A survey of the alien vascular flora of the urban and suburban area of Thessaloniki, N Greece

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Abstract

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In the frame of a wider research project, an inventory of 147 alien vascular plant taxa of the urban and suburban area of the city of Thessaloniki, N Greece is presented. The floristic checklist is based on extensive recent field work in 26 selected collection sites of four development sectors of the metropolitan area of the city. Each taxon recorded is given with information concerning its life-form and chorology (critically compiled as origin and current total distribution, given separately when possible), previously reported occurrence in the area, biotopes (semi-natural, anthropogenic), distribution in the investigated area and quantitative estimation of its presence per collection site. The most abundantly found taxon is *Solanum elaeagnifolium*, followed by *Ailanthus altissima, Cynodon dactylon, Crepis sancta, Diplotaxis tenuifolia, Amaranthus retroflexus* and *Sporobolus indicus*. The annotated checklist includes earlier reports for 62 taxa and furnishes at least 85 new records for the flora of Thessaloniki. Among them are 37 taxa not given for Greece in Flora Europaea and 16 taxa not given for Greece in the Med-Checklist.

Introduction

Plant taxa can be alien to continents, islands, bio- or ecoregions, states or countries (Richardson & al. 2000). Aliens (synonyms: exotics, adventives, allochthonous, non-natives or non-indigenous plants) are those plant taxa whose presence is due to intentional or accidental introduction as a result of the activities of neolithic or post-neolithic man or of his domestic animals (Webb 1985, Pyšek 1995, Richardson & al. 2000). According to their invasion ecology in a certain territory, alien plants can be "invasive" (reproducing in large numbers, at a considerable distance from parental plants, with potential to spread over a considerable area), "naturalized" (reproducing consistency, sustaining populations for many life cycles without direct intervention by man, not necessarily invading) or "casual" (not forming self-replacing populations, relying on repeated introductions for persistence). Even casual aliens may represent potential future invaders, thus deserving close attention (Kowarik 1995, Williamson 1996, Wade 1997, Starfinger 1998, Celesti-Grapow & al. 2001).

Settlements (including harbours, railway stations, parks and gardens) are distribution centres of intentionally or unintentionally introduced aliens. Understanding the behaviour of alien species in cities is of crucial importance since cities serve as migration sources (Sukopp & Werner 1983, Kowarik 1990) from which aliens can spread further into the landscape (Pyšek 1998).

Although many cities have been surveyed in Europe (for a review see Mucina 1990, Pyšek 1993, 1998), only a single study exists hitherto for a Greek city. Chronopoulos & Christodoulakis (2000) reported the occurrence of 93 alien taxa in the city of Patras, NW Greece. Apart from various and scattered reports in several floristic studies or studies of particular alien species (e.g. Economidou & Yannitsaros 1975), research on the alien flora of Greece has been limited up to date mainly to a review of the alien flora of Greece (including 77 taxa) and a study of the alien flora of Crete, both carried out by Yannitsaros (1982, 1991).

In this paper, an attempt is made for the first time to present the alien flora of the urban and suburban area of Thessaloniki (from sea level up to c. 300 m at Platanakia, Panorama). An inventory of 147 taxa is provided based on extensive recent field work (specimens deposited in TAU). The annotated checklist also includes critically compiled published information from scattered sources (Charrel 1891-92, Charrel alias Nadji 1892, Halácsy 1906, Turrill 1918, 1920, Zaganiaris 1938, 1939a, 1939b, 1940, Oberdorfer 1954) for 62 taxa and furnishes at least 85 new records, thus updating any previous floristic knowledge for the investigated area.

Material and methods

Following Sukopp & al. (1980) and Wittig & al. (1993), four urban development sectors were designated for the metropolitan area of the city of Thessaloniki (A, B, C and D, Fig. 1). The investigated area is designated approximately by the suburban satellite municipalities and settlements adjacent and functionally connected to the city of Thessaloniki (Thermi, Panorama, Pefka, Sindos and Calochori), with the major urban agglomeration (sectors A, B, C) almost delimited by the peripheral Ring-Road. An approach with 26 specific and delimited collection sites was adopted (Fig. 1).

Only alien taxa are included in the present study. The term "alien" is used here broadly defined (Richardson & al. 2000), covering naturalized and/or invasive plants, casual ephemeral introductions and occasional escapes and/or cultivation relics. Alien taxa exclusively cultivated in the investigated area were omitted. Alien taxa from own earlier publications (Krigas & al. 1999, Pateli & al. 2002) are included in the catalogue without specimen citation, but provided additionally with a quantitative presence estimation per collection site.

A plant was included in the list of alien taxa of the investigated area, when the two following conditions were fulfilled (Pyšek & al. 2002):

(a) There is no evidence that it has any area in Greece where it is native. A strictly geographical approach to plant invasions was adopted (a taxon was considered as alien to the whole Greek territory). When the origin of a taxon was specifically denoted in basic floras as "uncertain" or "unknown", or as "doubtfully native" in Greece, this also qualified the specific taxon for inclusion in the list. In every other case, the taxon was treated as indigenous (sensu Webb 1985, Pyšek 1995a, Schwartz 1997) and was excluded. Similarly, no consideration of the so-called "apophytes" (native species occurring in secondary habitats, see e.g. Holub & Jirásek 1967) was given.

(b) It is reproduced of its own at least once outside the space where it was found, sown or planted (e.g. outside the flower bed or garden). In plants reproducing by seed, germination outside such space was considered as "escape from cultivation". For a plant reproducing clonally, as "escape from cultivation" was considered only if it survived winter and summer drought, persisting in a given site until the following growing period.

Families, genera, species and subspecies appear alphabetically within the two major groups of angiosperms, viz. *Dicotyledoneae* and *Monocotyledoneae*. Nomenclature follows Strid & Tan (1997, 2002) and for taxa not included Greuter & al. (1984-1989) and finally Tutin & al. (1968-1980, 1993) for taxa not covered by the previous. Nomenclature in the genus *Taraxacum* follows

