

## Nomenclature of IAS of Union concern - summary

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### Introduction

Taxonomy is the science of naming and classifying organisms by using binomial nomenclature formed by the combination of the genus and species name (e.g. *Asclepias syriaca*). Today 1.78 million species of estimated 15 million species in total are distinguished and named using the same taxonomic classification system (Mace, 2004). Taxonomic information is essential for conservation planning a management. Experts from various fields conclude that taxonomy is necessary for effective decision-making for conservation and sustainable use (CBD Secretariat, 2017). Knowledge about species’ taxonomy helps to identify target species and contradicts confusions. Knowledge gaps and misuse of taxonomic names can cause problems for conservationist, policymakers, legislators and many others that relies on a list of species that needs to be identified for protection as well as for restriction (Mace, 2004; Smith, Aradottir, Taylor, & Lyal, 2008). A correct list for accurate and internationally used names is fundamental for the success of any invasive species management action (Smith et al., 2008).

The Regulation (EU) No 1143/2014 on the prevention and management of the introduction and spread of invasive alien species provides *a list of invasive alien species of Union concern ('the Union list')*, which is regularly updated according to Article 4(2) (Regulation (EU), 2014). Currently the Union list consist of 49 species (26 animal species and 23 vascular plant species), which were nominated in 2016 and updated 2017 (Regulation (EU), 2016, 2017). The Union list is the major core

of the EU Regulation to combat threats of invasive species EU-wide ([http://ec.europa.eu/environment/nature/invasivealien/list/index\\_en.htm](http://ec.europa.eu/environment/nature/invasivealien/list/index_en.htm), 17.10.2017).

The aim of this work is to provide a table with the names of the 49 species of Union concern in all official EU languages, including synonyms, non-valid synonyms, older names, common names, commercial names, hybrids, varieties. Therefore, the inventory consists of:

- (1) scientific names and scientific synonyms of the species,
- (2) scientific names and scientific synonyms of all known hybrids, varieties or breeds,
- (3) invalid scientific names of the species and of all known hybrids, varieties or breed,
- (4) common names and commercial names in all 24 official EU languages.

The results are presented in two separate Microsoft Excel worksheets:

- *TSSR -2016-008 Parts 1 2 and 3 scientific names.xlsx* (hereafter: scientific names worksheet), holds information related to the scientific names.
- *TSSR -2016-008 Parts 4 Common names.xlsx* (hereafter: common names worksheet), holds the common names of the 49 species for each of the 24 official EU languages, and their names used commercially.

## Methods

### Scientific names

Key taxonomic sources, to be used for identifying validity of names, were identified through consultation with species experts within IUCN, and are listed in Annex Table 1 (and as a spreadsheet in the scientific names worksheet).

For each of the 49 species on the Union list, international and European taxonomic sources both online, and hard copy publications (listed in Annex Table 2) identified through consultation with experts within IUCN and the projects Panel and Wider Expert Network, were consulted to identify the scientific names in use. This included scientific names, synonyms, and authorities at the specific and sub-specific level, including hybrids, varieties and breeds. The original publication of each scientific name was identified where possible. These names were then cross references against the key taxonomic sources to confirm their validity. To identify if each scientific name was also used as a commercial name, an online search was undertaken (Google).

### Common and commercial names

Common names of species can be a source for confusion and misidentification of species (Grime, Hodgson, & Hunt, 2014; Klein et al., 1993). To collate a list of common names for the 49 species in all 24 EU official and working languages (listed in Annex Table 3) internet searches were undertaken to identify species lists within relevant countries, for example on institutional websites or databases. Experts within the IUCN SSC Invasive Species Specialist Group (ISSG, listed in Annex Table 4) within Europe representing each official language were then contacted and asked to review the list of common names, fill any data gaps, and identify commercially used names. An additional internet search was undertaken using the finalised list of common names and keywords (price, € or other national currency, sale, buy, pet, meat, fur, seed, aquarium) translated into each official language.

## Results & Discussion

### Scientific names

For the 49 species on the Union List (representing 33 taxonomic families, Annex Table 5) a total 862 scientific names were collated, meaning that a source listed the name in association (e.g. as a synonym, or as the accepted name) with a scientific name on the Union list.

