ANNALI DI BOTANICA
Ann. Bot. (Roma), 2018, 8: 75–85
Journal homepage: http://annalidibotanica.uniroma1.it

NOTES

NEW ADDITIONS TO THE EXOTIC VASCULAR FLORA OF CAMPANIA (SOUTHERN ITALY)

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(Received 05 December 2017; received in revised form 07 February 2018; accepted 09 February 2018)

Abstract – New data concerning the distribution of 41 non-native species for Campania are presented. *Acer saccharinum* subsp. *saccharinum* and *Jacaranda mimosifolia* are reported for the first time in the Italian peninsula and in continental Italy, respectively. *Euphorbia pulcherrima* is excluded from Italian exotic flora. Using data from field surveys in Campania the naturalization status of *Cenchrus longispinus* was also updated. Finally, new sites are given for 37 other alien species previously reported for Campania.

Keywords – alien species, biodiversity, invasiveness, nature conservation.

Introduction

Invasion of exotic species is a major global-scale problem experienced by natural ecosystems (Sharma et al., 2005). Globalization has created a situation in which even the most prosperous countries in the world are now economically dependent on the goods and services provided by others. Land use and climate change can also facilitate invasion by making habitats more challenging for native species and more suitable for invasive alien species (Mooney & Hobbs, 2000). In Campania (southern Italy) recent research has focused on the local spread of alien species (i.e. Brundu et al., 2012; Iamonico & Del Guacchio, 2011; Parrella et al., 2013; Del Guacchio, 2014, 2015; Celesti-Grapow et al., 2016; Del Guacchio & La Valva, 2017; Salerno & Stinca, 2017; Stinca & Motti, 2017; Stinca et al., 2012a, b, 2013, 2014, 2015a, b, 2016, 2017a). Yet all this information does not exhaustively document the spread of exotic species and their invasive status. There are still many areas in the region which need to be investigated more thoroughly or that are continually being exposed to the risk of introduction. The aim of this paper is to show new data concerning the non-native flora in Campania and in Italy.

Materials and Methods

The present study is based on fieldwork carried out from 2016 to 2017, as well as herbaria and literature surveys. Herbarium specimens were deposited in the *Herbarium Porticense* (PORUN, according to Thiers, 2017).
The species are arranged in alphabetical order. The nomenclature follows Galasso et al. (2018). The collected specimens were identified by means of the standard literature: *Flora Europaea* (Tutin et al., 1964-1980, 1993),

doi: 10.4462/annbotrm-14156

Flora d'Italia (Pignatti, 1982), *Flora of North America* (Flora of North America Editorial Committee, 1993-2016) and *Flora of China* (Zhengyi et al., 1994-2009).

For each species the following information are provided:
- basionym and synonyms (if existing);
- family based on APG IV (2016);
- life form according to Raunkiaer (1934) modified according to Pignatti (1982) and verified by observations *in situ*;
- current invasiveness *status* in Campania, assessed by population monitoring over time according to the terminology of Pyšek et al. (2004);
- native range;
- period of introduction (archaeophyte or neophyte);
- habitat;
- data report in Campania;
- sites of finds (in Italian, according to the informations on the specimen label data) with geographic coordinates E and N (WGS84, UTM 33T);
- distribution and/or ecological notes.

Results and discussion

Acacia dealbata Link subsp. ***dealbata***
Fabaceae – P scap – Casual alien [Australia] – Neophyte – Anthropic environments.
Second report for the province of Caserta.
DATA – Camigliano presso loc. Falchi (CE), 77 m a.s.l., 433516-4558864.
NOTES – Grown as an ornamental tree, mainly in private gardens, this species was previously reported as a casual alien in the province of Caserta for Teano (Croce et al., 2008). Elsewhere in Campania it occurs in Naples province: Naples (De Natale & La Valva, 2000), Ischia (Ricciardi et al., 2004), Campi Flegrei (Motti & Ricciardi, 2005) and Boscoreale (Stinca & Motti, 2013).

Acer negundo L.
Sapindaceae – P scap – Naturalized alien [N America] – Neophyte – Anthropic environments.
New distribution data for the provinces of Caserta and Salerno.
DATA – Casagiove in loc. Masseria Tilli (CE), 56 m a.s.l., 442073-4546809; Caserta presso la stazione delle Ferrovie dello Stato (CE), 62 m a.s.l., 443752-4546522; Capaccio Paestum in loc. Mancone al confine con Agropoli (SA), 13 m a.s.l., 502187-4471078.
NOTES – Grown as an ornamental tree in public gardens and spread in anthropic environments by abundant samaras production. In the province of Caserta *A. negundo* was formerly reported for Capua and San Tammaro (Stinca et al., 2016). Instead, in Salerno province this alien species was reported for the Amalfi Coast (Salerno et al., 2007), Controne, Altavilla Silentina (Rosati et al., 2012), Casal Velino, Castelnuovo Cilento, Felitto and Santa Marina (Stinca et al., 2016).

