f. *platyphylla*, *Helianthemum virgatum* var. *ciliatum* f. *eciliatum*, *Helianthemum virgatum* var. *ciliatum* f. *eciliatum* sf. *glabrum*, *Matthiola pseudoxycceras* f. *vestita*)  
 Agedabia e Gtafia l.d. Bir Gelulia (fra) (*Anthemis rotata* var. *auriculata*)  
 Agedabia a El Haseiat (*Anacyclus alexandrinus* f. *tomentosus*)  
 Agedabia e El Haseiat (fra, l. d. Chor El Meghial) (*Hippocrepis bicontorta* f. *intermedia*)  
 Agedabia, Sahabi (*Helianthemum virgatum* var. *ciliatum* f. *eciliatum*, *Helianthemum virgatum* var. *ciliatum* f. *eciliatum* sf. *glabrum*)  
 Agedabia (l.d. Sidi Frag) (*Trigonella stellata* var. *micrantha*)  
 Agedabia e Zuetina (fra) (*Ptychotis ammoides* var. *pusilla*)  
 Agheila (*Anthemis rotata* var. *auriculata*, *Kalbfussia hispidula* f. *platyphylla*, *Trigonella stellata* var. *micrantha*)  
 Agheila (giardini) (*Trigonella stellata* var. *micrantha*)  
 Agheila e Maaten Giofer (fra) (*Hippocrepis bicontorta* f. *intermedia*)  
 Ain Binga see Uadi Garian  
 Ain El Balag (Regione di Cirene) (*Hedypnois polymorpha* var. *tubaeformis* f. *elata*)  
 Ain Legmeila (Uadi Messaf-saf, Beda) (*Arbutus pavari*, *Convolvulus maireanus*, *Herniaria glabra* f. *intermedia*, *Quercus coccifera* var. *stenocarpa*)  
 Ain Mara (Gubba) (*Erodium hirtum* var. *glabriusculum* f. *intercedens*, *Juncus bufonius* var. *laxus* f. *bracteatus*, *Lotus pusillus* var. *vivianii*)  
 Ain Messaf-Saf (Beda) (*Juncus bufonius* var. *laxus* f. *bracteatus*)  
 Ain Midisch (Cirene) (*Carex hispida* var. *erostris*)  
 Ain Relleg see Beda  
 Ain Scersciara (*Hippocrepis bicontorta* var. *glabra*, *Gagea reticulata* subs. *eureticulata* f. *latifolia*, *Onopordon confusum*)  
 Ain Seilun see Messa  
 Ain Turki see Kasr Garian  
 Al Saniet Mohamed (*Anacyclus alexandrinus* f. *capillifolius*)  
 Amseat (a sud di Bardia) (*Hippocrepis bicontorta* f. *intermedia*, *Trigonella stellata* var. *micrantha*)  
 Amseat e Mechili (fra) (*Euphorbia parvula* f. *elata*, *Silene setacea* var. *glabrescens*, *Trigonella stellata* var. *micrantha*)  
 Apollonia, l. d. Rgua (*Arbutus pavari*, *Biscutella didyma* var. *ciliata* f. *macrocarpa*, *Biscutella didyma* var. *lenticularis*, *Convolvulus oleifolius* var. *pumilus*, *Crepis radicata* var. *erecta*, *Lithospermum hispidulum* var. *cyrenaicum*, *Malabaila suaveolens* f. *b cossoniana*, *Malabaila suaveolens* f. *a delileana*, *Satureja thymbra* f. *albiflora*)  
 Argub Dasc, fra Gubba e l'Uadi El Atrun (*Arbutus pavari*, *Myrtus communis* var. *imbricatus*)  
 Argub Gazal, fra Gubba e l'Uadi El Atrun (*Quercus coccifera* var. *stenocarpa*, *Quercus coccifera* var. *stenocarpa* f. *parvifolia*)  
 Assaba (*Teucrium polium* var. *pseudohyssopus* f. *luteum*)

- Auà Added (*Tunica thessala* var. *cyrenaica* f. *pubescens*)  
 Auà Zarda (Luesci) (*Cotyledon horizontalis* var. *micranthus*, *Herniaria glabra* var. *cyrenaica*, *Scilla autumnalis* var. *cyrenaica*)  
 Auen (*Diplotaxis erucoides* var. *cyrenaica* f. *intermedia*)  
 Auen'at e El Gaz'al (depressione fra) (*Diceratella sahariana*)  
 Bag Lia (fra Agedabia e Antelat) (*Helianthemum virgatum* var. *ciliatum* f. *eciliatum* sf. *glabrum*, *Helianthemum virgatum* var. *ciliatum* f. *marmaricum* sf. *glabrifolium*, *Helianthemum virgatum* var. *vesicarium* f. *glabrescens*)  
 Bag Lia see Haseiat  
 Bardia, see: Porto Bardia  
 Barce (*Nepeta ucranica* f. *pallida*)  
 Barce: Bu Gseir (*Hedypnois globulifera* var. *tubaeformis* f. *gussonei* sf. *depressa*)  
 Barce: Garib l.d. Schehami (*Lavatera olbia* subsp. *cyrenaica* var. *vestita*)  
 Barce: Gasr Beni Gdam (*Lavatera olbia* subsp. *cyrenaica* var. *vestita*)  
 Beda (*Pachyctenium mirabile*)  
 Beda: Ain Mara (*Juncus bufonius* var. *laxus* f. *bracteatus*) (vedi anche Ain Mara)  
 Beda l.d. Ain Relleg (*Pachyctenium mirabile*)  
 Beda: Uadi El Kuf l. d. Umm El Fachar (*Pistacia lentiscus* var. *latifolia* f. *obovata*)  
 Beda: Uadi Messaf-saf (*Herniaria glabra* f. *intermedia*, *Malabaila suaveolens* f. *b. Cossoniana*, *Quercus coccifera* var. *stenocarpa*)  
 Beda: Uadi Scisu (*Carex distachya* var. *pedunculata*, *Malabaila suaveolens* f. *cossoniana*, *Pachyctenium mirabile*, *Tunica scoparia*)  
 Beda: Uadi Tmistà (*Convolvulus maireanus*)  
 Ben Aafen (incrocio carovaniere El Gaf-Brach- Sciuerel) (*Artemisia marcelli*)  
 Bengasi (*Allium erdeli* var. *pilosum*, *Astragalus taubertianus*, *Crepis taraxacifolia* var. *libyca*, *Ifloga spicata* var. *labillardieri*)  
 Bengasi (Cimitero nuovo) (*Teucrium zanonii*)  
 Bengasi-Lago salato (*Ptychotis ammoides* var. *pusilla*)  
 Benina (*Centaurea alexandrina* f. *brevispina*, *Carthamus lanatus* var. *longifolius*, *Hippocrepis cyclocarpa* f. *glabrescens*, *Rhagadiolus stellatus* var. *pubescens*)  
 Bettamer (*Biscutella didyma* var. *ciliata* f. *macrocarpa*)  
 Bir Acheim (*Trigonella stellata* var. *micrantha*)  