Conflict between the scientific species name as listed in the Union list and the accepted name according to key taxonomic sources appeared in the following cases:

- *Lithobates (Rana) catesbeianus* Shaw, 1802 as listed on the Union list. Frost (2017) recognise Rana as a separate genus with 49 species (not including *catesbeianus*), and provide *Lithobates catesbeianus* (Shaw, 1802) as the species accepted name. In addition it is important to note that the species basionym/protonym is *Rana catesbeianus* Shaw, 1802, and therefore the taxonomic authority should be in brackets to indicate a movement to a different genera, i.e. (Shaw, 1802).

- *Orconectes limosus* Rafinesque, 1817, as listed on the Union list. This species was recently moved to the genus *Faxonius* (Crandall & De Grave, 2017), giving the scientific name *Faxonius limosus* (Rafinesque, 1817). In addition, the authority name for *Orconectes limosus* should be in brackets, i.e. (Rafinesque, 1817), as the basionym is *Astacus limosus* Rafinesque, 1817.

- *Orconectes virilis* Hagen, 1870, as listed on the Union list. This species was recently moved to the genus *Faxonius* (Crandall & De Grave, 2017), giving the scientific name *Faxonius virilis* (Hagen, 1870). In addition, the authority name for *Orconectes limosus* should be in brackets, i.e. (Hagen, 1870), as the basionym is *Cambarus virilis* Hagen, 1870.

- *Procambarus fallax* f. *virginalis* (Hagen, 1870), as listed on the Union list. The key taxonomic referenced used for crustaceans, Crandall & De Grave (2017), do not recognise *Procambarus fallax* f. *virginalis* (Martin et al. 2010) as it is an aquarium bred parthenogenetic form of *Procambarus fallax* (Hagen, 1870) and that the ICZN excludes 'forma' for names published after 1960. However Lyko (2017) a more recent publication than Crandall & De Grave (2017), has published the name *Procambarus virginalis* Lyko, 2017 replacing the preliminary designation *Procambarus fallax* forma *virginalis* (Martin et al., 2010).

- *Tamias sibiricus* Laxmann, 1769, as listed on the Union list. This species accepted name is *Eutamias sibiricus* (Laxmann, 1769) according to the IUCN Red List, which is following a publication (Patterson & Norris, 2016) which post-dates the species record in Wilson and Reeder's Mammals Species of the World (3<sup>rd</sup> Edition), which lists *Tamias (Eutamias) sibiricus* Laxmann, 1769 as the accepted name.

- *Heracleum sosnowskyi* Mandenova, as listed on the Union list. According to the key taxonomic reference used for plants (The Plant List, 2013) the name *Heracleum sosnowskyi* Manden. derives from WCSP (in review) (data supplied on 2012-03-23) which does not establish this name either as an accepted name or as a synonym. However, according to the Catalogue of List (which cites Hassler, M. 2017. World Plants Synonymic Checklists of the Vascular Plants of the World) the name is accepted.

- *Persicaria perfoliata* (L.) H. Gross (*Polygonum perfoliatum* L.), as listed on the Union list. While not a genuine conflict, as both names are listed on the Union list, the key taxonomic source used for our research (The Plant List, 2013) lists *Polygonum perfoliatum* L. as the accepted name, and *Persicaria perfoliata* (L.) H. Gross as the synonym.

- *Pueraria montana* var. *lobata* (*Pueraria lobata* (Willd.) Ohwi), as listed on the Union list. While not a genuine conflict, as both names are listed on the Union list, the key taxonomic source used for our research (The Plant List, 2013) lists *Pueraria montana* (Lour.) Merr. var. *lobata* (Willd.) Sanjappa & Pradeep as the accepted name, and *Pueraria lobata* (Willd.) Ohwi as the synonym.