Acer saccharinum L. subsp. ***saccharinum***
Sapindaceae – P scap – Casual alien [N America (Canada and USA)] – Neophyte – River banks.
First report for Campania and the Italian peninsula.
DATA – Contursi Terme lungo il Fiume Sele (SA), 90 m a.s.l., 519390-4500099.
NOTES – Grown as a roadside tree, this species was reported as growing wild in northern Italy in Piemonte, Lombardia, Veneto and Emilia-Romagna (Celesti-Grapow et al., 2010; Alessandrini et al., 2017). In Campania this exotic species has spread through seeds produced by plants grown nearby.

Anredera cordifolia (Ten.) Steenis [≡ *Boussingaultia cordifolia* Ten.]
Basellaceae – P lian – Naturalized alien [S America] – Neophyte – Roadsides and river banks.
New distribution data for the provinces of Caserta and Naples.
DATA – Pratella lungo la Strada Provinciale 207 presso loc. Mastrati (CE), 134 m a.s.l., 427103-4582877; Casellammare di Stabia presso il Miramare (NA), 6 m a.s.l., 456306-4506281; Castellammare di Stabia tra Marina di Stabia ed il Fiume Sarno (NA), 5 m a.s.l., 455713-4508699; Pompei lungo il Fiume Sarno in corrispondenza della Strada Statale 145 (NA), 11 m a.s.l., 456517- 4509739.
NOTES – *A. cordifolia* was previously reported in the province of Caserta for Castel Volturno (Del Guacchio & La Valva, 2017), and in the Naples province for Bacoli (Motti & Ricciardi, 2005), Ercolano (Stinca & Motti, 2013) Pompei, Pozzuoli and Procida (Del Guacchio & La Valva. 2017).

Artemisia verlotiorum Lamotte [≡ *A. vulgaris* L. subsp. *verlotiorum* (Lamotte) Bonnier]
Asteraceae – H scap (G rhiz) – Naturalized alien [SE Asia (China and Taiwan)] – Neophyte – Roadsides.
New distribution data for the province of Naples.
DATA – Pomigliano d'Arco presso il Cimitero (NA), 43 m a.s.l., 448822-4527464.
NOTES – In the province of Naples this species was previously reported by Montelucci (1934, 1957, sub *A. verlotorum* Lamotte: Naples), Ricciardi (1998: Capri), Motti & Ricciardi (2005: Bacoli), Ricciardi et al. (1988: Torre del Greco, Portici) and Stinca & Motti (2009: Portici).

Austrocylindropuntia subulata (Muehlenpf.) Backeb. [≡ *Pereskia subulata* Muehlenpf.; ≡ *Cylindropuntia subulata* (Muehlenpf.) F.M.Knuth; ≡ *Opuntia subulata* (Muehlenpf.) Engelm.; ≡ *Pereskiopsis subulata* (Muehlenpf.) Britton & Rose ex L.H.Bailey]

Cactaceae – P succ – Casual alien [S America (Peru and Bolivia)] – Neophyte – Rocky slopes along roadsides.
Third report for Campania.
DATA – Positano lungo la Strada Statale 163 in corrispondenza di loc. San Pietro (SA), 64 m a.s.l., 457900-4497110.
NOTES – In Campania this species was previously reported in the province of Naples for Barano d'Ischia (Nicolella, 2013) and in the province of Salerno for Capaccio Paestum (Del Guacchio & La Valva, 2017). *A. subulata* was introduced through residual pruning of plants cultivated nearby and subsequently spread. Indeed, in the study area this plant can easily produce adventitious roots on the branches and is sometimes cultivated as ornamental in gardens on the Sorrento Peninsula.

Broussonetia papyrifera (L.) Vent. [≡ *Morus papyrifera* L.]
Moraceae – P caesp – Naturalized alien [E Asia] – Neophyte – Roadsides.
New distribution data for the province of Naples.
DATA – Giugliano in Campania in loc. Masseria Rannolo (NA), 9 m a.s.l., 420918-4528022.
NOTES – In the province of Naples this species has been reported for Naples (Cavara, 1919; Montelucci, 1958; De Natale & La Valva, 2000), Capri (Guadagno, 1922a, 1931; Ricciardi, 1998), Portici (Stinca & Motti, 2009; Stinca et al., 2016), Pozzuoli and Vico Equense (Del Guacchio & La Valva, 2017).

Canna indica L.
Cannaceae – G rhiz – Naturalized alien [N, C and S America] – Neophyte – Roadsides.
First report for the province of Benevento.
DATA – San Giorgio del Sannio lungo la Strada Provinciale 57 presso loc. Masseria Bosco (BN), 345 m a.s.l., 486950-4548478.
NOTES – This find allows us to extend the presence of this exotic taxon to all the provinces of Campania (Ricciardi, 1998; De Natale & La Valva, 2000; Ricciardi et al., 2004; Motti & Ricciardi, 2005; Stinca et al., 2016; Del Guacchio & La Valva, 2017).

