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Ellenberg's Indicator values for the Flora of Italy – first update: *Pteridophyta*, *Gymnospermae* and *Monocotyledoneae*

Abstract

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Ellenberg's indicator values are an useful tool to delineate the relationship between plants and environment, recognising to each species a functional role as biological indicator. In the frame of the second edition of the Pignatti's "Flora d'Italia", some new informative systems are under preparations, in order to support geobotanical/applied studies, including a complete and updated review of the Ellenberg's indicator values for the whole bulk of species mentioned in the flora of Italy. This first contribution includes a list of 380 species of *Pteridophyta*, *Gymnospermae* and *Monocotyledoneae* that complete the first assignment of the Ellenberg's indicator values to the flora of Italy, published in 2005. Besides, some methodological considerations on the attribution and the use of Ellenberg's indicator values are reported.

Key words: Eivs, bioindicator, plant ecology.

Introduction

Ellenberg's indicator values (Eivs) have been proposed to estimate the influence of main environmental factors in determining flora and vegetation changes on a considered surface area (Ellenberg 1974, 1996; Ellenberg & al. 1992). Basing on a large observational and experimental evidence that ecological factors are the main determinant of structure and composition of plant communities, Ellenberg outlined the synecological preferences of all species belonging to the vascular flora of Central Europe, by means of numerical indices referring to 7 main environmental factors. These can be divided in two subgroups of three and four indices respectively: the first three indices refer to climatic variables: light conditions (L), temperatures (T), climatic continentality (C); the last four deal with edaphic conditions: moisture (U), reaction (R), nutrient availability (N), salinity (S).

All Eivs are arranged in ordinal scales, in which only a nominal correlation is given with the physical/chemical parameters measuring the environmental variables to which they are referred. In the original scales (Ellenberg & al. 1992), all indices were ranging between 1 and 9, with the only exceptions of U, ranging between 1 and 12 and S, ranging between 0 and 9. In more recent times, S-range have been limited to 0-3 (Ellenberg 1996; Pignatti & al. 2005).

From Central Europe, Eivs have been extended eastwards to Poland by Zarzycky (1984) and to Hungary by Borhidi (1995). This application was not so problematic, owing to the large number of species in common and to the comparable latitudinal range. In subsequent years, they were proposed for the flora of the south-Aegean Region (Böhling & al. 2002) and, for the first time, the opportunity to enlarge Ellenberg's scales in order to adapt them to warmer climatic conditions had to be discussed. Böhling & al. (2002) deemed not necessary to modify the Ellenberg's ordinal scales, considering that they are adimensional and, therefore, can be re-calibrated at regional scale in order to make them coherent with the ecological behaviour of local plant species. In this way, for instance, *Quercus pubescens* happens to have $T = 6$ for the Cretan flora and $T = 8$ for the German one. The reason is rather obvious: downy oak in Germany indicates relatively warm and dry environmental conditions, while in Crete it is linked to relatively mesic habitats.

If Ellenberg's scales are left unchanged when moving to different latitudes, ecological comparisons with different regional floras become senseless. This problem became very evident when was tried to extend the Eivs to the Italian territory. Even if the ecological conditions in northern Italy are comparable to those of southern Germany and a significant number of species are in common, this is not true for the southern and insular Italian territories. For this reason an enlargement of the scales L and T to 12 values, in order to respect the statistic homogeneity with the original Ellenberg's assumption was proposed (Pignatti & al. 2005).

The Eivs for the Italian flora published by Pignatti & al. (2005) were based on the species list of the first edition of the renowned "Flora d'Italia" (Pignatti 1982), whose second edition is expected to be published (...hopefully!) by the end of the next year. Aim of this paper is to provide a first integration of the Eivs for the Italian Flora and, at the same time, to offer some methodological considerations on the attribution and the use of Ellenberg's indicator values.

