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Second contribution to the vascular flora of the Sevastopol area (the Crimea)

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Summary: We report 323 new vascular plant species for the Sevastopol area, an administrative unit in the south-western Crimea. Records of 204 species are confirmed by herbarium specimens, 60 species have been reported recently in literature and 59 species have been either photographed or recorded in field in 2008–2014. Seventeen species and nothospecies are new records for the Crimea: *Bupleurum veronense*, *Lemna turionifera*, *Typha austro-orientalis*, *Tyrimnus leucographus*, ×*Agrotrigia hajastanica*, *Arctium* ×*ambiguum*, *A.* ×*mixtum*, *Potamogeton* ×*angustifolius*, *P.* ×*salicifolius* (natives and archaeophytes); *Bupleurum baldense*, *Campsis radicans*, *Clematis orientalis*, *Corispermum hyssopifolium*, *Halimodendron halodendron*, *Sagina apetala*, *Solidago gigantea*, *Ulmus pumila* (aliens). Recently discovered *Calystegia soldanella* which was considered to be extinct in the Crimea is the most important confirmation of historical records. The Sevastopol area is one of the most floristically diverse areas of Eastern Europe with 1859 currently known species.

Keywords: Crimea, checklist, local flora, taxonomy, new records

A checklist of vascular plants recorded in the Sevastopol area was published seven years ago (Seregin 2008). It listed 1385 species confirmed by specimens, 72 species extracted from literature and 60 species collected in the adjacent localities outside the area. At that time, 194 taxa were reported for the first time for the Sevastopol area. That contribution was based on collections studied by the author in LE, MW, MHA and partially in YALT as well as on published data. The Sevastopol area (SW tip of the Crimea) was defined as a territory which equals the Sevastopol administrative district excluding the northernmost part north of Belbek River (ca. 600 km^2).

Since the publication of the Sevastopol flora checklist, the first author (A.S.) visited Western Crimea several times in 2008–2014 collecting vascular plants. The second (P.Y.) and the third (S.S.) authors started their studies of the Crimean flora almost simultaneously in mid-2000s hunting for plants with cameras all around the Crimea, but mainly nearby their residences in Sevastopol. They made thousands of high quality pictures of plants in the last decade and published some of them in web (http://plantarium.ru/, http://flora.crimea.ru/). Collaborators of the *Plantarium* web-community were always eager to help in identification of some tricky plants. Currently, P.Y. and S.S. are also collecting reference specimens for the most noteworthy records and guiding botanists during joint excursions. Some noteworthy records of P.Y. and S.S. were published recently in a series of short papers dealing as a rule with a single species (Yena & Yevseyenkov 2010; Yena & Svirin 2011; Yena et al. 2011; Fateryga et al. 2013; Ryff et al. 2013, 2014, etc.).

Few important books on local plant diversity were published soon after publication of the checklist. For instance, Larina (2008) made a precise review of flora and vegetation of Baydarsky reserve and compiled a map of localities for 107 rare and endangered vascular plant species. Seventeen of them were new records for the Sevastopol area. Bondareva (2007) finished her PhD thesis *Flora*

and vegetation of Gerakleysky Peninsula. A checklist from this dissertation was recently published as a book (Bondareva 2013). She reported 843 species from Gerakleysky Peninsula, including 71 species overlooked by Seregin (2008). Unfortunately, Larina (2008) and Bondareva (2013) did not cite any specimen for their records. Recently, Yena (2012) published a standard checklist of the Crimean flora based on 612 references and updated nomenclature. We largely follow this work as reference for nomenclature and taxonomy.

We decided to make a complete review of all records from the Sevastopol area not covered by Seregin (2008). This enforced us to consult all relevant references (A.S., P.Y.), to double-check identification of available herbarium specimens (A.S.), to publish relevant photographs on-line for proper documentation of new records (P.Y., S.S.) and to collect as much voucher herbarium specimens for newly discovered species as possible (S.S., A.S., P.Y.). The fourth author (A.F.) joined the preparation of the paper due to his knowledge of the Crimean orchids, which are especially diverse around Sevastopol. The final text was worked out by A.S. and A.F. with assistance of P.Y. and S.S.

Materials and methods

Herbarium collections. – Intensive collections were made by the first author (A.S.) in 2008–2014 (*## T-1110–T-2174*). He was accompanied by the second author (P.Y.) in some field excursions, especially in 2014. These collections were transferred to the Moscow University Herbarium, Russia [MW]. Some duplicates were distributed to the herbaria of the Main Botanic Garden of Russian Academy of Sciences, Moscow [MHA] and of Komarov Institute, St. Petersburg [LE]. The third author (S.S.) has collected reference specimens of the most noteworthy plants since 2011. Due to cooperation with Prof. A.V. Yena and Dr. L.E. Ryff he transferred his collections to the regional herbaria of the Crimean Agrotechnological University [CSAU] and Nikita Botanical Garden [YALT]. Orchid collections of the fourth author (A.F.) mainly from the Eastern Crimea are deposited in the herbarium of Karadag Reserve [PHEO].

Prof. † N.N. Tzvelev (Komarov Botanical Institute, St. Petersburg, Russia), Dr O.V. Yurtseva (Moscow State University, Russia) and Dr A.A. Bobrov (Papanin Institute for Biology of Inland Waters, Borok, Russia) kindly checked our collections of *Elytrigia* Desv., *Polygonum* L. and *Potamogeton* L. respectively.

Photographs. – Only photographs exist as vouchers for ca. 50 species recently discovered in the Sevastopol area. Hundreds of pictures are confirming specimen-based and published records as well. The majority of reference photographs by P.Y. and S.S. were published on-line using *Plantarium* website (http://plantarium.ru/), a Russian-language community of plant amateurs and professional botanists, who are making, publishing and identifying plant pictures from all over the world. We cite a stable ID for each photograph (for instance, #36368) which could be accessed via the following standard link: http://www.plantarium.ru/page/image/id/36368.html. Some pictures were also published earlier on the specialized website 'All plants of the Crimea' (http://flora.crimea.ru/) curated by T.A. Karpenko.

Nomenclature and other references. – Nomenclature in Seregin (2008) largely followed *Flora Europae Orientalis* [= *Flora partis europaeae URSS*] (Fedorov 1974–1987; Tzvelev 1989, 1994–2004). Taxa names from Rubtzov (1972) were cited as synonyms in the case of deviations, because that manual linked modern taxonomy with names adopted in *Flora taurica*

(Wulff 1927–1969; Privalova & Prokudin 1959). The present contribution follows modern nomenclature and taxonomy according to Yena (2012) with basic synonymy from Rubtzov (1972), Fedorov (1974–1987), Tzvelev (1989, 1994–2004) and Czerepanov (1995). Some deviations either resulted from recent studies or reflect taxonomic positions of the authors.

Species from the Sevastopol area already reported in literature but not mentioned by Seregin (2008) are marked with a black circle (•). These records were mostly published by Larina (2008) and Bondareva (2013) with no details on either locality, habitat or specimen data. Additionally, some specimen-based records and observations from the Sevastopol area were recently published by Seregin (2010), Yena & Yevseyenkov (2010), Yena in Greuter & Raus (2010, 2011, 2012), Bengus & Bengus (2011), Yena & Svirin (2011), Yena et al. (2011), Hahn (2012), Ryff (2012), Yena (2012), Fateryga et al. (2013, 2014), Yena & Svirin in Raab-Straube & Raus (2013), Ryff et al. (2013, 2014), Krytska & Novosad (2014), Piwowarczyk in Nobis et al. (2014), Bagrikova et al. (2015), Seregin et al. (2015). We also revealed some additional references neglected in the checklist (Steven 1856; Klokov & Ossycznjuk 1976; Vinogradova 1979; Golubev & Golubeva 1988; Kirschner & Štěpánek 1999; Bondareva & Milchakova 2002; Fedoronchuk et al. 2002; Korzhenevsky et al. 2004). Detailed papers devoted to noteworthy Crimean records of *Tyrimnus leucographus*, *Bupleurum veronense*, *Sagina apetala*, *S. procumbens* and *Vicia ervilia* by L.E. Ryff, N.A. Bagrikova and their co-authors are in press and not employed here.

Results

We report here 323 new vascular plant species for the Sevastopol area. Records of 204 species are confirmed by herbarium specimens, 60 species were reported recently in literature and 59 species were photographed or recorded in field in 2008–2014.

Status categories (native species and archaeophytes are left unmarked):

AN – alien, naturalized;
?AN – probably alien, naturalized;
AN? – alien, probably naturalized;
A – alien, casual;
CN – cultivated, naturalized;
?CN – probably cultivated, naturalized;
CN? – cultivated, probably naturalized;
C – cultivated, casual.

Other explanations:

→ localities situated just slightly outside the discussed area (the Sevastopol area north of the Belbek River);
• species already reported in literature from the Sevastopol area (either in terms of specimens or field notes) but not mentioned by Seregin (2008);
#36368 – a stable ID of the photograph on *Plantarium* website (could be accessed via the following standard link: http://www.plantarium.ru/page/image/id/36368.html);
A.S., P.Y., S.S., A.F. – authors' initials;
Additional records – species not confirmed by specimens so far (recently published records with no cited specimens followed by records based on photos and field notes).

Species list

Alismataceae

Alisma plantago-aquatica L. – Entrance to Sakharnaya Golovka, large pond on the right bank of the Chernaya River, 44°34'30"N, 33°38'10"E, *Agrostis stolonifera* riparian community, elev. 10 m, 19.08.2008, *A.S. T-1254* [MW]; Baydarskaya valley, W edge of Orlinoye, 44°26'35"N, 33°46'10"E, large ditch near pond, elev. 260 m, 29.07.2014, *A.S. T-2067 & P.Y.* [MW, MHA]. – Also recorded in Karadag Lakes, Baydarskaya valley (20.08.2008, S.S., #287392), on the Chernaya River near Inkerman railway bridge (13.08.2008, S.S., #287390) and in Ternovka lake (15.07.2008, S.S., #287396).

Amaranthaceae

Amaranthus graecizans L. **AN** – Balaklava, town centre (port), 44°30'05"N, 33°36'00"E, sidewalk margin, elev. 0–2 m, 31.07.2014, *A.S. T-2119 & P.Y.* [MW, LE].

• *Bassia hirsuta* (L.) Asch. – Sevastopol, Streletskaya Bay, 44°35'35"N, 33°28'10"E, seashore near antique ruins, elev. 0 m, 29.07.2014, *A.S. T-2093 & P.Y.* [MW]; Sevastopol, S corner of Omega Bay, 44°35'40"N, 33°26'55"E, by water, elev. 0 m, 29.07.2014, *A.S. T-2100 & P.Y.* [MW]; Sevastopol, Solyonaya Bay, 44°34'20"N, 33°24'15"E, shore opposite island, elev. 0 m, 31.07.2014, *A.S. T-2146 & P.Y.* [MW]. – Discovered in Solyonaya Bay in 2008 (S.S., #287298). Also reported by Bondareva (2013) from Chersonesos Cape area. The record from Karanskoye plateau area (Bondareva 2013) most probably refers to a misidentified *B. sedoides* (Pall.) Asch. A common plant in Western Bays, although historical record was not confirmed by a specimen (Seregin 2008).

Bassia hyssopifolia (Pall.) Kuntze – Sevastopol, Kamyshovaya Bay, E shore near its mouth, foot of low limestone cliff, 29.09.2012, *S.S.* [YALT, CSAU]; *ibidem*, Kamyshovaya Bay, E shore near its mouth, 44°35'40"N, 33°25'30"E, foot of low limestone cliff, elev. 0–2 m, 29.07.2014, *A.S. T-2117 & P.Y.* [MW]. – Discovered in 2012 (S.S., #155540).

• *Beta maritima* L. (*B. vulgaris* L. subsp. *maritima* (L.) Arcang.) – Sevastopol, W outskirts, highway to Chersonesos Cape, 0.5 km SW of Solyonaya Bay head, 44°34'05"N, 33°23'40"E, disturbed steppe, elev. 20 m, 28.05.2011, *A.S. T-1480* [MW]. – Discovered in 2008 on Mayachnyy Peninsula (P.Y., #8758) (Yena & Yevseyenkov 2010; Yena in Greuter & Raus 2010). It is a locally common plant throughout northern coastal areas of Gerakleysky Peninsula from Chersonesos Cape to Sevastopol city centre as well as in Balaklava (A.S.). Also recorded in weedy places in urban residential areas of Sevastopol [specimens in CSAU, MW].

Chenopodium chenopodioides (L.) Aellen (*Oxybasis chenopodioides* (L.) S. Fuentes et al.) – Baydarskaya valley, 44°27'51"N, 33°48'14"E, pond near the dam of Chernorechenskoye Reservoir, 5.11.2013, *S.S.* [MW].

Chenopodium glaucum L. **AN?** – Balaklava, town centre (port), 44°29'55"N, 33°36'00"E, flowerbed, as a weed, elev. 0–2 m, 31.07.2014, *A.S. T-2122 & P.Y.* [MW].

• *Chenopodium vulvaria* L. **?AN** – Sevastopol, city centre, Yekaterininsky square, 44°37'05"N, 33°31'35"E, flowerbed, elev. 10 m, 10.07.2014, *A.S. T-1803* [MW]. – Also reported by Bondareva (2013) from Western Bays area and recorded in Kamyshovaya Bay (S.S.; cf. 2.08.2011, P.Y., #100215) and near Park Pobedy in Sevastopol (17.07.2014, A.S.). A fairly common plant on

weedy places of the city (S.S.). Historical record was not confirmed by a specimen (Seregin 2008).

Corispermum aggr. *hyssopifolium* L. (cf. A.P. Sukhorukov) **A** – Sevastopol, newly constructed residential area on E side of Kamyshovaya Bay, 44°35'20"N, 33°25'55"E, fresh ground along path, elev. 10 m, 3.08.2014, *S.S. & P.Y.* [MW]; → Vicinity of Orlovka, Vyazovaya Roshcha holiday village, 44°42'58,5"N, 33°33'00"E, on the construction sand, 2.09.2013, *S.S.* [MW]. – Also discovered earlier in Balaklava by V. Savchuk (pers. comm.; cf. 18.08.2013, P.Y., #202688). A rare casual plant of the construction sand piles brought from the seashores of the Crimean steppe or continental Ukraine. The sand is usually contaminated with numerous seeds of *Corispermum* and some other psammophytic species (for instance, *Astragalus varius*, *Artemisia marschalliana*, etc.), which are absent in the Sevastopol area. Naturalization is impossible due to absence of exposed sands.

• *Kraschenninnikovia ceratoides* (L.) Gueldenst. – 2.5 km E of Balaklava Bay mouth, above Blizhneye locality [Zolotoy beach], 44°29'10"N, 33°37'25"E, exposed clay slopes just below footpath, elev. 110 m, 31.07.2014, *A.S. T-2126 & P.Y.* [MW, MHA]. – A noteworthy record of the species in the Western Crimea was first made in 1982 by Golubeva in Ayazma locality (Golubev & Golubeva 1988; specimens in [YALT]). Golubev & Golubeva (1988) reported at least two populations: (1) in the central part of Ayazma locality with some trees of *Pinus brutia* Ten. var. *pityusa* (Steven) Silba (*P. stankewiczii* (Sukaczev) Fomin), elev. 200–300 m and (2) along the sea coast, elev. 15–20 m. We discovered recently two additional small populations – along trail above Zolotoy beach in 2012 (P.Y., #156806) and sea-faced slopes of Biller Range below Inzhir pass in 2011 (S.S., #287332). The former locality was independently detected by Ryff not long ago (pers. comm.).

Petrosimonia triandra (Pall.) Simonk. – Lyubimovka, the Belbek River mouth, 44°39'40"N, 33°32'45"E, coastal dry salt marshes, elev. 0–2 m, 12.09.2010, *A.S. T-1435 & P.Y.* [MW]. – Discovered in 2009 (S.S., #67361). Historical record was not confirmed by a specimen (Seregin 2008).

Additional records:

• *Atriplex pedunculata* L. (*Halimione pedunculata* (L.) Aellen) – Reported by Bondareva (2013) from Western Bays area. Also recorded in Lyubimovka (13.10.2009, S.S., #287387).

• *Suaeda prostrata* Pall. – Reported by Bondareva & Milchakova (2002) from Kazachya Bay reserve and by Bondareva (2013) from Chersonesos Cape area and Western Bays area, where it is an apparently common plant (cf. 26.08.2008, S.S., #287376).

Chenopodium polyspermum L. (*Lipandra polysperma* (L.) S. Fuentes, Uotila & Borsch.) – Baydarskaya valley, 15.08.2010 (P.Y., #101163). – Also recorded in the Sukhaya River gorge (15.07.2014, A.S.) and pond near Ternovka (9.09.2014, P.Y., photo).

Amaryllidaceae

Allium sativum L. **CN?** – Inkerman, right bank flood plain of the Chernaya River near its mouth, 44°36'25"N, 33°36'15"E, meadows covered with bushes (former vegetable gardens), elev. 0–2 m, 28.07.2014, *A.S. T-2046 & P.Y.* [MW].

• *Allium tarkhankuticum* Seregin – Sevastopol, Streletskaya Balka valley, N slope, 13.09.1989, *V. Nikiforova & A. Belov* [MW]. – This new *Allium* species was described from Tarkhankut

Peninsula and adjacent localities in the western part of the Crimean steppe (Seregin 2012). It is similar to the Crimean *A. marschallianum* Vved., but in fact not closely related to it (Seregin et al. 2015). During the preparation of *A. tarkhankuticum* protologue this specimen from the Sevastopol area was neglected, but mapped later by Seregin et al. (2015).

Additional records:

Allium siculum (Ucria) Lindl. subsp. *dioscoridis* (Sm.) K. Richt. (*Nectaroscordum bulgaricum* Janka) – E of Chertova Lestnitsa pass, near Balchik-Kuyu spring, 17.06.2010 (S.S., #287338; cf. 7.04.2012, S.S., #287339). – Successfully introduced by V. Kuropatkin in his private garden in Nikolaev. I. Turbanov (pers. comm.) has discovered the larger population nearby. This species is a rare plant of the Crimean hardwood forests. The closest specimen-based record is on Chatyrdag [LE, MW, YALT, etc.]. The largest Crimean population of several thousands individuals is situated on Orta-Syrt yayla (S.S.).

Narcissus pseudonarcissus L. **CN?** – Vicinity of Lyubimovka, 31.03.2012 (P.Y., #127211).

Apiaceae

Aegopodium podagraria L. **AN** – Sevastopol, middle course of Kilen-Balka valley, 44°35'25"N, 33°34'50"E, bottom of the valley, holiday village, in shade along fence, among *Urtica dioica*, elev. 80 m, 29.05.2012, *A.S. T-1664* [MW].

• *Bupleurum odontites* L. – SE of Nikolayevka and W of Zolotaya Balka valley, *Koeleria*-herbs-*Festuca* steppe, 3.07.1962, *L. Makhayeva*, det. V. Vinogradova [YALT] (Vinogradova 1979). – Also reported by Bondareva (2013) from two localities, but these records refer to *B. veronense* (see below). The record from the Crimea was missed by Snogerup & Snogerup (2001) and Seregin (2008).

Bupleurum veronense Turra (det. A. Kovalchuk) – Sevastopol, below roman citadel on Mt Vysota Gornaya, 18.06.2013, *S.S.* [CSAU, YALT]; Sevastopol, vicinity of Maximova Dacha estate, 44°33'16"N, 33°32'26"E, *Cercis* cultures, abundant, 8.06.2014, *S.S.* [MW]; Sevastopol, between 5th km of Balaklava highway and Maximova Dacha estate, 44°33'10"N, 33°32'30"E, steppe plot on plateau, elev. 160 m, 28.07.2014, *A.S. T-2064 & P.Y.* [MW, LE]; Sevastopol, N edge of Maximova Dacha estate, 44°33'45"N, 33°32'25"E, upper part of steppe slope of Maximova Balka valley, elev. 130 m, 28.07.2014, *A.S. T-2066 & P.Y.* [MW, MHA]. – This species was discovered in 2000s in two localities (near Maximova Dacha estate and on antique ruins in Yukharina Balka valley) by Bondareva (2013), who left them misidentified for *B. odontites* auct. Both populations were recently confirmed (P.Y., S.S., #193564, #242893, etc.). Moreover, S.S. recorded it near Mt Vysota Gornaya. Thus, currently we know three local populations of the species in the Crimea and the Sevastopol area.

Additional records:

Bupleurum baldense Turra **AN?** – Sevastopol, on a railway along Kamyshovskoye highway, 11.06.2008 (S.S., #287302, det. S. Stoyanov). – We presumed this plant to be *B. veronense* (see above), but Stoyan Stoyanov (Sofia, Bulgaria) drew our attention to some important morphological details which undoubtedly key out *B. baldense*.

Araceae

Lemna gibba L. **AN** – Rodnikovskoye, Peredovoye exit, 44°27'55"N, 33°51'15"E, permanent pool near highway, elev. 260 m, 8.09.2010, *A.S. T-1391* [MW]; between buildings of Inkerman-1

station and highway, 44°36'25"N, 33°35'50"E, a ditch with fresh water, elev. 0–2 m, 13.07.2011, *A.S. T-1634* [MW].