Catharanthus roseus (L.) G.Don [≡ *Vinca rosea* L.]
Apocynaceae – Ch suffr – Casual alien [SE Africa (Madagascar)] – Neophyte – Between floor cracks.
New distribution data for the province of Caserta.
DATA – Caserta presso la stazione delle Ferrovie dello Stato, 64 m a.s.l., 444139-4546466.
NOTES – This species was reported for the province of Caserta for Mondragone and Vairano Patenora (Stinca et al. 2012a). Elsewhere in Campania it occurs in the provinces of Naples (Stinca & Motti, 2013: Capri; Del Guacchio & La Valva, 2017: Procida) and Salerno (Del Guacchio & La Valva, 2017: Salerno).

Cenchrus longispinus (Hack.) Fernald [≡ *C. echinatus* L. fo. *longispinus* Hack.]
Poaceae – T scap – Naturalized alien [N, C and S America] – Neophyte – Pine forest edges on sand near the sea.
First report for the province of Caserta. Change of status for Campania: from casual to naturalized.
DATA – Castel Volturno alla Riserva Naturale Statale Castelvolturno (CE), 9 m a.s.l., 415921-4534824.
NOTES – According to Galasso et al. (2017), *Cenchrus incertus* M.A.Curtis is to be excluded from the flora of Campania. In fact, this species, reported by Stinca et al. (2013: Sessa Aurunca at the mouth of the Garigliano River in the province of Caserta) and Astolfi & Nazzaro (1992: mouth of the Sele River in the province of Salerno), is to be referred to *C. longispinus* which is also indicated for Naples between Coroglio and Island of Nisida (Stinca et al., 2016). In all these sites *C. longispinus* seems to form populations capable of self-sustaining reproduction. We therefore propose the change in status from casual to naturalized in Campania.

Centranthus macrosiphon Boiss.
Valerianaceae – T scap – [Spain and NW Africa] – Neophyte – Dry walls.
Second report for the province of Naples.
DATA – Agerola tra Bomerano e la Grotta Biscotto (NA), 624 m a.s.l., 460980-4497570.
NOTES – The first find of *C. macrosiphon* in Campania was made by Pizzolongo (1959) who reported the presence of this species in the province of Naples between Portici and Resina (present-day Ercolano) where this species is still present (Ricciardi et al., 1988; Stinca & Motti, 2009). Recently, Stinca et al. (2013) reported this species in Capua, confirming data for the province of Caserta from Anzalone (1965).

Crassula muscosa L. [= *C. lycopodioides* Lam.; ≡ *Combesia muscosa* (L.) P.V.Heath; ≡ *Tetraphyle muscosa* (L.) Eckl. & Zeyh.]
Crassulaceae – Ch suffr – Casual alien [S Africa (Namibia)] – Neophyte – Limestone cliffs.
Second report for the province of Salerno.
DATA – Amalfi lungo la Strada Statale 163 in corrispondenza dell'intersezione con la Strada Statale 366 (SA), 80 m a.s.l., 465007- 4497279.
NOTES – *C. muscosa* was previously reported by Stinca et al. (2012a) in the province of Salerno (Salerno) and in the province of Naples (Naples, Portici, Terzigno, Torre Annunziata and Vico Equense).

Cucurbita moschata Duchesne
Cucurbitaceae – T scap – Casual alien [S America] – Neophyte – Roadsides.
First report for the province of Caserta and new distribution data in the province of Naples.

DATA – Formicola lungo la Strada Provinciale 270 tra loc. Cavallari e loc. Lautoni (CE), 286 m a.s.l., 434672-4563326; Pomigliano d'Arco lungo Via San Giusto presso loc. Masseria Tavolone (NA), 33 m a.s.l., 447147-4528299.
NOTES – *C. moschata* was recently reported by Stinca et al. (2017a) in the provinces of Naples (Agerola and Gragnano) and Salerno (Positano).

Cyperus alternifolius L. subsp. ***flabelliformis*** Kük. [= *C. involucratus* Rottb.]
Cyperaceae – G rhiz – Casual alien [E Africa] – Neophyte – Roadsides.
New distribution data for the province of Caserta.
DATA – Camigliano presso loc. Falchi (CE), 75 m a.s.l., 433516-4558864; Castel Campagnano lungo la Strada Provinciale 49 in loc. Marrocchelle (CE), 34 m a.s.l., 450754-4554917; Pontelatone lungo Via IV Novembre (CE), 102 m a.s.l., 437365-4560331.
NOTES – *C. alternifolius* subsp. *flabelliformis* was recently reported by Del Guacchio & La Valva (2017) in the province of Caserta for Castel Volturno.

Datura wrightii Regel
Solanaceae – T scap – Casual alien [N America (USA and Mexico)] – Neophyte – Roadsides.
Second report for Campania.
DATA – Pompei nei pressi dell'Autostrada A3 (NA), 13 m a.s.l., 455873-4511116.
NOTES – In Campania this species was previously reported for Naples (Del Guacchio, 2015).

