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**TOWARDS ALIEN PLANT PRIORITIZATION IN ITALY: METHODOLOGICAL
ISSUES AND FIRST RESULTS**

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18 **Abstract**

19 In recent decades, multiple actions have been taken to counteract the relentless expansion of
20 invasive alien species as well as to gain a better understanding of their effects on ecosystems.
21 Here, we describe the approach designed by the Italian Botanical Society that is aimed at
22 selecting a list of candidate alien plants to be subjected to a prioritization procedure. We
23 selected a total of 96 species on the basis of data related to their occurrence on both a national
24 and regional scale, their invasiveness and their potential to invade plant communities and/or
25 habitats of community concern. This list represents the first result obtained by applying this
26 standardized workflow and is a first step towards the identification of those alien species that
27 should be included in the national list according to Regulation (EU) n. 1143/2014.

28

29 **Keywords:** Non-native flora; National list of alien species; EU regulation on IAS; Habitats;
30 Impacts; Prioritization

31

32 1. INTRODUCTION

33 Invasive alien species (IASs) can have strong socio-economic and ecological impacts and
34 pose one of the most serious threats to the conservation of biodiversity and ecosystem
35 functions on a global scale (Convention on Biological Diversity, 2018). Since the number of
36 newly established IASs is rapidly increasing at the global level (Seebens et al. 2017), it is
37 essential that reliable criteria be drawn up for the identification of the species that need to be
38 controlled and managed most.

39 In view of this threat, the European Parliament and the Council adopted Regulation (EU) n.
40 1143/2014 on the prevention and management of the introduction and spread of IASs
41 (European Commission 2014). This act, which entered into force on January 1, 2015, sets out
42 rules to tackle the adverse impacts of IASs on biodiversity within the Union and includes the
43 possibility for Member States to establish national lists of invasive alien species of national
44 concern. Italy has implemented this regulation with the Legislative Decree no. 230 (15
45 December 2017) concerning the "*Adjustment of national legislation to the provisions of
46 regulation (EU) n. 1143/2014 of the European Parliament and of the Council of 22 October
47 2014, containing provisions aimed at preventing and managing the introduction and
48 dissemination of invasive alien species*". Accordingly, on behalf of the Italian Ministry of the
49 Environment (MATTM), the Italian Institute for Environmental Protection and Research
50 (ISPRA) has developed a series of projects aimed at creating a national database of IAS.
51 These projects have involved the leading Italian scientific societies in drawing up a list of the
52 alien species found in Italy that need to be stringently controlled.

53 One of the most important outcomes of this strategy is expected to be a list of priority alien
54 species that may be included in the National List of IASs [Article 12, of the Regulation (EU)
55 n. 1143/2014, European Commission, 2014]. Within this context, the Italian Botanical Society
56 (hereafter referred to as SBI) has been involved in: 1) updating the National Alien Plant
57 Species Data Base (NAPSDB); 2) selecting a list of candidate Invasive Alien Plants (IAPs) to
58 be further assessed at the national level; and lastly 3) adopting the prioritization methodology
59 developed by ISPRA to identify alien plants whose inclusion in the national list ex Regulation
60 (EU) n. 1143/2014 should receive priority.

61 Italy has a long tradition of botanical research on non-native plants. Saccardo (1909)
62 compiled an inventory of first records for a large number of introduced plants using
63 information available in the literature and herbaria records since Roman and Medieval times.
64 Béguinot and Mazza (1916) and Viegi (1974) later published comprehensive inventories of
65 the Italian non-native flora. Since the early 2000s, the SBI has carried out a series of research
66 projects funded by the MATTM to provide a global picture of the non-native vascular flora at

67 the national scale (Celesti-Gradow et al. 2009; 2010). In addition, a major effort has been
68 made to identify, among the high number of alien species present, the few that may threaten
69 the environment, human health or economy. Several projects have been carried out to assess
70 the impact of alien species on the most vulnerable habitats (e.g. Bolpagni et al. 2015; Celesti-
71 Gradow and Blasi 2004; Celesti-Gradow et al. 2016), as well as to describe the most relevant
72 alien species across ecosystems (e.g. Bolpagni et al. 2013; Brundu et al. 2013; Bolpagni and
73 Piotti 2015; Lazzaro et al. 2016, 2017, 2018a; Lastrucci et al. 2018).