Lemna turionifera Landolt **?AN** – Sevastopol, Maximova Dacha estate, 4.07.2009 (I. Turbanov, #23663); Baydarskaya valley, W edge of Orlinoye, 44°26'35"N, 33°46'10"E, pond, in water, among *Spirodela polyrrhiza*, elev. 260 m, 29.07.2014, *A.S. T-2071 & P.Y.* [MW]; ascent by road from Peredovoye to NE (Golubinka direction), 44°30'55"N, 33°50'10"E, small overgrown dam on valley bottom, elev. 370 m, 2.08.2014, *A.S. T-2167* [MW].

• *Spirodela polyrrhiza* (L.) Schleid. **AN** – Baydarskaya valley, no details, *S.S.* [CSAU] (Yena 2012); Baydarskaya valley, W edge of Orlinoye, 44°26'35"N, 33°46'10"E, pond, in water, elev. 260 m, 29.07.2014, *A.S. T-2070 & P.Y.* [MW]. – According to Yena (2012), it is known in Baydaraskaya valley at least since 2000, when it was discovered by I. Turbanov (see later confirmation from Tylovoye, #64968). Later on, *S. polyrrhiza* was discovered in few ponds in Baydaraskaya and Varnutskaya valleys.

Additional record:

Arum italicum Mill. subsp. *albispathum* (Steven ex Ledeb.) Prime (*A. albispathum* Steven ex Ledeb.) – The Sukhaya River canyon, Toropova Dacha, 7.06.2011 (P.Y., #93335).

Asparagaceae

Additional records:

• *Anthericum ramosum* L. – Reported by Korzhenevsky et al. (2004) from Kolkhoznoye and by Larina (2008) from two localities: N slope of Mt Bizyuka and ca. 2.5 km E of Mt Kara-Dag (near Rodnikovskoye). The closest specimen-based records are near Mangup-Kale and Foros (Seregin 2008).

• *Asparagus tenuifolius* Lam. – Reported by Korzhenevsky et al. (2004) from three localities: Shirokoye, Rodnikovskoye and the Chernaya River canyon.

Hyacinthus orientalis L. **CN?** – Sevastopol, Oktyabrskoy Revolyutsii Avenue, 31.03.2011 (P.Y., #84823, det. Y. Pirogov); Sevastopol, Troitskaya Balka valley, 5.04.2012 (P.Y., #180870); Sevastopol, Streletskaya urban area, Yuri Gagarin Avenue, 24.03.2015 (P.Y., #287145). – The species is slowly spreading in the first locality (29.03.2015, P.Y., photo).

Aspleniaceae

Asplenium adiantum-nigrum L. – Rezervnoye, inner wall of the well, 9.04.2014, *S.S.* [CSAU].

Asteraceae

Acroptilon repens (L.) DC. **?AN** – Lyubimovka, left bank of the Belbek River, 44°39'55"N, 33°33'15"E, floodplain, *Elytrigia repens* meadow on garden edge, elev. 2–5 m, 31.05.2012, *A.S. T-1715* [MW]. – Also recorded along road to Flotskoye (21.06.2010, S.S., #287323).

Arctium × *ambiguum* (Čelak.) Nyman (*A. lappa* L. × *A. tomentosum* Mill.) – Between Shaytan-Merdven pass and Chertova Lestnitsa ascent, 44°25'30"N, 33°51'05"E, glade along forest road, elev. 610 m, 3.08.2014, *A.S. T-2172 & Buzin* [MW]. – Both parents present in this locality.

• *Arctium minus* (Hill) Bernh. – Highway below Ternovka, 44°34'50"N, 33°44'20"E, edge of *Rubus* thicket between highway and a rivulet, elev. 190 m, 10.09.2010, *A.S. T-1405* [MW]; Lyubimovka, 44°39'30"N, 33°33'20"E, pond bank, elev. 10 m, 12.09.2010, *A.S. T-1423 & P.Y.*

[MW]. – Also reported by Bondareva (2013) from Fiolent Cape area. A common plant in urban and rural regions of the Sevastopol area (A.S.).

Arctium × *mixtum* Nyman (*A. minus* (Hill) Bernh. × *A. tomentosum* Mill.) – Baydarskaya valley, NE edge of Peredovoye, 44°30'45"N, 33°49'55"E, street margin, with both parents, elev. 360 m, 2.08.2014, *A.S. T-2168* [MW].

Artemisia dubia Wall. (*A. codonocephala* Diels, *A. umbrosa* (Besser) Pamp.) **AN** – Sevastopol, near Park Pobedy entrance (0.1 km SW of stela), 44°35'55"N, 33°27'20"E, large vegetative clone on lawn, elev. 10 m, 29.07.2014, *A.S. T-2099 & P.Y.* [MW, LE, MHA]; Sevastopol, S corner of Omega Bay, 44°35'45"N, 33°26'55"E, grass glade in brambles, elev. 0–2 m, 29.07.2014, *A.S. T-2103 & P.Y.* [MW]; Balaklava, entrance to town centre (port), 44°30'15"N, 33°35'55"E, lawn near building, elev. 10 m, 31.07.2014, *A.S. T-2130 & P.Y.* [MW, MHA]; Balaklava, W side of the bay, 44°30'15"N, 33°35'50"E, along stream below shipyard in port, one clone, elev. 10 m, 31.07.2014, *A.S. T-2136 & P.Y.* [MW]. – Discovered in Park Pobedy in 2011 (P.Y., #107528). First record in the Crimea was made in 2004 (Yena in Greuter & Raab-Straube 2005, sub nom. *A. codonocephala* Diels).

Artemisia marschalliana Spreng. **A** – Sevastopol, newly constructed residential area on E side of Kamyshovaya Bay, 44°35'20"N, 33°25'55"E, fresh ground along path, elev. 10 m, 3.08.2014 *S.S. & P.Y.* [MW]. – See comments on *Corispermum*.

Calendula officinalis L. **C** – Sevastopol, newly constructed residential area on E side of Kamyshovaya Bay, 44°35'15"N, 33°25'50"E, fresh ground, several plants, elev. 10 m, 29.07.2014, *A.S. T-2116 & P.Y.* [MW]. – Also recorded in Baydarskaya valley, on road margin (1.11.2013, P.Y., #213350) and Ostryaki urban area in Sevastopol (8.07.2014, A.S.).

• *Centaurea comperiana* Steven – Laspi, s.d., *Compére* (not traced) (Steven 1856); Balaklava, W side of the bay near its mouth (above Mramornyy beach), 44°29'45"N, 33°35'35"E, seaside rocks, elev. 10 m, 31.07.2014, *A.S. T-2132 & P.Y.* [MW]. – Described from Laspi valley (Steven 1856). Also reported by Korzhenevsky et al. (2004) from two localities: Batiliman and rocks above Laspi. Discovered near Balaklava in 2009 (P.Y., #169264).

• *Centaurea taliewii* Kleopow (*Rhaponticoides taliewii* (Kleopow) M.V. Agab. & Greuter) – → Lukull Cape, 16.06.2011, *S.S.* [YALT]. – Also reported by Korzhenevsky et al. (2004) from two localities: Fiolent Cape and → Lukull Cape.

Cota altissima (L.) J. Gay (*Anthemis altissima* L.) – Sevastopol, foot of Mt Sapun-Gora, motordrome, 44°33'05"N, 33°35'10"E, earth embankment, elev. 150 m, 31.05.2011, *A.S. T-1554* [MW].

• *Crepis ramosissima* d'Urv. – Entrance to Inkerman, right bank of the Chernaya River, 44°36'20"N, 33°36'15"E, abandonned railway crossing on highway, elev. 0–2 m, 28.07.2014, *A.S. T-2042 & P.Y.* [MW]. – Also reported by Bondareva (2013) from six areas (Western Bays, Chersonesos Cape, Fiolent Cape, Karanskoye plateau, Yukharina Balka, Mt Sapun-Gora/Maximova Dacha) and recorded on Northern Side of Sevastopol (22.06.2008, S.S., #37202, det. V. Grigorenko). An abundant plant on fallow lands in Verkhnesadovoye – Siren area (16.06.2011, S.S.).

Cynara scolymus L. **C** – Sevastopol, mouth of Streletskaya Balka valley, 44°35'30"N, 33°28'20"E, weedy place on road margin near holiday village, a single plant, elev. 10 m, 23.08.2008, *A.S. T-1337* [MW]. – A rare casual plant on rough ground and weedy places in Seavastopol. Also recorded in Kamyshovaya Bay (2014).

• *Galinsoga quadriradiata* Ruiz & Pav. (*G. urticifolia* (Kunth) Benth.) **AN** – Balaklava, 44°30'40"N, 33°36'00"E, stone flower pot near town administration, elev. 10 m, 11.07.2014, *A.S. T-1809* [MW]. – Also reported by Bondareva (2013) from Gerakleysky Peninsula.

Gnaphalium rossicum Kirp. (*Filaginella rossica* (Kirp.) Tzvelev) – Ternovka, 44°34'03"N, 33°46'24"E, pond, abundant, 26.10.2012, *S.S.* [MW]; → Adym-Chokrakskaya valley, 44°34'57"N, 34°48'30"E, dry pond at the S foot of Mangup-Kale, 12.10.2013, *S.S.* [MW].

Helianthus tuberosus L. **CN** – Between Rodnoye junction and Chernorechye, 44°34'20"N, 33°43'00"E, bank of pond in a road loop, several local populations, abundant on SE bank of a pond, elev. 130 m, 10.09.2010, *A.S. T-1412* [MW]; Lyubimovka, left bank of the Belbek River, 44°39'55"N, 33°33'15"E, riparian forest, in shade, dozens of shoots, elev. 2–5 m, 31.05.2012, *A.S. T-1714* [MW]. – In 2012, *H. tuberosus* was recorded all along the lower course of the Belbek River (from Fruktovoye to the mouth) (A.S., P.Y.). It is forming pure stands formed by vegetative clones. Most probably, it is spreading by rhizomes in flood time. Now, *H. tuberosus* should be regarded as a successfully naturalized troublesome alien in the Belbek River floodplain.

Picris echioides L. (*Helminthotheca echioides* (L.) Holub) **?AN** – Baydarskaya valley, vicinity of Orlinoye, fish pond near Mt Pska-Bair, 44°26'20"N, 33°45'50"E, shady edge of ground road, groups, elev. 260 m, 29.07.2014, *A.S. T-2081 & P.Y.* [MW, MHA]. – Discovered in 2009 (P.Y., #28883, det. A. Ebel). Previous closest specimen-based record was above Ponizovka (Seregin 2008).

Podospermum canum C.A. Mey. (*Scorzonera cana* (C.A. Mey.) Hoffm.) – 2.25 km SE of Balaklava, Blizhneye locality – Zolotoy beach, 44°29'10"N, 33°37'25"E, exposed fine soil seaside slope, elev. 120 m, 30.05.2012, *A.S. T-1687* [MW].

Scorzonera parviflora Jacq. – The Chernaya River mouth, the littoral near Inkerman-1 station, 44°36'30"N, 33°35'50"E, among *Juncus*, elev. 0 m, 13.07.2011, *A.S. T-1638* [MW].

Silybum marianum L. **AN** – Between Inkerman-1 station and the bridge across the Chernaya River, 44°35'45"N, 33°36'15"E, railway bed, fine coquina, elev. 5 m, 13.07.2011, *A.S. T-1645* [MW]. – Also recorded in vicinity of Kazachya Bay (22.05.2014, P.Y., #115559).

Solidago gigantea Aiton (*S. serotinoides* Á. Löve & D. Löve) **CN** – In the railway 'triangle' between Inkerman-1 station, Inkerman-2 station and the bridge across the Chernaya River, 44°35'45"N, 33°36'20"E, moist meadow glade, a single individual with few shoots, elev. 5 m, 13.07.2011, *A.S. T-1647* [MW]. – Discovered near Inkerman in 2010 (P.Y., #61600, det. V. Grigorenko). Also collected in Ay-Todor-Dere gorge near Ternovka [CSAU], where it is truely naturalized (Yena, pers. comm.).

Symphyotrichum graminifolium (Spreng.) G.L. Nesom (*Conyzanthus graminifolius* (Spreng.) Tamamsch.) **AN** – Sevastopol, headwaters of Kamyshovaya Bay, 44°34'40"N, 33°26'05"E, on the shipyard, elev. 0–2 m, 29.07.2014, *S.S. T-2118* et al. [MW]. – Discovered in Uchkuyevka in 2009 (S.S., #37214, det. V. Grigorenko) and in Kamyshovaya Bay in 2011 (S.S.). Later on, it was recorded by S.S. in a flowerbed on General Ostryakov Avenue and below sea-faced escarps between Uchkuyevka and Radiogorka.

Tagetes patula L. **C** – Lyubimovka, a rivulet from the pond, 44°39'25"N, 33°33'00"E, weedy place on bank (near houses), elev. 5 m, 12.09.2010, *A.S. T-1427 & P.Y.* [MW]; Sevastopol, newly constructed residential area above Omega Bay, 44°35'55"N, 33°26'15"E, crack in sidewalk near flowerbed (absent in nearby flowerbeds), elev. 10 m, 29.07.2014, *A.S. T-2104 & P.Y.* [MW].

Tanacetum achilleifolium (M. Bieb.) Sch. Bip. – → W edge of Fruktovoye, right bank of the Belbek River, 44°40'45"N, 33°35'40"E, foot of steppe limestone slope (by road), elev. 10 m, 31.05.2012, *A.S. T-1726* [MW]; → vicinity of Orlovka, near Kacha bridge, 44°43'40"N, 33°35'30"E, petrophyte steppe on plateau, elev. 40 m, 19.07.2014, *A.S. T-1918* [MW]. – Also recorded → near Lukull Cape (30.06.2012, P.Y., #172276, det. M. Knjazev).

Taraxacum bessarabicum (Hornem.) Hand.-Mazz. – Sevastopol, Balka Bergmana, along spring, 27.09.2010, *S.S.* [CSAU, YALT?]. – Discovered in 2009 (P.Y., #36322, det. V. Grigorenko).

Taraxacum hellenicum Dahlst. – Sevastopol, W outskirts, headwater of Kazachya Bay, 44°33'30"N, 33°24'20"E, disturbed place in stony steppe, elev. 30 m, 18.04.2007, *A.S. T-1098* [MW]; Sevastopol, W outskirts, highway to Chersonesos Cape behind Solyonaya Bay, SW corner of the airfield, 44°34'15"N, 33°23'30"E, disturbed steppe on the edge of seashore escarp, elev. 10 m, 28.05.2011, *A.S. T-1476* [MW]. – Also recorded near Fiolent Cape (6.04.2012, P.Y., #127739, det. Y. Pirogov).

• *Taraxacum perenne* Kirschner & Štěpánek – Planta culta sub no. JŠ 3517 (origin: Regio Sevastopol, in valle Baidarskaya dolina: in graminosis subsalsis non procul a pago Orlinoe, 1989, *Kirschner & Štěpánek*), 1991, no. det. 8843 [PRA, holo- & isotypus] (Kirschner & Štěpánek 1999); Baydarskaya valley, vicinity of Tylovoye, 44°26'23"N, 33°43'12"E, meadow, 19.09.2012, *S.S.* [MW]; *ibidem*, 4.11.2013, *S.S.* [MW]; Baydarskaya valley, vicinity of Kizilovoye, 44°25'38"N, 33°46'21"E, meadow, 18.09.2012, *S.S.* [MW]; *ibidem*, 8.11.2013, *S.S.* [MW]; 0.8 km W of Chertova Lestnitsa pass, 44°25'16,5"N, 33°50'41,5"E, Kuyu-Alan glade, elev. 580 m, 26.09.2013, *S.S.* [MW]. – Kirschner & Štěpánek (1999) described this plant based on a single collection from Orlinoye. Recent collections and observations by S.S. considerably enlarged the known distribution of the species, but it is still endemic to the Sevastopol area.

• *Taraxacum serotinum* (Waldst. & Kit.) Poir. – → Verkhnesadovoye, right bank of the Belbek River, road margin, 29.06.2013, *A.V. Yena & A.F.* [CSAU]. – Discovered here in 2010 (P.Y., #76703). Also reported by Bondareva (2013) from Mt Sapun-Gora/Maximova Dacha area and recorded between 5th and 7th km of Balaklava highway (9.09.2009, S.S., photo), in Fiolent Cape area (S.S.), and → at Lukull Cape (14.10.2009, S.S., #287352).

Tyrimnus leucographus (L.) Cass. (*Carduus leucographus* L.) – Sevastopol, detour highway, 1 km from Balaklava junction, 44°32'05"N, 33°34'00"E, crumbling slope undercut during highway construction, elev. 160 m, 28.07.2014, *A.S. T-2057 & P.Y.* [MW, LE]. – Discovered in Karanskaya Balka valley in 2010 (S.S., #287397; cf. 27.05.2012, P.Y., #135469, det. A. Kovalchuk). The population along detour highway on recently exposed slope was discovered in 2014 (P.Y.).

Additional records:

• *Aster amellus* L. subsp. *bessarabicus* (Rchb.) Soó (*Aster amelloides* Besser) – Reported by Larina (2008) from two localities: yayla ca. 1.2 km W of Baydarskiye Vorota pass and ca. 2 km SE of Kolkhoznoye.

• *Centaurea cyanus* L. (*Cyanus segetum* Hill.) **A** – Reported by Bondareva (2013) from Karanskoye plateau area.

• *Centaurea sterilis* Steven – Reported by Korzhenevsky et al. (2004) from four localities: yayla in Baydarsky reserve, Fiolent Cape, S slope of Mt Kalanykh-Kaya and Sarych Cape. The closest specimen-based record is near Foros (Seregin 2008).

• *Cota jailensis* (Zefir.) Holub (*Anthemis jailensis* Zefir.) – Reported by Korzhenevsky et al. (2004) from the Chernaya River valley.

• *Xanthium orientale* L. subsp. *italicum* (Moretti) Greuter (*X. italicum* Moretti) **AN** – Reported by Bondareva (2013) from Gerakleysky Peninsula (no precise locality) after Kozhevnikova & Rubtzov (1971).

• *Xanthium orientale* L. subsp. *riparium* (Čelak.) Greuter (*X. albinum* (Widder) Scholz) **AN** – Reported by Bondareva (2013) from Gerakleysky Peninsula upon personal communication by N.A. Bagrikova.

Carduus acanthoides L. – Frontovoye, 12.07.2014 (A.S.). – The closest specimen-based record is near Foros (Seregin 2008).

Erigeron aggr. *acris* L. (incl. *E. podolicus* Besser, *E. orientalis* Boiss.) – Inkerman-2 station, 7.07.2010 (P.Y., #61581, det. V. Grigorenko); Baydarskaya valley, 27.07.2010 (P.Y., #63272). – The closest specimen-based record is near Mangup-Kale (Seregin 2008).

Erigeron annuus (L.) Pers. s.l. (*Phalacroloma annuum* (L.) Dumort. s.l.) – Inkerman station (S.S. & P.Y.). A single plant was recorded on lawn in Sevastopol city centre, near Artbukhta, Artilleriyskaya Bay (07.2014, A.S.), but was mowed few days later. The species is known in the Crimea since early 2000s (Yena & Moysiyenko 2001).

Lactuca sativa L. **A/C** – Sevastopol, 24.06.2013 (P.Y., #194767, det. S. Majorov). – A rare casual plant, disappeared in 2014.

Scorzonera hispanica L. subsp. *asphodeloides* (Wallr.) Arcang. (*S. taurica* M. Bieb.) – Baydarskaya valley, 21.05.2010 (P.Y., #56249, det. V. Grigorenko).

Serratula erucifolia (L.) Boriss. (*Klasea erucifolia* (L.) Greuter & Wagenitz) – → Near Lukull Cape, 30.06.2012 (P.Y., #141494).

Taraxacum thracicum Soest – Vicinity of Balaklava, 17.04.2009 (P.Y., #42700, det. V. Grigorenko); Cape Fiolent, 11.04.2009 (P.Y., #35560, det. V. Grigorenko).

Berberidaceae

Mahonia aquifolium (Pursh) Nutt. (*Berberis aquifolium* Pursh) **CN?** – Sevastopol, Park Pobedy, near stela, 44°36'00"N, 33°27'30"E, abundant self-seeding in shady places, elev. 10 m, 23.08.2008, *A.S. T-1322* [MW].