Dysphania ambrosioides (L.) Mosyakin & Clemants [≡ *Chenopodium ambrosioides* L.]
Chenopodiaceae – T scap (H scap) – Invasive alien [Tropical America] – Neophyte – Roadsides.
New distribution data for the province of Salerno.
DATA – Celle di Bulgheria al Ponte Mingardo (SA), 49 m a.s.l., 530060 4437590.
NOTES – In the province of Salerno this species has been reported for Salerno (Pasquale et al., 1864, sub *C. ambrosioides* Linn.), Cava de' Tirreni, Scafati, between Vietri sul Mare and Maiori (Guadagno,1926), Pisciotta (Arata, 1939, sub *C. ambrosioides* L.), Ascea (Pizzolongo, 1961, sub *C. ambrosioides* L.), Serre (Stinca et al., 2016), Olevano sul Tusciano and Pontecagnano Faiano (Del Guacchio & La Valva, 2017).

Eclipta prostrata (L.) L. [≡ *Verbesina prostrata* L.; = *E. alba* (L.) Hassk.; = *E. alba* (L.) Hassk. var. *neapolitana* N.Terracc.]
Asteraceae – T scap – Casual alien [America] – Neophyte – Anthropic environments.
New distribution data for the province of Naples.
DATA – Pompei lungo Via Acqua Salsa (NA), 10 m a.s.l., 458757-4510913.
NOTES – In the province of Naples this species was reported for Naples (Motti & Ricciardi, 2005) and Procida (Del Guacchio & La Valva, 2017). Elsewhere in Campania it occurs in the provinces of Caserta (Stinca et al., 2016: Castel Volturno) and Salerno (Stinca et al., 2016: Ceraso; Del Guacchio & La Valva, 2017: Altavilla Silentina).

Eleusine indica (L.) Gaertn. [≡ *Cynosurus indicus* L.]
Poaceae – T scap – Invasive alien [Tropical Africa and Asia] – Neophyte – Anthropic environments.
New distribution data for the province of Salerno.
DATA – Agropoli presso il Cimitero (SA), 13 m a.s.l., 499285-4465668; Pellezzano in loc. C. Grillo presso il Fiume Irno (SA), 91 m a.s.l., 481030-4507175; Salerno in centro, 3-10 m a.s.l., 479638-4502976, 480519-4502723; Vietri sul Mare presso il Duomo di S. Giovanni Battista (SA), 93 m a.s.l., 477034-4502238.
NOTES – In the province of Salerno this species was reported for Salerno (Fiori, 1923, sub *E. indica* Gaertn. α *typica*) and, recently discovered at Capaccio Paestum (Rosati et al., 2012), Battipaglia (Stinca et al., 2013) and Baronissi (Stinca et al., 2016).

Eucalyptus camaldulensis Dehnh. subsp. ***camaldulensis***
Myrtaceae – P scap – Casual alien [Australia] – Neophyte – Anthropic environments.
New distribution data for the province of Salerno.
DATA – Sapri presso l'ex Cementificio (SA), 3 m a.s.l., 554057-4435524.
NOTES – In the Salerno province *E. camaldulensis* subsp. *camaldulensis* was reported only for Felitto (Motti & Salerno, 2006) and Salerno (Del Guacchio & La Valva, 2017).

Euphorbia nutans Lag. [≡ *Chamaesyce nutans* (Lag.) Small; = *E. preslii* Guss.]
Euphorbiaceae – T scap – Naturalized alien [North America (Canada and USA)] – Neophyte – Anthropic environments.
Confirmation for province of Caserta and new distribution data for the province of Salerno.
DATA – Caserta presso la stazione delle Ferrovie dello Stato, 61 m, 443194-4546592; Capaccio Paestum in loc. C. Lupo (SA), 3 m a.s.l., 498671-4476175; Capaccio Paestum nel Parco Archeologico di Paestum (SA), 16 m a.s.l., 500511-4474412.
NOTES – In the province of Caserta *E. nutans* was formerly reported for Caserta (Terracciano, 1872, sub *E. preslii* Guss.) and Castel Volturno (Del Guacchio & La Valva, 2017). Instead, in Salerno province this alien species was reported for Ascea (Pizzolongo, 1961), Felitto (Motti & Salerno, 2006), Salerno, Altavilla Silentina and Montecorice (Del Guacchio & La Valva, 2017; Stinca et al., 2017a).

Euphorbia pulcherrima Willd. ex Klotzsch [≡ *Poinsettia pulcherrima* (Willd. ex Klotzsch) Graham]
Euphorbiaceae
Species to be excluded from the exotic flora of Campania and Italy.
NOTES – *E. pulcherrima* was reported as "certainly escaped from cultivation" by De Natale & La Valva (2000) for the city of Naples in Via Tasso. Recently a garage was built on the site where the small population of this species was growing, causing the loss of the only specimens in Italy. Therefore, *E. pulcherrima* is to be excluded from Campania and Italy.

