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**FLORA OF A VALLEY IN THE PENDAKOMO AREA**

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(Accepted October 1992)

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### SUMMARY

A study of the flora in a valley in the Pendakomo area of Cyprus was carried out from June, 1989 to September, 1990. The aim was to record the plant species of the area, to identify any rarities and to enrich the ARI Herbarium. Although the valley has been disturbed by human activities, a total of 161 different species, belonging to 39 families, were recorded. Fourteen species are endemics of Cyprus. Plant specimens collected from the area were properly mounted, identified and kept in the ARI Herbarium. Twenty species had not been recorded previously in Botanical Division 3, of the Flora of Cyprus, in which Pendakomo area was included. The variation present in the genus *Carlina* needs further study.

### ΠΕΡΙΛΗΨΗ

Σε μία κοιλάδα στην περιοχή Πεντακώμου μελετήθηκε η χλωρίδα μεταξύ Ιουνίου, 1989 και Σεπτεμβρίου, 1990. Σκοπός της μελέτης ήταν να καταγραφούν όλα τα είδη στην περιοχή, να διαπιστωθεί αν υπήρχαν μεταξύ τους σπάνια φυτά και να εμπλουτιστεί το Βοτανολόγιο του Ινστιτούτου Γεωργικών Ερευνών. Παρ' όλον ότι η κοιλάδα διαταράχθηκε από ανθρώπινη επέμβαση, έχουν καταγραφεί στην περιοχή 161 διαφορετικά είδη από 39 οικογένειες. Δεκατέσσερα είδη είναι ενδημικά της Κύπρου. Δείγματα φυτών από την περιοχή, έχουν αποξηρανθεί, τοποθετηθεί σε ειδικά χαρτόνια, προσδιορίζεται και φυλαχθεί στο Βοτανολόγιο του ΙΓΕ. Είκοσι είδη δεν είχαν καταγραφεί προηγουμένως στη Βοτανική Διάρθρωση 3, της Χλωρίδας της Κύπρου, στην οποία υπάγεται και η περιοχή Πεντακώμου. Η ποικιλομορφία στο γένος *Carlina* χρειάζεται περαιτέρω μελέτη.

### INTRODUCTION

At the Agricultural Research Institute, Cyprus, a Herbarium was established in 1966, aiming at collecting and identifying the native plants of Cyprus. For the enrichment of the ARI Herbarium many collecting expeditions have, so far, been organized in different areas of the island. Plants also are collected from different areas of Cyprus in order to study their distribution. Duplicates of the ARI specimens are being sent to the

Herbarium, Royal Botanic Gardens, Kew.

The most complete study on the Cyprus flora was published by R.D. Meikle (1977; 1985) of the Herbarium, Royal Botanic Gardens, Kew. The study was supported by the Cyprus Government. In the Flora of Cyprus, about 2,150 plants were described, out of which more than 1700 are indigenous. Of those, 130 plants are endemics, i.e. they can only be found in Cyprus as indigenous.

For the purpose of illustrating the internal distribution of each species, Cyprus was

botanically divided by Meikle in eight divisions (Figure 1). For each division, information included the locality, the date of collection, the collector and the collector's or respective Herbarium number. Many specimens of the ARI Herbarium sent to Kew were cited. Some of them were first records, while the others contributed to the study of the distribution of species within Cyprus. During the recent collecting missions, species were found in areas different than the recorded ones. Some species are also new records for Cyprus.

The motive for the present study originated from the request of the Environmental Resources Limited (ERL), London, for consultation on the existence of any rarities in a valley in the Pendakomo area. ERL undertook the Environmental study for the Electricity Authority of Cyprus.

Pendakomo area is botanically included in division 3. However, the flora of this particular area was not studied before. Therefore, in the interest of conservation and protection of the rarities of Cyprus, the interest of the study of the distribution of plant species and the enrichment of the ARI Herbarium with specimens from the area, the study of the flora in the Pendakomo area was considered as a priority.

## MATERIALS AND METHODS

The area under study was identified by Joanna Cochrane, ERL consultant, in June, 1989. Thirteen more visits have since been undertaken by ARI staff to the area on the following dates: 11/7/1989, 11/8/1989, 29/8/1989, 11/10/1989, 15/11/1989, 21/12/1989, 25/1/1990, 28/2/1990, 28/3/1990, 25/4/1990, 23/5/1990, 23/6/1990 and 13/9/1990.