Bignoniaceae

Campsis radicans (L.) Seem. (*Tecoma radicans* (L.) Juss.) **CN** – Sevastopol, lower course of Streletskaya Balka valley, 44°35'00"N, 33°28'30"E, petrophyte steppe slope along road across the valley (Vakulenchuk Street), probably planted to fix the road excavation, elev. 40 m, 29.07.2014, *A.S. T-2090 & P.Y.* [MW, LE]; Sevastopol, lower course of Streletskaya Balka valley, 44°35'00"N, 33°28'20"E, high road embankment across the valley (Vakulenchuk Street), upper part of the slope, in brambles and *Parthenocissus inserta* (*A.S. T-1345*), elev. 30 m, 29.07.2014, *A.S. T-2092 & P.Y.* [MW]. – Discovered in 2013 (P.Y., #198671). There is still no evidence of true naturalization in Sevastopol, but invasive populations of the species were recorded along Yalta highway (E of Laspi, A.S.). Also, *C. radicans* is established in Laspi: small valleys along Batiliman road, 24.06.2014, *L. Ryff* [YALT].

Boraginaceae

Anchusa arvensis (L.) M. Bieb. (*Lycopsis arvensis* L.) **AN** – Sevastopol, 1.75 km S of railway station, Nikolai Muzyka Street, 44°34'45"N, 33°31'35"E, fresh earth near new transformer vault, elev. 90 m, 29.05.2011, *A.S. T-1522* [MW].

• *Neatostema apulum* (L.) I.M. Johnst. (*Lithospermum apulum* L.) – Sevastopol, Cape Mayachnyy, 44°35'11"N, 33°23'29"E, steppe plot, 10 m from the seashore, 8.05.2013, *S.S.* [MW]; Fiolent Cape, 10.07.2014, *L. Ryff* [YALT; cf. #249892]. – Discovered on Mayachnyy Cape in 2009 (P.Y., #16787, det. V. Grigorenko). Also reported by Bondareva (2013) from two localities: Karanskoye plateau area and Mt Sapun-Gora/Maximova Dacha area. Previous closest specimen-based record was near Opolznevoye (Seregin 2008).

Nonea echioides (L.) Roem. & Schult. (*N. ventricosa* (Sm.) Griseb.) **AN** – Sevastopol, Uchkuyevka, in park, 14.04.2011, *S.S.* [CSAU, YALT]; Sevastopol, Kamyshovaya Bay, former Fishermen Culture House, 44°34'59"N, 33°26'06"E, flowerbed, 27.03.2014, *S.S.* [MW]. – Discovered in Kamyshovaya Bay in 2010 (P.Y., #54384, det. A. Kovalchuk). Historical record was not confirmed by a specimen (Seregin 2008).

Symphytum officinale L. – Sevastopol, Ostryaki urban area, 2.25 km S from railway station, General Kolomiets Street and Marshal Gelovani Street cross, 44°34'25"N, 33°31'30"E, edge of holiday village, abundant along a solid fence, with *Urtica dioica* and *Chelidonium majus*, elev. 90 m, 29.05.2011, *A.S. T-1517* [MW]. – Also recorded as a native species in Baydarskaya valley along stream (9.05.2009, P.Y. and S.S., #16887).

Additional records:

Anchusa thessala Boiss. & Sprun. – Uchkuyevka, in park, 26.05.2009 (S.S., #37830, det. V. Grigorenko); Sevastopol, near Maximova Dacha estate, 2.05.2014 (P.Y., #61107).

Borago officinalis L. **A/C** – Kamyshovaya Bay, 3.04.2014 (P.Y., #230690).

Lappula patula (Lehm.) Menyh. – → Lukull Cape, 1.07.2010 (P.Y., #61086, det. V. Grigorenko).

Brassicaceae

Alyssum minutum Schltdl. ex DC. – Vicinity of Rezervnoye, 23.03.2014, *S.S.* [CSAU, YALT].

Arabis turrita L. (*Pseudoturritis turrita* (L.) Al-Shehbaz) – Mountains above Batiliman, 0.2 km NW of Mt Kush-Kaya, 44°25'35"N, 33°40'45"E, *Carpinus orientalis* forest, along path, elev. 610 m, 1.06.2011, *A.S. T-1610* [MW]. – Also recorded above Rodnikovskoye and Skelskaya Cave (22.04.2007, S.S., #287375). A locally common plant in forest zone of the Sevastopol area (S.S.). Previous closest specimen-based record was near Eski-Kermen (Seregin 2008).

Armoracia rusticana (L.) Gaertn. et al. **CN?** – Lyubimovka, 44°39'30"N, 33°32'50"E, near houses, garden escape, elev. 5 m, 12.09.2010, *A.S. T-1428 & P.Y.* [MW].

• *Bunias erucago* L. (*B. arvensis* Jord.) **?AN** – Rezervnoye, 44°28'26"N, 33°40'22"E, ground road, 26.05.2013, *S.S.* [MW, YALT, CSAU]. – The species was reported by Yena & Svirin (2011) from two localities in Sevastopol [specimens in YALT, CSAU]. Currently known from Kommunisticheskaya Street in Sevastopol (2010, S.S.), Menshikova Street in Sevastopol (2010, S.S.; cf. 12.06.2011, P.Y., #98614) and Karanskaya Balka valley (2012, P.Y., #132195).

Eruca sativa Mill. **AN/CN** – Sevastopol, SW side of Kamyshovaya Bay, 44°34'15"N, 33°25'40"E, large dump with stockpiles, elev. 10–20 m, 31.07.2014, *A.S. T-2137 & P.Y.* [MW]. – Discovered in 2013 (P.Y., #181782). Also recorded near Maximova Dacha estate (7.04.2013, P.Y., #181054).

Erysimum cheiranthoides L. **?AN** – → Adym-Chokrakskaya valley, 44°34'55"N, 33°48'30"E, dry pond at the S foot of Mangup-Kale, 12.10.2013, *S.S.* [MW]. – Discovered in 2009 (S.S., #287519, det. A.S.).

Hymenolobus procumbens (L.) Schinz & Thell. – Sevastopol, Kazachya Bay, 44°34'37"N, 33°24'32"E, thin layer of saline soil on limestone along the shore, with *Sagina maritima*, elev. 0–0.5 m, 27.04.2012, *S.S.* [MW]; Sevastopol, antique ruins in Kamyshovaya Bay, 3.04.2011, *P.Y.* [YALT]. – Discovered in Kamyshovaya Bay in 2009 (S.S., #287340).

• *Rapistrum rugosum* (L.) All. – Entrance to Sakharnaya Golovka, right bank floodplain of the Chernaya River, 44°34'30"N, 33°38'10"E, arable land, elev. 10 m, 19.08.2008, *A.S. T-1260* [MW]; Baydarskaya valley, W edge of Orlinoye, 44°26'35"N, 33°46'10"E, pond, by water, elev. 260 m, 29.07.2014, *A.S. T-2072 & P.Y.* [MW]. – Also reported by Bondareva (2013) from two localities: Fiolent Cape area and Karanskoye plateau area. A common weed throughout the Sevastopol area (S.S., A.S.). Previous closest specimen-based record was near Foros (Seregin 2008).

Rorippa anceps (Wahlenb.) Rchb. – → Right bank of the Belbek River opposite Frontovoye, 44°40'10"N, 33°44'15"E, wet depression on flood plain, elev. 60 m, 12.07.2014, *A.S. T-1832* [MW]. – Some specimens and records of *R. sylvestris* (L.) Besser from the Sevastopol area could refer to this species.

Sinapis alba L. **AN** – 1.5 km W of Rezervnoye, 44°28'20"N, 33°39'15"E, ploughed large glade in forest with cereals, elev. 340 m, 30.05.2012, *A.S. T-1699* [MW]. – Also recorded in Kamyshovaya Bay (30.05.2011, S.S., #287864). Historical record was not confirmed by a specimen (Seregin 2008).

Sisymbrium altissimum L. – Sevastopol, foot of Mt Sapun-Gora, 44°33'00"N, 33°35'20"E, gentle open slope below motordrome, elev. 140 m, 31.05.2011, *A.S. T-1559* [MW]. – Also recorded near Ozernoye (12.05.2010, S.S., #79002) and in vicinity of Inkerman-2 station (24.06.2011, P.Y., #95683, det. D. Davydov).

• *Sisymbrium irio* L. **AN** – Sevastopol, railway bed near main station, 17.04.2001, *A.S. T-84* [MW]; Sevastopol, vicinity of railway station, the beginning of Spusk Kotovskogo Street, 44°35'40"N, 33°31'40"E, small rough ground, abundant, elev. 20 m, 29.05.2011, *A.S. T-1528* [MW]. – First modern report for the Crimea was based on a specimen collected in 2007 in Bakhchisaray (Yena in Greuter & Raus 2007), but Seregin collected this species in Sevastopol in 2001. Unfortunately, *S. irio* was missed in the Sevastopol checklist (Seregin 2008). The species was also mentioned by Yena & Sviriн (2011) based on a single population discovered by Yevseyenkov in Sevastopol in 2010. At the moment, *S. irio* is a locally common plant in Sevastopol: Streletskaya Bay (14.04.2014, P.Y., #84957), Kamyshovaya Bay (16.04.2013, P.Y., #182251), etc.

Additional records:

• *Alyssum calycocarpum* Rupr. – Reported by Bondareva (2013) from six areas (Western Bays, Chersonesos Cape, Fiolent Cape, Karanskoye plateau, Yukharina Balka, Mt Sapun-

Gora/Maximova Dacha) and by Korzhenevsky et al. (2004) from Batiliman. Also recorded in Troitskaya Balka valley, Sevastopol (17.04.2011, 26.05.2011, P.Y., #86067, #91031). Numerous historical records were not confirmed by specimens and considered to be doubtful (Seregin 2008).

• *Cheiranthus cheiri* L. **CN** – Reported by Bondareva (2013) from Gerakleysky Peninsula based on personal communication by L. Ryff. Also recorded on Geroyev Sevastopolya Street, Sevastopol (1.05.2011, P.Y., #87472). The closest specimen-based record is in Foros (Seregin 2008).

• *Crambe pinnatifida* R. Br. – Reported by Korzhenevsky et al. (2004) from → the Belbek River valley. The closest specimen-based record is between Bakhchisaray and Syuren (Seregin 2008).

• *Raphanus raphanistrum* L. **AN** – Reported by Bondareva (2013) from Yukharina Balka area.

Brassica cretacea (Kotov) Stank. ex Tzvelev (*B. elongata* Ehrh. subsp. *pinnatifida* (Schmalh.) Greuter & Burdet, *Erucastrum cretaceum* Kotov) – Fiolent Cape, 31.05.2009 (P.Y., #26982). Also recorded above Ternovka (3.06.2010, P.Y.). Rather common plant in adjacent foothills of Bakhchisraysky District (P.Y., A.S.).

Brassica napus L. **AN** –Vicinity of Sevastopol, 31.03.2009 (P.Y., #18943); Sevastopol, 9.04.2009 (P.Y., #27649, det. A. Ebel); Sevastopol, 21.04.2010 (P.Y., #27649, det. V. Grigorenko).

Crambe aspera M. Bieb. – → Above Lyubimovka, above sea escarps, 29.05.2009 (S.S., #37818).

Matthiola bicornis (Sibth. & Sm.) DC. **C** – Fiolent Cape, 15.04.2009 (S.S., #15416, det. V. Grigorenko); Sevastopol, 10.05.2010 (P.Y., #15415, det. V. Grigorenko).

Rorippa palustris (L.) Besser – Goncharnoye (15.07.2014, A.S.).

Sisymbrium loeselii L. – Frontovoye, 12.07.2014 (A.S.).

Thlaspi arvense L. **?AN** – Baydarskaya valley, Novobobrovskoye, 5.04.2009 (S.S., #287414); Baydarskaya valley, vicinity of Tylovoye, 1.05.2010 (I. Turbanov, #86132). – A permanent weed around Novobobrovskoye (S.S.).

Cactaceae

• *Opuntia humifusa* (Raf.) Raf. **CN** – Balaklava, W side of the bay near its mouth (above Mramornyy beach), 44°29'45"N, 33°35'20"E, exposed stone slope, partly under *Juniperus* and *Ailanthus altissima*, abundant, elev. 30 m, 31.07.2014, *A.S. T-2131 & P.Y.* [MW]. – Also reported by Bondareva (2013) from three areas (Fiolent Cape, Karanskoye plateau, Mt Sapun-Gora/ Maximova Dacha). Bagrikova et al. (2015) summarized published and original field data on eight confirmed localities of *O. humifusa* in the Sevastopol area. Most probably, the species was initially introduced on Mt Gasforta during reconstruction of the Italian cemetery in 1882 and widely naturalized afterwards due to further introduction and successful seed dispersal (Bagrikova et al. 2015), but following Byalt et al. (2009) *O. humifusa* was planted here in late 1850s. Previous closest specimen-based record was near Foros (Seregin 2008).

• *Opuntia phaeacantha* Engelm. **CN** – Balaklava, W side of the bay near its mouth, 44°29'50"N, 33°35'45"E, exposed stone slope above monument, abundant, elev. 50 m, 31.07.2014, *A.S. T-2134 & P.Y.* [MW]. – Reported by Byalt (2004) from Sevastopol. The locality in Balaklava was communicated by L. Ryff. Only var. *camanchica* (Engelm. & J.M. Bigelow) L.D. Benson is

present in the Sevastopol area. Also recorded at Kaya-Bash heights, Sevastopol (3.03.2014, P.Y., #227130). The species was first discovered in the Crimea in 1995 as naturalized in Karadag (Mironova & Kamenskikh 1995), but true identity of Sevastopol and Karadag plants needs further verification. Most probably, two distinct species are present near Balaklava (Ryff, pers. comm.; cf. #222565 by N. Bagrikova).

Campanulaceae

Additional record:

• *Campanula rapunculoides* L. – Reported by Korzhenevsky et al. (2004) from two localities: the Chernaya River canyon and Rezervnoye.

Cannabaceae

Additional record:

Cannabis sativa L. s.l. (incl. *C. ruderalis* Janisch.) **A/C** – Sevastopol, near Park Pobedy, 17.07.2014 (A.S.). – There is no evidence of naturalization.

Caprifoliaceae

Additional records:

• *Centranthus ruber* (L.) DC. **CN** – Reported by Bondareva (2013) from Gerakleysky Peninsula. Also recorded near Park Pobedy in Sevastopol (17.07.2014, A.S.).

• *Valerianella lasiocarpa* (Steven) Betcke – Reported by Bondareva (2013) from Chersonesos reserve area. Also recorded in Streletskaya Bay, Sevastopol (9.05.2011, P.Y., #88426, det. S.S.) and vicinity of Lyubimovka (29.04.2012, P.Y., #130569).

Valerianella kotschyi Boiss. – Sevastopol, 3.05.2011 (S.S., #87965).

Caryophyllaceae

Cerastium syvaschicum Kleopov **AN?** – Sevastopol, W outskirts, highway to Chersonesos Cape, 0.5 km SW of the head of Solyonaya Bay, 44°34'00"N, 33°23'50"E, earth embankment on the edge of development area, elev. 20 m, 28.05.2011, *A.S. T-1482* [MW].

Melandrium latifolium (Boiss.) Maire (*M. boissieri* Schischk.) – Sevastopol, foot of Mt Sapun-Gora, motordrome, 44°33'05"N, 33°35'10"E, shrub thicket, elev. 150 m, 31.05.2011, *A.S. T-1552* [MW]. – Also recorded in Sevastopol (14.05.2008, S.S., photo). Multiple historical records were not confirmed by specimens (Seregin 2008).

Sagina apetala Ard. **AN** – Sevastopol, city centre, near Eternal Flame, 44°37'00"N, 33°31'30"E, cracks in paving stones, elev. 10 m, 10.07.2014, *A.S. T-1806* [MW]; Balaklava, town centre (port), 44°29'55"N, 33°36'00"E, sidewalk margin, in cracks, elev. 0–2 m, 31.07.2014, *A.S. T-2121 & P.Y.* [MW]. – Discovered in Balaklava in 2013 by L. Ryff (17.05.2013) [YALT].

• *Sagina maritima* G. Don – Sevastopol, Kamyshovaya Bay, former Fishermen Culture House, 44°35'01"N, 33°26'07"E, between paving stones, 27.03.2014, *S.S.* [MW]. – It was first reported by Yena et al. (2011) from Kazachya Bay shore [specimens in CSAU], where it was discovered in 2010 (S.S.; cf. 29.04.2010, P.Y., #75501). In the latter locality it is locally abundant.

Sagina procumbens L. **AN** – Balaklava, embankment, 16.06.2013, *N. Bagrikova* [YALT] (cf. #223740). – Also recorded in Artbukhta, Artilleriyskaya Bay, Sevastopol (9.08.2014, P.Y., #255427).

Saponaria officinalis L. – Between Sakharanaya Golovka and Shturmovoye, left bank of the Chernaya River, 44°34'30"N, 33°37'40"E, a glade in riparian *Rubus* thicket, elev. 5 m, 19.08.2008, *A.S. T-1266* [MW]; between Rodnikovskoye and Kolkhoznoye, 44°27'50"N, 33°52'00"E, silty bed of the Uzundzha River, elev. 280 m, 8.09.2010, *A.S. T-1376* [MW]. – Earlier historical records were not confirmed by specimens (Seregin 2008).

Silene viridiflora L. – 1 km NE of Ternovka, 44°35'20"N, 33°46'10"E, *Carpinus orientalis* forest on terraced slope, elev. 300 m, 9.07.2014, *A.S. T-1793* [MW]. – Also recorded in Karanskaya Balka valley (S.S.), near Goncharnoye (15.07.2014, A.S.) and above Cape Aya (24.07.2014, A.S.). A locally common plant in forest zone of the Sevastopol area (A.S., S.S.).

Stellaria pallida (Dumort.) Crép. (*Alsine pallida* Dumort.) **AN** – Sevastopol, 1.75 km S from railway station, Nikolai Muzyka Street, 44°34'45"N, 33°31'35"E, fresh earth near new transformer vault, elev. 90 m, 29.05.2011, *A.S. T-1523* [MW]; Sevastopol, lower course of Kilen-Balka valley (1.85 km from the seashore), 44°35'55"N, 33°34'20"E, bottom of the valley, ground road along holiday village, pile of humus, in shade, elev. 40 m, 29.05.2012, *A.S. T-1666* [MW]. – Discovered in Sevastopol in 2009 (P.Y., #10813). A common weed in Sevastopol (S.S.).

Additional records:

• *Cerastium biebersteinii* DC. – Reported by Larina (2008) from left slope of Maltash-Uzen gorge (ca. 2 km SSW of Podgornoye) and by Korzhenevsky et al. (2004) from yayla within Baydarsky reserve.

• *Cerastium glutinosum* Fries (*C. ucrainicum* Pacz. ex Klokov) – Reported by Bondareva & Milchakova (2002) from Kazachya Bay reserve and by Bondareva (2013) from six areas (Western Bays, Chersonesos Cape, Fiolent Cape, Karanskoye plateau, Yukharina Balka, Mt Sapun-Gora/Maximova Dacha area). Also recorded in Laspi (26.04.2010, P.Y., #66674). The closest specimen-based record is near Mangup-Kale (Seregin 2008).

• *Minuartia adenotricha* Schischk. – Reported by Korzhenevsky et al. (2004) from Merdven yayla.

• *Minuartia hirsuta* (M. Bieb.) Hand.-Mazz. – Reported by Korzhenevsky et al. (2004) from yayla in Baydarsky reserve.

• *Silene pendula* L. **C** – Reported by Fedoronchuk et al. (2002) from Sevastopol without any details.

Silene crispata Steven (*Oberna crispata* (Steven) Ikonn.) – Cape Aya, 30.03.2009 (P.Y., #13558, det. D. Melnikov).

Cistaceae

• *Helianthemum lasiocarpum* Willk. – Vicinity of Rezervnoye, Ayazma locality, 44°28'52"N, 33°38'58,5"E, glades, 21.05.2013, *S.S.* [MW]; *ibidem*, 44°28'49"N, 33°38'54"E, glades, on conglomerates, 2.05.2014, *S.S.* [MW]. – Reported earlier by Korzhenevsky et al. (2004) from Rezervnoye and by Larina (2008) from two localities: Mt Lysaya (ca. 3 km SE of Orlinoye) and ca. 1.5 km WSW of Rezervnoye. Also recorded in vicinity of Balaklava (26.05.2013, P.Y.,

#188934) and Karanskaya Balka valley (P.Y.) – earlier specimens from these localities are stored in YALT (Ryff, pers. comm.).

Colchicaceae

Colchicum ancyrense B.L. Burtt (*C. triphyllum* auct.) – Vicinity of Sevastopol, Kaya-Bash heights, 44°29'30"N, 33°33'01"E, plateau above the sea cliffs, among *Juniperus*, in open places, 16.01.2014, *S.S.* [MW]. – Discovered on Kaya-Bash heights in 2009 (P.Y., #7736).

Convolvulaceae

• *Convolvulus calvertii* Boiss. subsp. *tauricus* (Bornm.) Smoljan. (*C. tauricus* (Bornm.) Juz.) – Ay-Petrinskaya yayla near Chertova Lestnitsa pass, 14.08.1987, *G.N. Ogureyeva* [MW] (cf. S.S., #287304). – Reported by Korzhenevsky et al. (2004) from yayla within Baydarsky reserve and by Larina (2008) from seven localities in the mountains around Baydarskaya and Varnutskaya valleys. Previous closest specimen-based record was near Kuybyshevo (Seregin 2008).