74 Two examples of such species are *Vallisneria spiralis*, a very invasive alien aquatic species
75 outside Italy (Bolpagni et al. 2015), and *Ambrosia artemisiifolia* (Gentili et al. 2017), an
76 annual species that is typical of disturbed habitats (e.g. railways, riverbeds and arable fields)
77 with a high allergenic potential.

78 Using a standardized approach adopted by a nationwide network of botanists, all the data and
79 assessments of alien plants, which are continually updated, are entered in a comprehensive
80 system of integrated regional and national databases, which have provided the scientific basis
81 for the development of plant invasion research and management in the country (Celesti-
82 Gradow et al. 2009). The species inventory, which was recently updated by Galasso et al.
83 (2018), has provided a new national checklist of the alien vascular flora.

84 The high number of established (syn. naturalised) alien *taxa* in Italy (791; see Galasso et al.
85 2018) is such that attention needs to be concentrated on a shorter list of species that focuses
86 on a quantitative assessment of their impacts and effective management strategies. Hence, we
87 applied a workflow that is based on the criteria laid out in the EU Regulation and is tailored to
88 the Italian situation. Accordingly, the present paper is aimed at presenting the list of candidate
89 species that should be prioritized and the methodology used to select these species. This list is
90 a starting point for the prioritization of alien plants in Italy that may also be used to draw up
91 national lists of invasive alien species of concern for other taxonomical groups (such as
92 mammals, invertebrates and fish). This prioritization process and the resulting list will be
93 discussed and defined during expert meetings coordinated by ISPRA, according to a
94 consensus prioritization process aimed at consolidating the National List *ex* Regulation (EU)
95 n. 1143/2014.

96

97 **2. MATERIAL AND METHODS**

98 A multi-criteria approach was developed and applied to select the list of candidate invasive
99 species to be included in the prioritization procedure (*sensu* Branquart et al. 2016; Booy et al.
100 2017; Carboneras et al. 2018), as shown in the flow chart in Figure 1. This approach was
101 designed to achieve the highest possible level of systematization and replicable interpretation

102 of the knowledge available on IAPs in Italy.

103 The criteria used are: 1) the species have to be established in the Italian territory, 2) the
104 species are expected to have high impact on biodiversity (subcriterion 2.1) and on
105 community/habitats or ecosystem functions and services (subcriterion 2.2) and 3) the species
106 have a limited or very narrow regional distribution (i.e. are present in a few regions). To sum
107 up, the list of IAPs to be included in the national prioritization procedure should contain
108 established *taxa* whose impact potential is high but whose spread in Italy is still limited. As a
109 measure of the latter, we used as a proxy the establishment of the species in each of the 20
110 administrative regions. This approach, founded on the compilation of regional floristic
111 databases yielded by local research projects, follows a consolidated tradition in Italy (Celesti-
112 Grapow et al. 2010). We decided to focus on IAPs whose range is limited because the chance
113 of success in case of national or regional eradication or control actions is likely to be higher.
114 The presence and establishment of the species (criterion 1) and their impact on biodiversity
115 (subcriterion 2.1) were considered at the national level. Indeed, we considered the
116 establishment of each *taxon* and its ability to cause ecological impacts in at least one region as
117 two indispensable inclusion criteria. The “community/habitat impact” and the “regional
118 occurrence” (criteria 2.2 and 3) were instead evaluated at the regional level (by considering
119 the records available for each of the 20 administrative regions of Italy). These last two criteria
120 should account, respectively, for the potential or current risk posed by the IAPs and for the
121 feasibility of management control (or eradication) actions.