Material and methods

The Eivs for the Italian flora published by Pignatti & al. (2005) were including 5774 species of vascular plants. At the current state of the art, the second edition of "Flora d'Italia" will include 7292 species of vascular plants. This new species list incorporates and critically acknowledges hundreds of contributions to the knowledge of the Italian flora, among which the most relevant are the following: Aeschiman & al. (2004); Arrigoni (2006-2010, 2011); Bacchetta & al. (2009); Banfi & Galasso (2011); Celesti-Grappo & al. (2009, 2010); Conti & al. (2005, 2007); Euro+Med (2006-); Giardina & al. (2007); Peruzzi (2011); Raimondo & al. (2010).

The difference from the species list of the first edition consists of 1518 species, of which 380 are pteridophytes, gymnosperms and monocots. These groups are the subject of our first contribution, where species are ordered according to APG (2006) and to Christenhusz & al. (2011a, 2011b) for pteridophytes and gymnosperms.

In order to assign the new Eivs, all the criteria and recommendations adopted by Ellenberg & al. (1992) have been followed, even if the criterion "*per analogy*" was leading our choices in most of the cases: given the growing stands and sociological behaviour of species *a*, the attribution of its Eivs followed in most of the cases the Eivs already assigned to the most frequent and abundant species in its growing stands or, in case of ambiguous magnitudes and correlations, the Eivs of species *a* was arbitrarily assigned (basing on our experience) within the confidence interval delimited by the Eivs already assigned to the most frequent and abundant species in its growing stands.

Results

Synecological requirements of a species may change along its distribution range, especially when moving to different latitudes. In order to extend the Eivs to the Italian flora, a data-base was implemented by Pignatti and his collaborators since more than twenty years. In such data-base, all the species of the first edition of “Flora d’Italia” were reported, as well as the phytosociological frame and results of ecological and ecophysiological measurements as far as available for each species. So far, that data-base was incremented with 380 newly assigned Eivs, which are reported in Annex 1. A second contribution, which will include the dicots still missing is currently under preparation.

On the website of the *Herbarium Mediterraneum Panormitanum* where Flora Mediterranea is published (<http://www.herbmedit.org>), the complete list of Eivs for the flora of Italy will be soon made available in the form of a Microsoft Excel® spreadsheet, as Electronic supplementary file in order to be easily imported in data-bases or readily used for data processing. This is an optimal condition for open-ended works, like floras and any kind of related data-base are per definition. The digital list of the Eivs will be periodically updated and adjusted, following the indications of all users, in order to progressively improve their accuracy. As already noted by Pignatti & al. (2005) even the current list of Eivs has to be considered a first approximation, which may require a long period of adjustments and revisions. Ellenberg himself, when proposing the first edition of his indicator values, stated that it was a work in progress (Ellenberg 1974). The same was repeated in the following editions, defined as “further approximations”.

While assigning the new Eivs, we reviewed, as well, the distribution frequency of all values in the list and we noticed that the value $L = 10$ was critically underrepresented in the list of Pignatti & al. (2005). So, we reconsidered the pristine criterion of attributing $L = 11$ to most of the Mediterranean species and assigned the value $L = 10$ to many synanthropic species and to many small sized annuals commonly found in Mediterranean garigues and perennial dry grasslands. This is just one example of how Eivs can change and may further change in the future, following new evidences.

Other examples of Eivs that have been modified from the edition of 2005 are the following:

- *Arundo plinii*: due to the re-evaluation of *Arundo collina*, the former species should be limited to the loamy and clayish riverbeds of north-eastern Italy: Marche, Emilia-Romagna and Friuli-Venezia Giulia. For this reason, its Eivs have been modified as follows: $C = 6$, $U = 6$, $R = 5$, $N = 5$
- *Iris pseudopumila*: $R = 6$, instead of $R = 4$
- *Limodorum abortivum*: $L = 4$, instead of $L = X$

Discussion

An important feature of Ellenberg’s indices is that they do not express the physiological *optimum* of a given species, but to its synecological *optimum*, that is the optimal ecological requirements of a given species when interacting with other species. These interaction can vary from region to region and even from time to time. An approach to assess the significance of observed variations (in space and time) of Eivs has been proposed by Pignatti & al. (2001a).