 Bir Acheim e Mechili (fra– Trigh Enver Bey) (*Amberboa lippii* var. *intermedia*, *Trigonella stellata* var. *micrantha*)  
 Bir Acheim l.d. Bir Belamed (*Erodium chium* var. *deserti*, *Trigonella stellata* var. *micrantha*)  
 Bir Acheim l.d. Bir Zeidan (see also Bir Zeidan) (*Anthemis cyrenaica* var. *radiata*, *Trigonella stellata* var. *micrantha*)  
 Bir Belamed see Bir Acheim  
 Bir Bu Usceica (Trigh Enver Bey) (*Silene setacea* var. *glabrescens*)  
 Bir El Gavamis (*Evax mauritanica* var. *cyrenaica*)  
 Bir El Ghelania e Brach (fra) (*Atractilys phazaniae*)  
 Bir El Giocch (fra Agedabia e Saunnu) (*Euphorbia parvula* var. *linearifolia*, *Hippocrepis bicontorta* f. *intermedia*, *Koeleria salzmanni* var. *cossoniana* f. *glabra*, *Onobrychis armata*)  
 Bir Gahasci (Slonta) (*Arbutus pavari*)  
 Bir Gardabia see Misurata  
 Bir Gelulia see (fra) Agedabia e Gtafia  
 Bir Salem see Gubba  
 Bir Tengeder (sud di Mechili) (*Enarthrocarpus pterocarpus* var. *hispidus*, *Malva aegyptia* subsp. *iljinii*, *Trigonella stellata* var. *micrantha*)

- Bir Uazen (Trigh Enver Bey) (*Trigonella stellata* var. *micrantha*)  
 Bir Zeidan (fra Bir Acheim e Mechili, see also Bir Acheim) (*Anthemis cyrenaica* var. *radiata*)  
 Bomba, l.d. El Gefar (*Onobrychis armata*)  
 Borgù see Cirene  
 Bosco Zorda-limite mer.-or. (Regione di Merg) (*Hedypnois polymorpha* var. *tubaeformis* f. *elata*)  
 Bosco Zorda-limite orient. (Regione di Merg) (*Carthamus lanatus* var. *longifolius*)  
 Bosco Zorda (Regione di Merg) (*Trifolium arvense* var. *cyrenaicum*)  
 Brates see Uadi Gergerumma  
 Buerat (bivio-carovaniera Gheddahia- Bu Ngem) (*Helianthemum tunetanum* var. *crinitum* f. *vestitum*)  
 Bu Gassal (C-?) (*Anthemis tauberti* var. *coronata*, *Carduus tenuiflorus* var. *orientalis*)  
 Bu Gseir see Barce  
 Bulghema (Regione di Bengasi) (*Linum decumbens* var. *parviflorum*)  
 Bu Mariam, (Regione di Bengasi) (*Carthamus lanatus* var. *longifolius*, *Linum decumbens* var. *parviflorum*, *Picris* (*Helminthia*) *mauginiana*)  
 Bu Msafer (Regione di Derna) (*Enarthrocarpus strangulatus* var. *a. cylindricus*, *Hedypnois polymorpha* var. *tubaeformis* f. *elata*)  
 Caf El Berber (fra Tescia e Mizda) (*Anacyclus kruegerianus*)  
 Cafis (*Crepis taraxacifolia* var. *libyca*)  
 Casa Auari (*Erodium hirtum* var. *glabriusculum* f. *intercedens*)  
 Chaulan (*Carduus tenuiflorus* var. *orientalis* f. *simplex*, *Scorzonera undulata* var. *alexandrina* f. *planifolia*)  
 Chaulan, l.d. Gabr Ali (*Allium ampeloprasum* var. *caudatum*, *Malabaila suaveolens* f. *b. cossoniana*)  
 Chersa (*Malabaila suaveolens* f. *delileana*)  
 Cirene (*Herniaria glabra* var. *cyrenaica*, *Malabaila suaveolens* f. *delileana*, *Tolpis virgata* subsp. *apolloniae*)  
 Cirene-Beda (carovaniera) (*Arbutus pavari*)  
 Cirene: Borgù l.d. Melchifaf (*Pachytenium mirabile*)  
 Cussabat (Colline ad est di) (*Rosmarinus officinale* var. *pubescens*)  
 Cussabat (Colline a nord ovest di) (*Astragalus lanigerus* var. *subglabratus* f. *elongatus*, *Teucrium polium* var. *pseudohyssopus* f. *spicatum*)  
 Cussabat, margini dei campi (*Onopordon confusum*)  
 Cussabat sul Ras Gelà (*Hippocrepis cyclocarpa* var. *leiocarpa*, *Hippocrepis cyclocarpa* var. *pubescens*)  
 Cussabat, verso Sliten a Kasr Buharb (*Allium tenuiflorum* var. *pseudotenuiflorum*, *Ephedra altissima* var. *tripolitana*, *Paronychia chlorothyrsa* var. *tarhunensis* f. *intermedia*, *Teucrium polium* var. *tripolitanum*)  
 Dahar El Halfa (*Erodium hirtum* var. *glabriusculum* f. *intercedens*)  
 Derna (*Biscutella didyma* var. *ciliata* f. *macrocarpa*, *Convolvulus oleifolius* var. *angustifolius*, *Erodium hirtum* var. *cyrenaicum*)  
 Derna (primo gradino dell'altipiano) (*Hibiscus geranioides* var. *darnicus*)  
 Derna (primo gradino dell'altipiano e al sommo, scendendo al faro) (*Erodium hirtum* var. *cyrenaicum*, *Hibiscus geranioides* var. *darnicus*)  
 Derna, Uadi Derna (*Carthamus divaricatus*, *Silene fruticosa* subsp. *cyrenaica*)  
 Derna e Mechili (fra), Got Dgigh (*Malabaila suaveolens* f. *cossoniana*)  
 Derna e Mechili (fra), Uadi Hiscia (*Hedypnois globulifera* var. *tubaeformis* f. *gussonei* sf. *depressa*)  
 Driana (fra Bengasi e Tocra) (*Ammoides verticillata* var. *pentamera*, *Anthemis tauberti* var. *coronata*, *Centaurea alexandrina* f. *brevispina*, *Erodium hirtum* var. *glabriusculum* f. *intercedens*, *Hedypnois globulifera* var. *tubaeformis* f. *gussonei* sf. *depressa*, *Notobasis syriaca* var. *inermis*)  
 El Abrach (*Juncus bufonius* var. *laxus* f. *bracteatus*)  
 El Abrach, l. d. Mghernes (*Arbutus pavari*, *Convolvulus arvensis* var. *ciliatus*, *Crepis radicata* var. *erecta*, *Euphorbia bivonae* var. *papillaris* f. *bertolonii* sf. *luxurians*, *Herniaria glabra* var. *cyrenaica*, *Lithospermum hispidulum* var. *cyrenaicum*, *Malabaila suaveolens* f. *cossoniana*,

- Pachyctenium mirabile*)
- El Aueila (Regione di Merg) (*Carthamus lanatus* var. *longifolius*, *Trifolium arvense* var. *cyrenaicum*)