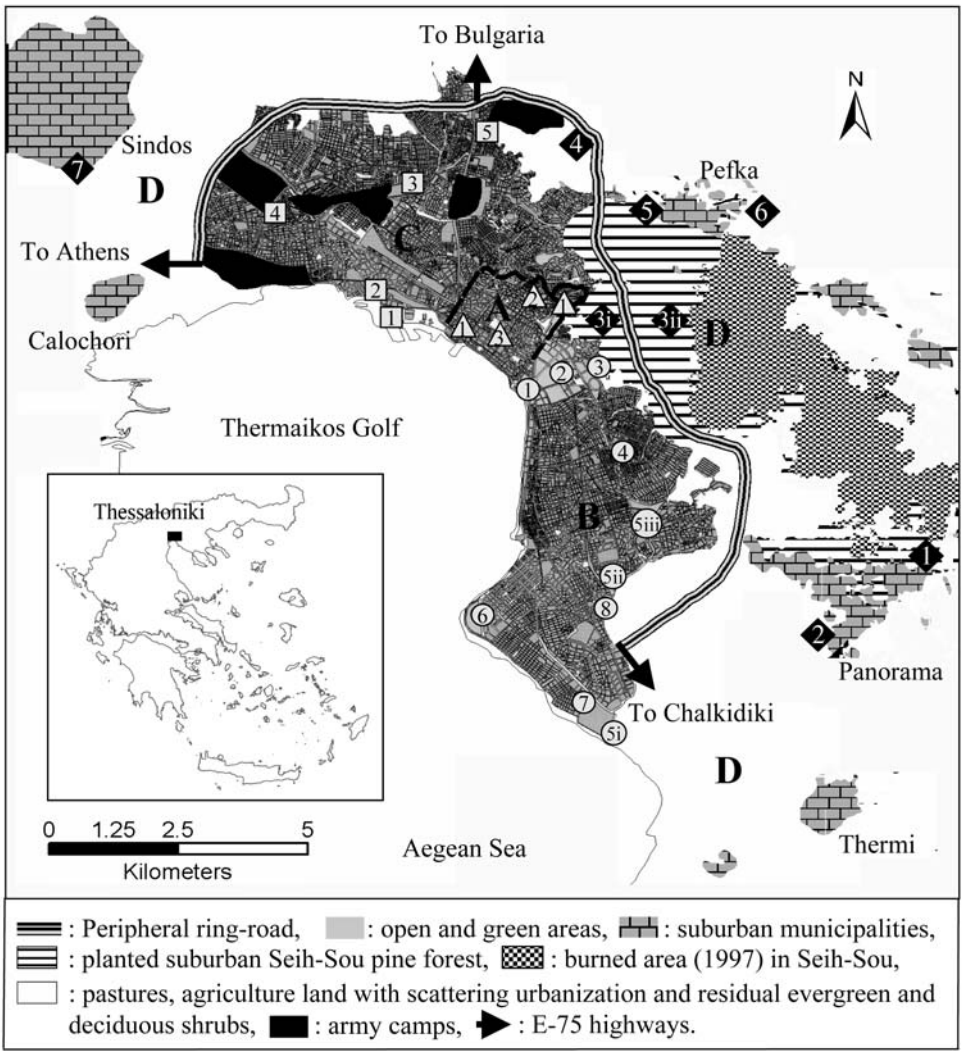

Fig. 1. Collection sites (1-8) per development sector in the urban (▲: A, ●: B, ■: C) and suburban area (◆: D) of Thessaloniki (from Heristanidis 2000, modified); A1: Byzantine Walls (black line); A2: Tsinari, Ano Poli; A3: Roman Forum archaeological site; B1: Park of Municipal Refreshment Stand and the 3rd Army Force; B2: Park of the Aristotle University Campus and the Tellogleio Institution; B3: Watercourse of 40 Ekklisies area; B4: Archaeological site of Toumba; B5i-iii: Eastern Regional Ditch (i-Foinikas, ii-Harilaou and iii-Pylea-Ano Toumba-Kryoneri); B6: "Makedonomachou Kodra" abandoned Army Camp and archaeological site, Kalamaria; B7: British Cemetery and Ag. Ioannis Cemetery, Kalamaria; B8: Allatini pantile factory area; C1: Port Authority of Thessaloniki; C2: Commercial Railway Station of Thessaloniki; C3: Zeintelik Allied Cemeteries; C4: Around "Ziaka Army Camp", Dendropotamos area; C5: Dendropotamos stream, Anthokipoi area; D1: Platanakia Recreational Area, NE of Panorama; D2: N751 "Macedonia" Settlement, SE of Panorama; D3i-ii: Suburban Seih-Sou planted pine forest (i-SW and ii-NE of the ring-road); D4: Byzantine Watermills Park, Polichni area; D5: watercourse of Filiro, Pefka area; D6: De la Salle College, Rentziki area; D7: Industrial Park of Sindos. For description of biotope types and subcategories, see Material and methods.

Fig. 2. Fallow fields in the collection site B5i (fringe urban area of the city of Thessaloniki) invaded by *Solanum elaeagnifolium,* with violet-flowered (a) and white-flowered (b) individuals growing together.

the opinion of Richards (pers. com.). In every other case the relevant source is provided specifically.

In the floristic catalogue presented below, the name of a taxon is followed by different categories of abbreviated information separated by slashes (/):

(1) *Life forms* of the plant taxa collected are identified according to the system of Raunkiaer (1934), Ellenberg (1956) and Ellenberg & Müller-Dombois (1967). The following abbreviations apply: P = phanerophyte, NP = nano-phanerophyte, C = chamaephyte, H = hemicryptophyte, G = geophyte, T = therophyte; scap = scapose, caesp = caespitose, lian = lianose, par = parasite, bulb = bulbose, rhiz = rhizomatose, bienn = biennial, rept = reptant, suffr = suffruticose, succ = succulent.

The *chorology* of the taxa is principally based on critical comparison of information provided by Strid & Tan (1997, 2002), Davis (1965-1985), Pignatti (1982), Greuter & al. (1984-1989), Tutin & al. (1968-1980, 1993). In specific cases several additional sources were used in comparison (Viegi & al. 1974, Lesins & Lesins 1979, Häfliger & Scholz 1980, 1981, Hanf 1983, Holzner & Numata 1982, Dafni & Heller 1982, Zohary & Heller 1984, Dafni & Heller 1990, Le Floc'h & al. 1990, Le Floc'h 1991, Zohary & Hopf 1994, Jahn & Schönfelder 1995, Turland & al. 1995, Sallenave 2001 and Pyšek & al. 2002). Whenever possible the origin of a taxon is given separately from its current total distribution (cultivated range was not considered). Question marks (?) indicate unknown, uncertain, doubtful or ambiguous origin and/or current total distribution. An arrow (▶) is preceded by the origin of a taxon and followed by current total distribution. The symbol "+" is used in cases of non-adjacent areas, preceded by native and followed by disjunct naturalized distribution area. Abbreviations are used as defined in Pignatti (1982).

(2) *Previous floristic reports* for the occurrence of a taxon in the investigated area are given in chronological order: [1] Charrel (1888-1891), [2] Nadji (1892), [3] Halácsy (1906), [4] Turrill (1918, 1920), [5] Zaganiaris (1938, 1939a, 1939b, 1940), and [6] Oberdorfer (1954).

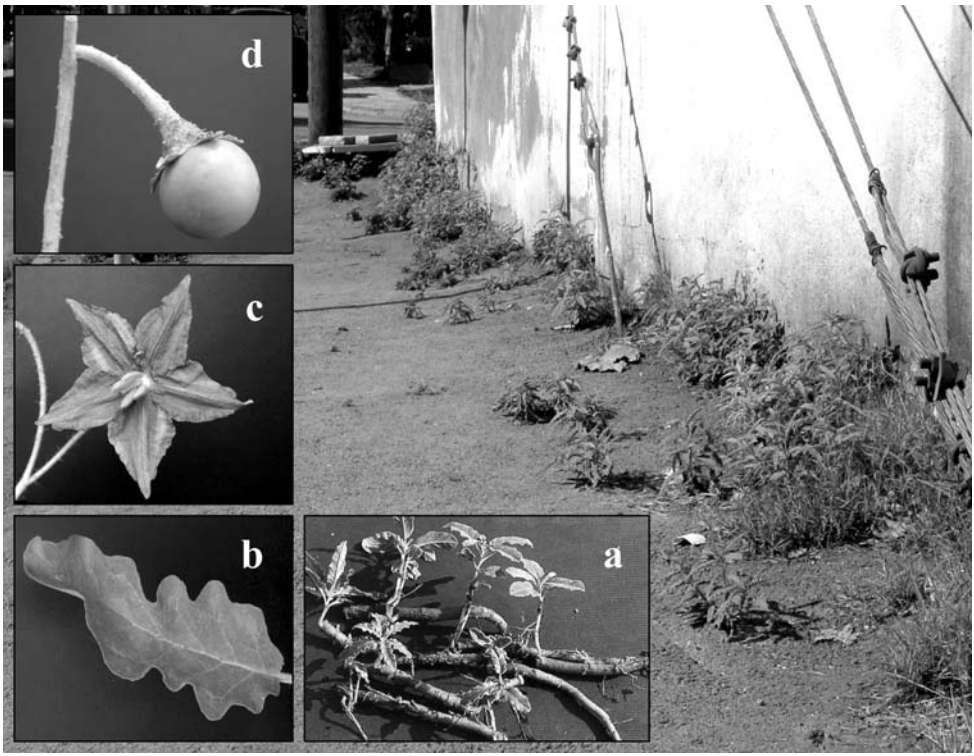

Fig. 3. Pavement sealed with asphalt in the urban area of Thessaloniki and young individuals of *Solanum elaeagnifolium* breaking the cover (a: rhizomes, b: leaves, c: flowers and d: fruits of the plant).

(3) The *biotopes* (sensu Lincoln & al. 1982) where a taxon is currently found in the investigated area are differentiated in semi-natural and anthropogenic (Wittig 1989, 1991, Pyšek & al. 2000).

The following abbreviations apply to semi-natural biotope types (in capital) and their subcategories (in small): WC = watercourses PF = suburban planted pine forest, FR = forest roads and pathways, roads with compact ground, M-o = meadows in openings of the planted suburban pine forest, M-bu = meadows in the burned area of the suburban planted pine forest, M-rr =meadows in ring-road embankments crossing the suburban pine forest, M-s = meadows with relics of evergreen and/or deciduous shrubs, M-ap =meadows in areas previously used for agriculture or pasture and fallow fields, GCD = Natural Garden of De la Salle College, rp = rocky places.

The following abbreviations apply to anthropogenic biotope types (in capital) and their subcategories (in small): BW = Byzantine Walls, GA = public lawns and small private gardens, VL = vacant-lots, RS = roadsides, RT = railway tracks, tb = tree bases, ru = rubble, gr = gravel, pc = pavement cracks.

(4) The *quantitative estimation of the presence* of a taxon per collection site is given in a four scale gradient (Wittig & al. 1993): (I) Presence in small, scattered spots, located with certainty only by searching extensively the collection site. (II) Presence in a few rather large spots or in more medium sized or in many small spots, easily overlooked at a rapid passage through the collection site. (III) Presence locally dominant in parts of the site that cannot be overlooked at a rapid passage through the collection site. (IV) Presence impossible to be overlooked, appearing almost all over the collection site (covering at least 30 % of its surface).

Collector abbreviations of the specimens deposited in TAU are: *K* = Krigas, N. 1996-2002, *K&H* = Krigas, N. & Hanlidou, E. 1996-1997, *K & al.* = Krigas, N., Kokkini, S., Karousou, R. & Hanlidou, E. 1997, *Pat* = Pateli, M. 1998-1999, *Par* = Parcharidou, P. 1999-2000, *Par&K* = Parcharidou, P. & Krigas, N. 1999, *Pap* = Papachristos E. 2001 and *Obs* = in situ observation.

(5) Abbreviations used for the comments under a specific taxon apply as follows: FH = Flora Hellenica (Strid & Tan 1997, 2002), FT = Flora of Turkey and the East Aegean islands (Davis 1965-1985), FE = Flora Europaea (Tutin & al. 1968-1980, Tutin & al. 1993) and MC = Med-Checklist (Greuter & al. 1984-1989).

Floristic catalogue

Dicotyledoneae

Aceraceae

Acer negundo L. / Pscap; N Amer ▶ N Amer + Europ / RS, VL / B5ii (I) *K3840;* B6 (I) *K3218, K6182*. – Cultivation escape.