Fagopyrum esculentum Moench [= *Polygonum fagopyrum* L.]
Polygonaceae – T scap – Casual alien [S Asia (China)] – Archaeophyte – Pine forest edges.
First report for the province of Caserta.
DATA – Castel Volturno alla Riserva Naturale Statale Castelvolturno (CE), 9 m a.s.l., 415921-4534700.
NOTES – In Campania *F. esculentum* was formerly reported by Terracciano (1910, sub *Polygonum fagopyrum* Lin.) and Cavara (1910, sub *Polygonum fagopyrum* Lin.) for Astroni (Naples and Pozzuoli), where it was not found later (Motti & Ricciardi, 2005). This species was recently reported for Salerno province by Del Guacchio (2015: Altavilla Silentina) and Del Guacchio & La Valva (2017: Salerno).

Impatiens balfourii Hook.f.
Balsaminaceae – T scap – Casual alien [S Asia (India)] – Neophyte – Anthropic environments.
Second report for the province of Caserta.
DATA – Formicola in loc. Cavallari (CE), 315 m a.s.l., 434407-4563474.
NOTES – *I. balfourii* was previously reported in the province of Caserta for Teano (Croce et al., 2008) and in Salerno province for Amalfi Coast (Salerno et al., 2007).

Ligustrum sinense Lour.
Oleaceae – NP – Casual alien [SE Asia] – Neophyte – Anthropic environments.
First reports for the province of Caserta.
DATA – Caserta presso loc. Ponticelli, 59 m a.s.l., 443438-4546075.
NOTES – In Campania it was reported as a casual alien (Stinca et al., 2017a) in the province of Salerno for Policastro Bussentino (Rosati et al., 2012) and Baronissi (Stinca et al., 2016).

Jacaranda mimosifolia D.Don [= *Jacaranda ovalifolia* R.Br.]
Bignoniaceae – P scap – Casual alien [S America] – Neophyte – Roadsides.
First reports for Campania and continental Italy.
DATA – Alife lungo la Strada Statale 158dir in corrispondenza di loc. Masseria Pagano (CE), 115 m a.s.l., 445574-4575392; Castellabate in loc. San Gennaro (SA), 62 m a.s.l., 497015-4460891; Vietri sul Mare lungo Via Cristoforo Colombo (SA), 35 m a.s.l., 476938-4501957.
NOTES – Species grown for ornamental purposes in Italy and reported for the wild in Sicily and Sardinia (Celesti-Grapow et al., 2010, sub *Jacaranda ovalifolia* R.Br.). In Campania this exotic species has spread through seeds produced by plants grown nearby.

Melia azedarach L.
Meliaceae – P scap – Casual alien [S Asia] – Neophyte – Anthropic environments.
New distribution data for the provinces of Caserta, Naples and Salerno.
DATA – Caserta presso la stazione delle Ferrovie dello Stato (CE), 61 m a.s.l., 443772-4546339; Portici al Parco Reale (NA), 27 m a.s.l., 444741-4518262; Castelcivita in loc. Vricciullo (SA), 200 m a.s.l., 516062-4482738; Camerota a Cala del Cefalo (SA), 14 m a.s.l., 527851-4430734; Contursi Terme lungo la Strada Provinciale 10a presso loc. Serrone (SA), 228 m a.s.l., 520071-4500463; Mercato San Severino in loc. Ciorani (SA), 210 m a.s.l., 477077-4517164.
NOTES – *M. azedarach* was reported in the provinces of Caserta for Cancello ed Arnone and Villa Literno (Stinca et al., 2016), Naples for San Giorgio a Cremano (Del Guacchio, 2005), Pollena Trocchia, Ercolano and Torre del Greco (Stinca & Motti, 2013) and Salerno for Salerno, Felitto (Del Guacchio, 2005), Battipaglia (Stinca et al., 2013), Castellabate (Stinca et al., 2016), Eboli, Altavilla Silentina, Albanella, Capaccio Paestum, Montecorice and Pollica (Del Guacchio & La Valva, 2017).

Oxalis articulata Savigny
Oxalidaceae – G rhiz – Naturalized alien [S America] – Neophyte – Roadsides.
New distribution data for the province of Salerno.
DATA – Celle di Bulgheria al Ponte Mingardo (SA), 49 m a.s.l., 530060-4437590.
NOTES – In the province of Salerno this species was reported for Ascea, Centola (De Natale & Strumia, 2007), Battipaglia, Cava de' Tirreni, Eboli, Pontecagnano, Salerno (Del Guacchio, 2005), Altavilla Silentina and Agropoli (Del Guacchio & La Valva, 2017).

Paspalum dilatatum Poir.
Poaceae – H caesp – Invasive alien [S America] – Neophyte – Anthropic environments.
First report for the province of Avellino and new distribution data for the province of Salerno.
DATA – Avellino in centro, 366 m a.s.l., 481048-4529028; Celle di Bulgheria al Ponte Mingardo (SA), 49 m a.s.l., 530060-4437590.