One might ask what is the meaning of Eivs in the era of environmental monitoring sensors and weatherproof digital loggers, which can be used for direct measurements of a large number of variables at any given time-interval. As already stated by Ellenberg himself, the indicator values do not replace measurements. Instead, they should be seen as practical tools to draft quick estimates for eco-

logical interpretations of plant-species lists. On the other hand, they may help to design the distribution of a network of data loggers to corroborate and integrate with experimental evidence the indicator values. A bit like the interpolations of climate parameters: the higher is the number of meteorological stations recording real data to set and train models, the better is the accuracy and performance of predictive systems.

Until now, Eivs rely on quite a large number of application to “fingerprint” the ecological context of plant communities described by floristic compositions. For the Italian territory, the following papers contributed so far to corroborate the Eivs and their utility: Pignatti & al. (1996, 2001a, 2001b); Pignatti (1998, 1999); Guarino & Bernardini (2001); Fanelli & al. (2007); Schwabe & al. (2007); Gristina & Marcenò (2008); Mossa & al. (2008); Brunialti & al. (2010); Pretto & al. (2010); Pignatti E. & Pignatti S. (in press); Guarino & al. (in press).

Some authors (Durwen 1982; Böcker & al. 1983; Kowarik & Seidling 1989; Möller 1992), even if sometimes recognising a practical utility in calculating average Eivs of a species list, state that this is not mathematically correct, because Eivs are ordinal scales, without dimensional correlation with chemical/physical parameters. It is well demonstrated (see, for instance, Pignatti & al. 2001a) that when the number samples (*i.e.* specie lists) is high enough, Eivs do fit the normal distribution, whose essential parameters are average and variance. So, in addition to non-parametric statistics, all kinds of statistical tests based on average and variance can be used. If only a small number of samples is available, a parametric statistic approach can be essayed anyway, because in the case of Ellenberg's scales it is always possible to transform data in their respective ranks, to better approximate the normal distribution and to create the conditions to use a parametric approach.

Moreover, several contributors demonstrated a fairly good correlation between Eivs and dimensional measurements of environmental variables (Degorski 1982; Seidling & Rohner 1993; van der Maarel 1993; Möller 1997; Petersen 2000; Schaffers & Sýkora 2000; Onori 2002). Thus, to perform parametric statistic tests and to use average indicator values referred to floras and plant communities should be considered always admissible, as already accepted by many authors. This greatly enlarges the utility of such indices.

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Annex 1. Eivs assigned to the considered species. The value "X" stands for "undetermined" i.e. species with a very wide ecological amplitude for the considered variable. The value "0" stands for "unknown" (i.e. data deficient), with the exception of S, where "0" means "no salinity". Additional informations on the meaning of Eivs can be found in Pignatti & al. (2005).