Amaranthaceae

Amaranthus albus L. / Tscap; N Amer ▶Cosmopol / [5], [6] / PF, M-bu, FR, RS, VL, GA, RT, ru, tb, pc, gr / A1 (II); A3 (III) *K4122;* B2 (II) *Pat3245;* B3 (II) *K2358, K3818;* B5i (I) *K2461;* C2 (II) *Obs;* C3 (II); C4 (III) *K4152;* D1 (I) *K6040;* D3i (I) *K4360;* D3ii (I) *Obs;* D4 (II) *K2744;* D6 (II) *K4262;* D7 (III). – Earliest record in the Mediterranean region dates from the 1720s (Raus in FH 1: 143).

A. blitoides S. Watson / Tscap; N Amer ▶Cosmopol / RS, VL, GA, RT, ru, gr / A1 (I); A3 (II) *K6055;* B2 (II) *Pat3192;* B3 (II) *K2426;* B6 (II) *K2839;* B8 (II) *K3920;* C2 (II) *K4089;* D2 (I) *K4420;* D7 (II).

A. caudatus L. / Tscap; ? ▶Subcosmopol / [1], [2], [6] / RS, VL / C2 (II) *K2997a;* D2 (I) *K4424.*

A. cruentus L. / Tscap; C Amer? ▶Cosmopol / [1], [2] / M-bu, FR, VL, RT / B3 (II) *K6059;* B8 (I); C2 (II) *K2997b;* D3ii (I) *Par&K1471.* – Introduced in Europe via China in the early 18th century (Raus in FH 1: 140).

A. deflexus L. / Hscap; S Amer ▶Subcosmopol / [1], [5], [6] / RS, VL, GA, RT, ru, tb, pc / A1 (II); B1 (II) *K2498, K5828;* B2 (II) *Pat3002;* B3 (II) *K3828;* B4 (II) *K5958;* C1 (II) *K2564;* C2 (II) *K1465, K4084, K4106;* C3 (II) *K5981, K5985, K5986;* C5 (II) *K3938;* D3i (I) *Obs;* D6 (II) *K3695, K4275;* D7 (II).

A. hybridus L. / Tscap; N Amer ▶Cosmopol / [5], [6] / RS, VL, GA, BW, ru / A1 (II); B2 (II) *Pat3186;* B3 (II) *K6061;* D6 (II) *K4279;* D7 (II).

A. muricatus (Moq.) Hieron / Hscap; S Amer ▶Subcosmopol / FR, RS, VL, GA, RT, ru, tb, pc / A1 (II); B1 (III) *K2947, K5808, K5817;* B5iii (II) *K2047, K2401;* B6 (I) *K2946;* C2 (II) *K4115.* – Fully naturalized on the islands of Siros and Tinos. First report from the Greek mainland by Krigas & al. (1999), (Raus, pers. com.).

A. quitensis Kunth / Tscap; S Amer ▶Subcosmopol / GCD / D6 (II) *K4263.*

A. retroflexus L. / Tscap; N Amer ▶Cosmopol / [5], [6] / M-bu, M-ap, FR, RS, VL, GA, BW, ru, pc / A1 (II); A2 (III) *Obs;* A3 (II) **K6053, Obs;* B1 (II) *K2496;* B2 (III) *Obs;* B3 (II) *K2424, *K2494, K6056, K6058;* B4 (II) *K4195, K5952, K5957;* B6 (II) *K2945;* B8 (II) ***K4528, Obs;* C1 (I) **K2565;* C2 (III) *K4087;* C4 (II) *Obs;* D1 (I) ***K4525a, K4525b;* D2 (II) *K4411;* D3ii (II) *Par&K1470;* D4 (II) *K2745;* D5 (I) *K4056;* D6 (II) *K4261, K4280;* D7 (III). – According to Raus (pers. com.) the specimens preceded by an asterisk may probably represent the hybrid *A. retroflexus* × *cruentus* and the ones with a double asterisk the hybrid *A. retroflexus* × *hybridus*. In Europe it was a common weed throughout most of the continent already in c. 1800 (Raus in FH 1: 143).

A. viridis L. / Tscap; S Amer? ▶Pantrop-Subtrop / [5] / RS, VL, GA, ru / A1 (II); A3 (II) *K4124, K6052;* C2 (II) *K4096;* C4 (II) *K4140.*

Apocynaceae

Vinca major L. subsp. *major* **/** Crept; Eurymedit / [1], [2] / FR, GCD, RS, GA, ru / A3 (II) *K685;* B3 (II) *K4648;* B5iii (II) *K977;* B7 (II) *K5051;* C5 (I) *K1138;* D2 (II) *K703, K3055;* D6 (III) *K & al. 3580, K3705, K4733.* – Doubtfully native in Greece according to MC, most probably appearing only as a cultivation escape from gardens and/or relic in the area, nowadays in natural regeneration in site D6.

V. minor L. / Crept; ? ▶Europ-Caucas / [1] / GCD / D6 (III) *K4449, K4732.* – Most probably appearing only as a cultivation escape from gardens and/or relic in the area, nowadays in natural regeneration in site D6. According to Stearn in FE 3: 69, it has been cultivated for centuries and occurs as a relic of cultivation or of deliberate naturalization so often that the limits of its natural distribution are rather uncertain (Stearn in FT 6: 163 considers it as naturalized in Greece, although in MC 1: 51 it is treated as indigenous).

Bignoniaceae

Campsis radicans (L.) Seem. **/** Plian; N Amer ▶N Amer + Italy / RS, GA, BW, pc / A1 (I); B3 (I) *Obs;* B4 (I) *K4184;* C2 (I) *K4091;* D4 (I) *K2807;* D6 (I) *Obs.* – Cultivation escape from gardens.

Cactaceae

Opuntia ficus-barbarica A. Berger / Psucc; Neotrop ▶Neotrop + Medit / WC, M-ap, RS, VL, BW / A1 (II); B3 (I) *K2476;* B4 (I) *K5971;* B5ii (II) *K2695;* B8 (II) *K2128;* C5 (I) *Obs;* D2 (I) *Obs;* D3i (I) *Obs.* – Most probably as a cultivation relic from hedges.

Campanulaceae

Campanula medium L. / Hbienn; NW Medit-Mont ▶Europ / VL / B4 (I) *K5940.* – Cultivation escape from gardens.

Cannabaceae

Cannabis sativa L. **/** Tscap; S & W Asiat ▶Subcosmopol / RS / C2 (I) *K2828.* – Not cultivated, probably dispersed with seeds for domestic birds.

Caprifoliaceae

Lonicera japonica Thunb. / Plian; E Asiat ▶E Asiat + W Medit / VL / B4 (I) *K5967;* B6 (I) *K5134, K2094.* – Cultivation escape from gardens. Greece not given by Browicz in FE 4: 47.

Caryophyllaceae

Silene pendula L. / Trept; NE Medit Mont ▶Medit / [1], [2] / GA, tb / B1 (II) *Par528, Par561.* – Once found as a casual escape near Athens and perhaps naturalized in Thessaloniki area (Greuter in FH 1: 303).

Chenopodiaceae

Atriplex hortensis L. / Tscap; C Asiat ▶Circumbor / [1], [2] / RS, ru / B3 (I) *Obs;* B4 (II) *K2878, K4216;* B8 (II) *K3916.* – According to Tan in FH 1: 123 there is also a record of *A. sagittata* Borkh. from the Thessaloniki area that is very similar to *A. hortensis*.

Chenopodium multifidum L. / Hscap; S Amer ▶S Amer + Medit / [6] / RS, VL, GA, RT, ru, gr / A1 (II) *K1862;* B1 (II) *K5824;* B2 (II) *Pat3193;* B3 (II) *K2434, K2472;* B4 (II) *K4208, K4214, K5929;* B5ii (I) *K2660;* C1 (II) *K1448, K2555;* C2 (II) *K2836, K4085;* C3 (II) *K5990;* C5 (II) *K3942;* D7 (II). – Firstly recorded from Greece in 1970 and still spreading (Tan in FH 1: 119).

C. ambrosioides L. / Tscap; Neotrop ▶Cosmopol / [6] / WC, RS, VL, GA, BW, pc / A1 (II); B3 (II) *Obs;* C1 (II) *K2572;* C2 (II) *K4095;* C4 (II) *K4165;* C5 (II) *K3946;* D1 (II) *K4495.*

Kochia scoparia (L.) Schrad. / Tscap; C Asiat ▶Subcosmopol / [1], [2] / RS, VL, ru / C2 (II) *Pap1692, Pap1708*.

Compositae

Anacyclus radiatus Loisel. / Tscap; W Medit (Dafni & Heller 1990) ▶Eurymedit / RS, VL / B3 (3I) *Par&K727b*.

Artemisia arborescens L. / NP; W Medit (Dafni & Heller 1990) ▶Medit / RS / B5ii (I) *K4526*. – According to Cullen in FT 5: 318 it is only locally wild and more often cultivated and escaping in the E Mediterranean.

Aster squamatus (Spreng.) Hieron. / Hscap; Neotrop ▶Subcosmopol / WC, PF, FR, RS, GA, BW, ru, tb, pc / A1 (II) *K2978;* B1 (II) *Par1636, Par1673;* B2 (II) *Pat3468;* B3 (II) *Obs;* B4 (II) *K4198;* B5i (II) *Obs;* B8 (II) *Obs;* D1 (I) *K4401;* D3i (II) *K2898;* D3ii (I) *Obs;* D7 (II).