According to the International Code of Zoological Nomenclature (ICZN, <http://iczn.org/iczn/index.jsp>) Article 51.3. "When a species-group name is combined with a generic name other than the original one, the name of the author of the species-group name, if cited, is to be enclosed in parentheses", therefore of the 26 animal species listed on the Union List 18 are missing the required parentheses (please see scientific names worksheet for the list of basionyms/protonyms), and should be written as follows:

- *Alopochen aegyptiaca* (Linnaeus, 1766)
- *Callosciurus erythraeus* (Pallas, 1779)
- *Eutamias sibiricus* (Laxmann, 1769)
- *Faxonius limosus* (Rafinesque, 1817)
- *Faxonius virilis* (Hagen, 1870)
- *Herpestes javanicus* (Geoffroy Saint-Hilaire, 1818)
- *Lithobates catesbeianus* (Shaw, 1802)
- *Myocastor coypus* (Molina, 1782)
- *Muntiacus reevesi* (Ogilby, 1802)
- *Nasua nasua* (Linnaeus, 1766)
- *Nyctereutes procyonoides* (Gray, 1834)
- *Ondatra zibethicus* (Linnaeus, 1766)
- *Oxyura jamaicensis* (Gmelin, 1789)
- *Pacifastacus leniusculus* (Dana, 1852)
- *Procyon lotor* (Linnaeus, 1758)
- *Pseudorasbora parva* (Temminck & Schlegel, 1846)
- *Threskiornis aethiopicus* (Latham, 1790)
- *Trachemys scripta* (Thunberg in Schoepff, 1792)

### Common and commercial names

The source identifying the common names varied from official government institutions that provides a full list of common names, to blogs where the common name is used by an individual. Often the genus name is used a common name for the species, which may cause misidentification.

For the 49 species on the Union list species, common names in each of the 24 EU official languages could only be found for one species, *Alopochen aegyptiaca*. However for an additional 28 species, common names could be identified in more than 20 languages. Many species have more than one common name per language, for example *Lithobates (Rana) catesbeianus* is known in Dutch as Amerikaanse stierkikker, Stierkikker, and Brulkikker. In a few languages (e.g. German, Dutch, Italian and English) the common names for the sub-species *Trachemys scripta troostii*, *T. scripta scripta* and *T. scripta elegans* could be differentiated for the subspecies. However, we have no way of identifying if any of the reported common names are widely known in the public or if the common name is used only by a minority, e.g. a certain stakeholder group. Further analysis of the public awareness of a species may help to record which names are the 'primary' common names.

The species for which no common name could be identified for the most languages were *Microstegium vimineum* (11 languages), *Persicaria perfoliata* (15 languages), and *Parthenium hysterophorus* (15 languages). The languages with the highest number of species with no common

name identified are Maltese (43 species), Romanian (31 species) and Irish (30 species). It is likely that the primary reason for the lack of a common name in many languages is due to the absence of the species within a country.

In many cases the commercial use of the species name could be identified, however it is highly likely that additional online searching, and communications with additional experts would identify more commercially used names. Therefore the information cannot be used to quantify or interpret the commercial use of the 49 species of the Union list. To reliably gather information on the trade and commerce of the species we would suggest to provide a detailed market analysis based on imported and traded quantities (Brunel, 2009). The species with the highest number of languages with commercially used names identified were *Pennisetum setaceum* (18 commercial names identified in 14 languages), *Elodea nuttallii* (15 names in 11 languages), *Eichhornia crassipes* (22 names in 10 languages), and *Impatiens glandulifera* (16 names in 10 languages).