- El Gharib (Regione di Merg) (*Carthamus lanatus* var. *longifolius*)
- El Garib e Tolmeta (fra) (*Quercus coccifera* var. *stenocarpa*)
- El Garib e Tolmeta – Uadi El Fahaga (*Pistacia lentiscus* var. *latifolia* f. *obovata*)
- El Gatres (Regione di Merg) (*Carthamus lanatus* var. *longifolius*, *Hedypnois polymorpha* var. *tubaeformis* f. *elata*, *Rhagadiolus stellatus* var. *pubescens*, *Trifolium arvense* var. *cyrenaicum*)
- El Gefar see Bomba
- El Hania (*Centaurea alexandrina* f. *brevispina*)
- El Hania e Messa, Gabr Scegmin (*Allium ampeloprasum* var. *caudatum*)
- Fachar see Uadi El Kuf
- Feteiah (C-D) (*Convolvulus althaeoides* f. *albiflorus*)
- Fonduc Ben Gascir (*Astragalus lanigerus* var. *subglabratus* f. *elongatus*)
- Fonduc Scebani see Aziza
- Fonduc El Scerif see Uadi Megenin
- Forte Luesci, see Auà Zarda
- Fuehat: (*Allium aschersonianum* f. *ciliatum*, *Astragalus tribuloides* var. *platycarpus*, *Centaurea alexandrina* f. *albiflora*, *Cichorium pumilum* f. *rhizocephalum*, *Crepis radicata* f. *gigantea*, *Diplotaxis erucoides* var. *cyrenaica* f. *intermedia*, *Erodium gruinum* f. *cyrenaicum*, *Erodium hirtum* var. *glabriusculum* f. *intercedens*, *Herniaria glabra* var. *cyrenaica*, *Hippocrepis cyclocarpa* var. *leiocarpa*, *Lathyrus pseudo-cicera*, *Ptychotis ammooides*, *Silene apetala* var. *berenicea*, *Teucrium barbeyanum* var. *purpureum*, *Trifolium scabrum* var. *glabrum*, *Trigonella aschersoniana* f. *parvula*)
- Gabr Ali see Caulan
- Gabr Scegmin (Hania e Messa, fra) (*Allium ampeloprasum* var. *caudatum*, *Quercus coccifera* var. *stenocarpa*)
- Gara El Gafsa (Mechili) (*Erodium chium* var. *deserti*, *Euphorbia parvula* var. *purpurea*, *Salvia lanigera* var. *bicolor*, *Trigonella stellata* var. *micrantha*)
- Gargaresc (*Anthemis indurata* var. *angulata*, *Centaurea dimorpha* var. *major*)
- Garian (in planitiae elatae) (*Alkanna tripolitana*)
- Garib I.d. Schehami see Barce
- Gasr Beni Gdam see Barce
- Gasr Beni Gdam e Sidi Abd El Uahed (fra-Uadi El Kuf) (*Arbutus pavari*, *Biscutella didyma* var. *ciliata* f. *macrocarpa*, *Biscutella didyma* var. *lenticularis*, *Carduus tenuiflorus* var. *orientalis* f. *albiflorus*, *Dorycnium hirsutum* var. *crispum*)
- Gasr El Hag (fra Tripoli e Nalut) (*Carduus pycnocephalus* f. *rhizocephalus*, *Helianthemum tunetanum* var. *crinitum* f. *tripolitanum*)
- Gasr El Maharuga (Regione di Merg) (*Carthamus lanatus* var. *longifolius*, *Picris* (*Helminthia mauginiana*))
- Gasr Es Sahabi (sud di) (*Anthemis kruegeriana*, *Erodium bonacelli*, *Launaea resedifolia* var. *pulchella*, *Spitzelia saharae* var. *cyrenaica*)
- Gasr Gebeira (*Centaurea alexandrina* f. *basiantha*)
- Gasr Zaarura see Messa
- Gebel Abo (*Euphorbia gebelica*)
- Gerdes El Abid (*Anthemis tauberti* var. *coronata*, *Helianthemum virgatum* var. *vesicarium* f. *puberulum*)
- Gerdes El Abid: Uadi El Benia (*Hedypnois globulifera* var. *tubaeformis* f. *gussonei* sf. *depressa*, *Malabaila suaveolens* f. *b cossoniana*)
- Gfonta (or Sfonta), I.d. Ruheina (*Arbutus pavari*, *Carex distachya* var. *pedunculata*, *Convolvulus maireanus*, *Malabaila suaveolens* f. *b cossoniana*)
- Gfonta, I.d. Scendira (*Euphorbia bivonae* var. *melitensis* sf. *major*)

- Ghegab (C-?) (*Malabaila suaveolens* f. *cossoniana*, *Pallenis spinosa* var. *villosa*, *Scorzonera undulata* var. *alexandrina* f. *planifolia*)
- Ghemines e Zuetina (fra) (*Carlinia sicula* var. *libyca*)
- Gherrim (dintorni di) (*Onopordon confusum*)
- Gherrim e Sindara (fra) (*Allium tenuiflorum* var. *pseudotenuiflorum*, *Herniaria hemistemon* var. *glabrescens*, *Hippocrepis bicontorta* var. *glabra*, *Rosmarinus officinale* var. *pubescens*)
- Giado (*Anacyclus alexandrinus* var. *pseudovalentinus*, *Anacyclus kruegerianus*)
- Giarabub, Oasi di, see: Oasi di Giarabub
- Giardina (fra Bengasi e Soluch) (*Crepis taraxacifolia* var. *libyca* f. *glandulosa*, *Hippocrepis cyclocarpa* f. *glabrescens*)
- Giof Bu Ascher (Bir Acheim – Trigh Enver Bei) (*Trigonella stellata* var. *micrantha*)
- Giok Kebir (Lete) (*Herniaria glabra* var. *cyrenaica*, *Satureja conferta* var. *pseudonervosa*)
- Giok Kebir (Giardino Osmanli) (*Cotyledon horizontalis* var. *micranthus*, *Crepis taraxacifolia* var. *libyca*, *Sonchus oleraceus* f. *monocephalus*, *Sonchus oleraceus* var. *triangularis* f. *monocephalus*)
- Giuliana Forte (B) (*Haplophyllum vermiculare* var. *cyrenaicum*)
- Got Breiber see Mechili
- Got Bu Mariam (*Evax mauritanica* var. *cyrenaica*)
- Got Dgigh see fra Derna e Mechili
- Gsur see Tecnis
- Gtafia (a sud di Agedabia) (*Astragalus hamosus* f. *falcatus*, *Hippocrepis bicontorta* f. *intermedia*, *Kalbfussia hispidula* f. *platyphylla*)
- Guarcia (*Biarum bovei* var. *zanonii*)
- Guarscià (*Carthamus lanatus* var. *longifolius*, *Hedypnois polymorpha* var. *tubaeformis* f. *elata*)
- Gubba (*Arbutus pavari*, *Crepis radicata* var. *erecta*, *Hippocrepis cyclocarpa* f. *glabrescens*)