Code	Family	Taxon	L	T	C	U	R	N	S
9903006	Lycopodiaceae	<i>Diphasiastrum oellgaardii</i> Stoor. Boudrie, Jérôme, Horn & Bennert	8	2	4	5	2	2	0
9905015	Isoetaceae	<i>Isoetes todaroana</i> Troia & Raimondo	7	9	4	10	1	1	0
9945001	Hymenophyllaceae	<i>Vandenboschia speciosa</i> (Willd.) G. Kunkel	7	10	2	3	6	4	0
9923022	Aspleniaceae	<i>Asplenium balearicum</i> Shivas	7	10	2	2	6	1	0
9929005	Athyriaceae	<i>Cystopteris alpina</i> (Lam.) Desv.	3	3	4	5	3	3	0
9929006	Athyriaceae	<i>Cystopteris diaphana</i> (Bory) Blasdel	5	4	4	5	1	1	0
9944002	Dryopteridaceae	<i>Cyrtomium falcatum</i> (L. fil.) C. Presl	3	4	4	5	4	5	0
9934013	Dryopteridaceae	<i>Dryopteris pallida</i> (Bory) Maire & Petitm. subsp. <i>pallida</i>	6	7	5	4	6	5	0
9934014	Dryopteridaceae	<i>Dryopteris submontana</i> (Fraser-Jenk. & Jermy) Fraser-Jenk.	6	6	5	5	6	3	0
9934015	Dryopteridaceae	<i>Dryopteris remota</i> (A. Braun ex Döll) Druce	6	6	5	5	5	3	0
9934016	Dryopteridaceae	<i>Dryopteris expansa</i> (C. Presl) Fraser-Jenk. & Jermy	6	6	4	4	5	3	0
9946001	Nephrolepidaceae	<i>Nephrolepis cordifolia</i> C. Presl	6	6	4	4	2	5	0
0027001	Pinaceae	<i>Pseudotsuga menziesii</i> (Mirbel) Franco	5	4	6	1	5	0	0
0023002	Pinaceae	<i>Cedrus deodara</i> (D. Don) G. Don	7	7	4	2	7	2	0
0023003	Pinaceae	<i>Cedrus libani</i> A. Richard	7	7	4	2	7	2	0
0023001	Pinaceae	<i>Cedrus atlantica</i> (Endl.) Carrière	11	8	3	2	X	2	0
0022014	Pinaceae	<i>Pinus canariensis</i> Sweet	11	10	2	2	X	2	0
0022018	Pinaceae	<i>Pinus wallichiana</i> Jackson	8	3	5	0	X	3	0
0022020	Pinaceae	<i>Pinus strobus</i> L.	7	7	5	3	X	3	0
0022003	Pinaceae	<i>Pinus radiata</i> Don	7	7	4	3	X	3	0
0032001	Taxodiaceae	<i>Sequoia sempervirens</i> (Lamb.) Endl.	11	8	4	2	4	2	0
0035001	Taxodiaceae	<i>Taxodium distichum</i> (L.) Richard	7	7	6	3	5	3	0
0034001	Taxodiaceae	<i>Cryptomeria japonica</i> (L. fil.) Don	7	7	6	3	5	3	0
0043002	Cupressaceae	<i>Cupressus macrocarpa</i> Hartw.	7	7	6	3	X	3	0
0043004	Cupressaceae	<i>Cupressus arizonica</i> Green	7	7	6	3	5	3	0
0044001	Cupressaceae	<i>Chamaecyparis lawsoniana</i> (Murray) Parl.	7	7	4	3	5	3	0
0042001	Cupressaceae	<i>Thuja occidentalis</i> L.	7	7	6	3	6	3	0
0042002	Cupressaceae	<i>Thuja orientalis</i> L.	7	7	6	3	6	3	0
0045010	Cupressaceae	<i>Juniperus virginiana</i> L.	7	7	4	3	5	3	0