The area was surveyed and plant species were recorded. Plant specimens (mainly in flowering) were collected from the area, dried, mounted, documented and identified to be kept at the ARI Herbarium. For the identification of the unknown plants the named reference collection of the ARI Herbarium was used in consultation with the Flora of Cyprus by R.D. Meikle (1977; 1985) as well as Post (1932), Polunin and Huxley (1965), Tackholm (1974) and Plitmann et al. (1983).

## RESULTS AND DISCUSSION

A total of 161 species belonging to 39 families, were recorded (Appendix Table 1). Plants are presented in alphabetical order of families and genus within families. The scientific name is followed by the ARI number and the date of collection of the Herbari-



Figure 1. Botanical Divisions of Cyprus (Meikle 1977); 0: indicates the area under study.

um specimens or the date when the plant was recorded. Plant species marked by an asterisk (\*) are endemics.

The valley has evidently been disturbed by human activities. Grazing was obvious during the dry period from June to December, 1989. Old carob and olive trees were scattered around the area. A number of clear patches appeared to be the most disturbed ones. These were covered by grasses mainly *Aegilops* spp., *Hordeum* spp., *Bromus* spp., *Stipa capensis*, *Oryzopsis miliacea* etc., as a result of the rainfall during the winter months. Among the grasses, thistles and annual legumes were also found.

In some areas, not completely disturbed, some subshrubs remain, such as *Sarcopoterium spinosum*, *Teucrium micropodioides*, *Thymus capitatus*, *Micromeria nervosa*, *Teucrium divaricatum* ssp. *canescens* and *Teucrium creticum*. This plant society is a characteristic vegetation in areas of extensive grazing.

In the less disturbed areas, in addition to the above vegetation, higher bushes occur, such as *Cistus* spp., *Genista sphacelata*, *Lithodora hispidula*, *Onosma fruticosum*, *Calycotome villosa*, *Thymelaea tartonraira*, *Pistacia lentiscus* and others, as well as climbing annual or perennial plants. Pines are also present, mainly on the slopes. A number of orchids were also recorded.

In a ravine, which commences from about the middle of the valley and is cut by a concrete wall at the point where the area under study ends, a few *Pyrus syriaca* trees were seen along with *Styrax officinalis*, *Pistacia lentiscus*, *Rubus sanctus* and *Lavatera bryoniifolia*.

The plant association in the area under study is common in the adjacent Pendakomo limestone hillsides as well as in the neighbouring Kalavassos, Asgata, Lefkara and other areas. Almost all the plants recorded are common plants found also in other areas of Cyprus.

None of the above species had been previously collected from Pendakomo area. Most of the plants were, however, recorded in other areas of Division 3, while 20 plants, namely *Arizarum vulgare*, *Noaea mucronata*, *Carthamus dentatus* ssp. *ruber*, *Echinops spinosissimus*, *Onopordum cyprium*, *Scorzonera jacquiniana*, *Mercurialis annua*, *Ae-*

*gilops geniculara* x *Ae. peregrina*, *Aegilops peregrina*, *Hordeum glaucum*, *Hordeum spontaneum*, *Medicago truncatula*, *Ononis mitissima*, *Allium ampeloprasum*, *Orchis collina*, *Anagallis arvensis* var. *caerulea*, *Ranunculus asiaticus* var. *sanguineus*, *Crataegus azarolus*, *Pyrus syriaca* and *Opopanax hispidus* were not recorded in Division 3. Although this is interesting from the distribution point of view, nevertheless it does not suggest that the above plants are rare plants in Division 3, as most of them were collected or observed by ARI staff in the neighbouring areas. Most of them are common plants in other Divisions.

The variation present in the genus *Carlina* L. is quite interesting. All three species of the genus, namely *C. involucrata* Poir. ssp. *cyprica* Meusel et Kastner, *C. pygmaea* (Post) Holmboe and *C. lanata* L. which were recorded by Meikle (1985), to occur in Cyprus, were collected in the area. The first two species, namely *C. involucrata* ssp. *cyprica* and *C. pygmaea* are endemics. Moreover, offtypes of the known *Carlina* spp. were collected in the valley and subsequently identified as *Carlina* cf. *pygmaea* or *Carlina* sp. (Appendix Table 1, Compositae).