- Gubba e l'Uadi El Atrun (fra) (*Myrtus communis* var. *imbricatus*)
- Gubba, Bir Salem (*Hippocrepis cyclocarpa* f. *glabrescens*)
- Gubba, Uadi Mara-Scercse(a)ra (*Pistacia lentiscus* var. *typica* f. *nervosa*)
- Halg Ben Ruess see Uadi Derna
- Hamama see Sirual
- Hania (*Anthemis tauberti* var. *arenicola*, *Hedypnois globulifera* var. *tubaeformis* f. *gussonei* sf. *depressa*)
- Hauari (Regione di Bengasi) (*Lathyrus pseudo-cicera*)
- Hauari Osman see Selmani e Hauari Osman
- Henni see Oasi di Tripoli
- Hesciat see Agedabia
- Homs (rocce marittime) (*Ononis vaginalis* var. *rotundifolia*)
- Kam El Gaar (pianura di) (*Hippocrepis bicontorta* var. *glabra*)
- Karmu (Regione di Bengasi) (*Lathyrus pseudo-cicera*)
- Kasr Buharb see Cussabat
- Kasr Daun (*Cheilanthes fragrans* var. *paleacea*, *Ctenopsis pectinella* var. *pubescens*, *Ephedra altissima* var. *tripolitana*, *Erodium laciniatum* var. *pseudomalachoides*, *Gagea reticulata* subsp. *eureticulata* f. *latifolia*, *Teucrium lini-vaccari*)
- Kars Doga see Uadi Msaaba
- Kasr Doga (pianura di) (*Astragalus lanigerus* f. *intermedius*)
- Kasr Garian ad Ain Turki (*Hyoseris radiata* var. *puberula*)
- Kasr Garian, nei campi incolti (*Alkanna tinctoria* f. *alba*, *Teucrium polium* var. *pseudohyssopus* f. *luteum*)
- Kasr Garian (nei maggesi) (*Ononis angustissima* var. *garianica*)

- Kasr Garian (margini dei campi) (*Convolvulus lineatus* f. *albus*)
- Kasr Tarhuna (*Hippocrepis bicontorta* var. *glabra*)
- Kasr Tarhuna (colline a est di) (*Allium nigrum* var. *papillosum*, *Ctenopsis pectinella* var. *pubescens*, *Gagea* x *pampaninii*, *Hippocrepis bicontorta* var. *glabra*, *Orlaya maritima* var. *tarhunensis*, *Paronychia chlorothyrsa* var. *tarhunensis*)
- Kom El Gaar (*Astragalus lanigerus* var. *subglabratus* f. *elongatus*)
- Lamluda (*Arbutus pavari*, *Biscutella didyma* var. *ciliata* f. *macrocarpa*, *Lavatera olbia* subsp. *cyrenaica* var. *vestita*, *Malabaila suaveolens* f. *cossoniana*, *Quercus coccifera* var. *stenocarpa*, *Silybum marianum* f. *album*)
- Lepcis Magna (*Ononis vaginalis* var. *rotundifolia* f. *macrophylla*)
- Lete, Bengasi (*Minuartia procumbens* var. *glabrescens*, *Satureja conferta* var. *pseudonervosa*)
- Maatan Borghu (*Enarthrocarpus strangulatus* var. *cylindricus*, *Lonicera persica* var. *occidentalis*, *Teucrium barbeyanum* var. *purpureum*)
- Maaten Giofer (Uadi Faregh a sud di Agheila) (*Echinosperrum spinocarpum* var. *inermis*, *Erodium glaucophyllum* var. *cinerascens* f. *macranthum*, *Erodium glaucophyllum* var. *glabrum* f. *dubium*, *Helianthemum tunetanum* var. *crinitum* f. *syriticum*, *Helianthemum tunetanum* var. *latifolium* f. *orientale*, *Hippocrepis bicontorta* f. *intermedia*, *Trigonella stellata* var. *micrantha*)
- Magrun (*Anthemis rotata* var. *auriculata*, *Euphorbia parvula* var. *purpurea*, *Scorzonera undulata* var. *alexandrina* f. *planifolia*)
- Marada e l'Uadi Faregh (fra), see Oasi di Marada...
- Maraua a est di Barce (*Allium ampeloprasum* var. *caudatum*, *Amberboa crupinoides* var. *libyca* f. *alba*, *Anthemis tauberti* var. *coronata*, *Euphorbia parvula* var. *purpurea*, *Helianthemum virgatum* var. *ciliatum* f. *eciliatum*, *Helianthemum virgatum* var. *vesicarium* f. *puberulum*)
- Marsa Brega (l. d. El Grein) (*Hippocrepis bicontorta* f. *intermedia*)
- Marsa Brega: Sidi Mohamed Scerif (*Anthemis rotata* var. *auriculata*, *Helianthemum virgatum* var. *ciliatum* f. *eciliatum*)
- Marsa Susa (*Cynara sibthorpiana* var. *elata*, *Ornithogalum fimbriatum* subsp. *libycum*)
- Martuba see U. Bgar
- Mechili (*Erodium chium* var. *deserti*, *Helianthemum virgatum* var. *ciliatum* f. *eciliatum*, *Moricandia nitens* var. *longisiliqua*)
- Mechili: Bir Bu Arzagh (*Malabaila suaveolens* f. *cossoniana*)
- Mechili: Got Breiber (*Convolvulus oleifolius* var. *deserti*)
- Mechili, Uadi Tanamlu (C-Me) (*Centaurea contracta* f. *caulescens*)
- Melch En Nogra (fra Agedabia e El Agheila) (*Hippocrepis bicontorta* f. *intermedia*, *Kalbfussia hispidula* f. *platyphylla*, *Matthiola pseudoxyrceras* f. *vestita*)
- Melchifaf (*Biscutella didyma* var. *ciliata* f. *macrocarpa*, *Hedypnois globulifera* var. *tubaeformis* f. *gussonei* sf. *depressa*)
- Melchifaf Borgù see Cirene
- Merg (*Hedypnois polymorpha* var. *tubaeformis* f. *intermedia*)
- Merg, ciglione del II terrazzo (*Anthemis scaettae*)
- Merg (piana di) (*Carlina sicula* var. *libyca*, *Cynara sibthorpiana* var. *mauginiana*)
- Merg (piana a N.W. di) (*Trifolium arvense* var. *cyrenaicum*)
- Merg (piana a s. di) (Regione di Merg) (*Carthamus lanatus* var. *longifolius*, *Trifolium arvense* var. *cyrenaicum*)
- Merg ciglione sett. (piana a ovest) (Regione di Merg) (*Carthamus lanatus* var. *longifolius*, *Echium italicum* var. *scaettae*)
- Merg (fra Merg e Tolmeta) (*Arbutus pavari*)
- Merg (fra Silina e Sidi Bu Zaid) (*Carthamus lanatus* var. *longifolius*)