0010001	Ginkgoaceae	<i>Ginkgo biloba</i> L.	7	6	7	2	6	2	0
0046005	Ephedraceae	<i>Ephedra foeminea</i> Forssk.	11	8	4	3	X	2	0
0046008	Ephedraceae	<i>Ephedra podostylax</i> Boiss.	11	10	4	3	X	2	0
0046006	Ephedraceae	<i>Ephedra dubia</i> Boiss.	11	10	5	3	X	2	0
0046007	Ephedraceae	<i>Ephedra negrei</i> Nouviant	11	8	5	3	X	2	0
2513005	Nymphaeaceae	<i>Nymphaea mexicana</i> Zucc.	8	X	4	12	7	7	0
2654001	Magnoliaceae	<i>Liriodendron tulipifera</i> L.	8	7	3	3	7	5	0
2651001	Magnoliaceae	<i>Magnolia grandiflora</i> L.	8	7	4	3	7	5	0
2174012	Aristolochiaceae	<i>Aristolochia clusii</i> Lojac.	7	8	3	3	6	3	0
2174013	Aristolochiaceae	<i>Aristolochia navicularis</i> E. Nardi	8	10	4	3	5	2	0
0777009	Araceae	<i>Arum apulum</i> (Carano) P. C. Boyce	5	8	4	4	5	5	0
0791001	Araceae	<i>Pistia stratiotes</i> L.	7	7	4	12	7	8	0
0795005	Araceae	<i>Lemna minuta</i> Kunth	7	6	5	12	7	8	0
0795006	Araceae	<i>Lemna valdiviana</i> Phil.	7	6	5	12	7	8	0
0085001	Hydrocharitaceae	<i>Halophila stipulacea</i> (Forssk.) Asch.	5	3	1	12	8	7	8
0062005	Cymodoceaceae	<i>Zannichellia obtusifolia</i> Talavera, Garcia Murillo & Smit	7	0	2	12	7	6	1
0062006	Cymodoceaceae	<i>Zannichellia peltata</i> Bertol.	6	0	2	12	7	6	1
0062002	Cymodoceaceae	<i>Zannichellia major</i> Boenning. & Rchb.	6	0	2	12	7	6	1
0062003	Cymodoceaceae	<i>Zannichellia pedunculata</i> Rchb.	6	0	2	12	7	6	1
0062004	Cymodoceaceae	<i>Zannichellia melitensis</i> Brullo, Giusso & Lanfranco	7	0	2	12	7	6	1
0960003	Melanthiaceae	<i>Veratrum lobelianum</i> Bernh.	8	4	5	7	4	5	0
0978027	Colchicaceae	<i>Colchicum triphyllum</i> Kunze	6	6	3	3	6	6	0
0978028	Colchicaceae	<i>Colchicum actupii</i> Fridlender	6	7	4	3	6	7	0
0978011	Colchicaceae	<i>Colchicum gonarei</i> Camarda	8	7	3	3	6	4	0
1048032	Liliaceae	<i>Gagea tisoniana</i> Peruzzi, Bartolucci, Frignani & Minutillo	9	4	3	3	5	3	0
1048033	Liliaceae	<i>Gagea polidori</i> J.-M. Tison	8	5	5	3	4	3	0
1048034	Liliaceae	<i>Gagea dubia</i> A. Terracc.	9	4	3	3	4	3	0
1048035	Liliaceae	<i>Gagea luberonensis</i> J.-M. Tison	8	7	3	3	4	3	0
1048036	Liliaceae	<i>Gagea peduncularis</i> (J. & C. Presl) Pascher	8	11	3	3	5	3	0
1048037	Liliaceae	<i>Gagea sicula</i> Lojac.	9	4	3	3	5	3	0
1048024	Liliaceae	<i>Gagea lojaconoi</i> Peruzzi	9	4	3	3	5	3	0