Calendula officinalis L. / Tscap; ? ▶Cosmopol / RS, GA, ru, pc / A1 (I); A2 (I) *K846, K2894;* B2 (I) *Obs;* B4 (I) *K5941;* B7 (II) *K536, K5018, K5019;* C3 (II) *Obs;* D5 (I) *K&H3242*. – Most probably as a cultivation escape from gardens. Not given for Greece in FE.

Chamomilla recutita (L.) Rauschert / Tscap; SE Asiat (Pignatti 1982) ▶ Subcosmopol / [1], [2], [4], [5], [6] / M-ap, M-rr, FR, RS, VL, GA, BW, RT, ru, tb / A1 (II); A3 (II) *K694;* B2 (II) *Obs;* B5iii (II) *K982;* B6 (III) *K1235, K1726;* B8 (III) *K2198, K5183;* C1 (II) *K1432;* C2 (II) *K1372, K5104;* C4 (II) *K826, K5265;* C5 (II) *K4721;* D3i (II) *K3177;* D7 (III). – If origin is not adopted according to Pignatti (1982), it should be considered as native from S Europe to Iraq.

Cnicus benedictus L. / Tscap; W Medit (Pignatti 1982) ▶Medit-Turan / [1], [2], [5], [6] / VL / C2 (II) *K1120;* D7 (II).

Conyza albida Willd. ex Spreng. / Tscap; Neotrop ▶Cosmopol / RS, VL, GA, RT, ru, pc, gr / A1 (II); B1 (II) *K5792a;* B2 (II) *Pat3120;* B3 (II) *K4646;* B6 (II) *K5133;* C2 (II) *Obs;* D1 (II) *K4687, K4688, K4909, K6036;* D6 (II) *K4284, K4774;* D7 (II). – Probably two flowering periods, appearing mostly as a sterile rosette in very disturbed habitats. Not given for Greece in FE. Taxonomy and nomenclature according to Pignatti (1982).

C. bonariensis (L.) Cronq. / Tscap; S Amer ▶Cosmopol / [5], [6] / WC, PF, M-bu, RS, VL, GA, BW, RT, ru, tb, pc, gr / A1 (II); A3 (III) *K4120;* B1 (II) *K2499, K5791, K5795, K5815;* B3 (II) *K3826;* B4 (II) *K4229b, K5951;* C1 (II) *K2785;* C2 (II) *K4116;* C3 (II) *Obs;* C4 (II) *K4170;* D2 (II) *Obs;* D3i (II) *Obs;* D3ii (II) *Obs;* D7 (II).

C. canadensis (L.) Cronq. / Tscap; N Amer ▶Cosmopol / [1], [5], [6] / M-bu, RS, VL, GA, RT, ru, pc / A2 (II) *K1758;* B1 (II) *K5792b;* B2 (II) *Pat3198;* B3 (II) *K2474;* B4 (I) *K4299a;* B5ii (II) *K2685;* B8 (I) *Obs;* C2 (II) *Obs;* C5 (II) *Obs;* D2 (II) *Obs;* D3i (II) *Obs;* D3ii (II) *Par1526;* D6 (II) *Obs;* D7 (II).

Crepis sancta (L.) Babc. / Tscap; Turan (Pignatti 1982) ▶Eurymedit / [1], [2], [5], [6] / WC, M-o, PF, M-s, M-ap, M-rr, FR, rp, RS, VL, GA, RT, ru, tb, pc / A3 (II) *K644;* B2 (III) *Pat3575;* B4 (II) *K1655;* B5i (II) *K4797, K4811, K4993;* B5ii (II) *K886, K4613, K4620;* B5iii (II) *K939, K957, K958;* B6 (III) *K1240, K3220, K4823, K4835;* B7 (II) *K537, K5054;* B8 (II) *K3094;* C2 (II) *K1463;* C3 (III) *K544, 5760, K763, K797, K1502;* C5 (II) *K1109, K4717;* D1 (II) *K4674, K4882;* D2 (II) *K711;* D3i (II) *K621, K1051, K3147;* D3ii (I) *Obs;* D5 (II) *K4565, K4573;* D6 (III) *K4763;* D7 (II). – First appearance in Europe in 1763 (Gouan in Thellung, after Le Floc'h 1991). If origin is not adopted according to Pignatti (1982), it should be considered as native from S Europe to C Asia and India.

Helianthus annuus L. / Tscap; N Amer ▶ N Amer + EC & SE Europ / RS / A1 (I) *Obs;* C4 (I) *Obs;* D7 (I) *Obs*. – Certainly a cultivation escape from gardens.

H. ×*laetiflorus* Pers. / Hscap; N Amer ▶Subcosmopol / WC, GCD, VL, GA / A2 (I) *Obs;* B4 (II) *K2856, K4183, K4231;* B6 (II) *K2954;* C2 (II) *K2825, K4099;* C4 (I) *K4149;* D3ii (II) *Obs;* D7 (II). – Including records of *H. tuberosus* L. from Pateli & al. (2002). Certainly a cultivation escape from gardens.

Senecio bicolor subsp. *cineraria* (DC.) Chater / Csuffr; W Medit / GA / A2 (III) *K1549*. – Cultivation escape from gardens.

Tagetes patula L. / Tscap; S Amer / RS / B4 (I) *K4213;* D2 (I) *K4407.* – Cultivation escape from gardens.

Xanthium spinosum L. / Tscap; S Amer ▶Cosmopol / [1], [4], [5], [6] / RS, VL, ru / B3 (I) *Obs;* B5ii (I) *Obs;* B5iii (II) *K2048, K2416, K2451;* B6 (II) *Obs;* B7 (II) *Obs;* B8 (II) *Obs;* C4 (II) *Obs;* C5 (II) *Obs;* D1 (II) *K6031;* D2 (II) *Obs;* D4 (II) *Obs;* D7 (II).

X. strumarium subsp. *cavanillesii* (Schouw) D. Löve & P. Dansereau / Tscap; Amer? ▶Cosmopol / [1], [2], [5], [6] / WC, PF, M-bu, FR, RS, VL, ru / B3 (II) *Obs;* B4 (II) *K4207;* B5ii (II) *K2682;* B8 (II) *Obs;* C2 (II) *K2820;* C4 (II) *Obs;* C5 (II) *K2728;* D1 (II) *K4500, K5885, K6049;* D2 (II) *K4228;* D3i (II) *Obs;* D3ii (II) *Obs;* D4 (III) *K2786, K2846;* D7 (II). – Nomenclature according to Kupicha in FT 5: 47. Turrill (1929) mentions that Nadji firstly reported this taxon from Europe in 1891 (as *X. saccharatum* subsp. *aciculare* Widder), collected at "about seven miles from Salonica" ('marais de Tekelü'= site D7).

Convolvulaceae

Cuscuta campestris Yuncker / Tpar; N Amer ▶Cosmopol / RS, VL, GA / A1 (II); B3 (II) *K1814, K2492;* B4 (II) *Obs;* B6 (II) *K2948;* B7 (II) *Obs;* B8 (II) *K2122, K2234;* C1 (I) *K2561;* C2 (II) *K1451, K4092;* C4 (II) *K4161;* C5 (II) *K3979;* D1 (I) *K4492;* D2 (I) *K2017, K4426;* D7 (II). – According to Feinbrun (1970) it was introduced to Europe at about 1900 and spread mainly with agricultural seed especially after the First World War.

Ipomoea purpurea (L.) Roth. / Tscap; Neotrop ▶Neotrop + Medit / [6] / GA, RS, ru / A1 (I); A2 (I) *K2897;* B3 (II) *K2427, K3815;* B4 (II) *K5966;* C5 (II) *K2704, K3990;* D2 (II) *K4408.* – Including records of *I. indica* Merr. from Krigas & al. (1999).

Cruciferae

Brassica napus L. / Hbienn; ? ▶Medit / RS, VL, RT / B5iii (I) *K2378;* C2 (II) *K1380, K1488, K5075, K5074;* C5 (II) *K4727.* – Alien or naturalized in the Mediterranean region, not given for Greece in MC.

B. oleracea L. / Csuffr; W Europ ▶Cosmopol / RS, VL, GA, pc / A1 (I) *K&H3439;* A2 (II) *Obs;* B3 (II) *Obs;* D5 (I) *K6065;* D7 (II). – Including records of subsp. *robertiana* from Krigas & al. (1999). Not given for Greece in MC.

B. rapa L. / Hbienn; Europe (Pyšek & al. 2002) ▶Cosmopol / [2] / M-ap, RS, VL, GA, pc / B3 (I) *K5227;* B5ii (II) *K891;* B6 (II) *K1271, K3234, K4847;* B7 (I) *K5012;* C4 (I) *K1118;* C5 (I) *K1119, K1135;* D5 (I) *K&H3293.* – According to MC it is doubtfully naturalized in Greece.