- Messa, Ain Seilun (*Stachys tournefortii* f. *alba*)
- Messa, Gasr es Zaarura (*Arbutus pavari*, *Carex distachya* var. *pedunculata*, *Malabaila suaveolens* f. *cossoniana*, *Trigonella stellata* var. *micrantha*)
- Messa, I.d. Negret Said (*Allium ampeloprasum* var. *caudatum*, *Hedypnois globulifera* var. *tubaeformis* f. *gussonei* sf. *depressa*)
- Messa, Uadi Tmista, I. d. Umm Rcham (*Herniaria glabra* f. *intermedia*, *Malabaila suaveolens* f. *cossoniana*, *Quercus coccifera* var. *stenocarpa*, *Tunica scoparia* f. *glabra*)
- Messa, Umm Rchamm (*Allium ampeloprasum* var. *caudatum*, *Herniaria glabra* f. *intermedia*, *Trigonella stellata* var. *micrantha*, *Tunica scoparia* f. *glabra*)
- Mghernes see El Abrach
- Migi see Abiar Milgha
- Misurata- Bir Gardabia (*Ptychotis ammoides* var. *pusilla*)
- Mregheb (Hania e Messa, fra) (*Arbutus pavari*, *Phyllirea latifolia* var. *magnifica*, *Quercus coccifera* var. *stenocarpa*)
- Msid di Mesellata (*Astragalus sinaicus* var. *pedunculatus*, *Cheilanthes fragrans* var. *paleacea*, *Ephedra altissima* var. *tripolitana*, *Teucrium lini-vaccari*)
- Msus (*Erodium chium* var. *deserti*, *Scorzonera undulata* var. *alexandrina* f. *planifolia*)
- Nalut e Sinauen (fra) (*Helianthemum tunetanum* var. *acutifolium*)
- Oasi di Gadames (*Maresia doumetiana* var. *cydmica*)
- Oasi di Giarabub (*Juncus acutus* var. *kruegerianus*, *Sonchus oleraceus* var. *lacerus* f. *meridionalis*)
- Oasi di Marada e l'Uadi Faregh (fra l'), a 16 km a sud dell'Uadi Faregh (*Helianthemum tunetanum* var. *crinitum*, *Helianthemum tunetanum* var. *crinitum* f. *syrticum*)
- , a 8 km a sud dell'Uadi Faregh (*Echium subfruticosum* f. *albiflorum*)
- , a 70 km a sud dell'Uadi Faregh (*Astragalus franchii* var. *kruegeri*)
- Oasi di Sebha (*Launaea glomerata* f. *minima*)
- Oasi di Tripoli ad Henni (*Hippocrepis bicontorta* var. *glabra*)
- Porto Bardia (*Capparis sicula* var. *kruegeriana*)
- Primo gradino dell'altopiano (di Derna editor's note) (*Hibiscus geranioides* var. *darnicus*)
- Punta Giuliana e Punta Buscaiba (fra) (*Ifloga spicata* var. *labillardieri*, *Ptychotis ammoides* var. *pusilla*)
- Rahba (also Raaba, Regione di Bengasi) (*Biarum bovei* var. *zانونii*, *Carthamus lanatus* var. *longifolius*, *Crepis taraxacifolia* var. *libyca*, *Erodium hirtum* var. *glabrusculum* f. *intercedens*, *Hernaria glabra* var. *cyrenaica*, *Lathyrus pseudo-cicera*, *Rhagadiolus stellatus* var. *pubescens*)
- Ras Argobinani see Uadi Ksea
- Ras Bu Ganus (*Allium tenuiflorum* var. *pseudotenuiflorum*, *Asteriscus pygmaeus* f. *exilis*, *Carduncellus eriocephalus* f. *pumilus*, *Cladanthus arabicus* f. *pygmaeus*, *Onobrychis caput-galli* var. *tripolitana*, *Rosmarinus officinale* var. *pubescens*)
- Ras Bu Ta(n)uil (*Ephedra altissima* var. *tripolitana*, *Rosmarinus officinale* var. *pubescens*)
- Ras El Hilal see Susa
- Ras Gelà see Cussabat
- Ras Ghenai (*Allium nigrum* var. *papillosum*, *Astragalus lanigerus* var. *subglabratus* f. *elongatus*, *Bupleurum protractum* var. *longifolium*, *Euphorbia bivonae* var. *intercedens*, *Gagea reticulata* subsp. *eureticulata* f. *latifolia*, *Teucrium lini-vaccari*)
- Ras Maader see Uadi Tenzia
- Ras Omcteba (Uadi Garian) (*Cheilanthes fragrans* var. *paleacea*, *Euphorbia bivonae* var. *intercedens*, *Teucrium fruticans* f. *lilacinum*, *Teucrium polium* var. *pseudohyssopus* f. *luteum*, *Teucrium polium* var. *pseudohyssopus* f. *spicatum*)
- Ras Tecut (*Convolvulus althaeoides* var. *angustisectus*, *Crepis radicata* var. *nuda*, *Ephedra altissima* var. *tripolitana*, *Erodium hirtum* f. *rubriflorum*, *Euphorbia bivonae* var. *papillaris* f. *bertolo-*

- nii*, *Onobrychis caput-galli* var. *tripolitana*, *Rosmarinus officinale* var. *pubescens*, *Teucrium fruticans* f. *lilacinum*)
- Ras Tobi (Uadi Guassem) (*Onobrychis caput-galli* var. *tripolitana*, *Teucrium fruticans* f. *lilacinum*)
- Regima (Regione di Bengasi) (*Carthamus lanatus* var. *longifolius*, *Hedypnois polymorpha* var. *tubaeformis* f. *elata*, *Picris (Helminthia) mauginiana*, *Rhagadiolus stellatus* var. *pubescens*, *Teucrium barbeyanum* var. *purpureum*)
- Regima alla ridotta Gebel (Regione di Bengasi) (*Linum decumbens* var. *parviflorum*)
- Regima e Benina (fra) (Regione di Bengasi) (*Carthamus lanatus* var. *longifolius*, *Hedypnois polymorpha* var. *tubaeformis* f. *elata*, *Picris (Helminthia) mauginiana*)
- Rgua see Apollonia
- Ridotta Gebel, see Regima alla
- Ridotta Piemonte (verso l'Halg Bu-Rues)
- Ridotta Sidi Abdalla (Tolmetta, Regione di Merg) (*Hedypnois polymorpha* var. *tubaeformis* f. *elata*)
- Ridotta Tilgher (*Carduncellus eriocephalus* var. *glaucescens*, *Helianthemum virgatum* var. *ciliatum* f. *eciliatum* sf. *glabrum*)
- Ridotta Zorda (Regione di Merg) (*Carthamus lanatus* var. *longifolius*, *Trifolium arvense* var. *cyrenaicum*)
- Ruheina see Gfonta
- Sabratha (steppa) (*Spitzelia coronopifolia* var. *glabra*)