Among the specimens identified as *Carlina pygmaea* (Post) Holmboe or *Carlina* sp. were plants with yellow innermost phyllaries or yellow with a touch of pink or purple or with a mixture of pink and yellow or partly pink and partly yellow. Such variation in *Carlina pygmaea* was not recorded by Meikle. However, offtypes of the recorded endemic *Carlina* spp. were collected in the neighbouring Kalavassos-Asgata, Mari and Khirokitia - Vavla areas (Della, ARI 3292, ARI 3293, ARI 3294c, 1989; ARI 3655, 1990; ARI 3838, ARI 3860, ARI 3862, ARI 3863, ARI 3867, ARI 3868, ARI 3869, ARI 3870, 1991).

Specimens (Merton 2812, 2812a) collected near Ephtagonia and thought to be hybrids between *Carlina involucrata* Poir, ssp. *cyprica* Meusel et Kastner and *C. pygmaea* (Post) Holmboe, appear to be a mixture of these two species and specimen 2812 was re-determined as *C. pygmaea* by Meusel & Kastner. According to Meikle (1985) specimens (from Kythrea) cited as the same hybrid by Burt & Davis (Kew Bull. 1949: 104) have been referred to *C. involucrata* Poir.

ssp. *cyprica* by Meusel & Kastner.

The genus *Carlina* L. needs further investigation and in cases where duplicates were available, they were sent to the Herbarium, Royal Botanic Gardens Kew, U.K. It is believed that the variation in hand will shed more light on the genus.

The Pendakomo valley is not a unique biotype. However, it accommodates at least 161 different species, 14 of which are endemics. It is also possible that two of the endemics, i.e. *Carlina involucrata* Poir. ssp. *cyprica* Meusel et Kastner and *Carlina pygmaea* (Post) Holmboe, have been crossed with each other producing the variation recorded as *Carlina* cf. *pygmaea* or *Carlina* sp.

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#### REFERENCES

- Meikle, R.D. 1977. *Flora of Cyprus*. Benthan-Moxon Trust, Royal Botanic Gardens, Kew. Volume I. 832p.
- Meikle, R.D. 1985. *Flora of Cyprus*. Benthan-Moxon Trust, Royal Botanic Gardens, Volume II:833-1969.
- Plitmann, U., C. Heyn, A. Danin, and A. Shmida, 1983. *Pictorial Flora of Israel*. Massada, Ltd., Israel. 338p.
- Polunin, O., and A. Huxley. 1965. *Flowers of the Mediterranean*. Chatto and Windus, London. 257p.
- Post, E.G. 1932. *Flora of Syria, Palestine and Sinai*. American Press, Beirut. Volumes I, II. 928p.
- Tackholm, V. 1974. *Students' Flora of Egypt*. Cooperative Printing Company, Beirut. 888p.

**Appendix Table 1.** Plants recorded in the Pendakomo valley with ARI number and date of collection.

**ANACARDIACEAE**

*Pistacia lentiscus* L., (ARI 3253, 11/7/1989).

**APOCYNACEAE**

*Nerium oleander* L., (ARI 3633, 23/6/1990).

**ARACEAE**

*Arisarum vulgare* Targ. - Tozz., (ARI 3359a, 25/1/1990), (ARI 3359b, 28/3/1990).

*Arum dioscoridis* Sm., (ARI 3425, 28/3/1990), (ARI 3636, 23/6/1990).

**BORAGINACEAE**

*Anchusa aegyptiaca* (L.) DC., (ARI 3370, 28/2/1990).

*Echium angustifolium* Mill., (ARI 3543, 23/5/1990).

*Lithodora hispidula* (Sm.) Griseb. ssp. *versicolor* Meikle, (ARI 3363, 28/2/1990).

\* *Onosma fruticosum* Sm., (ARI 3378, 28/2/1990), (ARI 3442, 28/3/1990).

**CHENOPODIACEAE**

*Noaea mucronata* (Forssk.) Aschers. et Schweinf., (ARI 3281a, 11/8/1989), (ARI 3281b, 15/11/1989).

**CISTACEAE**

*Cistus creticus* L. var. *creticus*, (ARI 3453, 28/3/1990).

*Cistus parviflorus* Lam., (ARI 3463, 28/3/1990).

\* *Helianthemum obtusifolium* Dunal, (ARI 3362a, 28/2/1990), (ARI 3362b, 28/3/1990).

*Helianthemum salicifolium* (L.) Mill., (ARI 3395a, 28/2/1990), (ARI 3395b, 28/3/1990).