• *Ipomoea purpurea* Roth **CN?** – Sevastopol, Ostryaki urban area, near the children hospital complex, 44°33'25"N, 33°31'55"E, lawn in the residential area, elev. 130 m, 10.09.2010, *A.S. T-1394 & I. Seregina* [MW] – not cultivated nearby; Balaklava, town centre (port), 44°29'55"N, 33°36'10"E, ascent to citadel, street margin, as a weed, elev. 30 m, 31.07.2014, *A.S. T-2129 & P.Y.* [MW]. – Also reported by Bondareva (2013) from Gerakleysky Peninsula and recorded along stream on northern side of Sevastopol (5.10.2014, P.Y., #264536, det. E. Glazunova).

Additional records:

• *Convolvulus lineatus* L. – Reported by Bondareva & Milchakova (2002) from Kazachya Bay reserve and by Bondareva (2013) from three areas (Western Bays, Fiolent Cape, Karanskoye plateau). Also recorded above Omega Bay (31.05.2010, S.S., #287306).

• *Convolvulus sericocephalus* Juz. – Reported by Korzhenevsky et al. (2004) from rocks above Laspi.

• *Cuscuta tinei* Insenga – Reported by Bondareva (2013) from two localities: Fiolent Cape area and Karanskoye plateau area.

Crassulaceae

Macrosepalum aetnense (Tineo) Palanov (*Sedum aetnense* Tineo) – Vicinity of Balaklava, Biller Range, 44°27'04"N, 33°38'59"E, conglomerates, loose soil on bedrock, steep W slope, 28.04.2012, *S.S.* [MW]. – Discovered in 2010 (S.S., #288172).

Sedum reflexum L. (*Petrosedum reflexum* (L.) Grulich) **CN** – S suburb of Sevastopol, railway crossing on Fiolent road, 44°32'45"N, 33°31'45"E, vicinity of city cemetery, brambles on ground road margin, escaped from cemetery and perfectly naturalized, elev. 170 m, 1.07.2012, *A.S. T-1736* [MW]; Sevastopol, W edge of Park Pobedy, 44°36'00"N, 33°27'15"E, lawn margin (petrophyte steppe), along sidewalk, elev. 10 m, 17.07.2014, *A.S. T-1893* [MW]; Balaklava, W side of the bay near its mouth, 44°29'50"N, 33°35'45"E, exposed stone slope above monument, elev. 10 m, 31.07.2014, *A.S. T-2135 & P.Y.* [MW]. – Also recorded near Inkerman (28.06.2013, P.Y., #60551, det. A. Kovalchuk).

Cucurbitaceae

Bryonia alba L. **AN** – Sevastopol, lower course of Streletskaya Balka valley, 44°35'20"N, 33°28'20"E, edge of holiday village, on shrubs in shade, elev. 10 m, 23.08.2008, *A.S. T-1342* [MW]. – Also recorded in Verkhnesadovoye station (25.06.2009, S.S., #287363), where it is forming dense carpet along railway in Sevastopol direction.

Citrullus lanatus (Thunb.) Matsum. & Nakai **AN?/CN?** – Sevastopol, Ostryaki urban area, near the children hospital complex, 44°33'25"N, 33°31'55"E, lawn in the residential area, a single individual, elev. 130 m, 10.09.2010, *A.S. T-1396 & I. Seregina* [MW]. – Not cultivated nearby. Fruiting plants are growing sometimes on rough ground, especially on sunny places.

Cucumis melo L. (*Melo sativus* Sageret) **A/C** – Sevastopol, Ostryaki urban area, near the children hospital complex, 44°33'25"N, 33°31'55"E, lawn in the residential area, a single individual, elev. 130 m, 10.09.2010, *A.S. T-1397 & I. Seregina* [MW]. – Not cultivated nearby.

Cucurbita pepo L. **A/C** – Baydarskaya valley, between Novobobrovskoye and Peredovoye, 44°30'20"N, 33°50'15"E, along road, weedy place over forest belt, elev. 300 m, 2.08.2014, *A.S. T-2157* [MW].

Echinocystis lobata (Michx.) Torr. & A. Gray **AN/CN** – Lyubimovka, the Belbek River island below bridge, 44°39'50"N, 33°32'55"E, on willows, elev. 0–2 m, 12.09.2010, *A.S. T-1432 & P.Y.* [MW]; vicinity of Lyubimovka, the Belbek River, 1.85 km in a straight line from its mouth, 44°40'10"N, 33°33'50"E, landslide body in the river bed, in shade, elev. 2–5 m, 31.05.2012, *A.S. T-1721* [MW]. – Known in the Crimea since 2000 (Yepikhin 2002). In 2012, *E. lobata* was recorded all along the lower course of the Belbek River (from Fruktovoye to the mouth). Now, it should be regarded as a successfully naturalized troublesome alien here.

Cupressaceae

Additional records:

• *Platycladus orientalis* (L.) Franco **CN?** – Reported by Bondareva (2013) from Gerakleysky Peninsula.

Cupressus sempervirens L. **CN** – Vicinity of Balaklava, 9.10.2012 (P.Y., #156805).

Cyperaceae

Carex acutiformis Ehrh. – Lyubimovka, a rivulet from the pond, 44°39'30"N, 33°33'15"E, damp meadow, large colony, elev. 5 m, 12.09.2010, *A.S. T-1425 & P.Y.* [MW]; *ibidem*, 31.05.2012, *A.S. T-1706* [MW].

Carex praecox Schreb. **?AN** – Mountains above Cape Aya, near ruins of military camp near Mt Kokiya-Kaya, 44°25'40"N, 33°39'35"E, glade of small camping place, elev. 520 m, 24.07.2014, *A.S. T-1986* [MW].

Carex riparia Curt. – Lyubimovka, 44°39'30"N, 33°33'20"E, pond bank, vegetative colony of long-rhizomatous plants, elev. 5 m, 12.09.2010, *A.S. T-1424 & P.Y.* [MW]; *ibidem*, 31.05.2012, *A.S. T-1705* [MW]. – Also recorded on the Kurulyuk-Su River, vicinity of Kizilovoye, Baydarskaya valley (27.04.2010, I. Turbanov, #52954, det. M. Zaytsev).

• *Cyperus michelianus* (L.) Link (*Dichostylis micheliana* (L.) Nees) – On the coast of the small storage reservoir on the River Aytodorka, 44°34'03"N, 33°46'25"E, on dried-up, vegetation-free

muddy ground, elev. 250 m, 26.10.2012, *S.S.* [CSAU] (Yena & Svirin in Raab-Straube & Raus 2013); *ibidem*, Ternovka, 44°34'03"N, 33°46'24"E, pond, abundant, 26.10.2012, *S.S.* [MW]. – In this locality, the species is not developing every year. It blooms in fall on exposed shoreline.

Schoenoplectus litoralis (Schrad.) Palla (*Scirpus litoralis* Schrad.) **AN** – Entrance to Sakharnaya Golovka, 44°34'40"N, 33°38'00"E, large pond on right bank of the Chernaya River, in water, elev. 10 m, 19.08.2008, *A.S. T-1237* [MW]. – Previous closest specimen-based record was near Khadzhi-Sala (Seregin 2008).

Additional record:

• *Pycreus flavescens* (L.) Rchb. – Reported by Bondareva (2013) from two localities: Mt Sapun-Gora/Maximova Dacha area and Karanskoye plateau area. Unexpectedly, no one has confirmed this species from the Sevastopol area.

Elaeagnaceae

Hippophaë rhamnoides L. **CN** – Sevastopol, headwaters of Streletskaya Bay, 44°35'40"N, 33°28'10"E, *Rubus* thicket on the shore, some trees, elev. 0 m, 23.08.2008, *A.S. T-1329* [MW].

Ericaceae

Additional records:

• *Pyrola chlorantha* Sw. – Reported by Larina (2008) from two localities in *Fagus* forests: ca. 1 km W of Besh-Iol pass (Soukh-Su-Dere gorge) and ca. 6 km E of Novobobrovskoye (near Ay-Dimitriy locality).

• *Pyrola rotundifolia* L. – Reported by Korzhenevsky et al. (2004) from Kizilovoye and by Larina (2008) from *Fagus* forest in Kurezen-Dere gorge (ca. 1 km N of Besh-Iol pass).

Euphorbiaceae

• *Euphorbia davidii* Subils (*E. dentata* auct.) **AN** – Near Inkerman railway station, 44°35'31.4"N, 33°36'24.4"E, on the embankment, 25.09.2011, *A.V. Yena* [CSAU] (Yena in Greuter & Raus 2011); *ibidem*, N edge of Inkerman-2 station, 44°35'30"N, 33°36'25"E, railway embankment near line to bridge, elev. 10 m, 28.07.2014, *A.S. T-2025 & P.Y.* [MW]. – Discovered in 2010 (P.Y., #64261).

• *Euphorbia maculata* L. **AN** – Mekenziyevy Gory station, after 2008, *S.S.* [CSAU] (cf. Yena 2012); Sevastopol, Kamyshovaya Bay, 44°34'44"N, 33°26'09"E, 9.08.2012, *S.S.* [MW]; Verkhnesadovaya station, 44°40'55"N, 33°41'30"E, lawn along platform, elev. 50 m, 12.07.2014, *A.S. T-1811* [MW]. – Discovered in the first locality in 2008 (S.S., #287343). Also recorded at Inkerman station (4.08.2011, P.Y., #100416). Known in the Crimea since 1954 (Yena in Greuter & Raus 2006).

Additional records:

• *Euphorbia cyparissias* L. **CN?** – Reported by Bondareva (2013) from Chersonesos Cape area.

• *Euphorbia ledebourii* Boiss. – Reported by Bondareva (2013) from Karanskoye plateau area. Historical record was not confirmed by a specimen (Seregin 2008).

Fabaceae

•*Albizia julibrissin* Durazz. **CN?** – Sevastopol, entrance to Park Pobedy, 44°35'50"N, 33°27'10"E, abundant seedlings below mature trees and some young trees elsewhere, elev. 10 m, 23.08.2008, *A.S. T-1321* [MW]. – Also reported by Bondareva (2013) from Gerakleysky Peninsula. We recorded no reliable evidence of naturalization, although sterile and flowering seedlings are locally common throughout the residential areas of the city (A.S.).

Amorpha fruticosa L. **CN** – Sakharanaya Golovka (lower part), 44°34'50"N, 33°38'00"E, lawn along the central street, abundant seedlings, elev. 20 m, 19.08.2008, *A.S. T-1223* [MW]; Laspi, 7.05.2014, *L. Ryff* [YALT]; N edge of Inkerman-2 station, 44°35'30"N, 33°36'25"E, railway embankment near line to bridge, abundant seedlings, 1 m high, elev. 10 m, 28.07.2014, *A.S. T-2024 & P.Y.* [MW]; Sevastopol, detour highway between Balaklava junction and Yalta junction, 44°32'15"N, 33°34'40"E, cut slope along the highway, elev. 140 m, 28.07.2014, *A.S. T-2054 & P.Y.* [MW]. – Also recorded along Yalta highway near Toropova Dacha locality (1.06.2010, S.S., #287260). *Amorpha fruticosa* is an established alien in the Crimea, although the species was not regarded as naturalized by Yena (2012). It was encounted for the Crimea by Yakovlev et al. (1996) upon data from herbarium MHA mobilized by V.D. Bochkin in 1994 with no comments on status. Bagrikova (2013) reported that currently it is a 'colonophyte'.

Astragalus guttatus Banks & Sol. (*A. striatellus* Pall. ex M. Bieb.) – Batiliman, *Quercus* and *Juniperus* forest, 12.05.1965, *I.V. Kryukova* [YALT, pers. comm. by Ryff]. – Also recorded on S slope of Mt Asketi near Balaklava (17.04.2010, S.S., #287262).

•*Astragalus setosulus* Gontsch. – Vicinity of Rezervnoye, Ayazma locality, 44°28'43"N, 33°38'49"E, conglomerate cliffs, 2.05.2014, *S.S.* [MW] (cf. 24.05.2008, S.S., #12210). – Also reported by Korzhenevsky et al. (2004) from three localities (Orlinoye, Tylovoye and Ayazma) and by Larina (2008) from yayla ca. 1.8 km W of Baydarskiye Vorota pass.

Astragalus varius S.G. Gmel. **A** – Sevastopol, newly constructed residential area on E side of Kamyshovaya Bay, 44°35'20"N, 33°25'55"E, fresh ground along path, elev. 10 m, 3.08.2014 *S.S. & P.Y.* [MW]. – See comments on *Corispermum*.

Gleditsia triacanthos L. **CN** – Sakharanaya Golovka (lower part), 44°34'50"N, 33°38'00"E, lawn along the central street, sparse seedlings, elev. 20 m, 19.08.2008, *A.S. T-1224* [MW]; between Sakharnaya Golovka and Shturmovoye, right bank floodplain of the Chernaya River, 44°34'30"N, 33°38'00"E, slope of road embankment, self-seeding, elev. 10 m, 19.08.2008, *A.S. T-1265* [MW]; Chernorechye, N outskirts, 44°33'20"N, 33°40'55"E, highway margin, elev. 50 m, 10.09.2010, *A.S. T-1415* [MW]. – *Gleditsia triacanthos* was mentioned for the Crimea by Yakovlev et al. (1996) upon data from herbarium MHA mobilized by V.D. Bochkin in 1994, but no background on degree of naturalization was provided at that time. Its naturalization was not indicated by Yena (2012), but Bagrikova (2013) reported that currently it is a 'colonophyte' in the Crimea. This troublesome invasive alien is forming riparian communities in the floodplain of the Chernaya River near Sakharnaya Golovka, Shturmovoye, and Chernorechye. We also recorded it in 2014 along the Kacha River near Mostovoye in Bakhchisaraysky District (A.S.).

Halimodendron halodendron (Pall.) Voss. **CN** – Sevastopol, newly constructed residential area above Omega Bay, 44°35'45"N, 33°26'05"E, along fence of the former military camp, on both margins of the road, 20 to 25 shrubs, gradually spreading, elev. 10 m, 29.07.2014, *A.S. T-2105 & P.Y.* [MW]. – This population was first recorded in 2012 (P.Y., #135061). The species

was discovered in 2010 in adjacent locality (44°35'49"N, 33°26'20"E), where it is apparently a relic of former cultivation (S.S., #287405). Here, it is forming dense shrubs in modified habitat with some survived *Pistacia mutica* trees, *Phragmites* thicket along stream, unequipped camping places and piles of construction debris.

• *Lathyrus latifolius* L. – Vicinity of Lyubimovka, the Belbek River, 1.25 km in a straight line from its mouth, 44°40'05"N, 33°33'30"E, riparian forest on the left bank, elev. 2–5 m, 31.05.2012, *A.S. T-1717* [MW]. – Also reported by Korzhenevsky et al. (2004) from Laspi valley.

• *Medicago agrestis* Ten. – Sevastopol, between Mt Sapun-Gora and Yalta roundabout, 44°32'45"N, 33°35'20"E, vineyard margin along highway, elev. 120 m, 31.05.2011, *A.S. T-1571* [MW]. – The species was segregated with *M. rigidula* (L.) All. in the checklist (Seregin 2008). Also reported by Bondareva & Milchakova (2002) from Kazachya Bay reserve and by Bondareva (2013) from Karanskoye plateau area.

• *Medicago disciformis* DC. – Sevastopol, Kazachya harbour, 44°34'35.4"N, 33°24'26.6"E, area of semiruderal herbaceous vegetation near the coast, elev. 1 m, 8.05.2011, *A.V. Yena* [CSAU] (Yena in Greuter & Raus 2011); *ibidem*, Sevastopol, Kazachya Bay, 44°34'37"N, 33°24'32"E, 27.04.2012, *S.S.* [MW]. – Discovered by T.A. Karpenko in 2009. Considered to be native in the Crimea (Yena in Greuter & Raus 2011; Yena 2012).

• *Medicago medicaginoides* (Retz.) E. Small (*Trigonella striata* L. f., *T. tenuis* Fisch. ex M. Bieb.) – Historical record was not confirmed by a specimen (Seregin 2008). The species was reported recently by Krytska & Novosad (2014) from Chernorechenskoye, where it was initially discovered by Aggeenko. Ryff (pers. comm.) noted that three specimens from Oboronnoye, 11.06.1981, *I.I. Maslova* [YALT] were incorrectly assigned earlier to *M. fischeriana* (Ser.) Trautv. (*Trigonella fischeriana* Ser.) by Korzhenevsky et al. (2004).

• *Medicago saxatilis* M. Bieb. – Above Ternovka, cave monastery Chelter-Marmara, 3.07.2011, *S.S.* [CSAU?]. – Reported by Korzhenevsky et al. (2004) from vicinity of Sevastopol without any details. A common plant of limestone cliffs and exposed slopes near Ternovka known at least since 2009 (S.S., #39196).

• *Pisum elatius* M. Bieb. (*P. sativum* L. subsp. *elatius* (M. Bieb.) Asch. & Graebn.) – NW of Foros, magmatic rocks, 28.06.1998, *L. Ryff* [YALT]; vicinity of Oboronnoye, 44°30'16"N, 33°39'13"E, along ground road, pine cultures, 6.05.2014, *S.S.* [MW]; Sakharnaya Golovka near Inkerman [YALT, pers. comm. by Ryff]. – Also reported by Larina (2008) from S edge of Goncharnoye and by Korzhenevsky et al. (2004) from Orlinoye, Pavlovka, Ozernoye and Inkerman. Earlier historical record was not confirmed by a specimen (Seregin 2008).

Robinia pseudoacacia L. **CN** – Balaklava, near Chembolo citadel, 44°29'50"N, 33°36'00"E, weedy place on the edge of city street, many fertile trees, elev. 30 m, 17.08.2008, *A.S. T-1185* [MW]. – A common invasive alien in Sevastopol, Inkerman, Balaklava and some rural areas.

Trifolium squamosum L. – Sevastopol, 10th km of Balaklava highway, lawn, 17.06.2014, *P.Y. & L. Ryff* [YALT] (cf. #244674). – Also recorded in vicinity of Goncharnoye (13.05.2012, P.Y., #132835).

Trifolium retusum L. (*T. parviflorum* Ehrh.) – Oboronnoye, 1.06.2011, *S.S.* [YALT, CSAU] (cf. #287523). – A residential population revisited by S.S. few years later.

• *Vicia dasycarpa* Ten. (*V. varia* Host) **AN** – Sevastopol, Mt Sapun-Gora, 44°33'15"N, 33°35'00"E, main alley to diorama, below pine-trees, a single individual, elev. 220 m, 31.05.2011, *A.S. T-1537* [MW]. – Also recorded near Inkerman-2 station (8.08.2011, P.Y., #100928). Also reported by Bondareva (2013) from Karanskoye plateau area.

Vicia ervilia (L.) Willd. – Vicinity of Balaklava, 17.04.2014, *S.S.* [CSAU, YALT, etc.]. – S.S. guided lately an excursion for L. Ryff and R. Voloshin aimed to describe precisely habitat of the species in a special paper.

Additional records:

• *Onobrychis gracilis* Besser – Reported by Korzhenevsky et al. (2004) from Orlinoye.

Argyrolobium biebersteinii P.W. Ball – Baydarskaya valley, vicinity of Bechko pass, 24.06.2009 (S.S., #78576). – This record was found on the border of the Sevastopol area and Bakhchisaraysky District. The closest specimen-based record is near Kuybyshevo (Seregin 2008).

Astragalus cicer L. – Limannaya Balka valley [tributary of the Aitodorka River], 15.07.2008 (S.S., #42511, det. Y. Pirogov); Verkhnesadovoye, between railway and the Belbek River, 1.07.2012 (P.Y., #285860).

Lathyrus hirsutus L. – Baydarskaya valley, Ozernoye, 9.06.2010 (S.S., #62043); Inkerman, 13.05.2013 (P.Y., #186489).

Lathyrus sylvestris L. **AN** – Between Verkhnesadovoye station and 1518 km platform, along railway, 25.06.2009 (S.S., #287401).

Lotus tauricus Juz. (*L. juzepczukii* Seregin nom. illeg.) – Vicinity of Sevastopol, 13.05.2012 (P.Y., #132842, det. V. Grigorenko). – The closest specimen-based record is near Mangup-Kale (Seregin 2008).

Onobrychis arenaria (Kit.) DC. – Baydarskaya valley, 26.05.2010 (P.Y., #57355, det. Y. Pirogov).

Onobrychis viciifolia Scop. – Baydarskaya valley, 23.05.2010 (P.Y., #56481, det. Y. Pirogov).

Oxytropis pallasii Pers. – Vicinity of Balaklava, 17.04.2008 (P.Y., #15213, det. V. Grigorenko).

Trifolium dubium Sibth. (*Chrysaspis dubia* (Sibth.) Desv.) – Sevastopol, 10.05.2012 (P.Y., #132487).

Trifolium incarnatum L. **C** – Sevastopol, 9.05.2010 (P.Y., #54402, det. A. Kovalchuk).