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## Annex

**Table 1. Key taxonomic sources used for information on a species name validity.**

Plantae (plants)	The Plant List (2013). Version 1.1. Published on the Internet; <a href="http://www.theplantlist.org/">http://www.theplantlist.org/</a>
Aves (birds)	IUCN Red List (2017-1), <a href="http://www.iucnredlist.org">www.iucnredlist.org</a> , Accessed 07.07.2017. AVIBASE (2017) <a href="https://avibase.bsc-eoc.org/species.jsp?avibaseid=DA2F24E310CF72A6">https://avibase.bsc-eoc.org/species.jsp?avibaseid=DA2F24E310CF72A6</a>
Mammalia (mammals)	IUCN Red List (2017-1), <a href="http://www.iucnredlist.org">www.iucnredlist.org</a> , Accessed 07.07.2017. Don E. Wilson & DeeAnn M. Reeder (editors). 2005. Mammal Species of the World. A Taxonomic and Geographic Reference (3rd ed), Johns Hopkins University Press, 2,142 pp. <a href="https://www.departments.bucknell.edu/biology/resources/msw3/">https://www.departments.bucknell.edu/biology/resources/msw3/</a>
Decapoda (crustaceans)	Crandall, K. A., & De Grave, S. (2017). An updated classification of the freshwater crayfishes (Decapoda: Astacidea) of the world, with a complete species list. <i>The Journal of Crustacean Biology</i> , 37(5), 615-653.
Chordata (fish)	Froese, R. and D. Pauly. Editors. 2017. FishBase. World Wide Web electronic publication. <a href="http://www.fishbase.org">www.fishbase.org</a> , version (02/2017). <a href="http://www.fishbase.org/search.php">http://www.fishbase.org/search.php</a> , Accessed 11.07.2017. IUCN Red List (2017-1), <a href="http://www.iucnredlist.org">www.iucnredlist.org</a> , Accessed 07.07.2017.
Reptilia (Reptile)	Turtle Taxonomy Working Group [Rhodin, A.G.J., Iverson, J.B., Bour, R. Fritz, U., Georges, A., Shaffer, H.B., and van Dijk, P.P.]. 2017. Turtles of the World: Annotated Checklist and Atlas of Taxonomy, Synonymy, Distribution, and Conservation Status (8th Ed.). In: Rhodin, A.G.J., Iverson, J.B., van Dijk, P.P., Saumure, R.A., Buhlmann, K.A., Pritchard, P.C.H., and Mittermeier, R.A. (Eds.). <i>Conservation Biology of Freshwater Turtles and Tortoises: A Compilation Project of the IUCN/SSC Tortoise and Freshwater Turtle Specialist Group. Chelonian Research Monographs 7:1–292</i> . doi: 10.3854/crm.7.checklist.atlas.v8.2017. <a href="http://images.turtleconservancy.org/documents/2017/crm-7-checklist-atlas-v8-2017.pdf">http://images.turtleconservancy.org/documents/2017/crm-7-checklist-atlas-v8-2017.pdf</a>
Amphibia (Amphibian)	Villastrigo, A., Ribera, I., Manuel, M., Millan, A., & Fery, H. (2017). A new classification of the tribe Hygrotini Portevin, 1929 (Coleoptera: Dytiscidae: Hydroporinae). <i>Zootaxa</i> , 4317(3), 499-529. IUCN Red List (2017-1), <a href="http://www.iucnredlist.org">www.iucnredlist.org</a> , Accessed 07.07.2017.
Vespa (Hornet)	IUCN Red List (2017-1), <a href="http://www.iucnredlist.org">www.iucnredlist.org</a> , Accessed 07.07.2017. Gusenleitner J. (2017). ZOBODAT: Zoological-Botanical Database (Vespoidea) (version 4.0, Oct 2011). In: Roskov Y., Abucay L., Orrell T., Nicolson D., Bailly N., Kirk P.M., Bourgoin T., DeWalt R.E., Decock W., De Wever A., Nieukerken E. van, Zarucchi J., Penev L., eds. (2017). Species 2000 & ITIS Catalogue of Life, 30th June 2017. Digital resource at <a href="http://www.catalogueoflife.org/col">www.catalogueoflife.org/col</a> . Species 2000: Naturalis, Leiden, the Netherlands. ISSN 2405-8858.

**Table 2. Sources and databases checked for scientific names in use for the 49 species of the Union List.**

No.	Source (citation & link)
1	<a href="http://amphibiaweb.org">AmphibiaWeb</a> , 2017. < <a href="http://amphibiaweb.org">http://amphibiaweb.org</a> > University of California, Berkeley, CA, USA. Accessed 11.07.2017.
2	<a href="https://avibase.bsc-eoc.org">Lepage, D. 2017. Avibase- the world bird database https://avibase.bsc-eoc.org</a>
3	<a href="http://www.biolib.cz">BioLib.cz</a> , 2017. <a href="http://www.biolib.cz">www.biolib.cz</a> , 13.07.2022
4	<a href="http://datazone.birdlife.org/home">Data Zone, Bird Life International. 2017. http://datazone.birdlife.org/home</a> , Accessed 11.07.2017.