Annex 1. continued.

1074025	Liliaceae	<i>Fritillaria persica</i> L.	8	6	5	3	6	3	0
1074026	Liliaceae	<i>Fritillaria imperialis</i> L.	8	6	5	3	6	3	0
1072007	Liliaceae	<i>Lilium chalconoticum</i> L.	6	4	5	4	6	5	0
1113017	Asparagaceae	<i>Asparagus sprengeri</i> Regel	8	10	3	2	4	2	0
1113001	Asparagaceae	<i>Elide asparagoides</i> (L.) Kerguelén	5	7	5	5	8	6	0
1219002	Agavaceae	<i>Agave salmiana</i> Otto ex Salm-Dyck	11	10	2	2	X	2	0
1219003	Agavaceae	<i>Agave sisalana</i> Perrine	11	10	2	2	X	2	0
1219004	Agavaceae	<i>Agave vivipara</i> L.	11	10	2	2	X	2	0
1103003	Agavaceae	<i>Yucca aloifolia</i> L.	9	10	2	2	6	2	0
1103001	Agavaceae	<i>Yucca filamentosa</i> L.	9	10	2	2	6	2	0
1103002	Agavaceae	<i>Yucca gloriosa</i> L.	9	10	2	2	6	2	0
1086002	Hyacinthaceae	<i>Scilla luciliae</i> (Boiss.) Speta	5	6	5	6	7	6	0
1086004	Hyacinthaceae	<i>Scilla amoena</i> L.	5	6	5	6	7	6	0
1086010	Hyacinthaceae	<i>Chouardia litardierei</i> (Breistr.) Speta	7	7	5	3	5	5	0
1086027	Hyacinthaceae	<i>Prospero elisae</i> Speta	8	8	5	2	6	3	0
1086026	Hyacinthaceae	<i>Prospero corsica</i> (Boullu) J. M. Tison	8	8	4	2	6	3	0
1086023	Hyacinthaceae	<i>Prospero hierae</i> C. Brullo, Brullo, Giusso, Pavone & Salmeri	8	9	4	2	6	3	0
1086024	Hyacinthaceae	<i>Oncostema sicula</i> (Tineo ex Guss.) Speta	8	7	3	2	6	3	0
1086025	Hyacinthaceae	<i>Oncostema dimartinoi</i> (Brullo & Pavone) F. Conti & Soldano	10	9	3	1	6	3	0
1093803	Hyacinthaceae	<i>Brimeura amethystina</i> (L.) Salisb.	7	7	5	3	5	5	0
1093909	Hyacinthaceae	<i>Bellevalia pelagica</i> C. Brullo, Brullo & Pasta	10	10	3	2	6	3	0
1095010	Hyacinthaceae	<i>Muscari armeniacum</i> Leichtlin ex Baker	7	7	6	4	6	3	0
1095801	Hyacinthaceae	<i>Muscarimia macrocarpa</i> (Sweet) Garbari	7	7	5	4	6	3	0
1095802	Hyacinthaceae	<i>Muscarimia muscari</i> (L.) Losinsk.	7	7	6	4	6	3	0
1089043	Hyacinthaceae	<i>Stellarioides canaliculata</i> Medik.	8	11	5	2	5	3	0
1049003	Alliaceae	<i>Allium senescens</i> subsp. <i>montanum</i> (Fries) Holub	8	7	5	3	6	4	0
1049021	Alliaceae	<i>Allium fistulosum</i> L.	8	8	5	6	5	5	0
1049033	Alliaceae	<i>Allium moly</i> L.	8	8	5	6	5	5	0
1049144	Alliaceae	<i>Allium permixtum</i> Guss.	7	7	5	3	6	4	0
1049114	Alliaceae	<i>Allium vernale</i> Tineo	10	9	4	2	4	1	0
1049137	Alliaceae	<i>Allium francinae</i> Brullo & Pavone	11	9	4	3	7	1	0
1049153	Alliaceae	<i>Allium samniticum</i> Brullo, Pavone & Salmeri	8	8	4	3	6	5	0
1049151	Alliaceae	<i>Allium panormitanum</i> Brullo, Pavone & Salmeri	8	8	4	3	6	5	0