Trifolium subterraneum L. – Karanskaya Balka valley, 11.04.2009 (P.Y., #15028, det. Y. Ivanenko).

Vicia lathyroides L. – Near Rezervnoye, Inzhir pass, 11.04.2009 (S.S., #287321); Vicinity of Balaklava, Inzhir locality, 13.04.2012 (P.Y., #128399, det. S.S.).

Vicia tetrasperma (L.) Schreb. – Vicinity of Oboronnoye, 31.05.2010 (P.Y., #57899).

Gentianaceae

• *Blackstonia perfoliata* (L.) Huds. – Baydarskaya valley, 44°25'57"N, 33°46'37"E, near Orlinoye, along stream, 4.08.2013, *S.S.* [YALT, CSAU, KW, PHEO] (Fateryga et al. 2013); *ibidem*, Baydarskaya valley, vicinity of Orlinoye, 44°25'50"N, 33°46'40"E, stream on foot of the large dam, exposed clay riverbed slope, elev. 290 m, 29.07.2014, *A.S. T-2084 & P.Y.*

[MW, MHA]; Baydarskaya valley, between Novobobrovskoye and Peredovoye, 44°30'15"N, 33°50'10"E, pasture, overgrazed slope of a ditch, few individuals, elev. 290 m, 2.08.2014, *A.S. T-2156* [MW]. – The first population with ca. 3 000 flowering plants was described recently by Fateryga et al. (2013). The second locality near Peredovoye is situated on the opposite side of Baydarskaya valley and most probably derived from the first larger one. Presence of few plants near Peredovoye could be an evidence of successful spreading.

Geraniaceae

Geranium pyrenaicum Burm. f. – 2.5 km SSW of Rezervnoye, 44°26'55"N, 33°39'35"E, forest road in *Quercus* forest, elev. 580 m, 24.07.2014, *A.S. T-1970* [MW]. – Also recorded in Sevastopol (10.04.2009, P.Y., #14406) and Baydarskaya valley (21.05.2010, P.Y., #56293).

Haloragaceae

Myriophyllum spicatum L. **AN** – Entrance to Sakharnaya Golovka, large pond on the right bank of the Chernaya River, 44°34'40"N, 33°38'00"E, in water, elev. 10 m, 19.08.2008, *A.S. T-1236* [MW]; Baydarskaya valley, S edge of Orlinoye, 44°25'55"N, 33°46'40"E, large pond, in water near dam, elev. 290 m, 29.07.2014, *A.S. T-2086 & P.Y.* [MW]. – Also recorded in Goncharnoye (15.07.2014, A.S.).

Myriophyllum verticillatum L. **AN** – Chernorechye (Sevastopol Entrance), 44°32'50"N, 33°40'35"E, ponds, abundant, elev. 20 m, 10.09.2010, *A.S. T-1416* [MW]; Lyubimovka, 44°39'30"N, 33°33'25"E, pond, rather common, elev. 5 m, 12.09.2010, *A.S. T-1422 & P.Y.* [MW]. – Discovered in Lyubimovka in 2009 (S.S., #287386).

Hydrocharitaceae

• *Hydrocharis morsus-ranae* L. **A?** – Lyubimovka, 44°39'30"N, 33°33'19"E, in a pond, among *Phragmites australis* (Cav.) Steud., 25.09.2011, *A.V. Yena* [CSAU] (Yena in Greuter & Raus 2012). – Discovered in 2011 (S.S.; cf. P.Y., 20.08.2012, #170810), but later it disappeared in this locality (S.S.). Papchenkov (pers. comm.) identified this plant as *H. dubia* (Blume) Backer by a photo with some doubts. His identification was based on poorly developed spongy tissue at the base of the petiole, presence of a single stipule and a single flower. However, presence of East Asian *H. dubia* in the Crimea is highly improbable (A.S.).

Najas marina L. **AN** – Entrance to Sakharnaya Golovka, large pond on the right bank of the Chernaya River, 44°34'30"N, 33°38'00"E, shoal-water, elev. 10 m, 19.08.2008, *A.S. T-1239* [MW] [subsp. *marina*]; vicinity of Mt Gasforta industrial development area, 44°31'20"N, 33°40'50"E, SE bank of reservoir, washed ashore, elev. 60 m, 21.08.2008, *A.S. T-1290* [MW] [subsp. *aculeolata* Tzvelev].

Najas minor All. (*Caulinia minor* (All.) Coss. & Germ.) **AN** – Vicinity of Mt Gasforta industrial development area, 44°31'20"N, 33°40'50"E, SE bank of reservoir, shoal-water (0.5 m) and drifting near the bank, elev. 60 m, 21.08.2008, *A.S. T-1288* [MW]; Goncharnoye, pond on the Sukhaya River, 44°28'00"N, 33°42'20"E, shoal water by the highway, elev. 260 m, 15.07.2014, *A.S. T-1882* [MW]; Baydarskaya valley, vicinity of Orlinoye, fish pond near Mt Pska-Bair, 44°26'25"N, 33°45'45"E, in water, elev. 260 m, 29.07.2014, *A.S. T-2077 & P.Y.* [MW]. – Discovered in Orlinoye in 2012 (P.Y., #154335).

Hypericaceae

Additional record:

• *Hypericum tetrapterum* Fr. – Reported by Larina (2008) from the middle part of Baydarskaya valley (ca. 1.5 km N of Orlinoye).

Iridaceae

Iris ×*hybrida* hort. **C** – Sevastopol, detour highway, 0.9 km from Balaklava junction, 44°32'00"N, 33°33'45"E, highway margin, elev. 180 m, 28.07.2014, *A.S. T-2058 & P.Y.* [MW].

Additional record:

• *Crocus biflorus* Mill. subsp. *adamii* (J. Gay) K. Richt. (*C. tauricus* (Trautv.) Puring) – Reported by Korzhenevsky et al. (2004) from two localities (Kolkhoznoye, Orlinoye) and by Larina (2008) from right bank of the Chernaya River gorge (ca. 3 km ENE of Morozovka) and four localities on the mountain summits around Baydarskaya valley (ca. 2 km E of Mt Bizyuka, ca. 2 km SE of Kolkhoznoye, ca. 4 km NE of Kolkhoznoye, ca. 3.5 km N of Peredovoye). Also recorded in Baydarskaya valley (2.03.2013, P.Y., #177377), Mt Chuvash-Koy (26.04.2007, S.S., photo), Mt Khlama (S.S.) and above Fatma-Koba waterfall (23.03.2012, S.S., #287335).

Juglandaceae

• *Juglans regia* L. **CN** – Sakharnaya Golovka (lower part), 44°34'50"N, 33°38'00"E, lawn near bus stop, seedlings, elev. 20 m, 19.08.2008, *A.S. T-1219* [MW]; Sevastopol, W shore of Omega Bay, 44°35'40"N, 33°26'40"E, archaeological excavation, in the ditch, elev. 10 m, 23.08.2008, *A.S. T-1312* [MW]. – Also reported by Bondareva (2013) from Gerakleysky Peninsula. Sterile and flowering seedlings are locally common throughout the Sevastopol area (A.S.).

Juncaceae

Juncus ranarius Songeon & E.P. Perrier (*J. ambiguus* auct. non Guss.) – Inkerman-1 station, between railway and highway, 44°36'25"N, 33°35'55"E, on sand, elev. 5 m, 13.07.2011, *A.S. T-1627* [MW]. – Also recorded near Kolkhoznoye (27.07.2010, S.S.) and between Orlinoye and Ozernoye (15.08.2011, S.S., #287381).

Lamiaceae

Mentha ×*dumetorum* Schult. (*Mentha aquatica* L. ×*M. longifolia* (L.) Nathh.) – Baydarskaya valley, Novobobrovskoye, 44°30'03"N, 33°51'03"E, the Baga River, 20.09.2012, *S.S.* [MW]; vicinity of Tylovoye, 44°26'27"N, 33°43'25"E, 19.09.2012, *S.S.* [MW]. – Discovered in Orlinoye in 2012 (P.Y., #159448). A common hybrid in the Sevastopol area. It is growing in wet places, along stream beds and ditches, on open places among *Juncus inflexus*. As a rule, it occurs with locally abundant parents. The hybrid is forming patches and evidently producing no fertile seeds.

Salvia officinalis L. **AN?** – Cape Sarych, roadside, 30.09.2012, *S.S.* [CSAU] (cf. #287513). – Also recorded in Sevastopol near city cemetery as an escape (27.09.2010, S.S.).

Additional records:

Salvia austriaca Jacq. – Near Mekenziyevy Gory station, 9.05.2008 (S.S., #287409). – Historical record was not confirmed by a specimen (Seregin 2008).

Salvia nutans L. – Verkhnesadovoye – Frontovoye, 12.07.2014 (A.S.).

Stachys palustris L. – Baydarskaya valley, 2.07.2010 (P.Y., #61083, det. D. Melnikov).

Liliaceae

Gagea aipetriensis Levichev – Lake above Kolkhoznoye, Tolakan locality (a middle part of the ascent to yayla), 5.03.2014, *S.S.* [CSAU, YALT]. – Also recorded in Karadagsky forest, Bizyuka locality (25.03.2010, S.S., #287325, det. I. Turbanov). A common plant in the abovementioned localities (S.S.).

• *Gagea lutea* (L.) Ker Gawl. – Karadag forest locality, 1 km W of Chuvash-Gol Lake, 5.04.2010, *I. Turbanov & S.S.* [YALT] (cf. #50726). – Reported by Larina (2008) from N edge of Baydarskaya valley (ca. 3 km ENE of Peredovoye along Golubinka road).

Tulipa biflora Pall. s.l. – Vicinity of Balaklava, Inzhir locality, 21.03.2014, *S.S.* [YALT, CSAU?]; *ibidem*, 03.2015, *S.S.* [MW]. – This is the first record of the species in western part of the Crimean Mts. I. Turbanov discovered in Inzhir locality ca. 10 individuals of *T. suaveolens* and an unknown *Tulipa* in fruits (23.04.2010, I. Turbanov, photo; cf. 25.04.2010, S.S., #287383). During the discussion between S.S., I. Turbanov and Y. Pirogov, this unknown tulip was ascertained provisionally to *T. biflora*. This identification was confirmed lately, when plants were collected in flowers and photographed (21.03.2014, S.S., #283310). However, revealed plants somewhat differ from the typical *T. biflora* lectotypified by a specimen from the Lower Volga region (Christenhusz et al. 2013). The Crimean tulips have remarkably broader leaves and different general habit (S. Majorov, pers. comm.), but these characters require further validation. However, it might be a signal for restoration of the Crimean endemic *T. koktebelica* Junge. *T. callieri* Halácsy & Levier, another Crimean member of the *T. biflora* group, has been synonymized recently with *T. sylvestris* subsp. *australis* by Christenhusz et al. (2013).

Additional records:

Tulipa suaveolens Roth (*T. gesneriana* auct. non L.) – Cape Aya reserve, Biller range, E slope of Mt Biller, Tuvar-Teli (Inzhir), 24.04.2010 (I. Turbanov, #52952). – We follow Christenhusz et al. (2013) in the taxonomy of tulips. Only yellow-flowered form is present in the Sevastopol area.

Tulipa sylvestris L. subsp. *australis* (Link) Pamp. – Cape Aya reserve, Kokiya-Bel Range, Mt Kush-Kaya, 26.04.2010 (I. Turbanov, #52949, det. M. Knjazev). – In the Crimea, several closely related and sometimes putative taxa had been reported (*T. australis* Link, *T. biebersteiniana* Schult. & Schult. f., *T. scythica* Klokov & Zoz), but these names were merged recently by Christenhusz et al. (2013) under *T. sylvestris* subsp. *australis*. However, the Crimean populations of these tulips seem to present several distinct morphotypes and their true identity is still questionable. Taxonomy of the *T. sylvestris* group requires further studies.

Linaceae

Linum usitatissimum L. **AN** – Entrance to Inkerman, right bank of the Chernaya River, 44°36'20"N, 33°36'15"E, abandoned railway crossing on highway, elev. 0–2 m, 28.07.2014, *A.S. T-2041 & P.Y.* [MW]. – Flax was not cultivated in the Crimea recently.

Malvaceae

• *Alcea rosea* L. **CN** – Sevastopol, between Kamyshovaya Bay and Omega Bay, 44°35'30"N, 33°26'30"E, weedy place in the residential area, elev. 30 m, 23.08.2008, *A.S. T-1309* [MW]. – Also reported by Bondareva (2013) from Karanskoye plateau area based on personal communication

by N.A. Bagrikova. Perfectly naturalized common garden escape throughout urban and rural areas of Sevastopol.

Tilia cordata Mill. – 1.5 km ENE of Orlinoye, N slope of the Main Ridge, bottom of Maltash-Uzen gorge, 44°26'40"N, 33°48'30"E, forest margin, elev. 350 m, 25.08.2008, *A.S. T-1363 & I. Seregina* [MW]; between Yalta highway and Besh-Iol pass, 1.5 km from the highway, 44°28'55"N, 33°43'05"E, rocky outcrops in deciduous forest, elev. 350 m, 15.07.2014, *A.S. T-1879* [MW].

Additional records:

• *Tilia dasystyla* Steven – Reported by Korzhenevsky et al. (2004) from the Chernaya River canyon. Also recorded in Inzhir locality near Balaklava (15.05.2012, P.Y., #133227).

Althaea officinalis L. – Inkerman, 2.08.2009 (P.Y., #82360); Baydarskaya valley, between Orlinoye and Tylovoye (before 2013, S.S.).

Nyctaginaceae

Mirabilis jalapa L. **C** – Lyubimovka (Sevastopol Entrance), 44°39'30"N, 33°32'55"E, piles of construction waste, elev. 10 m, 12.09.2010, *A.S. T-1419 & P.Y.* [MW].

Nymphaeaceae

Nymphaea ×*marliacea* Wildsmith **CN?** – Entrance to Sakharnaya Golovka, large pond on the right bank of the Chernaya River, 44°34'30"N, 33°38'00"E, in water, elev. 10 m, 19.08.2008, *Seregin T-1246* [MW]. – Three small populations (some m^2 each) are situated in SE part of the pond. Probably planted, but grows without care. Also recorded in Orlinoye (23.09.2012, P.Y., #154337, det. M. Serebryanyi).

Oleaceae

Fraxinus pennsylvanica Marshall **CN** – Entrance to Sakharnaya Golovka, large pond on the right bank of the Chernaya River, 44°34'30"N, 33°38'10"E, pond bank, mature trees in cultivation and abundant self-seeding, elev. 10 m, 19.08.2008, *A.S. T-1247* [MW].

Orchidaceae

• *Corallorhiza trifida* Châtel. – Above Chertova Lestnitsa pass, on yayla [YALT]. – Also reported by Korzhenevsky et al. (2004) from two localities: Skelskaya Cave and Rodnikovskoye – Mt Karadag.

• *Epipactis krymmontana* Kreutz et al. – E of Baydary Gates 'Baydarskiye Vorota' pass, 2.06.1981, *Kossych* [YALT] (Fateryga et al. 2014). – The records of *E. condensata* Boiss. ex D.P. Young based on a specimen from Laspi, 22.06 s.a., *[Compère] in herb. Steven* (H 1239487) and *E. purpurata* Sm. from Laspi, s.d., *[Compère] in herb. Steven* (H 1239488) published by Efimov (2008) obviously refer to *E. krymmontana*. *Epipactis purpurata* is undoubtedly absent in the Crimea (Fateryga et al. 2014; Fateryga & Kreutz 2014), whereas the presence of *E. condensata* requires further verification (Fateryga & Kreutz 2014). It is difficult to distinguish correctly *E. condensata* and *E. krymmontana* on dry specimens.

• *Ophrys apifera* Huds. – W of Oboronnoye, N slope [YALT] & SE of Oboronnoye [YALT] (Korzhenevsky et al. 2004). – Also a single plant was recorded along the road to Morozovka (1.06.2010, 12.06.2011, S.S., #287526).

• *Ophrys mammosa* Desf. s.l. (incl. *Ophrys taurica* (Aggeenko) Nevski) – Laspi [YALT] (Korzhenevsky et al. 2004); Batiliman [YALT] (Korzhenevsky et al. 2004); Tylovoye junction [YALT] (Korzhenevsky et al. 2004). – Also reported by Korzhenevsky et al. (2004) from Novobobrovskoye, by Larina (2008) from two localities in Baydarskaya valley (ca. 2 km E of Novobobrovskoye and ca. 1.5 km SW of Ozernoye) and by Hahn (2012) from Inkerman. Also recorded along highway between Ternovka and Mangup (2.05.2012, S.S.), right bank of the Aytodorka River above lake (2.05.2012, S.S., #287360; cf. 5.05.2012, P.Y., #131253), Kokiya-Bel range above Yalta highway (2014, V. Klishchevsky, http://vk.com/id84691235?z=photo84691235_330467291%2Fphotos84691235), slope of Mt Kalanykh-Kaya in Laspi (V. Savchuk, photo). Previous closest specimen-based record was near Mangup-Kale (Seregin 2008). The taxonomic isolation of *O. mammosa* subsp. *taurica* (Aggeenko) Soó is still questionable (Fateryga & Kreutz 2014).

Additional records:

• *Anacamptis* × *simorrensis* (E.G. Camus) H. Kretzschmar et al. nothosubsp. *ticinensis* (Gsell) Fateryga & Kreutz (*A. coriophora* (L.) R.M. Bateman et al. subsp. *coriophora* × *A. pyramidalis* (L.) Rich.) – Reported by Fateryga & Kreutz (2014) from Baydarskaya valley upon the photo made in vicinity of Kizilovoye (3.06.2010, I. Turbanov, #86683). Also recorded on Baydarskaya yayla, on meadow glade in forest (14.06.2012, A.F., #140903).

• × *Dactylocamptis uechtritziana* (Hausskn.) B. Bock ex M. Peregrym & Kuzemko nothosubsp. *magyarii* (Soó) Fateryga & Kreutz (*Anacamptis laxiflora* (Lam.) R.M. Bateman et al. subsp. *elegans* (Heuff.) Kuropatkin & Efimov × *Dactylorhiza incarnata* (L.) Soó) – Reported by Fateryga & Kreutz (2014) from Baydarskaya valley based on the photo made near Biyuk-Chokrak spring, vicinity of Tylovoye (10.06.2010, I. Turbanov, #85044).

• *Epipactis turcica* Kreutz – Reported by Hahn (2012) and Kreutz & Fateryga (2012) from Sarych Cape based on the photo evidence (8.06.2009, P.Y., #85924, det. A.F., then transferred to *E. helleborine* (L.) Crantz subsp. *levantina* Kreutz et al.). – *Epipactis turcica* is a very problematic species due to the lack of reliable differences from *E. helleborine* subsp. *levantina*. Morphological studies in many populations of *E. turcica* and *E. helleborine* subsp. *levantina* in the Crimea (A. Fateryga & V. Fateryga, unpubl.) suggest that these taxa should be most probably regarded as synonyms. One record of *E. turcica* from vicinity of Morozovka (12.06.2012, A.F., #140987, then transferred to *E. helleborine* subsp. *levantina*) was confirmed by C.A.J. Kreutz during joint field excursion with S.S. and A.F. Several plants very similar to *E. turcica* in general habit were additionally recorded in Ayazma locality (26.05.2013, S.S., #287328). This complex requires further taxonomic investigations in the Crimea.

• *Orchis* × *angusticruris* Franch. (*O. purpurea* Huds. × *O. simia* Lam.) – Reported by Bengus & Bengus (2011) from Cape Aya. Also recorded in Baydarskaya valley, above Peredovoye (4.05.2008, P.Y., #112586, det. A. Kovalchuk) and vicinity of Kizilovoye, Mt Pyskachykh (22.04.2010, 26.04.2010, I. Turbanov, #52871, #52925).

• *Orchis* × *calliantha* Renz & Taubenheim (*O. punctulata* Steven ex Lindl. × *O. simia* Lam.) – Reported by Bengus & Bengus (2011) from Cape Aya (cf. 30.04.2012, P.Y., #130584, det. A.F.). – A common plant, especially in the Ayazma locality. It is hard to trace pure *O. punctulata* in the Sevastopol area (S.S.).

Platanthera × *hybrida* Brügger (*P. bifolia* (L.) Rich. × *P. chlorantha* (Custer) Rchb.) – Baydarskaya valley, 21.05.2012 (Yu. Pirogov, #135382, det. A. Kovalchuk); Baydarskaya yayla, meadow glade in forest, 14.06.2012 (A.F., #140901).

Orobanchaceae

Orobanche purpurea Jacq. (*Phelipanche purpurea* (Jacq.) Soják) – Sevastopol, W outskirts, highway to Chersonesos Cape behind Solyonaya Bay, SW corner of the airfield, 44°34'15"N, 33°23'30"E, disturbed steppe on the edge of seashore escarp, on *Artemisia*, elev. 10 m, 28.05.2011, *A.S. T-1475a* [MW]. – Also recorded in Baydarskaya valley (26.05.2010, P.Y., #74081, det. A. Kovalchuk) on *Achillea* aggr. *millefolium*. Previous closest specimen-based record was near Mangup (Seregin 2008).