5	<u>Brickell, C., 2004. International Code of Nomenclature for Cultivated Plants. (7th ed.). Vienna: International Association for Plant Taxonomy.</u>
6	<u>CABI, 2017. Invasive Species Compendium. Wallingford, UK: CAB International. <a href="http://www.cabi.org/isc">www.cabi.org/isc</a>.</u>
7	<u>Clements, J. F., T. S. Schulenberg, M. J. Iliff, D. Roberson, T. A. Fredericks, B. L. Sullivan, and C. L. Wood. 2017. The eBird/Clements checklist of birds of the world: v2016. Downloaded from <a href="http://www.birds.cornell.edu/clementschecklist/download/">http://www.birds.cornell.edu/clementschecklist/download/</a>.</u>
8	<u>Crandall, K. A., &amp; De Grave, S., 2017. An updated classification of the freshwater crayfishes (Decapoda: Astacidea) of the world, with a complete species list. The Journal of Crustacean Biology, 37(5), 615-653.</u>
9	<u>Crandall, Keith A., 2016. Faxonius virilis (Hagen, 1870). Accessed through: World Register of Marine Species at <a href="http://www.marinespecies.org/aphia.php?p=taxdetails&amp;id=885357">http://www.marinespecies.org/aphia.php?p=taxdetails&amp;id=885357</a> on 2017-10-23, <a href="http://www.marinespecies.org/aphia.php?p=taxdetails&amp;id=885357">http://www.marinespecies.org/aphia.php?p=taxdetails&amp;id=885357</a></u>
10	<u>DAISIE (European Invasive Alien Species Gateway), 2008. Oxyura jamaicensis. Available from: <a href="http://www.europe-aliens.org/speciesFactsheet.do?speciesId=5179">http://www.europe-aliens.org/speciesFactsheet.do?speciesId=5179</a> [Accessed 11.9.2017].</u>
11	<u>EPPO (European and Mediterranean Plant Protection Organization), 2017. EPPO Global Database (available online). <a href="https://gd.eppo.int">https://gd.eppo.int</a></u>
12	<u>Froese, R. and D. Pauly. Editors. 2017. FishBase. World Wide Web electronic publication. <a href="http://www.fishbase.org">www.fishbase.org</a>, version (02/2017). <a href="http://www.fishbase.org/search.php">http://www.fishbase.org/search.php</a>, Accessed 11.07.2017.</u>
13	<u>Frost, Darrel R., 2017. Amphibian Species of the World: an Online Reference. Version 6.0 (Date of access). Electronic Database. Museum of Natural History, New York, USA. <a href="http://research.amnh.org/herpetology/amphibia/index.html">http://research.amnh.org/herpetology/amphibia/index.html</a>. Accessed 11.07.2017.</u>
14	<u>GBIF (Global Biodiversity Information Facility), 2017. GBIF Occurrence Download <a href="http://doi.org/10.15468/dl.ywhpmz">http://doi.org/10.15468/dl.ywhpmz</a></u>
15	<u>Groom, Hoste and Verloove. (2017). Pennisetum setaceum (Forssk.) Chiov., Technical Report. Botanic Garden of Meise, Belgium</u>
16	<u>Gusenleitner J. (2017). ZOBODAT: Zoological-Botanical Database (Vespoidea) (version 4.0, Oct 2011). In: Roskov Y., Abucay L., Orrell T., Nicolson D., Bailly N., Kirk P.M., Bourgoin T., DeWalt R.E., Decock W., De Wever A., Nieuwerkerken E. van, Zarucchi J., Penev L., eds. (2017).</u>
17	<u>Hassler M., 2017. World Plants: Synonymic Checklists of the Vascular Plants of the World (version May 2017). In: Roskov Y., Abucay L., Orrell T., Nicolson D., Bailly N., Kirk P.M., Bourgoin T., DeWalt R.E., Decock W., De Wever A., Nieuwerkerken E. van, Zarucchi J., Penev L., eds. (2017). Species 2000 &amp; ITIS Catalogue of Life, 30th June 2017. Digital resource at <a href="http://www.catalogueoflife.org/col">www.catalogueoflife.org/col</a>. Species 2000: Naturalis, Leiden, the Netherlands. ISSN 2405-8858.</u>
18	<u>The International Commission on Zoological Nomenclature (ICZN), 2017. <a href="http://iczn.org/search/site">http://iczn.org/search/site</a>. Accessed 07.07.2017.</u>
19	<u>Info Flora, 2017. The National Data and Information Center of Swiss Flora. <a href="https://www.infoflora.ch/en/flora/">https://www.infoflora.ch/en/flora/</a>, Accessed 12.07.2017.</u>
20	<u>The International Plant Names Index (IPNI), 2017. Published on the Internet <a href="http://www.ipni.org">http://www.ipni.org</a>, Accessed 07.07.2017.</u>
21	<u>ITIS (the Integrated Taxonomic Information System). 2017. <a href="https://www.itis.gov/">https://www.itis.gov/</a>, Accessed 11.07.2017.</u>
22	<u>IUCN ( International Union for Conservation of Nature) Red List, 2017. <a href="http://www.iucnredlist.org">www.iucnredlist.org</a>, Accessed 07.07.2017.</u>
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**Table 1. List of the 24 official and work languages of 28 EU Member States.**