122 Our starting point was the NAPSDB hosted by the ISPRA and elaborated by the SBI (updated
123 to 31/12/2017, as provided to the ISPRA). This database is based on the first systematic
124 review of the alien flora of Italy (Celesti-Grapow et al. 2009, 2010), which has continually
125 been updated by regional experts since it was presented (Galasso et al. 2018; Italian Botanist:
126 Notulae to the Italian alien vascular flora, see Galasso et al. 2018). The NAPSDB includes
127 1366 entities together with information on the status, occurrence and impacts of these alien
128 plants at both the national and regional levels. The nomenclature and establishment status
129 adopted in the NAPSDB follow the *Italian checklist of vascular flora alien to Italy* (Galasso
130 et al. 2018). However, in few cases the well-established nomenclature adopted in a number of
131 international databases was maintained in order to facilitate the sharing of information such as
132 [e.g. *Salvinia molesta* D.S.Mitch. [= *Salvinia adnata* Desv.] and *Setaria pycnocomma* (Steud.)
133 Henrard ex Nakai [= *Setaria italica* (L.) P.Beauv. subsp. *pycnocomma* (Steud.) de Wet]. As for
134 the invasive status of the plants, we adopted the operational definition related to impacts
135 based on IUCN decisions (Blackburn et al. 2014). According to this definition, an established
136 species is considered invasive when responsible for the emergence of an environmental

137 impact defined as “a measurable change to the properties of an ecosystem (by an alien
138 species)”.
139 We first excluded all the doubtful records and any species not recorded since 1950 from the
140 NAPSDB. In addition, we excluded from the present analysis any species already subjected to
141 specific legislation; i.e. already included in the List of Invasive Alien Species of Union
142 concern.
143 We thus obtained a list of 1206 alien plants that grow spontaneously in Italy, comprising *taxa*
144 whose occurrence status is either established or not established. We subjected this list to a
145 further selection by assigning “invasiveness” values to the *taxa* according to the following
146 categories: 1 Invasive, 2 Not invasive, 3 Not specified, and 4 Uncertain, considering only
147 those species to which an “invasive” status was assigned. This selection procedure was fine-
148 tuned by considering the assessments provided at the national scale by the Italian Society of
149 Vegetation Science (SISV). These evaluations were elaborated within the framework of the
150 project “Updating of the National Alien Species Data Base under the *Work Program to*
151 *support the Implementation of Regulation (EU) n. 1143/2014 on invasive alien species*”
152 (Lazzaro et al. 2018b). This parallel project gathered and evaluated all the national data
153 available on the impacts of alien plants on natural habitats (*sensu* Habitat Directive) and plant
154 communities, after which an expert-based evaluation procedure and consensus processes were
155 applied during a national workshop. Species considered in the SISV database are indeed the
156 same of NAPSDB, and thus these two databases overlap considerably. Nevertheless, the use
157 of SISV databases allowed us to add some species considered to exert impact on natural
158 habitats (*sensu* Habitat Directive) and plant communities, but not considered invasive
159 according to NAPSDB.
160 The regional occurrence of the selected established and impacting species was subsequently
161 evaluated by setting specific spatial thresholds. Accordingly, IAPs were split into the
162 following four classes of geographical representativeness: *taxa* reported in 1 to 3 regions, 4 to
163 6 regions, 7 to 9 regions, and in more than 9 regions. The same classification was applied to
164 species that have impacts at the community and/or habitat levels from SISV database (we thus
165 considered only the species exerting impact in max 6 regions). Alien plants reported within
166 the lowest categories (i.e. those occurring and/or exerting impacts in a few regions) can in
167 theory be successfully targeted by means of control/eradication actions. It should indeed be
168 borne in mind that the more widespread an alien plant is, the less likely it is to be successfully
169 targeted by means of control, management or eradication actions. A priority status was hence
170 assigned to alien plants with narrow spatial ranges (not more than six administrative regions).
171

172 In summary, only species that fulfilled the following criteria were selected:
173 1) being present and fully established in Italy by December 2017;
174 2) being invasive;
175 3) being potentially harmful to plant communities and/or habitats of conservation importance;
176 4) not being widespread in Italy.
177 In addition, a few species selected by the expert-working group (made up of the authors of
178 this paper) by consensus and based on their experience in the field were also added to the list.
179 We focused on *taxa* that were not identified by the criteria and thresholds laid out in the
180 aforementioned selection procedures and could thus be considered as newcomers or emerging
181 alien plants.