• *Orobanche ritro* Gren. & Godr. – Around Sevastopol, Mys Fiolent (mounted with *Echinops ritro*), 29.06.1981, *N. Tzvelev* [LE] (Piwowarczyk in Nobis et al. 2014). – Also recorded on Kaya-Bash heights, Sevastopol (31.05.2012, P.Y., #135950). See comments on *O. kochii* in the discussion section.

Additional records:

• *Orobanche aegyptiaca* Pers. (*Phelipanche aegyptiaca* (Pers.) Pomel) – Reported by Bondareva (2013) from two localities: Chersonesos Cape area and Karanskoye plateau area.

• *Orobanche pubescens* d'Urv. – Reported by Bondareva (2013) from three areas (Western Bays, Chersonesos Cape, Yukharina Balka). Also recorded on *Convolvulus* in Kazachya Bay, Sevastopol (28.05.2010, P.Y., #73693, det. S. Rätzel). The closest specimen-based records are near Mangup-Kale, below Merdven and in Opolznevoye (Seregin 2008).

• *Orobanche ramosa* L. (*Phelipanche ramosa* (L.) Pomel) – Reported by Bondareva (2013) from Chersonesos Cape area and Fiolent Cape area. Also recorded in Solyonaya Bay, Sevastopol (23.05.2011, P.Y., #90617, det. A. Kovalchuk) and vicinity of Inkerman (13.05.2013, P.Y., #186495, det. A. Kovalchuk).

Orobanche pulchella (C.A. Mey.) Novopokr. (*Phelipanche pulchella* (C.A. Mey.) Soják) – Sevastopol, Solyonaya Bay, 23.05.2011 (P.Y., #117447, det. O.S. Pedraja).

Oxalidaceae

Xanthoxalis corniculata (L.) Small (*Oxalis corniculata* L.) **AN** – Sevastopol, city centre, near Eternal Flame, 44°36'55"N, 33°31'30"E, cracks in paving stones, elev. 10 m, 10.07.2014, *A.S. T-1807* [MW]; Balaklava, town centre (port), 44°29'50"N, 33°36'05"E, ascent to citadel, street margin, in shade of the wall, elev. 10 m, 31.07.2014, *A.S. T-2123 & P.Y.* [MW]. – Known from many localities in Sevastopol urban areas (especially in the city centre) (P.Y., A.S.).

Papaveraceae

• *Chelidonium majus* L. **?AN** – Sevastopol, 5th km of Balaklava highway, near bus terminal, 44°32'55"N, 33°31'55"E, in fence shade on the margin of low-rise residential area, elev. 150 m, 10.09.2010, *A.S. T-1398* [MW]. – Also reported by Larina (2008) from seven localities in Baydarskaya valley: Kizilovoye, Orlinoye, Novobobrovskoye, Peredovoye, etc. and by Bondareva (2013) from Gerakleysky Peninsula. An abundant species in urban and rural areas of Sevastopol.

• *Fumaria schleicheri* Soy.-Will. – Sevastopol and Balaklava, 05.2013, *N. Bagrikova & L. Ryff* [YALT]; Sevastopol, 20.05.2014, *S.S.* [YALT]. – Discovered in Sevastopol in 2012 (P.Y.,

#130881). Also reported by Bondareva (2013) from Gerakleysky Peninsula based on personal communication by N.A. Bagrikova.

Hypecoum pendulum L. – Several specimens from three adjacent localities (Mt Sapun-Gora, Sakharnaya Golovka, and Chernorechye) are deposited in YALT (Ryff, pers. comm.).

• *Hypecoum procumbens* L. – Sevastopol, Solyonaya Bay, 44°34'15"N, 33°24'04"E, grassy plots, loose earth and roadsides, 8.05.2013, *S.S.* [MW, YALT, KW]. – A new species for the Crimea discovered in 2013 by P.Y. and S.S. in two nearby localities: near Kazachya Bay and in Solyonaya Bay. The identification was confirmed by L. Ryff (Ryff et al. 2014).

Additional record:

• *Corydalis marschalliana* (Pall. ex Willd.) Pers. (*C. cava* (L.) Schweigg. & Körte subsp. *marschalliana* (Willd.) Hayek) – Reported by Larina (2008) from N edge of Baydarskaya valley (ca. 3 km NE of Peredovoye). Also recorded on ascent from Kolkhoznoye to Mt Chuvash-Koy (26.04.2005, S.S., #287389), Inzhir locality near Balaklava (13.04.2012, P.Y., #128401), Kamyshly locality (S.S.), Biller range near Rezervnoye (S.S.), ancient Roman road from Rodnikovskoye (S.S.). A common plant in forest zone of the Sevastopol area.

Plantaginaceae

Antirrhinum majus L. **CN** – Balaklava, town centre (port), 44°29'50"N, 33°36'05"E, ascent to citadel, cracks in stone wall, elev. 10 m, 31.07.2014, *A.S. T-2124 & P.Y.* [MW]. – Discovered in 2000s by S.S.

Misopates orontium (L.) Raf. – NW of Foros, magmatic rocks, 28.06.1998, *L. Ryff* [YALT]. – Bagrikova (2013) erroneously treated this species as casual alien in the Crimea.

Plantago maritima L. (*P. salsa* Pall.) **AN** – Sevastopol, between Kamyshovaya Bay and Kazachya Bay, 44°34'10"N, 33°25'40"E, coquina railway embankment, ca. 20 plants, elev. 20 m, 31.07.2014, *A.S. T-2142 & P.Y.* [MW]. – Discovered in 2008 (S.S., #287373). The recorded number of plants confirms that in 2008–2014 the plant was spreading gradually on exposed loose coquina used for railway renovation. This species arrived with the rock mined on the seashores of the Crimean steppe.

Additional records:

• *Linaria sabulosa* Klokov – Reported by Korzhenevsky et al. (2004) from → Lukull Cape, but no specimens exist in YALT (Ryff, pers. comm.).

• *Veronica praecox* All. – Reported by Bondareva (2013) from Karanskoye plateau area. Also recorded in Inzhir locality, vicinity of Balaklava (13.04.2012, P.Y., #128389).

Platanaceae

Platanus orientalis L. **CN?** – Sevastopol, headwaters of left valley of Streletskaya Bay, 44°35'50"N, 33°27'50"E, weedy place between residential area and garages, successful escape – seedlings with flowers and fruits, elev. 20 m, 23.08.2008, *A.S. T-1326* [MW]. – We recorded no reliable evidence of naturalization in the Seavastopol area, although sterile and flowering seedlings are locally common throughout the urban areas and in foothills (A.S.). The species is naturalized in riparian forests along the nearby Kacha River in Bakhchisaraysky District.

Poaceae

×*Agrotrigia hajastanica* (Tzvelev) Tzvelev (*Agropyron cristatum* (L.) Gaertn. s.l. × *Elytrigia repens* (L.) Desv. ex Nevski) – Sevastopol, S corner of Omega Bay, 44°35'45"N, 33°26'55"E, stony seashore, elev. 0 m, 29.07.2014, *A.S. T-2101 & P.Y.*, det. N. Tzvelev [MW]; Sevastopol, S side of Kamyshovaya Bay, 44°34'20"N, 33°25'30"E, parking area for trucks near entrance to ferry terminal, elev. 10 m, 31.07.2014, *A.S. T-2140 & P.Y.*, det. N. Tzvelev [MW].

Alopecurus arundinaceus Poir. – Inkerman, left bank flood plain of the Chernaya River, 44°35'45"N, 33°36'25"E, meadow on N side of the railway, elev. 0–2 m, 28.07.2014, *A.S. T-2033 & P.Y.* [MW]; Inkerman, right bank flood plain of the Chernaya River near its mouth, 44°36'25"N, 33°36'15"E, meadows covered with bushes (former vegetable gardens), elev. 0–2 m, 28.07.2014, *A.S. T-2047 & P.Y.* [MW]. – Discovered in 2011 (P.Y., #94436).

Arrhenatherum elatius (L.) J. Presl & C. Presl **AN** – E outskirts of Rodnikovskoye, 44°27'50"N, 33°51'30"E, street margin, in shade, elev. 280 m, 8.09.2010, *A.S. T-1389* [MW]; Sevastopol, foot of Mt Sapun-Gora, 44°33'05"N, 33°35'10"E, highway margin, in *Rubus*, elev. 170 m, 31.05.2011, *A.S. T-1551* [MW]. – A common plant of road margins in countryside of the Sevastopol area (A.S.). Previous closest specimen-based record was near Maloye Sadovoye (Seregin 2008).

• *Avena clauda* Durieu – Sevastopol, Mayachnyy Cape, 44°35'11"N, 33°23'29"E, steppe plot, 10 m from the seashore, 8.05.2013, *S.S.* [MW]. – The species was reported by Ryff et al. (2013) from Solyonaya Bay and Mayachnyy Peninsula upon records by S.S. and P.Y. made in 2011–2012. The population occupies several hectares. Apparently this plant was reported by Lévieллé (1842) from Sevastopol as *A. pilosa* auct. This old record was misinterpreted by Seregin (2008) as an obscure indication of *A. eriantha* Durieu.

• *Bromopsis inermis* (Leyss.) Holub – Sevastopol, Ostryaki urban area, 2.25 km S of railway station, between General Kolomiets Street and Marshal Biryuzov Street, 44°34'30"N, 33°31'25"E, holiday village, along fence, elev. 90 m, 29.05.2011, *A.S. T-1518* [MW]; → 0.5 km W of Fruktovoye, right bank of the Belbek River, 44°40'40"N, 33°35'20"E, margin of the Lyubimovka road, elev. 10 m, 31.05.2012, *A.S. T-1725* [MW]. – Also reported by Bondareva (2013) from Gerakleysky Peninsula and recorded near Ternovka (9.07.2014, A.S.) and Park Pobedy in Sevastopol (17.07.2014, A.S.).

Bromus scoparius L. **AN** – Mountains above Cape Aya, ruins of military camp near Mt Kokiya-Kaya, 44°25'40"N, 33°39'35"E, on paths, in shade, elev. 520 m, 1.06.2011, *A.S. T-1613* [MW]; Sevastopol, Ostryaki urban area, near the hospital complex on 5th km, Sarandinakina Balka valley, 44°33'30"N, 33°32'05"E, path on the edge of holiday village, elev. 150 m, 1.06.2011, *A.S. T-1624* [MW]; Balaklava, small valley on N side of Chembolo citadel, 44°29'45"N, 33°36'10"E, wet margin of the path to Chembolo citadel, elev. 70 m, 30.05.2012, *A.S. T-1672* [MW]. – Also recorded near Ternovka (9.07.2014, A.S.). Locally common plant in Sevastopol urban areas (A.S.).

• *Elytrigia strigosa* (M. Bieb.) Nevski – 3 km SSW of Rezervnoye, 44°26'50"N, 33°39'15"E, rocks on SW slope of Biller Range, elev. 510 m, 24.07.2014, *A.S. T-1973* [MW]; crest of the Main Ridge, 44°25'20"N, 33°51'15"E, rocks above Chertova Lestnitsa ascent, elev. 680 m, 3.08.2014, *A.S. T-2174 & Buzin* [MW]. – Also reported by Korzhenevsky et al. (2004) from Rodnikovskoye and Orlinoye and by Larina (2008) from two localities: Baydarskaya yayla (ca. 2 km E of Baydarskiye Vorota pass) and ca. 1.5 km WSW of Rezervnoye.

Eragrostis pilosa (L.) P. Beauv. – Highway below Ternovka (farm junction), 44°34'50"N, 33°44'10"E, highway margin, elev. 170 m, 10.09.2010, *A.S. T-1406* [MW].

Panicum miliaceum L. **A/C** – Sevastopol, S corner of Omega Bay, 44°35'40"N, 33°26'50"E, disturbed lawn, elev. 0 m, 23.08.2008, *A.S. T-1315* [MW].

Phalaris canariensis L. A – Sevastopol, newly constructed residential area on E side of Kamyshovaya Bay, 44°35'20"N, 33°25'55"E, fresh ground along path, one plant, elev. 10 m, 29.07.2014, *A.S. T-2111 & P.Y.* [MW].

Sorghum halepense (L.) Pers. **AN** – Sevastopol, 5th km of Balaklava highway, near bus terminal, 44°32'45"N, 33°32'05"E, highway margin, several shoots, elev. 150 m, 10.09.2010, *A.S. T-1399* [MW]. – Also recorded in vicinity of Inkerman-2 station (2.09.2010, P.Y., #66536).

• *Stipa pontica* P.A. Smirn. (incl. *S. poëtica* Klokov) – Vicinity of Sevastopol, stony steppe, 18.05.1969, *M. Kotov* (KW) (Klokov & Ossycznjuk 1976); Sevastopol, W outskirts, head of Solyonaya Bay, 44°34'15"N, 33°24'00"E, seasonally green short-grass plot, elev. 10 m, 28.05.2011, *A.S. T-1462* [MW]. – Also reported by Bondareva & Milchakova (2002) from Kazachya Bay reserve and by Bondareva (2013) from six areas (Western Bays, Chersonesos Cape, Fiolent Cape, Karanskoye plateau, Yukharina Balka, Mt Sapun-Gora/Maximova Dacha). Previous closest specimen-based record was near Siren station (Seregin 2008).

• *Stipa pulcherrima* K. Koch s.l. (incl. *S. glabrinoda* Klokov, *S. heterophylla* Klokov) – N suburb of Sevastopol, 29.05.1973, *O. Dubovik* (KW) (Klokov & Ossycznjuk 1976, sub nom. *S. heterophylla*). – Klokov & Ossycznjuk (1976) did not cite any specimens for *S. glabrinoda* from the Sevastopol area, but indicated one locality on the map (Inkerman – Verkhnesadovoye area). Also reported by Bondareva (2013) from six areas (Western Bays, Chersonesos Cape, Fiolent Cape, Karanskoye plateau, Yukharina Balka, Mt Sapun-Gora/Maximova Dacha) under the name *S. glabrinoda*. Additionally, she reported *S. heterophylla* from Western Bays area and Mt Sapun-Gora/Maximova Dacha area. Previous closest specimen-based record of *S. pulcherrima* s.l. was near Siren station (Seregin 2008).

Zea mays L. **C** – Sakharnaya Golovka (lower part), 44°34'50"N, 33°38'00"E, crack in the asphalt near the bus stop, elev. 20 m, 19.08.2008, *A.S. T-1220* [MW].

Additional records:

• *Bromus secalinus* L. **A** – Reported by Bondareva (2013) from Gerakleysky Peninsula.

• *Poa biebersteinii* H.N. Pojark. (*P. sterilis* M. Bieb. subsp. *biebersteinii* (H.N. Pojark.) Tzvelev) – Reported by Korzhenevsky et al. (2004) from two localities: Ayazma and Laspi valley.

• *Poa taurica* H.N. Pojark. – Reported by Korzhenevsky et al. (2004) from three localities (Kilen-Balka valley, Sushilnaya Balka valley, and Karanskiye heights near Flotskoye). These data are referenced by Bondareva (2013) as records from Mt Sapun-Gora/Maximova Dacha area and Karanskoye plateau area.

• *Stipa lessingiana* Rupr. s.str. – Reported by Korzhenevsky et al. (2004) from Goncharnoye. The closest specimen-based record is near Siren station (Seregin 2008).

• *Stipa tirsa* Steven (*S. longifolia* Borb.) – Reported by Larina (2008) from the summit of Mt Kuchuk-Sinor (ca. 3 km SE of Orlinoye).

• *Ventenata dubia* (Leers) Coss. – Reported by Bondareva (2013) from Mt Sapun-Gora/Maximova Dacha area.

Hordeum vulgare L. **A** – Sevastopol, Ushakova Balka valley, 26.05.2010 (P.Y., #59668, convar. *vulgare* & #59667, convar. *distichon*).

Taeniatherum asperum (Simonk.) Nevski – Karanskaya Balka valley, 31.05.2012 (P.Y., #135919). The closest specimen-based record is near Foros (Seregin 2008).

Polygonaceae

• *Polygonum arenastrum* Boreau (det. O.V. Yurtseva)[1] – Mekenziyevy Mts, 1 km NE of Mekenziyevy Gory station, *Juglans regia* cultures, 15.09.2002, *A.S. T-304 & I. Privalova* [MW]; S suburb of Sevastopol, Fiolent Cape reserve, between Fiolent Cape and St George Monastery, 44°30'20"N, 33°30'00"E, ledge of sea-faced cliff, ground road margin near holiday village, elev. 150 m, 11.09.2003, *A.S. T-473 & I. Privalova* [MW]; Sevastopol, Northern Side, Uchkuyevka, 44°38'50"N, 33°32'10"E, gravelly limestone beach on the territory of a hotel, elev. 0–5 m, 22.08.2004, *A.S. T-827* [MW]; *ibidem*, 44°39'00"N, 33°32'20"E, coquina beach on the territory of a hotel, elev. 0–5 m, 22.08.2004, *A.S. T-829* [MW]; Baydarskaya valley, 1.25 km NE of Tylovoye, 44°26'50"N, 33°45'00"E, ground road along ditch, elev. 270 m, 6.08.2006, *A.S. T-996, T-997 & I. Privalova* [MW]. – Also reported by Bondareva (2013) from Chersonesos reserve area.

Polygonum bellardii All. (*P. patulum* M. Bieb.) (det. O.V. Yurtseva) – The Chernaya River mouth, the littoral near Inkerman-1 station, 44°36'30"N, 33°35'50"E, elev. 0 m, 13.07.2011, *A.S. T-1640* [MW]; Inkerman, the Chernaya River bank, 0.3 km below railway bridge, 44°35'55"N, 33°36'25"E, elev. 0–2 m, 28.07.2014, *A.S. T-2039 & P.Y.* [MW]; Sevastopol, newly constructed residential area on E side of Kamyshovaya Bay, 44°35'20"N, 33°25'55"E, fresh ground along path, elev. 10 m, 29.07.2014, *A.S. T-2113 & P.Y.* [MW]. – Also recorded in Solyonaya Bay, Sevastopol (12.08.2011, P.Y., #117514, det. V. Papchenkov).

Polygonum calcatum Lindman – Sevastopol, Northern Side, Uchkuyevka, 44°39'00"N, 33°32'20"E, foot of clay sea-faced escarp, elev. 0–5 m, 22.08.2004, *A.S. T-830*, det. O.V. Yurtseva [MW]. – This species was not encounted for the Crimea (Tzvelev 1996; Yena 2012; etc.), but we do not treat it as a new record due to the lack of comprehensive revision of the Crimean collections.

Polygonum neglectum Besser (det. O.V. Yurtseva) – Sevastopol, vicinity of Streletskaya Bay, as a weed, 13.09.2001, *A.S. T-155 & I. Privalova* [MW]; Baydarskaya valley, 1 km W of Peredovoye, SE corner of the smaller reservoir on right tributary of the Chernaya River, 44°30'20"N, 33°48'50"E, muddy bank disturbed by cattle, elev. 270 m, 13.09.2003, *A.S. T-508 & Privalova* [MW].

Rumex obtusifolius L. s.l. (incl. *R. sylvestris* (Lam.) Wallr.) – Rodnoye junction, 44°34'15"N, 33°43'15"E, damp bottom of a rivulet valley, elev. 140 m, 10.09.2010, *A.S. T-1410* [MW]; 2 km NE of ruins of military camp above Cape Aya (near Mt Kokiya-Kaya), vicinity of Demir Kapu Chokrak spring, 44°26'20"N, 33°40'40"E, edge of forest road near a fork, elev. 590 m, 1.06.2011, *A.S. T-1620* [MW]. – Also recorded near Ternovka (9.07.2014, A.S.) and Frontovoye (12.07.2014, A.S.). Earlier historical record was not confirmed by a specimen (Seregin 2008).

Rumex patientia L. subsp. *orientalis* Danser (*R. lonaczevskii* Klokov) **AN** – Balaklava, near Chembolo citadel, 44°29'50"N, 33°36'00"E, weedy place on the edge of city street, elev. 20 m,

1 *Polygonum aviculare* L. s.l. was recorded earlier in the checklist (Seregin 2008). Dr O.V. Yurtseva has identified at least four species from this complex, listed here.

17.08.2008, *A.S. T-1186* [MW]. – First record of *R. patientia* s.l. by Drescher et al. (2007) was not confirmed by a specimen (Seregin 2008). A rapidly spreading alien, which becomes common throughout the Sevastopol area nowadays (A.S.).

Rumex stenophyllus Ledeb. – Sevastopol, newly constructed residential area to E from Kamyshovaya Bay, 44°35'25"N, 33°26'05"E, fresh ground near new house, one branched plant, elev. 10 m, 29.07.2014, *A.S. T-2107 & P.Y.* [MW]; → N edge of Vishnevoye, right bank of the Kacha River, 44°44'15"N, 33°36'20"E, garden margin on flood plain, elev. 10 m, 19.07.2014, *A.S. T-1925* [MW]. – Also recorded in Park Pobedy (17.07.2014, A.S.).