The European Union has 24 official and working languages of the institutions of the Union. According to Article 342 of the Treaty on the Functioning of the European Union on the basis these languages (EEPA, 2013) on the basis of the EU Regulation No.1 on determining the languages to be used by the European Economic Community (Council of Europe, 1958).

Name (source language)	Englis name	ISO 639-1 Code * (language)
български	Bulgarian	bg
español	Spanish	es
čeština	Czech	cs
dansk	Danish	da
Deutsch	German	de
eesti keel	Estonian	et
ελληνικά	Greek	el
English	English	en
français	French	fr
Gaeilge	Irish	ga
hrvatski	Croatian	hr
italiano	Italian	it
latviešu valoda	Latvian	lv
lietuvių kalba	Lithuanian	lt
magyar	Hungarian	hu
Malti	Maltese	mt
Nederlands	Dutch	nl
polski	Polish	pl
português	Portuguese	pt
română	Romanian	ro
slovenčina (slovenský jazyk)	Slovak	sk
slovenščina (slovenski jezik)	Slovenian	sl
suomi	Finnish	fi
svenska	Swedish	sv

\* Codes for the Representation of Names of Languages (alpha-2 code) [http://www.loc.gov/standards/iso639-2/php/code\\_list.php](http://www.loc.gov/standards/iso639-2/php/code_list.php)