1049152	Alliaceae	<i>Allium pelagicum</i> Brullo, Pavone & Salmeri	11	10	4	3	7	1	0
1049143	Alliaceae	<i>Allium pentadactylifolium</i> Brullo, Pavone & Spamp.	8	8	4	3	6	5	0
1049161	Alliaceae	<i>Allium Iojaconoi</i> Brullo, Lanfranco & Pavone	11	9	4	3	7	1	0
1049141	Alliaceae	<i>Allium Iopadusanum</i> Bartolo, Brullo & Pavone	11	10	4	3	7	1	0
1049156	Alliaceae	<i>Allium garganicum</i> Brullo, Pavone Salmeri & Terrasi	8	8	4	3	6	5	0
1049133	Alliaceae	<i>Allium calabrum</i> (N. Terracc.) Brullo, Pavone & Salmeri	8	8	4	3	6	5	0
1049131	Alliaceae	<i>Allium apulum</i> Brullo, Guglielmo, Pavone & Salmeri	8	8	4	3	6	5	0
1049135	Alliaceae	<i>Allium dentiferum</i> Webb & Berthel.	11	8	4	3	6	3	0
1049149	Alliaceae	<i>Allium julianum</i> Brullo, Gangale & Uzunov	7	7	4	3	6	4	0
1049136	Alliaceae	<i>Allium diomedeanum</i> Brullo, Guglielmo, Pavone & Salmeri	11	9	4	3	7	1	0
1049140	Alliaceae	<i>Allium lehmannii</i> Lojac.	9	10	4	2	4	2	0
1049129	Alliaceae	<i>Allium agrigentinum</i> Brullo & Pavone	9	10	4	2	4	2	0
1049134	Alliaceae	<i>Allium castellanense</i> (Garbari, Miceli & Raimondo) Brullo, Guglielmo, Pavone & Salmeri	9	10	4	2	4	2	0
1049132	Alliaceae	<i>Allium garbarii</i> Peruzzi	9	10	4	2	4	2	0
1049147	Alliaceae	<i>Allium savii</i> Parl.	8	7	5	3	5	6	0
1049130	Alliaceae	<i>Allium anzaloni</i> Brullo, Pavone & Salmeri	7	7	6	3	6	5	0
1049075	Alliaceae	<i>Allium sativum</i> L.	8	8	5	6	5	5	0
1049146	Alliaceae	<i>Allium porrum</i> L.	8	8	5	6	5	5	0
1049138	Alliaceae	<i>Allium hemisphaericum</i> (Sommier) Brullo	8	9	5	2	6	2	0
1049157	Alliaceae	<i>Nothoscordum inodorum</i> (Aiton) Nicholson	10	9	4	2	4	1	0
1061001	Alliaceae	<i>Ipeion uniflorum</i> (Graham) Raf.	11	8	3	2	4	2	0
1176001	Amaryllidaceae	<i>Amaryllis bella-donna</i> L.	8	10	4	2	4	2	0
1185003	Amaryllidaceae	<i>Sternbergia sicula</i> Tineo ex Guss.	7	6	3	4	5	4	0
1174009	Amaryllidaceae	<i>Leucojum nicaeense</i> Ardoino	9	9	3	1	5	2	0
1172005	Amaryllidaceae	<i>Galanthus reginae-olgae</i> Orph.	5	7	4	5	7	7	0
1172003	Amaryllidaceae	<i>Galanthus elwesii</i> Hooker	5	7	4	5	7	7	0
1201036	Amaryllidaceae	<i>Narcissus etruscus</i> Parl.	8	8	4	4	5	4	0
1201004	Amaryllidaceae	<i>Narcissus papyraceus</i> Ker Gawl.	8	8	4	4	5	4	0
1201031	Amaryllidaceae	<i>Narcissus incomparabilis</i> Mill.	8	8	4	4	5	4	0
1201033	Amaryllidaceae	<i>Narcissus medioluteus</i> Mill.	8	8	4	4	5	4	0
1202003	Amaryllidaceae	<i>Pancratium linosae</i> Soldano & F. Conti	11	10	3	1	6	1	0