Additional records:

Fagopyrum esculentum Moench **A** – Verkhnesadovoye, railway, 1.07.2012 (P.Y., #142170, det. D. Davydov).

Rumex scutatus L. subsp. *hastifolius* (M. Bieb.) Borodina (*R. hastifolius* M. Bieb.) – Above Foros, screes below Mt Chelebi (Ryff, pers. comm.).

Potamogetonaceae

Potamogeton ×*angustifolius* J. Presl (*P. gramineus* L. × *P. lucens* L.) – Baydarskaya valley, pond to N from Novobobrovskoye, 44°30'15"N, 33°51'00"E, in water, elev. 330 m, 2.08.2014, *A.S. T-2163*, det. A. Bobrov [MW].

• *Potamogeton gramineus* L. s.l. – Baydarskaya valley, 1 km W of Peredovoye, the smaller reservoir on right tributary of the Chernaya River (Lake Nizhneye), in water, 1.11.2012, *P.Y. & S.S.* [MW]; in a small storage reservoir on the Aytodorka River E of Ternovka village, 44°34'03"N, 33°46'25"E, elev. 250 m, 29.09.2013, *A.V. Yena* [CSAU] (Yena & Svirin in Raab-Straube & Raus 2013); *ibidem*, near Ternovka, 44°34'04"N, 33°46'26"E, lake, 29.09.2013, *S.S.* [MW]; *ibidem*, Ternovka, artificial lake (the Aytodorka River), right bank, 24.06.2014, *S.S.* [MW].

Potamogeton perfoliatus L. – Lyubimovka, 44°39'50"N, 33°32'55"E, the Belbek River below bridge, elev. 0–2 m, 12.09.2010, *A.S. T-1431 & P.Y.* [MW]; Inkerman, the Chernaya River above railway bridge, 44°35'45"N, 33°36'35"E, in water, elev. 0–2 m, 28.07.2014, *A.S. T-2035 & P.Y.* [MW]; Inkerman, 44°36'15"N, 33°36'35"E, lake in the limestone quarry, SW shore, in water, elev. 30 m, 28.07.2014, *A.S. T-2052 & P.Y.* [MW]; Baydarskaya valley, S edge of Orlinoye, 44°25'55"N, 33°46'40"E, large pond, in water near dam, elev. 290 m, 29.07.2014, *A.S. T-2085 & P.Y.* [MW].

Potamogeton ×*salicifolius* Wolfg. (*P. lucens* L. × *P. perfoliatus* L.) – Goncharnoye, pond on the Sukhaya River, 44°28'00"N, 33°42'20"E, shoal water by the highway, elev. 260 m, 15.07.2014, *A.S. T-1883*, det. A. Bobrov [MW]; Baydarskaya valley, S edge of Orlinoye, 44°25'55"N, 33°46'55"E, shoal water of large pond (NE bank), depth 0.3–0.4 m, elev. 290 m, 29.07.2014, *A.S. T-2089 & P.Y.*, det. A. Bobrov [MW].

Zannichellia pedunculata Rchb. (*Z. pedicellata* (Wahlenb. & Rosén) Fr., *Z. palustris* L. subsp. *pedicellata* (Wahlenb. & Rosén) Hook f.) – Inkerman, 44°35'43"N, 33°36'37"E, deep segment of the Chernaya River with slow flow, 23.09.2012, *S.S.* [MW, YALT, CSAU]; *ibidem*, Inkerman, the Chernaya River above railway bridge, 44°35'45"N, 33°36'35"E, in water, elev. 0–2 m, 28.07.2014, *A.S. T-2034 & P.Y.* [MW]; Baydarskaya valley, vicinity of Orlinoye, fish pond near Mt Pska-Bair, 44°26'25"N, 33°45'45"E, in water near dam, very scattered, elev. 260 m, 29.07.2014, *A.S.*

T-2079 & P.Y. [MW]. – The population in the Chernaya River is small, but stable. Discovered in 2010 (P.Y., #105038, det. A. Kovalchuk). S.S. is recording it every year in the same place.

Primulaceae

Asterolinon linum-stellatum (L.) Duby – Kazachya Bay, 27.04.2010, *S.S.* [YALT, CSAU]; *ibidem*, *L. Ryff* [YALT]. – Discovered in 2010 (S.S., #52929).

Lysimachia nummularia L. – Inkerman, left bank flood plain of the Chernaya River, 44°35'45"N, 33°36'25"E, meadow on N side of the railway, depression, elev. 0–2 m, 28.07.2014, *A.S. T-2032 & P.Y.* [MW]. – Discovered in 2010 (S.S., #287300).

Samolus valerandi L. – Inkerman, 44°36'25"N, 33°36'40"E, lake in the limestone quarry, NW corner, wet limestone shelves, elev. 30 m, 28.07.2014, *A.S. T-2049 & P.Y.* [MW, LE, MHA]. – Discovered in 2012 (P.Y., #141159).

Ranunculaceae

Clematis orientalis L. **AN** – Sevastopol, S side of Kamyshovaya Bay, 44°34'20"N, 33°25'30"E, overgrown slope between the parking area for trucks and entrance to ferry terminal, one thicket 150–200 m^2, elev. 10 m, 31.07.2014, *A.S. T-2139 & P.Y.* [MW, LE, MHA]. – Discovered here in 2012 (P.Y., #144927). Also recorded near the quarry of Balaklava Mine (8.09.2008, S.S., #287336), but free pass to this locality was closed in 2014 due to mining operations.

• *Nigella elata* Boiss. – The species was reported by Ryff (2012) from few localities in the Southern Crimea including Cape Fiolent [specimens in YALT]. This species was treated as *N. damascena* L. subsp. *minor* (Boiss.) Terrac. by Tzvelev (2001) and was not recognized as an independent taxon by Seregin (2008). *N. elata* was also discovered in 2011 in the Chernaya River canyon. *N. damascena* s.str. easily escapes from cultivation and grows on weedy places (for instance, in Sevastopol: 8.07.2014, 10.07.2014, A.S.).

Nigella garidella Spenn. (*N. nigellastrum* (L.) Willk., *Garidella nigellastrum* L.) – Balaklava, path to Chembolo citadel, 44°29'50"N, 33°36'20"E, sparse *Asphodeline* petrophyte steppe, elev. 130 m, 17.08.2008, *A.S. T-1172* [MW]; vicinity of Mt Gasforta industrial development area, S corner of reservoir, 44°31'20"N, 33°40'50"E, stony slope, elev. 60 m, 21.08.2008, *A.S. T-1284* [MW]. – Also recorded in Sevastopol (2008, S.S., #59221; 2012, 2014, P.Y., #140206, #242577) and Lyubimovka (2.06.2014, P.Y., #194775). Reported by Bondareva & Milchakova (2002) from Kazachya Bay reserve and by Bondareva (2013) from four areas (Chersonesos Cape, Yukharina Balka, Fiolent Cape, Mt Sapun-Gora/Maximova Dacha). Earlier historical records were not confirmed by specimens (Seregin 2008).

• *Ranunculus trichophyllus* Chaix (*Batrachium trichophyllum* (Chaix) Bosch) **?AN** – Near Ternovka, 44°34'04"N, 33°46'26"E, lake, 29.09.2013, *S.S.* [MW, CSAU]. – Also reported by Bondareva (2013) from Karanskoye plateau area, but suitable habitats are extremely rare here.

Additional record:

Myosurus minimus L. – Baydarskaya valley, 26.05.2010 (P.Y., #57277).

Rhamnaceae

• *Rhamnus alaternus* L. **CN** – Balaklava, path to Chembolo citadel, 44°29'50"N, 33°36'00"E, stony slope, crevices in rock, elev. 50 m, 17.08.2008, *A.S. T-1136*, det. N. Shvedchikova [MW]. –

Also reported by Bondareva (2013) from Karanskoye plateau area and recorded in Kamyshovaya Bay, Sevastopol (22.03.2015, P.Y., #117090, det. L. Ryff).

Rosaceae

Aphanes arvensis L. – Vicinity of Balaklava, valley (balka), 44°29'47"N, 33°37'38"E, shrubs on N slope below Asketi pass, 27.05.2014, *S.S.* [MW]. – Also collected in Rodnikovskoye by S.S. [YALT].

Crataegus stevenii Pojark. (*C. pallasii* auct.) – Lyubimovka, 44°39'46"N, 33°33'27"E, in shrubs along road, 26.07.2014 *P.Y. & S.S.* [MW]. – Also recorded near Cape Fiolent (21.10.2013, S.S., #287514).

• *Crataegus taurica* Pojark. (*C. meyeri* auct.) – Vicinity of Lyubimovka, 44°39'09"N, 33°33'09"E, petrophyte steppe overgrowing with trees and shrubs, 27.07.2014, *P.Y.* [MW]. – Discovered in 2009 (P.Y., #82376) following the records by Rubtzov (1972) and Korzhenevsky et al. (2004). The species is common near Lyubimovka and sometimes planted in gardens.

Cydonia oblonga Mill. **CN?** – Sevastopol, Maximova Dacha estate, 44°33'50"N, 33°32'40"E, abandoned park on a valley bottom below pond, self-seeding is recorded, 24.08.2008, *A.S. T-1348* [MW]; Inkerman, right bank of the Chernaya River above railway bridge, 44°35'45"N, 33°36'35"E, naturalized on flood plain, elev. 0–2 m, 28.07.2014, *A.S. T-2036 & P.Y.* [MW]. – We recorded self-seeding in the second locality, but it should not be regarded as true evidence of successful naturalization.

Duchesnea indica (Jacks.) Focke (*Potentilla indica* (Jacks.) Th. Wolf) **A** – Balaklava, town centre (port), 44°30'00"N, 33°36'00"E, flowerbed, as a weed, elev. 0–2 m, 31.07.2014, *A.S. T-2120 & P.Y.* [MW]. – It is a rare casual plant in flowerbeds in the Crimea, but it might be observed as a weed on irrigated lawns and in flower nurseries. The species was not listed by Yena (2012), but Bagrikova (2013) reported that currently it is a 'colonophyte' in the Crimea.

Malus domestica Borkh. **CN** – Vicinity of Mt Gasforta industrial development area, S corner of reservoir, 44°31'20"N, 33°40'50"E, a tree on the edge of *Phragmites* thicket, elev. 60 m, 21.08.2008, *A.S. T-1278* [MW]; *ibidem*, 44°31'20"N, 33°40'50"E, weedy place, elev. 60 m, 21.08.2008, *A.S. T-1282* [MW]. – Also reported by Bondareva (2013) from Karanskoye plateau area and recorded near Goncharnoye (15.07.2014, A.S.). At least, two morphotypes are present, which might refer to distinct species.

• *Prunus cerasifera* Ehrh. (*P. divaricata* Ledeb.) **CN** – Balaklava, path to Chembolo citadel, 44°29'40"N, 33°36'10"E, bottom of ravine (below spring), many high fertile trees, elev. 40 m, 17.08.2008, *A.S. T-1179* [MW]. – Also reported by Bondareva (2013) from Gerakleysky Peninsula.

Prunus domestica L. **CN** – Sevastopol, lower course of Streletskaya Balka valley, 44°35'10"N, 33°28'20"E, edge of holiday village, dry limestone slope, fertile tree 3 m high, elev. 20 m, 23.08.2008, *A.S. T-1344* [MW].

• *Pyracantha rogersiana* (A.B. Jacks.) Coltm.-Rog. **CN** – Sevastopol, mouth of Streletskaya Balka valley, 44°35'30"N, 33°28'20"E, dense thicket of shrubs and trees on thalweg, elev. 10 m, 23.08.2008, *A.S. T-1335* [MW, LE] (Seregin 2010). – Sometimes it is cultivated as ornamental shrub in the city and easily escapes due to seed dispersal by birds.

Additional records:

• *Crataegus sphaenophylla* Pojark. – Reported by Rubtzov (1972) from Lyubimovka and by Korzhenevsky et al. (2004) from two localities: Lyubimovka and Maximova Dacha estate. We confirm the record from Lyubimovka (23.09.2013, P.Y., #208734).

• *Potentilla laciniosa* Nestl. (*P. recta* L. subsp. *laciniosa* (Nestl.) Nyman, *P. semilaciniosa* (Borbás) Borbás) – Reported by Bondareva (2013) from six areas (Western Bays, Chersonesos Cape, Fiolent Cape, Karanskoye plateau, Yukharina Balka, Mt Sapun-Gora/Maximova Dacha).

• *Potentilla pedata* Willd. – Reported by Bondareva (2013) from three areas (Fiolent Cape, Karanskoye plateau and Mt Sapun-Gora/Maximova Dacha area). The closest specimen-based record is near Mangup-Kale (Seregin 2008).

• *Potentilla pilosa* Vill. (*P. recta* L. subsp. *pilosa* (Willd.) Rchb. f. ex Rothm.) – Reported by Bondareva (2013) from two localities: Western Bays area and Mt Sapun-Gora/Maximova Dacha area. Historical record was not confirmed by a specimen (Seregin 2008).

• *Prunus cerasus* L. (*Cerasus vulgaris* Mill.) **C** – Reported by Bondareva (2013) from Gerakleysky Peninsula.

• *Sorbus aucuparia* L. – Reported by Bondareva (2013) from Karanskoye plateau area.

Crataegus atrofusca (K. Koch) Kassumova (*C. pentagyna* auct. p.p.) – Baydarskaya valley, 24.10.2011 (P.Y., #109483, det. N. Schulz).

Potentilla argentea L. – Karanskaya Balka valley, 10.05.2012 (P.Y., #132192, det. V. Papchenkov). – The closest specimen-based record is near Mangup-Kale (Seregin 2008).

Rubiaceae

Rubia tinctorum L. – Lyubimovka, left bank of the Belbek River, 44°40'00"N, 33°33'20"E, earthen wall along the river bed, among *Phragmites* and *Elytrigia*, elev. 2–5 m, 31.05.2012, *A.S. T-1716* [MW]. – Also recorded in Kilen-Balka valley, Sevastopol (P.Y., 9.07.2011, #97448, det. D. Davydov).

Additional record:

• *Asperula supina* M. Bieb. – Reported by Korzhenevsky et al. (2004) from two localities: Ayazma and yayla in Baydarsky reserve. The closest specimen-based record is near Kuybyshevo (Seregin 2008).

Ruppiaceae

Ruppia maritima L. – Sevastopol, Solyonaya Bay, 24.09.2012, *S.S.* [CSAU]; *ibidem*, Sevastopol, Solyonaya Bay, 44°34'20"N, 33°24'15"E, near island, sandy shallow water, elev. 0 m, 31.07.2014, *A.S. T-2145 & P.Y.* [MW]. – Historical record was not confirmed by a specimen (Seregin 2008).

Scrophulariaceae

Additional record:

Verbascum phoeniceum L. – Inkerman, 6.05.2010 (S.S., #287528).

Sapindaceae

Aesculus hippocastanum L. **C** – 1.5 km W of the viewpoint above Laspi, ascent from Batiliman road to Mt Kush-Kaya, 44°25'40"N, 33°41'25"E, path margin in *Quercus* forest, a single seedling, elev. 400 m, 1.06.2011, *A.S. T-1591* [MW].

• *Koelreuteria paniculata* Laxm. **CN** – Sevastopol, mouth of Streletskaya Balka valley, 44°35'30"N, 33°28'20"E, dense thicket of shrubs and trees on talweg, elev. 5 m, 23.08.2008, *A.S. T-1333* [MW] (Seregin 2010). – This single fruiting tree was also recorded in 2012 (P.Y., #159314). Sometimes it is cultivated as ornamental tree in the city. Sterile seedlings are abundant in shady yards in residential areas.

Solanaceae

Datura innoxia Mill. **CN?** – Sevastopol, between Streletskaya Bay and Park Pobedy, corner of Admiral Fadeyev Street, 44°35'50"N, 33°27'45"E, weedy place, one plant, elev. 10 m, 29.07.2014, *A.S. T-2097 & P.Y.* [MW]. – In the last years, we recorded the species in many places of Sevastopol on rough ground and cracks of sidewalks (A.S.). There is still no evidence of true naturalization, but it apparently escapes from cultivation. Seed production in autumn is usually successful. Bagrikova (2013) reported that currently it is an 'ephemerophyte' in the Crimea.

Nicandra physaloides (L.) Gaertn. **AN** – Sevastopol, headwaters of left valley of Streletskaya Bay, 44°35'40"N, 33°28'10"E, lawn between residential area and garages, elev. 10 m, 23.08.2008, *A.S. T-1328* [MW]. – Also recorded in Novobobrovskoye (12.09.2005, 27.06.2009, S.S., #287344) and Lyubimovka (26.07.2014, P.Y., #252913).

Solanum lycopersicum L. (*Lycopersicon esculentum* Mill.) **CN** – Sevastopol, Ostryaki urban area, near the children hospital complex, 44°33'25"N, 33°31'55"E, lawn in the residential area, two individuals, elev. 130 m, 10.09.2010, *A.S. T-1395 & I. Seregina* [MW]. – Naturalized population of tomato is known since 2008 above Yashmovyy beach near Fiolent Cape (S.S.). The plants are abundant in this locality along stream coming from St George monastery and growing with other *Solanum* species.

Thelypteridaceae

Thelypteris palustris Schott – Sevastopol, Korabelnaya Bay, near spring on wall, 18.08.2012, *P.Y.* [CSAU] (cf. #149574).

Typhaceae

Additional records:

Typha austro-orientalis Mavrodiev – Vicinity of Lyubimovka, 26.07.2014 (P.Y., #256953, det. E. Mavrodiev).

Typha intermedia Schur – Baydarskaya valley, 19.07.2009 (P.Y., #117661, det. E. Mavrodiev).

Ulmaceae

Ulmus pumila L. **CN** – S suburb of Sevastopol, 7th km of Balaklava highway, 44°32'15"N, 33°32'30"E, edge of railway, elev. 180 m, 1.07.2012, *A.S. T-1732* [MW]; Sevastopol, lower course of Streletskaya Balka valley, 44°35'00"N, 33°28'25"E, margin of road across the valley (Vakulenchuk Street), young trees, elev. 30 m, 29.07.2014, *A.S. T-2091 & P.Y.* [MW].

Violaceae

Viola tanaitica Grosset – 3.25 km SE of Orlinoye, N slope of the Main Ridge, bottom of Maltash-Uzen gorge, 44°26'00"N, 33°49'40"E, *Carpinus betulus* forest, elev. 420 m, 25.08.2008, *A.S. T-1369 & I. Seregina* [MW]; 2,75 km SSW of Rezervnoye, gentle NE slope of Biller Range, 44°26'50"N, 33°39'25"E, *Carpinus betulus* stand along forest road, elev. 580 m, 24.07.2014, *A.S. T-1971* [MW]. – Previous closest specimen-based record was from Mangup (Seregin 2008).

Additional record:

• *Viola suavis* M. Bieb. – Reported by Bondareva (2013) from four areas (Fiolent Cape, Karanskoye plateau, Yukharina Balka, Mt Sapun-Gora/Maximova Dacha). Also recorded on Fedyukhiny Heights (11.04.2012, P.Y., #128180), in flower.

Vitaceae

Parthenocissus inserta (A. Kern.) Fritsch **CN** – Sevastopol, lower course of Streletskaya Balka valley, 44°35'00"N, 33°28'20"E, road embankment across the valley, abundant on N slope of embankment and in forest on bottom of the valley, with fruits, elev. 30 m, 23.08.2008, *A.S. T-1345* [MW]. – Also recorded near Goncharnoye (15.07.2014, A.S.).

Vitis labrusca L. **CN** – Vicinity of Mt Gasforta industrial development area, E bank of reservoir, 44°31'20"N, 33°40'50"E, dam, fertile shrub, elev. 60 m, 21.08.2008, *A.S. T-1295* [MW]; Sevastopol, detour highway between Balaklava junction and Yalta junction, 44°32'10"N, 33°34'25"E, highway margin, elev. 140 m, 28.07.2014, *A.S. T-2056 & P.Y.* [MW].

Xanthorrhoeaceae

Additional record:

Eremurus spectabilis M. Bieb. (incl. *E. thiodanthus* Juz.) – Mt Kush-Kaya, 24.05.2008 (S.S., #287411); Inzhir locality (I. Turbanov; cf. 25.04.2010, S.S., #287412); Baydarskaya valley, vicinity of Kizilovoye, 20.05.2010 (I. Turbanov, #87224); right bank of the Uzundzha River (2011?, S.S.).

Discussion

New records for the Crimea

The latest *Spontaneous flora of the Crimean Peninsula* by Yena (2012) covers 2536 species excluding hybrids, casual and doubtful species. Some new records for the Crimea were published later by various authors (Ryff 2012; Ryff et al. 2013, 2014; Raab-Straube & Raus 2013, etc.). Nothospecies were not consistently listed by Yena (2012), but he mentioned merely all published records of hybrids in the notes. The following 17 records published above are new for the Crimea: *Bupleurum veronense*, *Lemna turionifera*, *Typha austro-orientalis*, *Tyrimnus leucographus*, ×*Agrotrigia hajastanica*, *Arctium* × *ambiguum*, *A.* × *mixtum*, *Potamogeton* × *angustifolius*, *P.* × *salicifolius* (native species and archaeophytes); *Bupleurum baldense*, *Campsis radicans*, *Clematis orientalis*, *Corispermum hyssopifolium*, *Halimodendron halodendron*, *Sagina apetala*, *Solidago gigantea*, *Ulmus pumila* (aliens).