Calepina irregularis (Asso) Thell. / Tscap; Turan (Quézel & al. 1990) ▶Medit-Turan / [5] / WC, M-ap, RS, VL, ru / A3 (I) *K655b;* B3 (II) *Par1672b;* B5i (III) *K1196, K4786, K6077;* B5ii (II) *K889, K929;* B5iii (I) *K4602;* B6 (III) *K3227, K4848;* B8 (II) *K682, K4815;* C5 (II) *K1145, K4722;* D2 (I) *K3076;* D3i (I) *K622;* D5 (I) *K4779;* D6 (I) *K4738;* D7 (II). – According to Tan in FH 2: 294-295 no origin is provided, considering it as probably introduced to Crete but native to the rest of Greece.

Diplotaxis tenuifolia (L.) DC. / Hscap; Submedit-Subatl / [5], [6] / M-o, M-ap, M-rr, FR, RS, VL, GA, BW, RT, ru, pc, gr / A1 (III); A2 (II) *Obs;* A3 (II) *Obs;* B1 (II) *K2515, K5826;* B2 (II) *Obs;* B3 (III) *K6060;* B4 (III) *K502, K1702, K5954;* B5i (II) *K969, K1206;* B5ii (II) *K2664;* B5iii (III) *K2300;* B6 (II) *K1243;* B7 (II) *K5032;* B8 (III) *K857, K2112, K5150;* C2 (III) *K1374, K1402;* C3 (II) *Obs;* C4 (II) *K807;* C5 (II) *Obs;* D3i (II) *K2173;* D4 (II) *Obs;* D6 (II) *K4477;* D7 (II). – Not given for Greece in MC. Flowering somewhat earlier in the urbanized area of Thessaloniki, it appears probably with a bimodal flowering pattern (April to mid July and mid September to November), showing a break during the summer dry season.

Erysimum cheiri (L.) Grantz / Csuffr; ? ▶Eurymedit. / [2] / BW, VL, GA / A1 (I); B4 (II) *K5939;* B7 (II) *K5020;* C3 (I) *Obs.* – Naturalized xenophyte (sensu Greuter 1971) in Greece according to MC. Most probably only as a cultivation escape from gardens in the area.

Isatis tinctoria L. subsp. *tinctoria* / Hbienn; SW Asiat (Zohary & Hopf 1994) ▶Eurasiat? (uncertain limits according to Davis in FT 1: 301) / [1], [2], [5] / M-ap, M-rr / B5i (II) *Obs;* B6 (II) *Obs;* D2 (II) *K1367, K2039;* D3i (I) *K1562;* D7 (II).

Lepidium graminifolium L. / Hscap; Eurymedit / [4], [5], [6] / RS, VL, GA / A1 (I); B2 (I) *Pat3116;* B4 (II) *K2875, K4190, K5963;* B5i (II) *K2467;* C5 (II) *K2705, K3961;* D7 (II). – It is considered as doubtfully native in Greece according to Snogerup in FH 2: 275.

Lobularia maritima (L.) Desv. / Hscap; W Medit-Macarones? ▶ Subcosmopol / [1], [2] / RS, VL / C2 (II) *K1415.*

Lunaria annua L. subsp. *annua* / Hbienn; SE Europ ▶Europ + N Amer / GCD / D6 (I) *K3700.* – According to Tan in FH 2: 196 it is considered as introduced to Greece and cultivation escape from gardens.

Neslia apiculata Fisch. & al. / Tscap; Turan (Pignatti 1982, Quézel & al. 1990) ▶Eurymedit / [3], [5], [6] / M-ap, FR, RS / B5i (II) *K4984, K4985.* – If origin is not adopted according to Pignatti (1982) and Quézel & al. (1990), it should be considered as native to the Mediterranean part of S Europe eastwards to SW & C Asia according to Tan in FH 2: 248.

Raphanus sativus L. / Hscap; ? ▶Cosmopol / [2] / RS, VL / B6 (II) *K1731, K2957;* D7 (II). – Cultivation escape. Not given for Greece in FE.

Sinapis alba L. subsp. *alba* / Tscap; ? ▶Eurymedit? / WC, M-ap, FR, RS, VL / B5i (II) *K3666;* B6 (II) *K3609;* D3i (I) *Par2320;* D3ii (I) *Par840;* D6 (II) *K3628;* D7 (II) *Obs.* – Problematic status according to MC for all Mediterranean countries. According to Snogerup & Snogerup in FH 2: 286-287 it is entirely a product of plant breeding.

Cucurbitaceae

Citrullus lanatus (Thunb.) Matsumara & Nakai / Tscap; S Afr ▶S Afr + Malta / M-O, FR / C5 (I) *Obs;* D3i (I) *K2926.* – A few individuals found in Seih-Sou recreational area and on wasteland. Greece not given in MC.

Cucurbita maxima Lam. / Tscap; S Amer (Sallenave 2001) ▶S Amer + Malta / ru / A2 (I) *K2889;* C5 (I) *Obs;* D4 (II) *Obs.* – Cultivation escape from nearby gardens. Greece not given in MC.

C. pepo L. / Tscap; N & C-Amer ▶ N & C Amer + Malta / RS / B5ii (I) *K2653.* – Only a few individuals found. Greece is not given in MC.

Lagenaria siceraria (Molina) Standl. / Tscap; India Trop. (Sallenave 2001) ▶India Trop. + Spain, Malta / RS /D2 (I) *K4406.* – A few individuals found on wasteland (cultivation escape from nearby gardens). Greece is not given in MC.

Elaeagnaceae

Elaeagnus angustifolia L. / Pscap; C Asiat? ▶Circumbor / WC / B5ii (II) *K882;* B5iii (II) *K6079;* C4 (II) *K5257.* – Cultivation escape.

Euphorbiaceae

Euphorbia maculata L. / Trept; N Amer ▶Subcosmopol / PF, GA, RT, tb / B2 (II) *Pat3241;* C1 (II) *K2578b;* C2 (II) *Obs;* D3i (I) *K4369;* D7 (II). – First report for Greece by Pateli & al. (2002).

E. prostrata Aiton / Trept; Neotrop & Subtrop ▶Neotrop & Subtrop + Medit / M-o, FR, RS, GA, BW, tb, gr / A1 (II); B1 (II) *K2511b;* B2 (II) *Pat3886;* C1 (II) *K2578a;* C3 (II) *K1496, K6004;* D2 (I) *K4229;* D3i (I) *K2911;* D6 (II) *K4269;* D7 (II). – Greece not given in MC.

Ricinus communis L. / Pscap; Paleotrop (NE-Afric) ▶Paleotemp / GA, RS, ru / A1 (I); B3 (II) *K3814;* D2 (II) *K4245.*

Hydrangeaceae

Philadelphus coronarius L. / NP; N & C Italy & Austria ▶N & C Italy & Austria + France, Romania, Slovakia / GCD, GA / A1 (I); B2 (I) *Pat3121;* D4 (I) *K&H3346;* D6 (II) *K&al. 3478.* – Cultivation escape from gardens.

Leguminosae

Albizia julibrissin Durazz. / Pscap; C & E Asiat ▶C & E Asiat + Italy, Cyprus / VL, RS, tb, pc / A3 (I) *K4132;* B3 (I); B4 (I) *K5953;* B5ii (I) *Obs;* B6 (I) *K3625;* C2 (I) *Obs;* C5 (I) *Obs;* D6 (I) *Obs;* D7 (I) *Obs.* – All specimens and observations represent seedlings escaped from cultivation. Greece not given in MC.

Gleditsia triacanthos L. / Pcaesp; N Amer ▶N Amer + Argentina, Bulgaria / M-ap, M-rr, VL, GA, RS / A1 (I); B3 (I) *K2542;* B4 (I) *Obs;* B5i (I) *K1173;* B5ii (I) *K2691;* B6 (I) *K1225;* B8 (I) *K2130;* C2 (I) *Obs;* D3i (I) *Obs;* D3ii (I) *Obs;* D6 (I) *Obs.* – All specimens and observations represent seedlings escaped from cultivation. Mainland of Greece not given in MC.

Lupinus angustifolius L. / Tscap; W Medit (Pignatti 1982) ▶Medit / M-bu / D3ii (I) *K6115.*

Medicago sativa L. subsp. *sativa* / Hscap; Iran ▶Paleotemp? / [2] / WC, M-O, M-rr, FR, RS, VL, GA / A1 (I); B1 (II) *K2516;* B2 (II) *Pat3921;* B3 (II) *K2481;* B4 (II) *K4187;* B6 (III) *K1220, K1745, K2070;* B8 (II) *K2217, K2225;* C1 (II) *K2576;* C2 (II) *K1395, K1422, K1962;* D1 (I) *K5838;* D2 (II) *K1638, K2032, K2140;* D3i (I) *K2927, K4364;* D7 (II). – Specimens represent exclusively wild growing plants collected. Probably a cultivation relic in the area.

Robinia pseudoacacia L. / Pcaesp; N Amer ▶N Amer + Europ, Black Sea / WC, M-rr, RS, VL, GA, BW, ru, tb / A1 (II); A2 (II) *Obs;* A3 (II) *Obs;* B1 (II) *K5809;* B3 (II) *K2429;* B4 (II) *Obs;* B5i (I) *Obs;* B5ii (I) *Obs;* B5iii (II) *K2421;* B6 (II) *K5140;* B7 (II) *Obs;* B8 (II) *Obs;* C2 (II) *K1389;* C3 (II) *Obs;* C4 (II) *Obs;* C5 (II) *Obs;* D2 (I) *K1307;* D3i (II) *Obs;* D3ii (I) *Obs;* D4 (II) *Obs;* D6 (II) *Obs;* D7 (II). – Cultivation escape.