**Table 4. Experts used to identify common names in 24 EU official and working languages**

LANGUAGE (English name)	Name	Affiliation
Bulgarian	<b>Emil Popov</b>	Forest Research Institute - BAS Departement Forest Genetics Physiology and Plantations 132, St. Kliment Ohridski blvd 1756 Sofia BULGARIA
Croatian	<b>Dubravko Pocrnja</b>	Federal agromediterranean institute Sveučilište u Mostaru Bosnia and Herzegovina
Czech	<b>Jan Pergl</b>	Department of Invasion Ecology Institute of Botany Academy of Sciences of the Czech Republic CZ-252 43 Pruhonice Czech Republic
Danish	<b>Helene Nyegaard Hvid</b>	Ministry of Environment and Food of Denmark Danish Environmental Protection Agency   Haraldsgade 53   2100 Copenhagen Ø, Denmark
Dutch	<b>Wiebe Lammers</b>	Team Invasieve Exoten Bureau Risicobeoordeling en Onderzoeksprogrammering (BuRO) Nederlandse Voedsel- en Warenautoriteit
English	<b>Katharina Lapin, Kevin Smih</b>	IUCN, Pembroke St, Cambridge, CB2 3QZ Postal address: Corn Exchange St, Cambridge, UK.
Estonian	<b>Merike Linnamägi</b>	Keskonnaministeerium, Ministry of the Environment of Estonia, Narva mnt 7a, 15172 Tallinn, Eesti
Finnish	<b>Johanna Niemivuo-Lahti</b>	MINISTRY OF AGRICULTURE AND FORESTRY Natural Resources Department PL 30, 00023 Valtioneuvosto PO. Box 30, FIN - 00023 Government, Finland
French	<b>Alain Roques</b>	INRA - Site d'Orléans Unité de Zoologie Forestière 2163 Avenue de la Pomme de Pin, CS 40001 ARDON 45075 ORLEANS Cedex 2 - FRANCE
German	<b>Wolfgang Rabitsch</b>	Umweltbundesamt GmbH Environment Agency Austria Spittelauer Lände 5 1090 Wien Österreich/Austria
Greek	<b>Stelios Katsanevakis</b>	University of the Aegean Department of Marine Sciences 81100 Mytilene, Greece
Hungarian	<b>Andras BOZSIK</b>	University of Debrecen Boszormenyi ut 139 H-4015 Debrecen Hungary
Irish	<b>Frances Lucy</b>	Head of Department of Environmental Science, Institute of Technology, Sligo, Ash Lane, Sligo, Ireland
Italian	<b>Riccardo Scalera</b>	IUCN SSC Invasive Species Specialist Group, Rome, Italy
Latvian	<b>Zane Brice</b>	Regional Development of the Republic of Latvia
Lithuanian	<b>Laura Janulaitienė</b>	Ministry of Environment of the Republic of Lithuania a. Jakšto g. 4/9, LT-01105 Vilnius, Lithuania
Maltese	<b>Edwin Lanfranco</b>	Institute of Earth Systems & Dept. of Biology University of Malta Msida, Malta
Polish	<b>Wojciech Solarz</b>	Institute of Nature Conservation, Polish Academy of Sciences, al. Adama Mickiewicza 33, 31-120 Kraków, Poland
Portuguese	<b>Hélia Marchante</b>	Escola Superior Agrária, Instituto Politécnico de Coimbra Bencanta, 3045-601 Coimbra, Portugal
Romanian	<b>Liviu Parau</b>	Institute of Pharmacy and Molecular Biotechnology, Heidelberg University Im Neuenheimer Feld 364, 4 OG, 69120 Heidelberg, Germany
Slovak	<b>Ema Gojdičová</b>	ŠOP SR - RCOP Prešov Hlavná 93 080 01 Prešov, Slovakia
Slovenian	<b>Branka Tavzes</b>	Ministrstvo za okolje in prostor Ministry of the Environment and Spatial Planning Dunajska cesta 48 SI – 1000 Ljubljana, Slovenija
Spanish	<b>VILÀ, Montserrat</b>	Estación Biológica de Doñana (EBD-CSIC) Avda. Américo Vespucio s/n. Isla de la Cartuja 41092 Sevilla. España
Swedish	<b>AHLÉN, Per-Arne</b>	Swedish University of Agricultural Sciences · Department of Ecology Sweden