- Saf-Saf (Cirene) (*Herniaria glabra* var. *cyrenaica*, *Herniaria glabra* f. *intermedia*, *Malabaila suaveolens* f. *b cossoniana*)
- Saf-Saf (Uadi Bu Meddas) (*Hedypnois globulifera* var. *tubaeformis* f. *gussonei* sf. *depressa*, *Herniaria glabra* f. *intermedia*, *Malabaila suaveolens* f. *cossoniana*, *Pachyctenium mirabile*)
- Sahabi see Agedabia
- Saniet El Hamar (a s. e. Agedabia) (*Anthemis rotata* var. *auriculata*, *Hippocrepis bicontorta* f. *intermedia*)
- Saunnu (also Saunnu, a nord est di Agedabia) (*Dianthus serrulatus* var. *cyrenaicus*, *Vicia calcarata* var. *heterophylla*)
- Sceilabi (also Sciallabi)(is probably = Sceilabi El Bebas)
- (*Allium aschersonianum* f. *laeve*, *Euphorbia parvula* var. *purpurea*, *Hippocrepis cyclocarpa* f. *glabrescens*, *Tunica compressa* f. *levis*, *Malabaila suaveolens* f. *cossoniana*, *Spitzelia coronopifolia* f. *fontanesii*)
- Sceilabi El Bebas (*Erodium hirtum* var. *glabriusculum* f. *intercedens*, *Euphorbia parvula* var. *purpurea*, *Hedypnois globulifera* var. *tubaeformis* f. *gussonei* sf. *depressa*, *Herniaria glabra* var. *cyrenaica*, *Hippocrepis cyclocarpa* f. *glabrescens*, *Tunica compressa* f. *levis*)
- Schehami see Barce e Garib
- Sceleidima (*Allium aschersonianum* f. *laeve*, *Euphorbia parvula* var. *linearifolia*, *Malabaila suaveolens* f. *cossoniana*, *Scorzonera undulata* var. *alexandrina* f. *planifolia*)
- Scendira see Gfonta
- Sedra (Bir Acheim – Acroma) (*Silene setacea* var. *glabrescens*, *Trigonella stellata* var. *micrantha*)
- Serdeles (5 km to w.) (*Atractilys phazaniae*)
- Selmani e Hauari Osman (fra) (*Lathyrus pseudo-cicera*)
- Selmani e Lete (*Lathyrus pseudo-cicera*)
- Sfeiat (Beda) (*Arbutus pavari*)
- Sidi Ahmed El Cheila (Barce) (*Arbutus pavari*, *Biscutella didyma* var. *lenticularis*, *Hedypnois globulifera* var. *tubaeformis* f. *gussonei* sf. *depressa*)
- Sidi Ahmed El Magrun (*Anthemis rotata* var. *auriculata*, *Euphorbia parvula* var. *purpurea*, *Malabaila suaveolens* f. *cossoniana*, *Scorzonera undulata* var. *alexandrina* f. *planifolia*, *Silene setacea* var. *glabrescens*)
- Sidi Bu Amud see Tobruk e Bardia (fra)
- Sidi Dachil see Tolmetta



- Sidi Frag see Agedabia  
 Sidi Gibrin (Regione di Merg) (*Carthamus lanatus* var. *longifolius*)  
 Sidi Mohamed Scerif see Marsa Brega  
 Sidi Omar (l. d. Hagfet El Behi) (*Malva aegyptia* subsp. *iljinii*, *Trigonella stellata* var. *micrantha*)  
 Sidi Resegh (Trigh Enver Bei) (*Euphorbia parvula* var. *linearifolia* f. *elata*, *Euphorbia parvula* f. *major*, *Silene setacea* var. *glabrescens*, *Trigonella stellata* var. *micrantha*)  
 Sinauen (*Anacyclus kruegerianus*)  
 Siret Bettamer (near El Gubba) (*Biscutella didyma* var. *ciliata* f. *macrocarpa*)  
 Siret Karmu (*Herniaria glabra* var. *cyrenaica*)  
 Sirual, l.d. Hamama (*Scorzonera undulata* var. *alexandrina* f. *planifolia*)  
 Slilia (Kasr Garian) (*Onopordon confusum*, *Scabiosa oberti-manetti*)  
 Sliten see Cussabat  
 Slonta (*Hedypnois globulifera* var. *tubaeformis* f. *gussonei* sf. *depressa*, *Helianthemum virgatum* var. *vesicarium* f. *puberulum*, *Malabaila suaveolens* f. *cossoniana*, *Pachytenium mirabile*, *Pallenis spinosa* var. *villosa*, *Sedum laconicum*, *Sedum laconicum* f. *elongatum*)  
 Sommità dell'altopiano (di Derna, editor's note) (*Hibiscus geranioides* var. *darnicus*)  
 Suani Beni Adem (nella steppa - 2° campione) (*Anacyclus alexandrinus* f. *capillifolius*)  
 Suani Osman (*Erodium hirtum* var. *glabriusculum* f. *intercedens*)  
 Suani Osman, presso il lago Bedafam (*Crepis taraxacifolia* var. *libyca*)  
 Susa e Ras El Hilal (fra) (*Matthiola incana* subsp. *cyrenaica*)  
 Susa e Ras El Hilal (Sbocco a mare di un Uadi fra) (*Matthiola incana* subsp. *cyrenaica*)  
 Tasili del Nord (*Atractilys phazaniae*)  
 Tebedut see Uadi El Arbaa  
 Tecasis (*Herniaria glabra* var. *cyrenaica*)  
 Tecnis (*Nepeta ucranica* f. *pallida*)  
 Tecnis, l.d. El Gsur (*Anthemis tauberti* var. *coronata*, *Centaurea alexandrina* f. *brevispina*, *Crepis radicata* var. *erecta*, *Nepeta ucranica* f. *pallida*)  
 Tecnis e Maraua (fra) (*Pistacia lentiscus* var. *latifolia* f. *obovata*)  
 Temenhint (margine Hatia-Sebha) (*Atriplex halimus* f. *pulverulenta*)  
 Tobruk (*Allium aschersonianum* f. *laeve*, *Anthemis pichii*, *Carlina sicula* var. *libyca*, *Erodium hirtum* var. *glabriusculum* f. *intercedens*, *Ifloga spicata* var. *labillardieri*, *Lathyrus pseudo-cicera*, *Ononis vaginalis* var. *vivianii*, *Silene marmarica*, *Romulea ligustica* subsp. *vaccarii*)  
 Tobruk e Bardia: l.d. Sidi Bu Amud (fra) (*Iris sisyrrinchium* var. *marmarica*, *Launaea resedifolia* var. *marmarica*)  
 Tocra (*Arbutus pavari*)  
 Tocra e Tolmeta (fra) (*Centaurea alexandrina* f. *brevispina*)  
 Tolmeta (*Centaurea alexandrina* var. *serratifolia*)  
 Tolmeta (l.d. Sidi Dachil) (*Allium ampeloprasum* var. *caudatum*, *Arbutus pavari*)  
 Traghen (El Hofra) (*Cyperus laevigatus* var. *pulvinatus*)  