NOTES – With these findings the regional distribution range comprises the provinces of Avellino, Caserta, Naples and Salerno (Montelucci, 1935; Merola, 1949a; Agostini, 1956, 1959; Rosati et al., 2006; De Natale & La Valva, 2000; Salerno et al., 2007; Stinca & Motti, 2009; Stinca et al., 2016, Del Guacchio & La Valva, 2017).

Paspalum distichum L. [= *P. paspaloides* (Michx.) Scribn.; = *P. digitaria* Poir.]
Poaceae – G rhiz – Invasive alien [Tropical areas of America, Asia and Africa] – Neophyte – Humid grassy places.
New distribution data for the province of Salerno.
DATA – Agropoli alla Baia di Trentova (SA), 14 m a.s.l., 497691-4465891; Celle di Bulgheria lungo il Fiume Mingardo presso il Ponte Mingardo (SA), 32 m a.s.l., 530017-4437677; Centola lungo la Strada Statale 562 presso loc. Isca Forgiarello (SA), 14 m a.s.l., 525620-4432471.
NOTES – In Salerno province this species was previously reported for Scafati (Merola, 1949b), Ascea (Pizzolongo, 1961, 1966), Amalfi Coast (Salerno et al., 2007) and Baronissi (Stinca et al., 2016).

Persicaria capitata (Buch.-Ham. ex D.Don) H.Gross [≡ *Polygonum capitatum* Buch.- Ham. ex D.Don; ≡ *Cephalophilon capitatum* (Buch.-Ham. ex D.Don) Tzvelev]
Polygonaceae – H rept – Naturalized alien [S Asia (Pakistan, Himalaya and China)] – Neophyte – Between floor cracks.
New distribution data for the province of Salerno.
DATA – Baronissi in centro (SA), 195 m a.s.l., 480740-4511084.
NOTES – In the province of Salerno this species was previously reported for Positano (Stinca et al., 2012a) and Salerno (Del Guacchio & La Valva, 2017). Elsewhere in Campania it occurs in Naples, Portici and Vico Equense (Stinca et al., 2012a).

Phyllostachys aurea Carrière ex Rivière & C.Rivière
Poaceae – G rhiz – Naturalized alien [S Asia (China)] – Neophyte – Anthropic environments.
First reports for the provinces of Benevento, Caserta and Naples. New distribution data for the province of Salerno.
DATA – Apice in loc. Masseria San Francesco (BN), 319 m a.s.l., 495150-4551594; Sant'Agata de' Goti in loc. Cantinella (BN), 67 m a.s.l., 453108-4551062; Telese Terme presso loc. Vomero (BN), 58 m a.s.l., 458991-4563177; Carinola presso loc. Santa Croce (CE), 64 m a.s.l., 415445-4559472; Castel Campagnano lungo la Strada Provinciale 49 in loc. Marrocchelle (CE), 40 m a.s.l., 451989-4554950; Pignataro Maggiore presso la stazione ferroviara (CE), 53 m a.s.l., 429750-4558432; Castello di Cisterna in loc. Cimminola (NA), 26 m a.s.l., 450536-4531497; Pozzuoli presso loc. Parco Sibilla (NA), 76 m a.s.l., 422308-4522208; Vietri sul Mare lungo la Strada Statale 163 in loc. Fuenti (SA), 77 m a.s.l., 475517-4500875.
NOTES – This species was recently reported in Campania for the provinces of Avellino (Atripalda) and Salerno (Salerno, Camerota and Eboli) (Del Guacchio, 2015; Del Guacchio & La Valva, 2017).

Plumbago auriculata Lam. [= *P. capensis* Thunb.]
Plumbaginaceae – Ch suffr – Casual alien [Tropical and S Africa] – Neophyte – Grassy fields.
New distribution data for the province of Naples.
DATA – Vico Equense presso il Convento di San Francesco (NA), 276 m a.s.l., 452412-4501997.
NOTES – In the province of Naples *P. auriculata* was previously reported for the Campi Flegrei (Motti & Ricciardi, 2005) and Naples (Stinca et al., 2016). On the contrary, an old report by Cerio (1939, sub *P. capensis* Thunb.) for the Island of Capri is not confirmed (Stinca & Motti, 2013; Stinca et al., 2017b). In Campania this neophyte was previously reported also for Salerno and Vietri sul Mare (Del Guacchio, 2005), where recent searches have proved fruitless (Del Guacchio & La Valva, 2017).

Prunus persica (L.) Batsch
Rosaceae – P scap – Casual alien [S Asia (China)] – Archaeophyte – Roadsides and forest edges.
New distribution data for the provinces of Caserta and Salerno.
DATA – Carinola lungo Via Provinciale per Falciano (CE), 65 m a.s.l., 414709-4559641; Cava de' Tirreni presso loc. Longo (SA), 388 m a.s.l., 476172-4510397.
NOTES – This archaeophyte was previously reported in Campania for several sites in the provinces of Caserta, Naples and Salerno (Guadagno, 1931; Moggi, 1955; De Natale & La Valva, 2000; Ricciardi et al., 2004; Stinca & Motti, 2009, 2013; Stinca et al., 2015b; Del Guacchio & La Valva, 2017).