182

183 3. RESULTS AND DISCUSSION

184 A total of 96 species were included in the list of candidate species for Italy (Table 1).
185 Specifically, starting from the NAPSDB, the first inclusion criterion revealed that 559 *taxa* –
186 out of the total 1206 species investigated (equal to 46.6%) – are currently present in the
187 country. The second inclusion criterion led to the identification of 143 of these species as
188 “invasive”.

189 When the regional distribution thresholds were applied, about one-third (43) of the invasive
190 plants were found to be present in fewer than six regions: 19 *taxa* in no more than 3 regions
191 and 24 *taxa* in 4 to 6 regions. This list does not include *taxa* with doubtfully records [*Acacia*
192 *retinodes* Schltld.; *Crassula helmsii* (Kirk) Cockayne; *Opuntia amyclaea* Ten.; *Myoporum*
193 *tenuifolium* G.Forst.], and species already included in the List of Invasive Alien Species of
194 Union concern [*Baccharis halimifolia* L., *Impatiens glandulifera* Royle, *Lagarosiphon major*
195 (Ridl.) Moss, *Pennisetum setaceum* (Forssk.) Chiov. [= *Cenchrus setaceus* (Forssk.)
196 Morrone], and *Pueraria lobata* (Willd.) Ohwi].

197 The 43 invasive species extracted from NAPSDB that resulted “localized” (recorded in ≤ 6
198 regions) constitute our core *taxa* to submit to the prioritization procedures. Alongside this
199 analysis, we selected further “localized” 44 invasive species from the list compiled by SISV
200 including alien plants with an adverse impact on biodiversity at the community and/or habitat
201 level. These species – occurring in not more than six regions based on SISV database but
202 possibly in more than 6 regions in the NAPSDB database – are mostly considered only casual
203 or not invasive in NAPSDB, but considered to exert some level of impacts according to SISV’
204 assessments (see Lazzaro et al. 2018b). Merging the two sets, we obtained a preliminary list
205 of 87 invasive alien plants to be submitted to the prioritization process (Table 1).

206 This list was subsequently integrated by adding nine species with significant impacts on

207 biodiversity but that, nevertheless, exhibit a rather low level of current impact at the national
208 scale (for a total number of 96 candidate species; Table 1). We focused on *taxa* with a rather
209 wide distribution and with clear, serious impacts [i.e. *Acacia melanoxylon* R.Br., *A. saligna*
210 (Labill.) H.L.Wendl., *Chasmanthe aethiopica* (L.) N.E.Br., *Cortaderia selloana* (Schult. &
211 Schult.f.) Asch. & Graebn., *Quercus rubra* L., *Reynoutria x bohemica* (Chrtek & Chrtková)
212 Zika & Jacobson (= *Reynoutria bohemica* Chrtek & Chrtková), *Senecio inaequidens* DC.,
213 *Sicyos angulatus* L. and *Tradescantia fluminensis* Vell.]. Indeed, for these nine species
214 effective management is believed to be still possible in Italy, at least in some regions or on
215 islands.