 Trigh Enver Bei (*Euphorbia parvula* f. *elata*, *Trigonella stellata* var. *micrantha*)  
 Tripoli e Gargaresc (fra) (*Anthemis indurata* var. *angulata*, *Ononis angustissima* var. *tripolitana*)  
 Tripoli (Suk El Giuma) (*Silene apetala* var. *villosa*)  
 Tripoli (Tombe dei Caramanli) (*Chrysanthemum trifurcatum* var. *microcephalum*)  
 Uadi Bakur (Tocra) (*Arbutus pavari*, *Malabaila suaveolens* f. *cossoniana*, *Pistacia lentiscus* var. *latifolia* f. *obovata*)  
 Uadi Benia see Gerdes El Abid  
 Uadi Bent (*Erodium hirtum* var. *cyrenaicum*)  
 Uadi Beregd (*Helianthemum virgatum* var. *vesicarium* f. *puberulum*, *Malabaila suaveolens* f. *cossoniana*, *Pachytenium mirabile*, *Rhagadiolus stellatus* var. *pubescens*, *Stachys tournefortii* f. *alba*)

- Uadi Beregd see Beda  
 Uadi Bgar see Martuba  
 Uadi Bgar (Martuba) (*Amberboa crupinoides* var. *libyca* f. *alba*, *Biscutella didyma* var. *ciliata* f. *macrocarpa*, *Euphorbia parvula* var. *purpurea*, *Malabaila suaveolens* f. *delileana*)  
 Uadi Bu Meddas see Saf-Saf  
 Uadi Bu Meddas (Cirene) (*Malabaila suaveolens* f. *cossoniana*, *Malabaila suaveolens* f. *delileana*)  
 Uadi Bu Msceifa (*Centaurea alexandrina* f. *brevispina*, *Convolvulus maireanus*, *Malabaila suaveolens* f. *cossoniana*, *Satureja conferta* var. *pseudonervosa*)  
 Uadi Bu Msceifa (*Centaurea alexandrina* f. *brevispina*, *Convolvulus maireanus*, *Malabaila suaveolens* f. *cossoniana*, *Satureja conferta* var. *pseudonervosa*)  
 Uadi Bu Nabeh (Cirene) (*Arbutus pavari*, *Lithospermum hispidulum* var. *cyrenaicum*, *Notobasis syriaca* var. *inermis*)  
 Uadi Bu Nabeh (Cirene) (*Convolvulus maireanus*, *Notobasis syriaca* var. *inermis*, *Quercus coccifera* var. *stenocarpa*)  
 Uadi Buten (*Malabaila suaveolens* f. *cossoniana*)  
 Uadi Buten (*Malabaila suaveolens* f. *delileana*)  
 Uadi Chersa (Derna nei boschetti della macchia) (*Lonicera persica* var. *occidentalis*)  
 Uadi Derna see Derna  
 Uadi Derna-sul Halg Ben-Rues (*Allium longanum*, *Teucrium polium* var. *pseudohyssopus* f. *luteum*),  
 Uadi El Arbaa a Ain Marisc (*Ononis angustissima* var. *garianica*)  
 Uadi El Arbaa, presso Tebedut (*Alkanna tinctoria* f. *alba*, *Allium tenuiflorum* var. *pseudotenuiflorum*, *Onobrychis caput-galli* var. *tripolitana*, *Ononis angustissima* var. *garianica*, *Scabiosa oberti-manetti*, *Teucrium fruticans* f. *lilacinum*, *Teucrium polium* var. *pseudohyssopus* f. *luteum*)  
 Uadi El Atrum (*Arbutus pavari*, *Astragalus caprinus* var. *glaber* f. *intermedius*, *Lavatera olbia* subsp. *cyrenaica*, *Lithospermum hispidulum* var. *cyrenaicum*, *Malabaila suaveolens* f. *delileana*, *Pistacia lentiscus* var. *latifolia* f. *obovata*)  
 Uadi El Fahaga (tra El Garib e Tolmeta) (*Arbutus pavari*, *Lavatera olbia* L. subsp. *cyrenaica* var. *vestita*)  
 Uadi El Kuf (*Biscutella didyma* var. *ciliata* f. *macrocarpa*, *Biscutella didyma* var. *lenticularis*, *Carduus tenuiflorus* var. *orientalis* f. *albiflorus*, *Dorycnium hirsutum* var. *crispum*, *Lonicera persica* var. *occidentalis*, *Petrorhagia rupestris*, *Quercus coccifera* var. *stenocarpa*, *Trifolium arvense* var. *cyrenaicum*)  
 Uadi El Kuf l.d. Bu Breica (*Arbutus pavari*, *Biscutella didyma* var. *lenticularis*, *Quercus coccifera* var. *stenocarpa*, *Sedum laconicum* f. *elongatum*)  
 Uadi El Kuf l.d. Fachar (*Erodium laciniatum* var. *pilosum*, *Pistacia lentiscus* var. *latifolia* f. *obovata*, *Malabaila suaveolens* f. *cossoniana*, *Vicia calcarata* var. *heterophylla*)  
 Uadi Faregh e Maatan Risam (fra l') (*Anthemis kruegeriana*, *Erodium bonacellii*, *Erodium glaucophyllum* var. *syriticum*, *Launaea resedifolia* var. *pulchella*, *Spitzelia saharae* var. *cyrenaica*)  
 Uadi Farzuga (*Lavatera olbia* subsp. *cyrenaica*)  
 Uadi Gaal (*Arbutus pavari*)  
 Uadi Gadames (*Senecio coronopifolius* var. *subdentatus* f. *cydmicus*)  
 Uadi Garian (*Alkanna tinctoria* f. *alba*, *Allium tenuiflorum* var. *pseudotenuiflorum*, *Onobrychis caput-galli* var. *tripolitana*, *Ononis angustissima* var. *garianica*, *Scabiosa oberti-manetti*, *Teucrium fruticans* f. *lilacinum*)  
 Uadi Garian, ad Ain Binga (*Bupleurum protractum* var. *heterophyllum* f. *simplex*)  
 Uadi Gattara (Barce) (*Amaracus pampaninii*)  
 Uadi Gergerumma, l.d. Brates (*Allium ampeloprasum* var. *caudatum*)  
 Uadi Geruillat (Beda) (*Hedypnois globulifera* var. *tubaeformis* f. *gussonei* sf. *depressa*, *Quercus coccifera* var. *stenocarpa*, *Rhagadiolus stellatus* var. *pubescens*)  
 Uadi Giarabba (Derna) (*Origanum cyrenaicum*)  
 Uadi Gherrim (*Rosmarinus officinale* var. *pubescens*, *Teucrium polium* var. *tripolitanum*)

- Uadi Guassem ad Ain Binga (T-G) (*Bupleurum protractum* var. *heterophyllum* f. *simplex*, *Teucrium fruticans* f. *lilacinum*)
- Uadi Hasi El Hamar (Bomba) (*Onobrychis armata*)
- Uadi Hiscia see fra Derna e Mechili
- Uadi Hofra (*Allium ampeloprasum* var. *caudatum*, *Centaurea alexandrina* f. *brevispina*)