Ricinus communis L.
Euphorbiaceae – NP – Naturalized alien [Tropical Africa] – Archaeophyte – Anthropic environments.
New distribution data for the province of Salerno.
DATA – Agropoli alla ex Stazione di Ogliastro Cileno (SA), 14 m a.s.l., 500867-4470227; Camerota a Cala del Cefalo (SA), 13 m a.s.l., 527809-4430784; Camerota lungo la Strada Statale 562d presso il Fiume Mingardo (SA), 24 m a.s.l., 528582-4435044; Castel San Giorgio lungo Via Croce (SA), 97 m a.s.l., 475231-4514413.
NOTES – In the province of Salerno this species was formerly reported near Salerno (Ray in Guadagno, 1918) and for Ascea (Pizzolongo, 1961). More recent reports concern the Amalfi Coast (Salerno et al., 2007) and Santa Marina (Stinca et al., 2016).

Senecio angulatus L.f.
Asteraceae – Ch frut – Naturalized alien [S Africa] – Neophyte – Roadsides.
First report for the province of Caserta.

DATA – Presenzano lungo la Strada Statale 85 (CE), 146 m a.s.l., 425037-4578588.
NOTES – In Campania this species has been reported for Capri (Ricciardi, 1998), Ischia (Ricciardi et al., 2004), Campi Flegrei (Motti & Ricciardi, 2005), Amalfi Coast (Salerno et al., 2007), Salerno and Eboli (Del Guacchio & La Valva, 2017).

Solanum lycopersicum L. [≡ *Lycopersicon esculentum* Mill.]
Solanaceae – T scap – Casual alien [N, C e S America] – Neophyte – Anthropic environments and river banks.
New distribution data for the provinces of Naples and Salerno.
DATA – San Gennaro Vesuviano in centro (NA), 54 m a.s.l., 460257 4523370; Campora lungo il Torrente Tezzone al confine con Stio (SA), 372 m a.s.l., 524060- 4462065; Celle di Bulgheria lungo il Fiume Mingardo presso il Ponte Mingardo (SA), 32 m a.s.l., 530017-4437677; Centola lungo la Strada Statale 562 presso loc. Isca Forgiarello (SA), 14 m a.s.l., 525704-4432229.
NOTES – In the province of Naples *S. lycopersicum* was previously reported for Naples (De Natale & La Valva, 2000, sub *L. esculentum* Miller), Nisida (De Natale, 2004, sub *L. esculentum* Miller), Ischia (Ricciardi et al., 2004, sub *L. esculentum* Miller), Portici (Stinca & Motti, 2009), Somma Vesuviana, Ercolano, Terzigno, Torre del Greco, Pompei, Capri (Stinca & Motti, 2013), Pomigliano d'Arco and Pozzuoli (Stinca et al., 2016). Instead, in Salerno province this alien species was reported for Cava de' Tirreni (Marcello, 1901), the rivers Calore and Sele (Rosati et al., 2012), Vallo della Lucania (Stinca et al., 2016), Scafati, Salerno and Ricigliano (Del Guacchio & La Valva, 2017).

Solanum tuberosum L.
Solanaceae – G rhiz – Casual alien [S America] – Neophyte – Anthropic and ruderal environments.
First reports for the provinces of Avellino, Caserta and Salerno. New distribution data for the province of Naples.
DATA – Quadrelle presso il Vallone Acquaserta (AV), 306 m a.s.l., 469609-4533470; Castel Volturno alla Riserva Naturale Statale Castelvolturno (CE), 9 m a.s.l., 415921-4534700; Castellammare di Stabia presso il Miramare (NA), 8 m a.s.l., 45 6255- 4506406; Mercato San Severino lungo Via Bagnara (SA), 135 m a.s.l., 478212-4513586.
NOTES – S. tuberosum is widely cultivated in Campania but reported until now as spontaneous only for Ischia (Ricciardi et al., 2004).