Trifolium resupinatum L. / Tscap; Asiat (Pyšek & al. 2002) ▶Eurasiat / [4], [5], [6] / WC, M-s, RS, VL, GA, BW / A1 (II); B1 (II) *Par534;* B5i (II) *K1159;* B6 (III) *K1251, K3208, K4851;* B8 (II) *K1004;* D1 (II) *K5694;* D7 (II). – Probably a cultivation relic.

Trigonella esculenta Willd. / Tscap; W Medit / [2] / GA / B2 (I) *Pat3757.*

Vicia sativa L. subsp. *sativa* / Tscap; Medit-Turan ▶Subcosmopol / [4, not assigned to subspecies], [5] / M-ap / B5i (II) *K1186, K5004;* B7 (II) *K5063, *K5069;* B8 (II) **K676;* D3i (I) **K3203;* D3ii (II) *Obs;* D5 (I) **K&H3247.* – Specimens preceded by an asterisk probably belong to subsp. *sativa*. Xenophyte (sensu Greuter 1971) according to MC, naturalized in Crete but considered doubtfully naturalized in mainland Greece.

Linaceae

Linum usitatissimum L. / Tscap; ? ▶Europ / [1], [2] / M-ap, FR, RS / B3 (I) *Obs;* B7 (I) *K5008;* D3i (I) *K2179;* D3ii (I) *Obs.* – Xenophyte (sensu Greuter 1971) naturalized in Crete, but mainland of Greece not given in MC.

Malvaceae

Abutilon theophrasti Medik. / Tscap; Asiat (Pyšek & al. 2002) ▶Cosmopol / [5] / M-ap, RS / D7 (II).

Alcea rosea L. / Hscap; ? ▶Cosmopol (Sykora 1990) / [1], [2] / GCD, RS / D2 (II) *K2038;* D6 (II) *K3716;* D7 (II). – Probably a cultivation escape from gardens. Greece not given in MC.

Hibiscus syriacus L. / Pcaesp; E Asiat / [1], [2] / B3 (I) *Obs;* B6 (I) *Obs.* – Cultivation escape.

Meliaceae

Melia azedarach L. / Pscap; India & China ▶India & China + Medit / RS, VL / B3 (I) *K6014;* B4 (I) *K2880, K2958;* B5i (I) *Obs;* B6 (I) *K3626;* B8 (I) *Obs;* C4 (I) *K4134;* D2 (I) *K1623.* – All specimens and observations refer to seedlings escaped from cultivation. According to MC it is doubtfully naturalized in Crete, but not given for mainland Greece.

Moraceae

Broussonetia papyrifera (L.) Vent. / Pcaesp; E Asiat ▶ E Asiat + Italy, Greece / GCD, RS, VL, GA, RT, tb / A1 (II); A2 (II) *Obs;* B4 (II) *K5949;* B5iii (I) *K985;* B7 (II) *K2842;* C2 (II) *K1427, K2829, K4098;* C3 (II) *K2853;* D3i (II) *K5127;* D5 (II) *K4060;* D6 (II) *K&al. 3486.*

Morus alba L. **/** Pscap; E Asiat **/** [1], [2] **/** GCD, RS, VL, GA **/** A1 (I); B4 (I) *Obs;* C2 (II) *K1420, K1778;* D6 (I) *K3670, K&al. 3576;* D7 (I). – Most probably only as a cultivation escape and/or relic in the area.

M. nigra L. **/** Pscap; Asiat ▶Eurymedit? **/** WC, RS, tb, pc **/** B3 (I) *K2431;* C2 (II) *K4094;* C5 (II) *K2696;* D3i (I) *K4342;* D7 (I). – Most probably only as a cultivation escape and/or relic in the area.

Nyctaginaceae

Mirabilis jalapa L. **/** Gbulb; S Amer ▶S Amer + S Europ **/** RS, VL, ru **/** A2 (II) *Obs;* B3 (II) *K2357, K2493;* B4 (II) *K4176;* B5iii (II) *K2403;* C2 (II) *Obs;* C5 (II) *Obs;* D4 (II) *Obs.* – Doubtfully naturalised xenophyte (*sensu* Greuter 1971) in Greece according to MC. Cultivation escape from gardens in the area.

Onagraceae

Oenothera sp. **/** Hbienn; N Amer (Pyšek & al. 2002) ▶Subcosmopol **/** RS **/** D2 (II) *K4405, K4275.* – Cultivation escape from gardens. Greece not given in FE.

Oxalidaceae

Oxalis debilis Kunth **/** Gbulb; S Amer ▶S Amer + W Europ, Medit (Turland & al. 1995) **/** PF, FR, GCD, GA, tb, pc **/** A1 (I); B3 (I) *Obs;* B4 (II) *K678, K2993, K4193;* B7 (I) *K5011;* C2 (I) *Obs;* D3i (I) *Obs;* D6 (II) *K&al. 3464, K&al. K3707.* – Cultivation escape from gardens. Greece not given in FE or MC.

O. pes-caprae L. **/** Gbulb; S Afr ▶S Afr + W Europ, Medit (Turland & al. 1995) **/** GA **/** B2 (I) *Pat3290.* – More abundant in fallow fields at the Macedonia Airport area.

Papaveraceae

Eschscholzia californica Cham. **/** Tscap; N Amer ▶N Amer + France, Corsica, Balearic Isles **/** RS **/** D2 (I) *K1617.* – Cultivation escape from gardens. Not given for Greece in FE.

Papaver somniferum L. subsp. *somniferum* **/** Tscap; SW Asiat? ▶Subcosmopol **/** [1], [2] **/** GCD, GA, RS **/** A2 (I) *K1824;* C2 (III) *K1470, K5078.* – Most probably only a cultivation relic in the area. Not given for Greece in FE.

Passifloraceae

Passiflora caerulea L. **/** Plian; S Amer ▶S Amer + Açores **/** GCD, pc **/** D6 (I) *K4460, K&al. 3557.* – Cultivation escape from gardens in the area. Not given for Greece in FE.

Phytolaccaceae

Phytolacca americana L. **/** Grhiz; N Amer ▶Subcosmopol **/** [1], [2] **/** GCD, VL, RT **/** C2 (II) *K4102;* D6 (III) *K&al. 3559, K3686, K3687, K4147, K4156.* – Nadji (1892) mentions "dans touts le cimitieres musulmans" of the city.

Polygonaceae

Fallopia aubertii (L. Henry) Holub **/** Plian; C Asiat ▶C Asiat + Italy, Greece **/** GCD, RS, VL, GA, ru **/** A1 (II) *K1829;* A2 (II) *K1545;* B1 (I) *K5778, K5779;* B3 (III) *K2435;* B4 (II) *K1678, K4175, K5948;* B5ii (I) *Obs;* B5iii (I) *K2244;* B6 (I) *Obs;* B8 (II) *K2124;* C2 (II) *Obs;* D4 (II) *Obs;* D6 (II) *Obs.* – Cultivation escape from gardens.

F. convolvulus (L.) Á. Löve **/** Tscap; ▶ Asiat (Pyšek & al. 2002) ▶Cosmopol **/** [5] **/** M-ap **/** D7 (II) *Obs.*

Portulacaceae

Portulaca oleracea L. **/** Tscap; SW Asiat? ▶Subcosmopol **/** [5], [6] **/** M-o, PF, FR, RS, VL, GA, BW, RT, ru, tb, pc **/** A1 (II); A2 (II) *Obs;* B1 (III) *K2500;* B2 (III) *K2444;* B3 (II) *K2486;* B4

(II) *Obs;* B5i (II) *K2462;* B6 (II) *Obs;* B7 (III) *Obs;* C1 (II) *K2554;* C2 (II) *Obs;* C3 (II) *Obs;* C4 (II) *Obs;* C5 (II) *Obs;* D2 (II) *Obs;* D3i (I) *K2344;* D3ii (I) *Obs;* D4 (II) *Obs;* D7 (II).

P. grandiflora Hook. / Tscap; S Amer / GA, ru / D7 (I).

Punicaceae

Punica granatum L. / Pscap; SW Asiat ▶Constantly expanding westwards (Quézel & al. 1990) / GCD, RS, VL, BW / A1 (I); B3 (I) *Obs;* B4 (I) *Obs;* B5iii (I) *K2260;* B6 (I) *K1790, K2095, K5148;* C2 (I) *Obs;* D6 (I) *K3673.* – Cultivation escape and/or relic in the area. According to MC it is a xenophyte (sensu Greuter 1971) naturalized in Crete but doubtfully naturalized in mainland Greece.

Rhamnaceae

Ziziphus zizyphus (L.) Meikle / Pcaesp; SE & E Asiat (Zohary & Hopf 1994) ▶SE & E Asiat + Medit / [2] / VL / D4 (I) *K2767.* – Probably as a cultivation relic in the area. According to MC it is a xenophyte (sensu Greuter 1971) doubtfully naturalized in mainland Greece.

Rosaceae

Eriobotrya japonica (Thunb.) Lindl. / Pscap; E Asiat / WC / B3 (I) *K3805.* – Cultivation escape from gardens.