216

217 **4. CONCLUSIONS AND FUTURE RESEARCH PERSPECTIVES**

218 Using a comprehensive dataset, a list of candidate plant species was set for a prioritization
219 procedure that may lead to their inclusion in a national list of invasive species according to
220 Regulation (EU) n. 1143/2014. This list is based on data collected over many years by an
221 Italian network of botanists and plant ecologists, including data on the species' regional
222 distribution and invasiveness as well as on specific threats posed to plant communities and
223 habitats of conservation concern. Indeed, we followed the main criteria of the Regulation
224 (EU) n. 1143/2014, which places an emphasis on prevention and early warning approaches.
225 Hence, we focused on species with a limited distribution within Italy that can, despite their
226 invasiveness, be targeted for successful control/eradication efforts. Nevertheless, we also put
227 the emphasis on the Italian situation, including species with a higher degree of spread, but
228 whose control would be particularly beneficial. It should be noted that the list includes also
229 species occurring in more than 6 regions. In some cases, these species correspond to those
230 added according to the SISV database and expert opinion, but also due to the updates of the
231 NAPSDB used in the first instance (dated 31/12/2017) and on regional occurrences (Galasso
232 et al. 2018). These differences highlight how fast the spread and the distribution of alien
233 species may change, imposing a continuous updating of databases.

234 The 96 selected IAPs should not be considered as critical (excluding the nine *taxa* selected by
235 expert consensus). These species then will undergo a further procedure (*sensu* Branquart et al.
236 2016) designed to assess their current invasive potential and allow the priority *taxa* to be
237 selected. This approach reliably identified invasive species of national concern for the
238 conservation of biodiversity, and it may prove useful as a preliminary selection step in other
239 contexts.

240

241 **Authors contributions**

242 All authors were involved in conceiving the idea and designing methodology. Specifically, R.
243 Bolpagni and L. Lazzaro led the development and writing of the manuscript, performing the
244 database inspection and the species selection; E. Barni, G. Brundu, L. Celesti-Grapow and C.
245 Siniscalco contributed critically to the draft; C. Blasi fostered the project. L. Celesti-Grapow
246 coordinated the work on the species lists on behalf of SBI. All authors gave final approval for
247 publication.

248

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256

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330

331 **Table 1.** List of the candidate species to be submitted to the national prioritization procedure
332 for their inclusion in a national list according to the Regulation (EU) n. 1143/2014. For each
333 *taxon*, we provide the number of regions in which the species occurs (according to Galasso et
334 al. 2018 and subsequent update). Number of regions in which the species is having an impact
335 on plant communities is given according to SISV database (Lazzaro et al. 2018b). Species
336 marked with [§] were added according to an expert-based assessment.
337

Species	Family	Number of region in which the species occurs	Number of regions with impacts on plant communities
<i>Acacia longifolia</i> (Andrews) Willd.	Fabaceae	5	2
<i>Acacia mearnsii</i> De Wild.	Fabaceae	1	1
[§] <i>Acacia melanoxylon</i> R.Br.	Fabaceae	5	1
<i>Acacia pycnantha</i> Benth.	Fabaceae	2	2
[§] <i>Acacia saligna</i> (Labill.) H.L.Wendl.	Fabaceae	10	7
<i>Amaranthus muricatus</i> (Moq.) Gillies ex Hieron.	Amaranthaceae	4	1
<i>Amaranthus tuberculatus</i> (Moq.) J.D.Sauer	Amaranthaceae	8	3
<i>Ambrosia trifida</i> L.	Asteraceae	8	3
<i>Ammannia coccinea</i> Rottb.	Lythraceae	4	1
<i>Anredera cordifolia</i> (Ten.) Steenis	Basellaceae	11	1
<i>Apios americana</i> Medik.	Fabaceae	5	2
<i>Araujia sericifera</i> Brot.	Apocynaceae	12	2
<i>Arctotheca calendula</i> (L.) Levyns	Asteraceae	4	1
<i>Asclepias fruticosa</i> L.	Apocynaceae	8	1
<i>Bidens connata</i> Muhl. ex Willd.	Asteraceae	7	1
<i>Bidens subalternans</i> DC.	Asteraceae	13	3
<i>Boerhavia coccinea</i> Mill.	Nyctaginaceae	2	0
<i>Bunias orientalis</i> L.	Brassicaceae	7	1
<i>Campsis radicans</i> (L.) Bureau	Bignoniaceae	17	1
<i>Capsella grandiflora</i> (Fauché & Chaub.) Boiss.	Brassicaceae	2	1
<i>Carex vulpinoidea</i> Michx.	Cyperaceae	5	1
<i>Catalpa ovata</i> G.Don	Bignoniaceae	3	1
<i>Catalpa speciosa</i> Teas	Bignoniaceae	2	1
<i>Cenchrus longispinus</i> (Hack.) Fernald	Poaceae	14	2
<i>Centaurea diluta</i> Aiton	Asteraceae	7	1
[§] <i>Chasmanthe aethiopica</i> (L.) N.E.Br.	Iridaceae	5	1
<i>Chorispora tenella</i> (Pall.) DC.	Brassicaceae	1	1
<i>Corispermum marschallii</i> Steven	Chenopodiaceae	3	1
[§] <i>Cortaderia selloana</i> (Schult. & Schult.f.) Asch. & Graebn.	Poaceae	16	2
<i>Cotula coronopifolia</i> L.	Asteraceae	4	3
<i>Cyperus congestus</i> Vahl	Cyperaceae	3	1
<i>Cyperus microiria</i> Steud.	Cyperaceae	7	3
<i>Cyperus squarrosus</i> L.	Cyperaceae	4	1
<i>Cyperus strigosus</i> L.	Cyperaceae	4	1