×*Agrotrigia hajastanica* is a natural hybrid of two widely distributed plants, *Agropyron cristatum* s.l. and *Elytrigia repens*. Beside our records, it is currently known from few places in Armenia

(including *locus classicus*) and two localities in Russia, Karachai-Cherkess Republic and Voronezh Oblast (Tzvelev 2006; Alexeev 2006).

Arctium ×*ambiguum* (*A. lappa* × *A. tomentosum*) and *A.* ×*mixtum* (*A. minus* × *A. tomentosum*) are natural hybrids of burdocks, which are common in the Crimean Mts. Privalova (1969b) mentioned that *Arctium* species easily hybridize in the Crimea and plants with transitional characters are not rare here, but "it is difficult to attribute them to one or another species". We report these two nothospecies only from the localities where both parents are present and thereby the identity of transitional plants is obvious.

Bupleurum veronense is distributed in the Balkan Peninsula and Italy (Snogerup & Snogerup 2001). It was also reported as casual alien from Germany and Abkhazia (Vinogradova 1979; Snogerup & Snogerup 2001). The latter record from Abkhazia is based on the protologue of *B. aenigma* Koso-Pol. which was described upon a single collection (Koso-Poliansky 1917). Vinogradova (1979) treated *B. aenigma* as synonym of *B. veronense* based on a casual alien occurrence. The nearest localities of *B. veronense* are known in Greece and F.Y.R. of Macedonia (Snogerup & Snogerup 2001). The records of *B. veronense* are new for Eastern Europe. We could assume phytogeographically that *B. veronense* is an alien in the Crimea, but we believe that it might be a long-persistent archaeophyte. Detailed survey on new records of *B. veronense* in the Crimea is submitted by Ryff et al. (unpubl.).

Bupleurum baldense is a locally established alien in the Crimea discovered along a railway to a busy cargo port. It is a W Mediterranean species with native range from Spain to Italy with the northernmost localities in Southern England (Snogerup & Snogerup 2001). It was reported recently from five regions of Bulgaria (Assyov et al. 2006, 2012) due to misidentification. Hand (2011) wrongly assigned these records to *B. veronense*, but in fact they refer to *B. apiculatum* Friv. (Stoyanov & Goranova 2009; Stoyanov, pers. comm.). The record of *B. baldense* is new for Eastern Europe.

Campsis radicans was reported as naturalized from Spain, Corse and the Azores (DAISIE 2015a), but there were no records from the Crimea out of culture (Yena 2012; Bagrikova 2013). A.S. and L. Ryff recorded established populations of the species in few localities near Laspi, where it was formerly planted to fix the exposed slopes. In Sevastopol, few plants of seed origin were observed not far from the cultivation plot. We need additional data to confirm true naturalization of the species and successful seed dispersal.

Clematis orientalis is a rare garden escape in Europe. It is treated as an established alien in the United Kingdom and Italy only (DAISIE 2015b). *C. orientalis* is sometimes cultivated as an ornamental crumbling plant in W Europe, but we have not ever seen this species in the Crimean gardens. Thus, presence of two large persistent populations in the Sevastopol area is somewhat exceptional.

Corispermum hyssopifolium is the second *Corispermum* species known in the Crimea (Yena 2012). It is a widely distributed, E European plant of riverine sands and weedy habitats. The nearest localities are situated in the Ukraine, European Russia and Romania (Uotila 2011a). In the Crimea, it is a rare casual plant of construction sand piles.

Halimodendron halodendron is a Central Asian species with westernmost records in Georgia, Turkey and European Russia (ILDIS 2006). The species is known as alien in Moldova and the Ukraine (Yakovlev et al. 1996). It is locally established and gradually spreading in one locality

in Sevastopol. We do not have any direct evidence that it is a garden escape here, although in the Crimean steppe it is sometimes planted in shelter belts (P.Y.).

Lemna turionifera was neglected by Yena (2012), although photographs of the species from Maximova Dacha estate were published online in 2009 by I. Turbanov. According to Tzvelev (1990) and Uotila (2009), the nearest records of the species are situated in Caucasus, Central Russia and Turkey. Additionally, it was discovered recently in the Northern Ukraine (Orlov & Iakushenko 2013). Similar *L. minor* L. recorded by Seregin (2008) is an apparently rare species in the Seavstopol area, whereas *L. turionifera* is locally abundant.

Potamogeton ×*angustifolius* (*P. gramineus* × *P. lucens*) and *P.* ×*salicifolius* (*P. lucens* × *P. perfoliatus*) are native hybrids of widely distributed species. Their identity was kindly checked by A.A. Bobrov (Borok, Russia). Broad-leaved pondweeds without floating leaves were extremely rare in the Crimea earlier. For instance, Wulff (1929) encounted only six localities for *P. perfoliatus*, *P.* ×*nitens* Web. (*P. gramineus* × *P. perfoliatus*), *P. lucens* and *P. crispus*. Meanwhile, *P. natans* L. and *P. fluitans* auct. (*P. nodosus* Poir.) were known from 14 and 5 localities respectively (Wulff 1929). Large-scale construction of water reservoirs and ponds after World War II led to gradual spreading of pondweeds throughout the Crimea in the last decades. Broad-leaved pondweeds are hybridizing easily and could persist without parents due to vegetative propagation. *P.* ×*nitens* was the only pondweed hybrid reported from the Crimea (Yuonghé 1904; Wulff 1929) long before the first record of the parental *P. gramineus* (Yena & Svirin in Raab-Straube & Raus 2013).

Sagina apetala is a widely distributed weed associated mainly with cracks of sidewalks and paving stones. It was recorded recently in many localities throughout the Southern Crimea (Yalta, 25.04.2012, P.Y., #130028, det. L. Ryff; *ibidem*, 29.04.2013, A.F., #184844; Nikita Botanical Garden, 3.06.2013, N. Bagrikova, #191360; Partenit, 20.04.2014, P.Y., #233523, det. L. Ryff; and abovementioned localitites in the Sevastopol area), but these records were left unpublished. The nearest localities are situated in the Ukraine, Romania, Bulgaria, Turkey and Georgia (Marhold 2011). In Russia, it was reported from railways near Tuapse and Adler on the Russian Black Sea Coast (Zernov 2000, sub nom. *S. oxysepala* Boiss.). A detailed survey on new records of *S. apetala* in the Crimea is submitted by Ryff et al. (unpubl.).

Solidago gigantea was encounted for the Crimea in Euro+Med treatment (Greuter 2006+) based on Dobrochayeva (1987), but the Crimea is not mentioned in the latter reference. The closest records of *S. gigantea* are in Bulgaria, Romania, Ukraine (Greuter 2006+) and NW Caucasus (Seregin & Shvedchikova 2009, sub nom. *S. serotinoides*).

Typha austro-orientalis from section *Bracteolatae* Graebn. was reported in the protologue from European Russia (Lower Don, Volga, and Southern Urals), Kazakhstan and Uzbekistan (Mavrodiev & Sukhorukov 2006). It was confused by Seregin (2008) with *T. latifolia* L. and closely related *T. angustifolia* L. See key by Mavrodiev (in Mavrodiev & Sukhorukov 2006) for differences.

Tyrimnus leucographus is a widely distributed Mediterranean species. The nearest localities are situated in Turkey, Bulgaria and Greece (Greuter 2006+). In Bulgaria, it is known from seven regions, including the Southern Black Sea Coast (Assyov et al. 2012). Our records are new for Eastern Europe. A detailed survey on new records of *T. leucographus* in the Crimea is submitted by Ryff et al. (unpubl.).

Ulmus pumila is a widely cultivated tree in southern part of Eastern Europe, including the Crimea. In Euro+Med area, it is considered to be an established alien in Latvia and Italy (Uotila 2011b). *U. pumila* is forming pure stands on rough ground along roads, especially in the steppe zone of Gerakleysky Peninsula. It is also recorded as an established alien in Novoozernoye (Saksky District of the Crimea).

Taxa to be excluded from the Sevastopol flora

Six species (*Carduus seminudus* M. Bieb., *Erysimum leptostylum* DC., *Pimpinella saxifraga* L., *Salvia pratensis* L., *Spergularia salina* J. Presl & C. Presl, *Urtica urens* L.) were misidentified by Korzhenevsky et al. (2004), Seregin (2008) and Bondareva (2013).

Carduus seminudus was reported by Seregin (2008) based on a single collection: Kazachya Bay, steppe plot, 9.06.1981, *Kosykh* [YALT]. This specimen refers to a damaged individual of *C. hamulosus* Ehrh.

Erysimum leptostylum was reported by Korzhenevsky et al. (2004) from three localities (Vasilyeva Balka valley, Balaklavskiye heights, Fiolent Cape). These data are referenced by Bondareva (2013) as records from Fiolent Cape area and Karanskoye plateau area. They probably refer to *E. cuspidatum* (M. Bieb.) DC. (det. A. Ebel by photo).

Pimpinella saxifraga L. was erroneously reported by Korzhenevsky et al. (2004) from Laspi valley [YALT] (Ryff, pers. comm.).

Salvia pratensis was reported by Bondareva (2013) from Karanskoye plateau area, but it is hardly possible. This record probably refers to *S. virgata* Jacq. s.l. (incl. *S. sibthorpii* Sm.).

Spergularia salina was reported by Bondareva (2013) from Chersonesos Cape area and Western Bays area. This record refers to *S. media* (L.) C. Presl, an abundant species throughout seashores.

Urtica urens was reported by Seregin (2008) based on a single collection: Inkerman, ruins of the citadel near the Chernaya River mouth, 13.04.2001, *A.S. T-11 & I. Privalova* [MW]. This specimen refers to *U. pilulifera* L. (cf. P.Y.).

Scrophularia olympica Boiss. was reported as collected "infra Baidara" by F.I. Ruprecht in 1861 (Seregin 2008). This collection was previously regarded as gathered near Orlinoye (former Baydary) in the vicinity of Sevastopol (Gorshkova 1955; Kotova 1969). Actually, the locality "infra Baidara" refers to the Baydara River in Georgia and *S. olympica* should be excluded both from the floras of the Crimea and Europe as a whole (Sheludyakova & Fateryga 2015).

Taxonomic and nomenclatural revisions of Cupressaceae, Orchidaceae, Fabaceae, Lamiaceae and Orobanchaceae led to further adjustments.

Juniperus deltoides R.P. Adams should be listed instead of *Juniperus oxycedrus* L. recorded by Seregin (2008) according to Adams (2011), Yena (2012).

Anacamptis coriophora (L.) R.M. Bateman et al. subsp. *coriophora* (*Orchis coriophora* L.) should be listed instead of *Orchis fragrans* Pollini recorded by Seregin (2008) according to Kuropatkin & Efimov (2014), Fateryga & Kreutz (2014).

Anacamptis morio (L.) R.M. Bateman et al. subsp. *caucasica* (K. Koch) H. Kretzschmar et al. should be listed instead of *Orchis picta* Loisel. recorded by Seregin (2008) according to Kuropatkin & Efimov (2014), Fateryga & Kreutz (2014).

Anacamptis laxiflora (Lam.) R.M. Bateman et al. subsp. *elegans* (Heuff.) Kuropatkin & Efimov should be listed instead of *Orchis laxiflora* Lam. s.str. recorded by Seregin (2008) according to Kuropatkin & Efimov (2014). Hahn (2012) and Fateryga & Kreutz (2014) subordinated this subspecies to *A. palustris* (Jacq.) R.M. Bateman et al.

Clinopodium caucasicum Melnikov should be listed instead of *C. vulgare* L. recorded by Seregin (2008) according to Melnikov (2013).

Epipactis helleborine (L.) Crantz subsp. *levantina* Kreutz et al. should be listed instead of *E. helleborine* (L.) Crantz s.str. recorded by Seregin (2008) according to Hahn (2012), Fateryga & Kreutz (2014). Also see comments on *E. turcica*.

Orchis mascula (L.) L. subsp. *mascula* (incl. *O. mascula* subsp. *wanjkovii* (E. Wulff) Soó) should be listed instead of *O. mascula* subsp. *signifera* (Vest) Soó recorded by Seregin (2008) according to Kuropatkin & Efimov (2014), Fateryga & Kreutz (2014).

Orchis militaris L. subsp. *stevenii* (Rchb. f.) B. Baumann et al. should be listed instead of *Orchis militaris* L. s.str. recorded by Seregin (2008) according to Kuropatkin & Efimov (2014), Fateryga & Kreutz (2014).

Orchis ×*penzigiana* A. Camus (*O. mascula* (L.) L. subsp. *mascula* × *O. provincialis* Balb. ex Lam. & DC.) should be listed instead of *O.* ×*jailae* Soó (*O. mascula* (L.) L. subsp. *signifera* (Vest) Soó ×*O. provincialis* Balb. ex Lam. & DC.) recorded by Seregin (2008) according to Fateryga & Kreutz (2014).

Orobanche kochii F.W. Schultz should be listed instead of *O. elatior* Sutton recorded by Seregin (2008) according to Zázvorka (2010). The identification of Fiolent plants (28.05.2009, P.Y., #21274, det. D. Melnikov) confirmed earlier by Carlón et al. (2005+) has been questioned recently by Piwowarczyk & Krajewski (2015): "We still need to confirm the cream colour forms described as *O. kochii* and presented in photographs taken in the Crimea (Tepe-Oba Mts near Teodosia and Mys Fiolent), without any certain information on a host plant. However, herbarium materials at [LE] from the Crimea (Mys Fiolent) include individuals of *O. ritro*, parasitizing *Echinops ritro* (Nobis et al. 2014), with a characteristic creamy or less common yellow color of corolla". We may confirm that plants photographed on Fiolent Cape by P.Y. are parasitizing *Centaurea*. True relations of *O. kochii* hosted by knapweeds and *O. ritro* hosted by *Echinops ritro* should be examined molecularly (Piwowarczyk, pers. comm.).

Trigonella strangulata Boiss. should be listed instead of *T. smyrnea* Boiss. recorded by Seregin (2008) according to Krytska & Novosad (2014). The only collection in YALT (near Uzundzha, Kolkhoznoye, in juniperus forest (Juniperetum excelsae), 14.05.1930, *V.F. Vasilyev*) was incorrectly identified by E. Wulff and published as a new record for the Crimea by Chernova (1948, 1960). Recently, Krytska & Novosad (2014) have identified this specimen as *T. strangulata* and suppose that this species is a rare casual plant in the Crimea with no confirmations since 1930. Surprisingly, it was rediscovered in 2014 by S.S. exactly at the same place, where it was collected by Vasilyev: vicinity of Kolkhoznoye, steep slopes of the right bank of the Uzundzha River, among *Juniperus excelsa*, locally abundant, 17.05.2014, *S.S.* [MW, YALT, CSAU, PHEO, etc.] (cf. #238301).

Important confirmations

Calystegia soldanella L. was considered to be extinct in the Crimea by Yena & Filipova (1999) and Yena (2012). It was collected in the Sevastopol area more than a century ago by Tranzschel

in Omega Bay and Zelenetsky between Laspi and Foros (Zefirov 1966) with no recent confirmations (Seregin 2008). Unexpectedly, S.S. made the following collection: → vicinity of Orlovka, Belbek garden community, 44°42'21"N, 33°32'51"E, sandy seashore, 2.09.2013, *S.S.* [MW, YALT, CSAU]. Later on, the sand was almost completely washed away by sea during severe storms and the record was not confirmed by S.S. in August 2014. Meanwhile, Yena was lucky to discover here a damaged rhizome of *C. soldanella* and successfully introduced it in his garden in Simferopol (Yena, pers. comm.).

Few species were reported by Seregin (2008) based on poor specimens with provisional or doubtful identifications. Recent data confirm presence of the following species:

Trinia glauca (L.) Dumort. (*T. stankovii* Schischk.). Reported by Seregin (2008) based on a single specimen from yayla near Baydarskiye Vorota pass, 28.06.1893, *O. & B. Fedtschenko* [LE]. This specimen was commented by Fedoronchuk (in sched.): "indicated locality is erroneous!", but there is no evidence of mislabeling. Larina (2008) reported the species from four additional localities: SE edge of Ozernoye and ca. 2 km W of Rossoshanka (Baydarskaya valley), ca. 4 km NE and ca. 1.5 km SE of Kolkhoznoye. The closest specimen-based record is near Simeiz (Seregin 2008).

Vincetoxicum jailicola Juz. Reported by Seregin (2008) based on a single specimen from Baydarskaya yayla, near Bizyuk locality, 5.06.1949, *Juzepczuk & Kuprianova 1597* [LE], which was annotated by Juzepczuk (in sched.): "?*Vincetoxicum jailicola* Juz., forma (nisi ejus hybr. cum *V. schmalhausenii* (Kusn.) Stank[ov])". Larina (2008) reported the species from yayla (ca. 1.5 km E of Baydarskiye Vorota pass). Also recorded on Ay-Petrinskaya yayla near Chertova Lestnitsa pass (27.05.2010, P.Y., #59671, det. V. Grigorenko). The closest specimen-based record is near Mangup-Kale (Seregin 2008).

Solanum alatum Moench (incl. *S. zelenetzkii* Pojark., *S. ochroleucum* Best.). Reported by Seregin (2008) based on a single specimen from Sewastopol, 20–30.08.1858, *Kessler & Jelski* [LE]. It is a fairly common plant in Sevastopol urban areas: Sevastopol, 7th km of Balaklava highway, 44°32'20"N, 33°32'35"E, fresh road excavation, two robust plants, elev. 160 m, 10.09.2010, *A.S. T-1404* [MW]; Sevastopol, newly constructed residential area E of Kamyshovaya Bay, 44°35'25"N, 33°26'05"E, fresh ground near new house, elev. 10 m, 29.07.2014, *A.S. T-2108 & P.Y.* [MW]. Also reported by Korzhenevsky et al. (2004) from disturbed habitats of Gerakleysky Peninsula and by Bondareva (2013) from three areas (Western Bays, Chersonesos Cape, Chersonesos reserve) and recorded in Kazachya Bay (12.07.2009, I. Turbanov, #24524) and Streletskaya Bay (13.10.2009, I. Turbanov, #36615).

Unique floristic features of the south-western Crimea

Earlier, we paid attention that many species widely distributed in the Mediterranean are confined in Eastern Europe only to the SW tip of the Crimean Peninsula (Seregin 2008, 2009). Seregin (2009) encounted 17 native and probably native species which are known in Eastern Europe only from the Sevastopol area: *Gaudinia fragilis* (L.) P. Beauv. [MW, LE] (Smirnow 1974); *Hordeum secalinum* Schreb. (*H. nodosum* auct. non L.) [MW, MHA, LE] (Smirnow 1965, 1968); *Sedum sediforme* (Jacq.) Pau (*Petrosedum sediforme* (Jacq.) Grulich) (Byalt 2001); *Trigonella strangulata* Boiss. (*T. smyrnea* auct.) [YALT] (Chernova 1948, 1960; Krytska & Novosad 2014); *Melilotus indicus* (L.) All. [LE] (Tzvelev 1983b); *Trifolium echinatum* M. Bieb. [LE, YALT] (Seregin 2008); *Hippocrepis comosa* L. [many collections in LE, YALT]; *Lens orientalis* (Boiss.) Schmalh.

[YALT] (Chernova 1960); *Lagoecia cuminoides* L. [LE] (Tzvelev 1983a); *Verbascum undulatum* Lam. [LE] (Tzvelev 1983a); *Parentucellia latifolia* (L.) Caruel [MW, LE] (Seregin 2009); *Plantago coronopus* L. [many collections in LE, MW, YALT]; *Valerianella brachystephana* (Ten.) Bertol. [LE] (Privalova 1969a); *Leontodon saxatilis* Lam. [YALT, MW, LE] (Golubev 1984, sub nom. *L. autumnalis* auct.; Seregin 2005); *Geropogon hybridus* (L.) Sch. Bip. (*Tragopogon hybridus* L.) [KW, YALT] (Dubovik 1981); *Tragopogon elatior* Steven [many collections in LE]; *Taraxacum pseudomurbeckianum* Tzvelev [many collections from *locus classicus* in LE, PRA, YALT] (Kirschner & Štěpánek 1998).

Recent records have supplemented this list with six species mentioned above: *Bunias erucago*, *Bupleurum odontites*, *B. veronense*, *Medicago disciformis*, *Taraxacum perenne*, *Tyrimnus leucographus*. Thereby, at least 23 species are known in Eastern Europe only from the Sevastopol area.

Conclusion

Final calculations revealed that at least 1859 species are known today from the Sevastopol area (ca. 600 km^2): 1687 species based on specimen-based records and 172 species based on published records, photographs and field notes. Undoubtedly, this is the most diverse local flora throughout Eastern Europe (Morozova 2008).

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