Malus domestica Borkh. / Pscap; ? ▶Eurasiat / WC, RS, VL / B3 (I) *K3084;* B6 (I) *K1770, K3223, K4854, K6190.* – Cultivation escape and/or relic.

Prunus dulcis (Mill.) D. A. Webb / Pscap; E Medit (Zohary & Hopf 1994) ▶Medit / [4] / PF, M-ap, M-rr, RS, VL, BW / A1 (I); B3 (I) *K4652;* B4 (I) *Obs;* B5i (I) *Obs;* B5ii (I) *Obs;* B6 (I) *K5138, K3624;* B8 (I) *Obs;* C2 (II) *Obs;* D2 (II) *Obs;* D3i (II) *Obs;* D4 (III) *Obs;* D6 (II) *K&al.3570.* – Probably a cultivation relic in the area (nowadays cultivated only close to site D4).

Sapindaceae

Koelreuteria paniculata Laxm. / Pscap; E Asiat ▶E Asiat + E Romania, W Ukraine / GA, BW, tb / A1 (I). – Cultivation escape.

Scrophulariaceae

Antirrhinum majus L. / Cfrut; W Medit ▶Medit / RS, BW, GA, ru, pc / A1 (II); A2 (I) *K844;* B3 (II) *Obs;* B4 (II) *K1766, K5916;* B5ii (II) *Obs;* B7 (II) *K5057;* B8 (II) *K3603, K3604;* C3 (II) *Obs;* C4 (II) *Obs;* C5 (II) *K2710;* D2 (II) *K1999;* D5 (I) *K&H3279;* D7 (II). – Probably a very old cultivation escape from gardens.

Cymbalaria muralis P. Gaertn. & al. subsp. *muralis* / Hscap; S Europ ▶Subcosmopol / RS, BW, pc / A1 (I) *Obs;* B3 (3) *Obs.*

Veronica agrestis L. / Tscap; C & N Europe (Hanf 1983) ▶Europe / GCD, VL / A3 (II) *K633;* D6 (II) *K4756.*

V. persica Poir. / Tscap; W Asiat? ▶Cosmopol / [5], [6] / WC, M-ap, RS, VL, GA, ru, tb, pc / A1 (II); A3 (II) *K5271;* B1 (III) *K571;* B2 (III) *Pat3274;* B3 (II) *Obs;* B5iii (II) *K986, K4630;* B6 (II) *K4826;* B7 (III) *Obs;* C3 (III) *Obs;* C5 (II) *K4724;* D4 (II) *K3162;* D5 (II) *K&H3244;* D7 (II). – According to Walters & Webb in FE 3: 250 it was firstly recorded in Europe at c. 1800.

V. polita Fries / Tscap; SW Asiat? ▶Cosmopol / [5], [6] / WC, M-o, M-ap, FR, RS, VL, GA, BW, ru, pc / A1 (I); A3 (II) *K649, K5272;* B1 (II) *K587, K5273;* B3 (II) *K604;* B4 (II) *K505;* B5i (II) *K4808;* B5iii (II) *K4626, K4627;* B6 (I) *K4829;* B7 (II) *K547;* C3 (II) *K759;* C5 (II) *K4726;* D2 (II) *K3054;* D3i (II) *K3171;* D3ii (II) *Obs;* D4 (II) *K3007;* D5 (II) *K&H3355, K4576;* D7 (II).

Simaroubaceae

Ailanthus altissima (Mill.) Swingle / Pscap; E Asiat ▶Circumbor (Kowarik & Böcker 1984) / WC, PF, FR, M-rr, rp, RS, VL, GA, BW, RT, ru, tb, pc / A1 (III); A2 (II) *Obs;* A3 (II) *Obs;* B1 (III) *K2517, K5788, K5789;* B2 (III) *Obs;* B3 (II) *K1749, K2523;* B4 (II) *Obs;* B5i (II) *K1203;* B5ii (II) *Obs;* B6 (II) *K1254;* B7 (II) *Obs;* B8 (II) *Obs;* C1 (II) *K2568;* C2 (III) *K1394;* C4 (II) *Obs;* C5 (II) *Obs;* D1 (I) *Obs;* D2 (II) *Obs;* D3i (II) *Obs;* D3ii (I) *Obs;* D4 (II) *Obs;* D5 (III) *Obs;* D6 (II) *Obs;* D7 (II). – Photographic evidence suggests that it has been cultivated in the area as ornamental from the beginning of the last century (Krigas & al. 1999).

Solanaceae

Datura innoxia Mill. / Tscap; C Amer ▶C Amer + Medit + C Asiat / GA, RS, pc / A2 (I) *K1750, K2339, K2340, K2888;* B4 (I) *K4191;* B5iii (I) *K2420;* D6 (II) *K4282.* – Cultivation escape from gardens. Not given for Greece in FE.

D. stramonium L. / Tscap; N Amer ▶Cosmopol / [5], [6] / WC, M-ap, M-rr, RS, VL, ru / A1 (I); A2 (I) *K2887;* B2 (I) *Obs;* B3 (II) *Obs;* B5iii (II) *K992, K2415;* C2 (II) *K4082;* C4 (II) *K823;* C5 (II) *Obs;* D2 (II) *K&H1347;* D3i (III) *Obs;* D4 (III) *Obs;* D7 (III).

Lycium chinense Mill. / NP; E Asiat ▶Eurasiat / RS, VL, BW, ru / A1 (I) *K&H3420;* A2 (I) *K2896;* B3 (II) *Obs;* B4 (II) *K2860;* B6 (I) *K3229;* D4 (II) *K2809.* – Cultivation escape from gardens and hedges. Greece not given in FE.

Lycopersicon esculentum Mill. / Tscap; C & S Amer / [2], [6] / RS, VL, ru / A2 (I) *K2893;* B4 (I) *K2869;* B6 (I) *K2951;* D4 (I) *Obs.* – Cultivation escape from orchards. Not given for Greece in FE.

Nicotiana glauca R. C. Graham / NP; S Amer ▶S Amer + Medit / VL, ru / A1 (II) *Obs;* A3 (II) *K6051;* C2 (II) *Obs.*

Solanum cornutum Lam. / Tscap; Amer ▶Cosmopol / RS, VL, ru / B5iii (II) *K2417;* B8 (II) *K2231;* D7 (II).

S. elaeagnifolium Cav. / Cfrut & Hscap & Grhiz; S Amer ▶Subcosmopol / WC, PF, M-o, M-s, M-ap, M-rr, FR, rp, RS, VL, GA, BW, RT, ru, tb, pc, gr / A1 (II); A2 (II) *Obs;* A3 (II) *Obs;* B1 (IV) *K5797, K2521;* B2 (IV) *Obs;* B3 (IV) *K1812, K1813, K2535;* B4 (IV) *K1688;* B5i (III) *Obs;* B5ii (III) *Obs;* B5iii (III) *K2289;* B6 (III) *K1223, K2088;* B7 (III) *Obs;* B8 (III) *K2104, K2105;* C1 (III) *K2526;* C2 (III) *K1419, K1469;* C3 (II) *K1521;* C4 (III) *Obs;* C5 (III) *Obs;* D1 (I) *Obs;* D2 (II) *K1361, K2156;* D3i (III) *K1558, K1794, K1795, K1796;* D3ii (I) *Obs;* D4 (III) *K2790;* D5 (II) *Obs;* D6 (II) *Obs;* D7 (III). – Appearing both with white and violet flowers (Fig. 2), with the latter being more common. It was firstly introduced in the area of Thessaloniki before 1927, probably directly from America (Yannitsaros & Economidou 1974, Browicz 1993). Dominant in all collection sites during late summer as chamaephyte, hemicryptophyte and/or geophyte (see also Economidou & Yannitsaros 1975) it can be considered by far the most aggressive alien in the urban and suburban area of Thessaloniki, invading almost every biotope type (Fig. 2, 3). For earlier occurrence in the area of Thessaloniki in the 1970s see Economidou & Yannitsaros (1975).

Umbelliferae

Anethum graveolens L. / Tscap; Medit W Asiat? (Zohary & Hopf 1994) ▶Eurasiat / RS / B5iii (I) *K2418.* – Cultivation escape from orchards.

Apium graveolens L. / Hscap; ? ▶Subcosmopol / RS / A1 (I); B3 (I) *K3833;* B4 (I) *K4196;* C4 (I) *K5249;* D4 (I) *K2773, K3027.* – Certainly a cultivation escape from orchards.

Bifora radians M. Bieb. / Tscap; C Asiat ▶Eurasiat / [2] / GA, ru / D7 (II).

Coriandrum sativum L. / Tscap; E Medit? ▶Cosmopol / [2] / GA / A1 (I) *K1753.* – Comments on origin by Zohary & Hopf (1994).

Daucus carota subsp. *sativus* (Hoffm.) Arcang. / Hbienn; SW Asiat (Pignatti 1982) ▶Subcosmopol / M-ap, RS, ru / D7 (II).

Petroselinum crispum (Mill.) A. W. Hill / Hbienn; ? ▶Cosmopol / GA / A1 (I). – Cultivation escape from orchards.

Verbenaceae

Lippia canescens Kunth / Csuffr; S Amer ▶S Amer + Europ, Egypt, Lebanon / GA, pc / B2 (II) *Pat3793, Pat3851, Pat3805.* – Not given for Greece in FE.