Species	Family	Number of region in which the species occurs	Number of regions with impacts on plant communities
<i>Dichantheium acuminatum</i> (Sw.) Gould & C.A.Clark subsp. <i>implicatum</i> (Scribn.) Freckmann & Lelong	Poaceae	3	1
* <i>Diplachne fascicularis</i> (Lam.) P. Beauv.	Poaceae	3	1
<i>Echinochloa hispidula</i> (Retz.) Nees	Poaceae	4	1
<i>Egeria densa</i> Planch.	Hydrocharitaceae	6	1
<i>Elaeagnus pungens</i> Thunb.	Elaeagnaceae	10	2
<i>Eleocharis obtusa</i> (Willd.) Schult.	Cyperaceae	5	1
<i>Eragrostis curvula</i> (Schrad.) Nees	Poaceae	7	1
<i>Heteranthera reniformis</i> Ruiz & Pav.	Pontederiaceae	6	2
<i>Humulus japonicus</i> Siebold & Zucc.	Cannabaceae	6	2
<i>Ligustrum japonicum</i> Thunb.	Oleaceae	6	1
<i>Ligustrum ovalifolium</i> Hassk.	Oleaceae	8	3
<i>Lindernia dubia</i> (L.) Pennell	Linderniaceae	7	4
<i>Melia azedarach</i> L.	Meliaceae	12	1
<i>Mirabilis nyctaginea</i> (Michx.) MacMill.	Nyctaginaceae	3	0
<i>Miscanthus sinensis</i> Andersson	Poaceae	3	1
<i>Mollugo verticillata</i> L.	Molluginaceae	4	2
<i>Muhlenbergia schreberi</i> J.F.Gmel.	Poaceae	5	1
<i>Murdannia keisak</i> (Hassk.) Hand.-Mazz.	Commelinaceae	2	2
<i>Najas gracillima</i> (A.Braun ex Engelm.) Magnus	Hydrocharitaceae	4	1
<i>Nelumbo nucifera</i> Gaertn.	Nelumbonaceae	6	5
<i>Nonea pulla</i> (L.) DC.	Boraginaceae	3	0
<i>Oenothera adriatica</i> Soldano	Onagraceae	5	2
<i>Oenothera depressa</i> Greene	Onagraceae	3	1
<i>Oenothera fallacoides</i> Soldano & Rostański	Onagraceae	8	1
<i>Oenothera oakesiana</i> (A.Gray) J.W.Robbins ex S.Watson & J.M.Coult.	Onagraceae	4	2
<i>Oenothera pedemontana</i> Soldano	Onagraceae	3	1
<i>Oenothera sesitensis</i> Soldano	Onagraceae	4	3
<i>Opuntia dillenii</i> (Ker Gawl.) Haw.	Cactaceae	7	1
<i>Opuntia engelmannii</i> Salm-Dyck ex Engelm.	Cactaceae	7	1
<i>Opuntia monacantha</i> Haw.	Cactaceae	9	2
<i>Opuntia phaeacantha</i> Engelm.	Cactaceae	7	2
<i>Parkinsonia aculeata</i> L.	Fabaceae	6	1
<i>Persicaria filiformis</i> (Thunb.) Nakai	Polygonaceae	2	2
<i>Persicaria nepalensis</i> (Meisn.) H.Gross	Polygonaceae	4	3
<i>Persicaria pensylvanica</i> (L.) M.Gómez	Polygonaceae	7	2
<i>Persicaria virginiana</i> (L.) Gaertn.	Polygonaceae	1	2
<i>Phyllostachys viridiglaucescens</i> (Carrière) Rivière & C.Rivière	Poaceae	5	1
<i>Pistia stratiotes</i> L.	Araceae	6	1
<i>Prunus serotina</i> Ehrh.	Rosaceae	7	3
<i>Pseudosasa japonica</i> (Siebold & Zucc. ex Steud.) Makino ex Nakai	Poaceae	6	1
<i>Pseudotsuga menziesii</i> (Mirb.) Franco	Pinaceae	8	1
^s <i>Quercus rubra</i> L.	Fagaceae	9	6