**COMPOSITAE**

*Anthemis palaestina* (Reuter ex Kotschy) Boiss., (ARI 3444, 28/3/1990).

\* *Anthemis tricolor* Boiss., (ARI 3445, 28/3/1990).

*Atractylis cancellata* L., (ARI 3262, 11/7/1989), (ARI 3530, 23/5/1990).

*Calendula arvensis* L., (ARI 3385, 28/2/1990).

*Carduus argentatus* L. ssp. *acicularis* (Bert.) Meikle, (ARI 3424, 28/3/1990).

\* *Carlina involucrata* Poir. ssp. *cyprica* Meusel et Kastner, (ARI 3277, 11/8/1989), (ARI 3288, 29/8/1989), (ARI 3637, ARI 3638, 23/6/1990), (ARI 3642, ARI 3644a, ARI 3646, ARI 3647, ARI 3649, ARI 3659, ARI 3660, ARI 3662, 13/9/1990).

\* *Carlina pygmaea* (Post) Holmboe, (ARI 3287, 11/8/1989), (ARI 3289a, ARI 3291, 29/8/1989), (ARI 3643, ARI 3648, ARI 3653, ARI 3656a, ARI 3657a, 13/9/1990).

\* *Carlina* cf. *pygmaea* (Post) Holmboe, (ARI 3290, 29/8/1989), (ARI 3651, ARI 3654, ARI 3656b, ARI 3656c, ARI 3657b, 13/9/1990).

\* *Carlina* sp., (ARI 3259, 11/7/1989), (ARI 3289, 29/8/1989), (ARI 3644b, ARI 3652, ARI 3658, 13/9/1990).

*Carlina lanata* L., (ARI 3258, 11/7/1989), (ARI 3626, ARI 3627, ARI 3628, 23/6/1990), (ARI 3650, 13/9/1990).

*Carthamus dentatus* Vahl ssp. *ruber* (Link) Hanelt, (ARI 3260, 11/7/1989).

*Carthamus lanatus* L. ssp. *boeticus* (Boiss. et Reut.) Nyman, (ARI 3553, 23/5/1990).

*Centaurea hyalolepis* Boiss., (ARI 3488, 25/4/1990).

*Crupina crupinastrum* (Moris) Vis., (ARI 3421, 28/3/1990).

*Echinops spinosissimus* Turra, (ARI 3278, 11/8/1989).

*Geropogon hybridus* (L.) Sch. Bip., (ARI 3426, 28/3/1990).

*Hedypnois rhagadioloides* (L.) F.W. Schmidt, (ARI 3439, 28/3/1990).

*Helichrysum conglobatum* (Viv.) Steudel, (ARI 3374, 28/2/1990).

*Hypochaeris achyrophorus* L., (ARI 3420, 28/3/1990).

*Inula viscosa* (L.) Ait., (ARI 3342, 11/10/1989).

*Leontodon tuberosus* L., (ARI 3376, 28/2/1990).

*Notobasis syriaca* (L.) Cass., (ARI 3451, 28/3/1990).

\* *Onopordum cyprium* Eig, (ARI 3481, 25/4/1990).

*Pallenis spinosa* (L.) Cass., (ARI 3440, 28/3/1990), (ARI 3548, 23/5/1990).

*Phagnalon rupestre* (L.) DC. ssp. *graecum* (Boiss., et Heldr.) Hayek, (ARI 3265, 11/7/1989), (ARI 3380, 28/2/1990), (ARI 3490, 25/4/1990).

\* *Ptilostemon chamaepeuce* (L.) Less. var. *cyprius* Greuter, (ARI 3257, 11/7/1989), (ARI 3539, ARI 3540, 23/5/1990).

*Rhagadiolus stellatus* (L.) Gaertner, (ARI 3372, 28/2/1990).

*Scorzonera jacquiniana* (Koch) Celak. var. *subintegra* Boiss., (ARI 3387, 28/2/1990).

*Urospermum picroides* (L.) F.W. Schmidt, (ARI 3450, 28/3/1990).

#### CONVOLVULACEAE

- Convolvulus althaeoides* L., (ARI 3455, 28/3/1990).  
*Convolvulus arvensis* L. var. *arvensis*, (ARI 3489, 25/4/1990).  
*Cuscuta palaestina* Boiss., (ARI 3541, 23/5/1990).