Vitaceae

Parthenocissus inserta (A. Kern.) Fritsch / Plian; N Amer / RS, GA, BW, ru / A1 (I); B1 (I) *K5823;* B2 (I) *Pat3169;* B8 (I) *K3927;* C4 (I) *K5240;* D2 (I) *K4403.* – Cultivation escape from gardens.

Vitis vinifera L. subsp. *vinifera* / Plian; ? ▶Cosmopol / WC, M-rr, GCD, RS, VL, BW, tb / A1 (I); A2 (I) *Obs;* B4 (II) *K1714, K5955;* B6 (II) *K1190, K1778;* B8 (I) *K5178;* C2 (II) *K1426, K1464, K4097, K5086;* D2 (II) *K4268, K4269, K4427;* D3i (II) *K1168;* D3ii (I) *Obs;* D4 (II) *K2806;* D6 (I) *Obs.* – Cultivation escape and/or relic.

Monocotyledoneae

Amaryllidaceae

Narcissus pseudonarcissus L. / Gbulb; W Europ ▶Europ / [1], [2] / ru / D4 (I) *Obs.* – Cultivation escape from gardens.

Commelinaceae

Commelina communis L. / Gbulb; E Asiat ▶ E Asiat + S & C Europ, N Amer / RS, GA, pc / A2 (I) *K1825;* B2 (I) *Obs;* B3 (II) *K1757;* B4 (II) *K4194, K5933;* B7 (II) *Obs.* – Cultivation escape from gardens. Greece not given in FE.

Trandescantia virginiana L. / Grhiz; N Amer / GA, RS, pc / A1 (I); B3 (I) *Obs;* B7 (I) *Obs.* – Cultivation escape from gardens.

Gramineae

Arundo donax L. / Grhiz; C Asiat ▶Subcosmopol / [1], [2], [5] / WC, RS / A1 (I); B8 (II) *Obs;* C4 (II) *K828;* C5 (II) *Obs;* D1 (II) *Obs;* D2 (II) *Obs;* D4 (II) *Obs;* D6 (II) *Obs;* D7 (II). – Cultivation relic.

Cynodon dactylon (L.) Pers. / Grhiz; Asiat-Afric (Pyšek & al. 2002) ▶Cosmopol / [4], [5], [6] / WC, M-ap, FR, RS, VL, GA, RT, ru, pc, gr / A1 (IV); A2 (II) *Obs;* B1 (IV) *K2508, K5791;* B2 (IV) *Obs;* B3 (II) *Obs;* B4 (II) *K2868, K5947;* B5i (II) *Obs;* B5ii (II) *Obs;* B5iii (II) *K2326;* B6 (III) *K1738, K1791, K2970;* B7 (II) *Obs;* B8 (II) *K5264;* C1 (III) *Obs;* C2 (III) *Obs;* C3 (III) *K6001;* C4 (III) *Obs;* C5 (II) *Obs;* D2 (II) *Obs;* D3i (II) *Obs;* D3ii (I) *Obs;* D4 (II) *K2768;* D6 (II) *Obs;* D7 (II).

Echinochloa colona (L.) Link / Tscap; Trop & Subtrop ▶Trop & Subtrop + Medit, S Europe / M-ap, RS, ru / B4 (II) *K4199;* B6 (II) *K2955;* D2 (II) *K4285.* – Mainland of Greece not given in FE (only Crete).

E. frumentacea (Roxb.) Link / Tscap; Eurasiat (Pyšek & al. 2002) / RS, VL / B4 (II) *K4209.* – According to Scholz (pers. com.) this taxon evolved in historical times from weedy *E. colona* and has not been reported previously from Greece.

Eleusine indica (L.) Gaertn. / Tscap; Trop & Subtrop (Asiat, Pyšek & al. 2002) ▶Cosmopol / [1], [2], [5] / RS, VL, GA, RT, ru, pc / A1 (II); B1 (III) *Obs;* B2 (III) *Obs;* B3 (II) *K2356, K3822;* B4 (II) *K4200;* C1 (II) K2652; C2 (II) *Obs;* C5 (II) *K2715, K3947.* – Nadji (1892) mentions “divers points dans la ville, n’est pas cultivé nulle part á ma conaissance” and Charrel (1888-1891) “ad moenia” (= on walls). Not given for Greece in FE.

Hordeum distichon L. / Tscap; SW & C Asiat (Zohary & Hopf 1994) / RS, VL / B4 (I) *K1644;* C2 (II) *Obs.* – Cultivation escape. Not given for Greece in FE.

H. vulgare L. / Tscap; E Afric / BW / A1 (I). – Cultivation escape. Not given for Greece in FE.

Nasella neesiana (Trin. & Rupr.) Bankworth / Hcaesp; S Amer ▶S Amer + Medit / GA /B2 (II) *K6134.* – According to Scholz (pers. comm.) it has not been reported previously from Greece.

Oryza sativa L. / Tscap; S & E Asiat / [1], [2] / M-ap, RS / D7 (I) – Nadji (1892) mentions that "croit a Tekeli (= site D7) dans les fosses bien que, d'aprés le dire des habitants, il n'ait pas étè cultivé depuis plus de 15 ans". Nowadays, cultivation escape and/or relic in the area.

Panicum miliaceum L. / Tscap; C Asiat ▶Cosmopol / [5] / tb / B4 (I) *K4217.* – Probably a relic of former cultivation.

Paspalum paspalodes (Michx.) Scribn. / Grhiz; Pantrop ▶Subcosmopol / [6] / GA, RS / A1 (II); B5iii (II) *Obs;* C2 (II) *Obs;* D7 (II).

Phalaris canariensis L. / Tscap; NW Afric-Macarones (Turland & al. 1995) ▶Cosmop-temp / [6] / M-ap, RS, VL, RT, ru, tb / A1 (I); B3 (I) *K3819;* B4 (II) *K1650, K5934;* B5iii (II) *K2330;* B7 (I) *K5062;* B8 (II) *K2119, K3931;* C2 (II) *K1489;* C5 (II) *K3991.* – Taxonomy according to Balbini (1995).

Secale cereale L. / Tscap; C Asiat ▶Subcosmopol / M-ap, GA, RS / C2 (I) *K1490;* D4 (II) *K2781.*

Sporobolus indicus (L.) R. Br. / Hcaesp; Neotrop ▶N Amer + S Europ, Medit / GA, RS, tb, pc / A1 (IV); B1 (IV) *K5818;* B2 (IV) *K2650, K6063;* D7 (II). – Observed to be dominant in many public lawns of the urban agglomeration (sectors A, B, C). Not given for Greece in FE.

Tragus racemosus (L.) All. / Tscap; Paleotrop & Paleosubtrop ▶termo-Cosmopol / [6] / M-bu, FR, RS, VL / B2 (II) *Obs;* D3ii (II) *K6137.*

Triticum aestivum L. / Tscap; SW Asiat / M-rr, RS, VL, RT / B4 (I) *K1648;* C2 (II) *K1385, K1491, K5105;* C4 (I) *K5255;* D3i (I) *K1593.* – Cultivation escape and/or relic.

T. durum Desf. / Tscap; SW Asiat / M-ap, RS, VL, BW, RT, tb / A1 (I); B6 (II) *K1761, K1762;* B7 (III) *K5027;* B8 (II) *K2118;* C1 (I) *K1467;* D2 (II) *K&H1343, K1616, K4266;* D7 (II). – Cultivation escape and/or relic. Not given for Greece in FE.

T. turgidum L. / Tscap; SW Asiat (Zohary & Hopf 1994) / RS, BW / A1 (II). – Cultivation escape and/or relic.

Zea mays L. / Tscap; Neotrop / M-rr, RS / C2 (I) *K2824;* D2 (I) *Obs;* D3i (I) *Obs;* D4 (I) *Obs.* – Cultivation escape.

Iridaceae

Iris albicans Lange / Grhiz; Arabia, ▶Arabia + Medit? / WC, M-rr, FR, GA / B3 (I) *Par2288;* B7 (I) *Obs;* D3i (II) *Par884;* D3ii (II) *Par861;* D7 (II). – Cultivation escape from gardens. Not given for Greece in FE.

I. germanica L. / Gbulb; ? ▶Europ / WC, RS / B3 (I) *Obs;* D2 (II) *K3077;* D7 (II). – Cultivation escape from gardens in the area, most probably dispersed vegetatively (MFG 2: 271).

Liliaceae

Allium cepa L. / Gbulb; Asiat (Pyšek & al. 2002) / RS / B4 (II) *K1767;* B5iii (II) *K2053;* C2 (II) *Obs;* C5 (II) *K3986b.* – Cultivation escape and/or relic from orchards. Not given for Greece in FE. Comments on origin in Zohary & Hopf (1994).

A. cf. *sativum* L. / Gbulb; Asiat (Pyšek & al. 2002) / RS / B3 (I) *Par2801.* – Cultivation escape and/or relic from orchards.

Hyacinthoides hispanica (Mill.) Rothm. / Gbulb; W Medit ▶Medit / ru / B5iii (I) *K923.* – Cultivation escape from gardens.

Hyacinthus orientalis L. subsp. *orientalis* / Gbulb; SW Asiat ▶SW Asiat + Medit / [1], [2] / GCD / C2 (II) *K2994.* – Cultivation escape from gardens. Taxonomy according to Wendelbo in FT 8: 264.

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