Species	Family	Number of region in which the species occurs	Number of regions with impacts on plant communities
[§] <i>Reynoutria bohemica</i> Chrtek & Chrtková	Polygonaceae	9	4
<i>Robinia viscosa</i> Vent.	Fabaceae	1	1
<i>Rosa rugosa</i> Thunb.	Rosaceae	5	1
<i>Rubus phoenicolasius</i> Maxim.	Rosaceae	5	2
<i>Sagittaria latifolia</i> Willd.	Alismataceae	5	3
* <i>Salvinia molesta</i> D.S.Mitch.	Salviniaceae	3	0
[§] <i>Senecio inaequidens</i> DC.	Asteraceae	20	18
* <i>Setaria pycnocomma</i> (Steud.) Henrard ex Nakai	Poaceae	12	2
[§] <i>Sicyos angulatus</i> L.	Cucurbitaceae	14	8
<i>Solanum carolinense</i> L.	Solanaceae	7	1
<i>Solanum sisymbriifolium</i> Lam.	Solanaceae	4	2
<i>Spiraea japonica</i> L.f.	Rosaceae	7	4
<i>Sporobolus neglectus</i> Nash	Poaceae	6	3
<i>Sporobolus vaginiflorus</i> (Torr. ex A.Gray) Alph.Wood	Poaceae	6	4
<i>Sporobolus ×townsendii</i> (H.Groves & J.Groves) P.M.Peterson & Saarela	Poaceae	1	0
<i>Trachycarpus fortunei</i> (Hook.) H.Wendl.	Arecaceae	11	6
[§] <i>Tradescantia fluminensis</i> Vell.	Commelinaceae	15	4
<i>Vachellia karroo</i> (Hayne) Banfi & Galasso	Fabaceae	7	1
* <i>Viola cucullata</i> Aiton	Violaceae	6	1
<i>Washingtonia filifera</i> (Linden ex André) H.Wendl. ex de Bary	Arecaceae	4	1

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*The nomenclature of these species is not in accordance with Galasso et al. (2018); correspondence is as follows: *Diplachne fascicularis* (Lam.) P. Beauv. = *Diplachne fusca* (L.) P.Beauv. ex Roem. & Schult. subsp. *fascicularis* (Lam.) P.M.Peterson & N.Snow, *Salvinia molesta* D.S.Mitch. = *Salvinia adnata* Desv., *Setaria pycnocomma* (Steud.) Henrard ex Nakai = *Setaria italica* (L.) P.Beauv. subsp. *pycnocomma* (Steud.) de Wet, and *Viola cucullata* Aiton = *Viola sororia* Willd.

345 **FIGURES**

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347 **Figure 1.** Operational flow chart applied to the National Alien Species Data Base in order

348 to select the list of candidate species to submit to the national prioritization procedure to be

349 included in a national list according to Regulation (EU) n. 1143/2014.

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