Sorghum bicolor (L.) Moench subsp. ***bicolor*** [≡ *Holcus bicolor* L.; = *S. campanum* Ten.; = *S. vulgare* Pers.]
Poaceae – T scap – Casual alien [Tropical and S Africa] – Archaeophyte – Roadsides.
New distribution data for the province of Naples.
DATA – Castellammare di Stabia tra Marina di Stabia ed il Fiume Sarno, 1 m a.s.l., 455604-4508610.
NOTES – This species was formerly reported in the province of Naples only for the city of Naples (La Valva et al., 1996; De Natale & La Valva, 2000). Elsewhere in Campania it occurs in the provinces of Caserta (Stinca et al., 2016: Cancello ed Arnone, Grazzanise) and Salerno (Salerno et al., 2007: Amalfi Coast; Del Guacchio & La Valva, 2017: Albanella). The old report by Borgia ex Cortesi in Guadagno (1922b, sub *S. vulgare* Pers.) for Cava de' Tirreni, as indicated by Guadagno (1922b), is to be referred to cultivated plants

Sporobolus indicus (L.) R.Br. [≡ *Agrostis indica* L.; = *S. poiretii* (Roem. & Schult.) Hitchc.]
Poaceae – H caesp – Naturalized alien [N America] – Neophyte – Anthropic environments.
New distribution data for the province of Salerno.
DATA – Sapri presso l'ex Cementificio (SA), 3 m a.s.l., 554057-4435524.
NOTES – This species has been reported in Salerno province for Ascea (Rosati et al., 2006), Ceraso, Felitto, Perito, Cicerale (Stinca et al., 2016), Salerno and Eboli (Del Guacchio & La Valva, 2017).

Tagetes erecta L. [= *T. patula* L.]
Asteraceae – T scap – Casual alien [N America (Mexico)] – Neophyte – Anthropic environments.
First report for the province of Avellino.
DATA – Baiano in centro (AV), 199 m a.s.l., 467796-4533094.
NOTES – In the province of Naples this species has been found in Naples itself (De Natale & La Valva, 2000, sub *T. patula* L.), Ischia (Ricciardi et al., 2004, sub *T. patula* L.), Portici (Stinca & Motti, 2009, sub *T. patula* L.) and Pompei (Stinca et al., 2016). Elsewhere in Campania it occurs in Salerno province for Praiano and Salerno (Del Guacchio & La Valva, 2017).

Xanthium spinosum L.
Asteraceae – T scap – Naturalized alien [S America] – Neophyte – Anthropic and ruderal environments.
New distribution data for the provinces of Caserta and Salerno.
DATA – Casagiove in loc. Masseria Tilli (CE), 57 m a.s.l., 442159-4546289; Cava de' Tirreni in loc. Croce al confine con Salerno (SA), 452 m a.s.l., 478137-4505261; Stio in loc. S. Croce (SA), 696 m a.s.l., 520821-4462098.
NOTES – The new find in Cava de' Tirreni confirms old data from Cortesi (1906). Previous reports of this species for Salerno province concerned Salerno (Pasquale et al., 1864), Celle di Bulgheria (Arata, 1939), Buonabitacolo (Agostini, 1955), Polla (Moggi, 1955), Ascea (Pizzolongo, 1961), Amalfi Coast (Salerno et al., 2007) and Battipaglia (Stinca et al., 2013). *X. spinosum* has also been reported in Caserta province for Sessa Aurunca (Croce et al., 2008) and Castel Volturno (La Valva & Astolfi, 1991).

Table 1. New reports for the provinces of Campania (AV: Avellino; BN: Benevento; CE: Caserta, NA: Naples, SA: Salerno).

Taxon	Provinces				
	AV	BN	CE	NA	SA
Acer saccharinum subsp. *saccharinum*					•
Canna indica		•			
Cenchrus longispinus			•		
Cucurbita moschata			•		
Fagopyrum esculentum			•		
Jacaranda mimosifolia			•		•
Ligustrum sinense			•		
Paspalum dilatatum	•				
Phyllostachys aurea		•	•	•	
Senecio angulatus			•		
Solanum tuberosum	•		•		•
Tagetes erecta	•				
Total reports	3	2	8	1	3

Conclusions

New data on the distribution of 41 non-native species in Campania were presented. *Acer saccharinum* subsp. *saccharinum* and *Jacaranda mimosifolia* were reported for the first time in the Italian peninsula and continental Italy, respectively. The creation of artificial green areas from which much of the invasion process starts has to be considered the main factor responsible for the spread of non-native species (Stinca et al., 2012a, 2013). By contrast, *Euphorbia pulcherrima* is excluded from Italian exotic flora. New distribution data regarding 12 species are first reports for some provinces of Campania (Tab. 1).

According to Stinca et al. (2016), most of the new reports concern the province of Caserta. In addition to being scarcely known from the floristic point of view (Strumia et al., 2005), since the Second World War this province has undergone profound anthropogenic changes (Migliozzi & Stinca, 2012) that have led to the spread of alien species.

The discovery of new sites and their population monitoring, along with a critical analysis of the literature, allowed us to update the alien status in Campania for *Cenchrus longispinus* (naturalized). For this species, in all study sites, there are established populations capable of self-sustaining.

Given that proper management of alien species in a region must be based on species presence and distribution and that the monitoring of plant populations is also essential to enable early warning to avoid harmful invasions, the data reported in this study represent a valuable source of information for local authorities (see also Regulation EU No. 1143/2014 of the European Parliament and of the Council "on the prevention and management of the introduction and spread of invasive alien species") and a further contribution to the knowledge of the exotic flora of Campania and Italy.

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