#### CRUCIFERAE

- Erucaria hispanica* (L.) Druce, (ARI 3365, 28/2/1990), (ARI 3554, 23/5/1990).  
*Rapistrum rugosum* (L.) All., (ARI 3448, 28/3/1990).  
*Sinapis alba* L., (ARI 3377, 28/2/1990).

#### CUPRESSACEAE

- Juniperus phoenicea* L., (ARI 3275, 11/8/1989).

#### CYPERACEAE

- Scirpoides holoschoenus* (L.) Sojak, (ARI 3251, 11/7/1989).

#### EUPHORBIACEAE

- Euphorbia* sp., (ARI 3396, 28/2/1990).  
*Mercurialis annua* L., (ARI 3390, 28/2/1990).

#### GENTIANACEAE

- Centaurium pulchellum* (Sw.) Druce, (ARI 3478, 25/4/1990).

#### GERANIACEAE

- Erodium gruinum* (L.) L' Herit., (ARI 3393, 28/2/1990).  
*Geranium tuberosum* L., (ARI 3398, 28/2/1990).

#### GRAMINEAE

- Aegilops biuncialis* Vis., (ARI 3266, 11/7/1989), (ARI 3482, 25/4/1990).  
*Aegilops geniculata* Roth, (ARI 3267, 11/7/1989), (ARI 3422, 28/3/1990), (ARI 3483, ARI 3493a, ARI 3493b, ARI 3494, 25/4/1990).  
*Aegilops geniculata* Roth x *Ae. peregrina* (Hackel) Maire et Weiller, (ARI 3423, 28/3/1990).  
*Aegilops peregrina* (Hackel) Maire et Weiller, (ARI 3485, 25/4/1990).  
*Avena* sp., (ARI 3384, 28/2/1990).  
*Bromus madritensis* L., (ARI 3449, 28/3/1990).  
*Bromus rubens* L., (ARI 3452, 28/3/1990).  
*Dactylis glomerata* L., (ARI 3546, 23/5/1990).  
*Hordeum bulbosum* L., (ARI 3270, 11/7/1989), (ARI 3477, 25/4/1990).  
*Hordeum glaucum* Steudel, (ARI 3446, 28/3/1990).  
*Hordeum spontaneum* K. Koch, (ARI 3271, 11/7/1989), (ARI 3428, 28/3/1990), (ARI 3479, 25/4/1990).  
*Hyparrhenia hirta* (L.) Stapf, (ARI 3547, 23/5/1990).  
*Lolium rigidum* Gaud., (ARI 3492, 25/4/1990).  
*Oryzopsis miliacea* (L.) Aschers. et Schweinf., (ARI 3261, 11/7/1989), (ARI 3480, 25/4/1990).  
*Phalaris paradoxa* L., (ARI 3545, 23/5/1990).  
*Stipa capensis* Thunb., (ARI 3437, 28/3/1990).  
*Trachynia distachya* (L.) Link, (ARI 3269, 11/7/1989), (ARI 3447, 28/3/1990).

#### IRIDACEAE

- Gladiolus italicus* Mill., (ARI 3465, 28/3/1990).  
*Romulea tempskyana* Freyn, (ARI 3356, 25/1/1990).

#### LABIATAE

- Micromeria nervosa* (Desf.) Benth., (ARI 3436, 28/3/1990).  
*Prasium majus* L., (ARI 3389, 28/2/1990).  
*Teucrium creticum* L., (ARI 3255, 11/7/1989), (ARI 3535, 23/5/1990).  
\* *Teucrium divaricatum* [Sieber ex] Heldreich ssp. *canescens* (Celak.) Holmboe, (ARI 3272, 11/7/1989), (ARI 3536, 23/5/1990).  
\* *Teucrium micropodioides* Rouy, (ARI 3263, 11/7/1989), (ARI 3534, 23/5/1990).  
*Thymus capitatus* (L.) Hoffsgg. et Link, (ARI 3264, 11/7/1989).

#### LEGUMINOSAE

- \* *Astragalus cyprius* Boiss., (-, 23/5/1990).  
*Calycoiome villosa* (Poir.) Link, (ARI 3382, 28/2/1990).  
*Ceratonia siliqua* L., (ARI 3630, 23/6/1990).  
*Genista sphacelata* Decne var. *sphacelata*, (ARI 3542, 23/5/1990).  
*Hedysarum spinosissimum* L., (ARI 3417, 28/3/1990).