**Table 5. List of Invasive Alien Species of Union concern**

#	Sp. Kingdom	YEAR OF NOMINATION	Family	LIST OF INVASIVE ALIEN SPECIES OF UNION CONCERN
1	Animalia	2017	Anatidae	<i>Alopochen aegyptiaca</i> Linnaeus, 1766
2	Animalia	2016	Sciuridae	<i>Callosciurus erythraeus</i> Pallas, 1779
3	Animalia	2016	Corvidae	<i>Corvus splendens</i> Vieillot, 1817
4	Animalia	2016	Reoviridae	<i>Eriocheir sinensis</i> H. Milne Edwards, 1854
5	Animalia	2016	Herpestidae	<i>Herpestes javanicus</i> É. Geoffroy Saint-Hilaire, 1818
6	Animalia	2016	Ranidae	<i>Lithobates (Rana) catesbeianus</i> Shaw, 1802
7	Animalia	2016	Cervidae	<i>Muntiacus reevesi</i> Ogilby, 1839
8	Animalia	2016	Myocastoridae	<i>Myocastor coypus</i> Molina, 1782
9	Animalia	2016	Procyonidae	<i>Nasua nasua</i> Linnaeus, 1766
10	Animalia	2017	Canidae	<i>Nyctereutes procyonoides</i> Gray 1834
11	Animalia	2017	Cricetidae	<i>Ondatra zibethicus</i> (Linnaeus, 1766)
12	Animalia	2016	Cambaridae	<i>Orconectes limosus</i> Rafinesque, 1817
13	Animalia	2016	Cambaridae	<i>Orconectes virilis</i> Hagen, 1870
14	Animalia	2016	Anatidae	<i>Oxyura jamaicensis</i> Gmelin, 1789
15	Animalia	2016	Astacidae	<i>Pacifastacus leniusculus</i> Dana, 1852
16	Animalia	2016	Odontobutidae	<i>Perccottus glenii</i> Dybowski, 1877
17	Animalia	2016	Cambaridae	<i>Procambarus clarkii</i> Girard, 1852
18	Animalia	2016	Cambaridae	<i>Procambarus fallax</i> (Hagen, 1870) f. <i>virginalis</i>
19	Animalia	2016	Procyonidae	<i>Procyon lotor</i> Linnaeus, 1758
20	Animalia	2016	Cyprinidae	<i>Pseudorasbora parva</i> Temminck & Schlegel, 1846
21	Animalia	2016	Sciuridae	<i>Sciurus carolinensis</i> Gmelin, 1788
22	Animalia	2016	Sciuridae	<i>Sciurus niger</i> Linnaeus, 1758
23	Animalia	2016	Sciuridae	<i>Tamias sibiricus</i> Laxmann, 1769
24	Animalia	2016	Threskiornithidae	<i>Threskiornis aethiopicus</i> Latham, 1790
25	Animalia	2016	Emydidae	<i>Trachemys scripta</i> Schoepff, 1792
26	Animalia	2016	Vespidae	<i>Vespa velutina nigrithorax</i> de Buysson, 1905
27	Plantae	2017	Amaranthaceae	<i>Alternanthera philoxeroides</i> (Mart.) Griseb.
28	Plantae	2017	Apocynaceae	<i>Asclepias syriaca</i> L., Sp. Pl. 1: 214. 1753
29	Plantae	2016	Asteraceae	<i>Baccharis halimifolia</i> L.
30	Plantae	2016	Cabombaceae	<i>Cabomba caroliniana</i> Gray
31	Plantae	2016	Pontederiaceae	<i>Eichhornia crassipes</i> (Martius) Solms
32	Plantae	2017	Hydrocharitaceae	<i>Elodea nuttallii</i> (Planch.) H. St. John
33	Plantae	2017	Gunneraceae	<i>Gunnera tinctoria</i> (Molina) Mirbel
34	Plantae	2017	Apiaceae	<i>Heracleum mantegazzianum</i> Sommier & Levier
35	Plantae	2016	Apiaceae	<i>Heracleum persicum</i> Fischer
36	Plantae	2016	Apiaceae	<i>Heracleum sosnowskyi</i> Mandenova
37	Plantae	2016	Araliaceae	<i>Hydrocotyle ranunculoides</i> L. f.
38	Plantae	2017	Balsaminaceae	<i>Impatiens glandulifera</i> Royle
39	Plantae	2016	Hydrocharitaceae	<i>Lagarosiphon major</i> (Ridley) Moss
40	Plantae	2016	Onagraceae	<i>Ludwigia grandiflora</i> (Michx.) Greuter & Burdet
41	Plantae	2016	Onagraceae	<i>Ludwigia peploides</i> (Kunth) P.H. Raven
42	Plantae	2016	Orontioideae	<i>Lysichiton americanus</i> Hultén and St. John
43	Plantae	2017	Poaceae	<i>Microstegium vimineum</i> (Trin.) A.Camus 1922
44	Plantae	2016	Haloragaceae	<i>Myriophyllum aquaticum</i> (Vell.) Verdc.
45	Plantae	2017	Haloragaceae	<i>Myriophyllum heterophyllum</i> Michx.
46	Plantae	2016	Asteraceae	<i>Parthenium hysterophorus</i> L.
47	Plantae	2017	Poaceae	<i>Pennisetum setaceum</i> (Forssk.) Chiov., Bull.Soc.Bot.Ital. 1923:113 (1923)
48	Plantae	2016	Polygonaceae	<i>Persicaria perfoliata</i> (L.) H. Gross (Polygonum perfoliatum L.)
49	Plantae	2016	Fabaceae	<i>Pueraria montana</i> (Lour.) Merr. var. <i>lobata</i> (Willd.) (Pueraria lobata (Willd.) Ohwi)