- Uadi Ingar (Regione di Bengasi) (*Hedypnois polymorpha* var. *tubaeformis* f. *elata*, *Linum decumbens* var. *parviflorum*)
- Uadi Iseien (*Atractilys phazaniae*)
- Uadi Ksea (pianura dell') (*Centaurea alexandrina* f. *albiflora*, *Centaurea dimorpha* f. *albiflora*)
- Uadi Ksea, sul Ras Argobinani (*Allium tenuiflorum* var. *pseudotenuiflorum*, *Erodium laciniatum* var. *bovei* f. *bracteatum*, *Euphorbia bivonae* var. *papillaris* f. *bertolonii*, *Teucrium lini-vaccari*)
- Uadi Laidiebi (S(G)fonta) (*Convolvulus maireanus*, *Quercus coccifera* var. *stenocarpa*)
- Uadi Megenin, nella steppa al Fonduc El Scerif (*Astragalus lanigerus* var. *subglabratus* f. *elongatus*, *Iris sisyrinchium* var. *major*)
- Uadi Messaf-Saf see Beda
- Uadi Milgah (*Gagea x pampaninii*)
- Uadi Mrah (testata del) (*Erodium nervosum*, *Malva aegyptia* subsp. *iljinii*)
- Uadi Msaaba (*Astragalus lanigerus* var. *subglabratus* f. *elongatus*, *Bupleurum protractum* var. *heterophyllum* f. *simplex*, *Ephedra altissima* var. *tripolitana*, *Euphorbia bivonae* var. *intercedens*, *Gagea reticulata* subsp. *eureticolata* f. *latifolia*, *Hippocrepis bicontorta* var. *glabra*, *Rosmarinus officinale* var. *pubescens*)
- Uadi Msaaba, a Kars Doga (*Anacyclus alexandrinus* f. *capillifolius*)
- Uadi Msuria (*Arbutus pavari*, *Cirsium chamaepeuce* var. *gnaphalioides* f. *albiflorum*, *Convolvulus maireanus*, *Malabaila suaveolens* f. *cossoniana*, *Quercus coccifera* var. *stenocarpa*, *Sedum mirum*)
- Uadi Naga (*Malabaila suaveolens* f. *delileana*, *Quercus coccifera* var. *stenocarpa*)
- Uadi Ramla (Mechili) (*Carduus tenuiflorus* var. *orientalis* f. *simplex*, *Crepis radicata* var. *erecta*, *Erodium chium* var. *deserti*, *Hedypnois globulifera* var. *tubaeformis* f. *gussonei* sf. *depressa*, *Kalbfussia hispidula* f. *platyphylla*, *Trigonella stellata* var. *micrantha*)
- Uadi Sahal, fra Tobruk e Bardia (*Allium aschersonianum* f. *laeve*, *Astragalus hamosus* f. *falcatus*, *Lathyrus cicera* var. *tenuifolius* f. *macrocarpus*)
- Uadi Sart (*Ephedra altissima* var. *tripolitana*, *Teucrium polium* var. *tripolitanum* f. *comosum*)
- Uadi Scechaba (presso Apollonia) (*Biscutella didyma* var. *ciliata* f. *macrocarpa*, *Lithospermum hispidulum* var. *cyrenaicum*, *Quercus coccifera* var. *stenocarpa*)
- Uadi Scisu (*Arbutus pavari*, *Carex distachya* var. *pedunculata*, *Euphorbia bivonae* var. *papillaris* f. *genuina* sf. *pinguis*, *Quercus coccifera* var. *stenocarpa*, *Tunica scoparia*)
- Uadi Seil El Got (Regione di Merg) (*Carthamus lanatus* var. *longifolius*)
- Uadi Suenia see Umm er Rzem
- Uadi Tanamlu see Mechili
- Uadi Tenzia (nei luoghi sassosi) (*Hippocrepis bicontorta* var. *glabra*)
- Uadi Tenzia (nelle messi) (*Bupleurum protractum* var. *longifolium*)
- Uadi Tenzia, sul Ras Maader (*Chrysanthemum fuscum* var. *tripolitanum*, *Hippocrepis bicontorta* var. *glabra*, *Hippocrepis cyclocarpa* var. *glabra*, *Hippocrepis cyclocarpa* var. *leiocarpa*)
- Uadi Tmista (Messa) (*Arbutus pavari*, *Convolvulus maireanus*, *Hippocrepis cyclocarpa* f. *glabrescens*, *Quercus coccifera* var. *stenocarpa*, *Tunica scoparia* f. *glabra*)
- Uadi Uardama (*Arbutus pavari*, *Ballota andreuziana*, *Carlina sicula* var. *libyca*, *Lavatera olbia* subsp. *cyrenaica* var. *vestita*, *Quercus coccifera* var. *stenocarpa*, *Sedum laconicum* f. *elongatum*, *Tunica thessala* var. *cyrenaica* f. *pubescens*)
- Uadi Umm El Anain (Regione di Merg) (*Lavatera olbia* subsp. *cyrenaica*)
- Uadi Zafrania (*Bupleurum protractum* var. *heterophyllum* f. *simplex*)

Uadi Zenedi (*Satureja thymbra* var. *calvescens*)  
 Uadi Ziuana (Tolmeta) (*Arbutus pavari*)  
 Umm El Fahar (Uadi El Kuf) (*Arbutus pavari*)  
 Umm er Rzem (Barce) (*Allium aschersonianum* f. *laeve*, *Malabaila suaveolens* f. *cossoniana*,  
*Onobrychis armata*)  
 Umm er Rzem (Uadi Esc Suenia) (*Erodium laciniatum* var. *pilosum*, *Malabaila suaveolens* f. *cosso-*  
*niana*, *Pallenis spinosa* f. *rhizocephala*)  
 Umm Rcham see Messa  
 Zavia Mechili (*Astragalus armatus* var. *libycus*)  
 Zavia Ter (*Rhagadiolus stellatus* var. *pubescens*)  
 Zorda (presso-Barce) (*Satureja fortii*)  
 Zuaga (steppe a s. e. di Sabratha) (*Silene apetala* var. *villosa*)  
 Zuetina (*Helianthemum virgatum* var. *ciliatum* f. *eciliatum*)  
 Zuetina see Agedabia  
 Zuetina see Ghemines

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P. Cuccuini & C. Nepi: Coordinators, Museology and the other taxa  
 M. N. Abuhadra: *Caryophyllaceae*, *Crassulaceae*, *Myrtaceae*  
 L. Cecchi: *Boraginaceae*  
 H. Freitag & M. Maier Stolte: *Ephedraceae*  
 E. Luccioli: graphic  
 R. Marcucci: A. Marcello and S. Zenari collections (with P. Cuccuini)  
 L. Peruzzi: *Liliaceae*  
 L. Pignotti: *Cyperus*, *Juncaceae*  
 A. Stinca: *Evax* (with P. Cuccuini)  
 B. Wallnöfer: *Carex*  
 J. Wood: *Convolvulaceae*

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