*Hymenocarpus circinnatus* (L.) Savi, (ARI 3392, 28/2/1990), (ARI 3419, 28/3/1990).  
\* *Lathyrus blepharicarpus* Boiss. var. *cyprius* Meikle, (ARI 3368, 28/2/1990), (ARI 3430a, 28/3/1990).  
*Lathyrus cicera* L., (ARI 3430b, 28/3/1990).  
*Lotus peregrinus* L., (ARI 3418a, 28/3/1990).  
*Medicago minima* (L.) Bartal., (ARI 3438b, 28/3/1990).  
*Medicago truncatula* Gaertn., (ARI 3418b, 28/3/1990).  
*Melilotus indicus* (L.) All., (ARI 3432, 28/3/1990), (ARI 3532, 23/5/1990).  
*Onobrychis crista - galli* (Murr.) Lam., (ARI 3416, 28/3/1990).  
*Ononis biflora* Desf., (ARI 3462, 28/3/1990).  
*Ononis mitissima* L., (ARI 3552, 23/5/1990).  
*Ononis viscosa* L. ssp. *breviflora* (DC.) Nyman, (ARI 3487, 25/4/1990).  
*Scorpiurus muricatus* L. var. *subvillosus* (L.) Lam., (ARI 3392a, 28/2/1990).  
*Trifolium campestre* Schreb. ssp. *campestre*, (ARI 3438a, 28/3/1990).  
*Trifolium clypeatum* L., (ARI 3375a, 28/2/1990), (ARI 3375b, 28/3/1990).  
*Trifolium pamphylicum* Boiss. et Heldr., (ARI 3556, 23/5/1990).  
*Trifolium stellatum* L., (-, 23/5/1990).  
*Vicia hybrida* L., (ARI 3364, 28/2/1990).  
*Vicia laxiflora* Brot., (ARI 3531, 23/5/1990).  
*Vicia peregrina* L., (ARI 3383, 28/2/1990).  
*Vicia sativa* L. var. *angustifolia* L., (ARI 3457, 28/3/1990).

#### LILIACEAE

*Allium ampeloprasum* L., (ARI 3533, 23/5/1990), (ARI 3629, 23/6/1990).  
*Allium* cf. *ampeloprasum* L., (ARI 3427, 28/3/1990).  
*Asparagus acutifolius* L., (ARI 3344, 11/10/1989).  
*Asphodelus aestivus* Brot., (ARI 3355, 25/1/1990).  
*Bellevalia nivalis* Boiss. et Kotschy, (ARI 3381, 28/2/1990).  
*Gagea fibrosa* (Desf.) J.A. et J.H. Schultes, (ARI 3391, 28/2/1990).  
*Gagea graeca* (L.) A. Terracc., (ARI 3464, 28/3/1990).  
*Muscari* cf. *inconstrictum* Rechinger f., (ARI 3386, 28/2/1990).  
*Muscari neglectum* Guss. ex Ten., (ARI 3388, 28/2/1990).  
*Ornithogalum narbonense* L., (ARI 3484, 25/4/1990).  
*Smilax aspera* L., (-, 11/8/1989).  
*Urginea maritima* (L.) Baker, (ARI 3645, 13/9/1990).

#### LINACEAE

*Linum strictum* L. ssp. *spicatum* (Pers.) Lindberg f., (ARI 3443, 28/3/1990).

#### MALVACEAE

*Lavatera bryoniifolia* Mill., (ARI 3273, 11/8/1989), (ARI 3538, 23/5/1990).  
*Malva parviflora* L. var. *parviflora*, (ARI 3491, 25/4/1990).

#### OLEACEAE

*Olea europaea* L., (ARI 3631, 23/6/1990).

#### ORCHIDACEAE

*Barlia robertiana* (Loisel.) Greuter, (ARI 3371, 28/2/1990).  
*Ophrys bornmuelleri* M. Schulze ex Bornm., (ARI 3394, 28/2/1990).  
\* *Ophrys kotschyi* H. Fleischm. et Soo, (ARI 3456, 28/3/1990).  
*Ophrys lutea* Cav. ssp. *galilaea* (H. Fleischm. et Bornm.) Soo, (ARI 3373, 28/2/1990).  
*Ophrys sphegodes* Mill., (ARI 3468, 28/3/1990).  
*Ophrys umbilicata* Desf. ssp. *umbilicata*, (ARI 3366, 28/2/1990).  
*Orchis collina* Banks et Soland., (ARI 3357, 25/1/1990).  
*Orchis coriophora* L. ssp. *fragrans* (Poll.) Camus, (ARI 3476, ARI 3486, 25/4/1990).

#### PINACEAE

*Pinus brutia* Tenore, (ARI 3343, 11/10/1989).

#### PLANTAGINACEAE

*Plantago afra* L., (ARI 3397, 28/2/1990).  
*Plantago albicans* L., (ARI 3544, 23/5/1990).

#### POLYGONACEAE

*Polygonum equisetiforme* Sm., (ARI 3353b, 15/11/1989).  
*Rumex cyprius* Murb., (ARI 3467, 28/3/1990).

*Rumex pulcher* L., (ARI 3555, 23/5/1990).

#### PRIMULACEAE

*Anagallis arvensis* L. ssp. *arvensis* var. *caerulea* Gouan, (ARI 3441, 28/3/1990).

#### RANUNCULACEAE

*Adonis annua* L., (ARI 3461, 28/3/1990).

*Adonis* cf. *dentata* Del., (ARI 3431a, 28/3/1990).

*Anemone coronaria* L., (-, 25/1/1990).

*Delphinium peregrinum* L. var. *eriocarpum* Boiss., (ARI 3256, 11/7/1989).

*Ranunculus asiaticus* L., (ARI 3434a, 28/3/1990).

*Ranunculus asiaticus* L. var. *albus* Hayek, (ARI 3434, 28/3/1990).

*Ranunculus asiaticus* L. var. *sanguineus* (Mill.) DC., (ARI 3466, 28/3/1990).

\* *Ranunculus millefoliatus* Vahl ssp. *leptaleus* (DC.) Meikle, (ARI 3379, 28/2/1990).

#### RESEDACEAE

*Reseda lutea* L., (ARI 3458, 28/3/1990).

*Reseda orientalis* (Muell. Arg.) Boiss. ex Kotschy, (ARI 3369, 28/2/1990).

#### RHAMNACEAE

*Rhamnus oleoides* L. ssp. *graecus* (Boiss. et Reut.) Holmboe, (ARI 3254, 11/7/1989).

#### ROSACEAE

*Crataegus azarolus* L., (ARI 3276, 11/8/1989), (ARI 3460, 28/3/1990), (ARI 3537, 23/5/1990).

*Pyrus syriaca* Boiss., (ARI 3252, 11/7/1989).

*Rubus sanctus* Schreb., (ARI 3632, 23/6/1990).

*Sarcopoterium spinosum* (L.) Spach, (ARI 3454, 28/3/1990).

#### RUBIACEAE

\* *Asperula cypria* Ehrend., (ARI 3557, 23/5/1990).

*Rubia tenuifolia* Urv., (ARI 3459, 28/3/1990).

#### SCROPHULARIACEAE

*Kickxia elatine* (L.) Dumort. ssp. *sieberi* (Arcang.) Hayek, (ARI 3634, 23/6/1990).

*Verbascum sinuatum* L., (ARI 3635, 23/6/1990).

#### SOLANACEAE

*Mandragora officinarum* L., (ARI 3361, 25/1/1990).

#### STYRACACEAE

*Styrax officinalis* L., (ARI 3274, 11/8/1989).

#### TAMARICACEAE

*Tamarix* cf. *tetrandra* Pall. ex M. Bieb., (ARI 3279, 11/8/1989), (ARI 3641, 13/9/1990).

#### THYMELAEACEAE

*Thymelaea tartonraira* (L.) All., (ARI 3280, 11/8/1989), (ARI 3358, 25/1/1990).

#### UMBELLIFERAE

*Ammi majus* L., (ARI 3549, 23/5/1990).

*Bifora testiculata* (L.) DC., (ARI 3431b, 28/3/1990).

*Eryngium creticum* Lam., (ARI 3268, 11/7/1989), (ARI 3433, 28/3/1990).

*Lagoecia cuminoides* L., (ARI 3435, 28/3/1990), (ARI 3551, 23/5/1990).

*Opopanax hispidus* (Friv.) Griseb., (ARI 3550, 23/5/1990).

*Scandix pecten - veneris* L., (ARI 3367, 28/2/1990).

*Torilis leptophylla* (L.) Reichb., (ARI 3429, 28/3/1990).

#### ZYGOPHYLLACEAE

*Fagonia cretica* L., (ARI 3354, 25/1/1990).



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