Annex 1. continued.

0980008	Xanthorrhoeaceae	<i>Asphodelus ayardii</i> Jahand. & Maire	9	8	3	2	3	5	0
1026004	Xanthorrhoeaceae	<i>Aloe vera</i> (L.) Burm. fil.	9	10	2	2	6	2	0
1026007	Xanthorrhoeaceae	<i>Aloe succotrina</i> All.	9	10	2	2	X	2	0
1259046	Iridaceae	<i>Crocus siculus</i> Tineo	8	8	6	4	6	4	0
1259047	Iridaceae	<i>Crocus livensis</i> Peruzzi & Carta	9	10	3	3	3	1	0
1259045	Iridaceae	<i>Crocus sativus</i> L.	6	8	3	3	6	2	0
1261013	Iridaceae	<i>Romulea bochierii</i> Frignani & Iriti	8	9	4	7	4	3	0
1261015	Iridaceae	<i>Romulea rosea</i> (L.) Eckl.	8	9	4	3	4	3	0
1316001	Iridaceae	<i>Freesia refracta</i> (Jacq.) Eckl. ex Klatt	7	9	4	3	6	4	0
1306001	Iridaceae	<i>Tritonia crocosmiiflora</i> (Lemoine) Nicholson	7	9	4	4	6	4	0
1311009	Iridaceae	<i>Gladiolus vexillaris</i> Martelli	9	9	5	3	5	3	0
1312001	Iridaceae	<i>Chasmanthe bicolor</i> (Gasp.) N. E. Br.	8	10	4	2	6	2	0
1264046	Iridaceae	<i>Iris unguicularis</i> Poir.	8	10	5	2	6	2	0
1264047	Iridaceae	<i>Iris lactea</i> Pallas	8	8	6	3	5	4	0
1264048	Iridaceae	<i>Iris orientalis</i> L.	8	8	6	3	5	4	0
1264049	Iridaceae	<i>Iris japonica</i> Thunb.	8	8	6	3	5	4	0
1264050	Iridaceae	<i>Iris tectorum</i> Maxim.	8	8	6	3	5	4	0
1264051	Iridaceae	<i>Iris perrieri</i> Simonet ex Fournier	7	7	6	2	4	1	0
1264041	Iridaceae	<i>Iris pallida</i> Lam.	7	7	5	3	4	3	0
1264044	Iridaceae	<i>Iris sambucina</i> L.	7	7	5	3	4	3	0
1264052	Iridaceae	<i>Iris squalens</i> L.	7	7	5	3	4	3	0
1264045	Iridaceae	<i>Iris setina</i> Colas.	8	9	5	2	6	2	0
1264037	Iridaceae	<i>Iris bicipitata</i> Colas.	8	9	4	2	6	2	0
1264053	Iridaceae	<i>Iris statellae</i> Tod.	8	10	4	2	6	2	0
1264031	Iridaceae	<i>Iris benacensis</i> Kerner	7	7	5	3	4	3	0
1264042	Iridaceae	<i>Iris relicta</i> Colas.	7	7	5	3	5	4	0
1264043	Iridaceae	<i>Iris sabina</i> N. Terracc.	8	10	4	2	6	2	0
1264036	Iridaceae	<i>Iris albicans</i> Lange	7	7	5	3	4	3	0
1404006	Orchidaceae	<i>Nigritella corneliana</i> (Beauverd) Gözl & H. R. Reinhard	8	3	4	4	7	3	0
1404007	Orchidaceae	<i>Nigritella widderi</i> Teppner & E. Klein	8	3	4	4	7	3	0
1404008	Orchidaceae	<i>Nigritella buschmanniae</i> Teppner & Ster	8	3	4	4	7	3	0
1396820	Orchidaceae	<i>Dactylorhiza elata</i> subsp. <i>sesquipetalis</i> (Willd.) Soó	8	5	3	9	4	1	0
1419002	Orchidaceae	<i>Neotinea commutata</i> (Tod.) R. M. Bateman	8	7	5	3	6	3	0
1399002	Orchidaceae	<i>Himantoglossum adriaticum</i> H. Baumann	7	9	4	3	6	2	0
1397015	Orchidaceae	<i>Serapias strictiflora</i> Welw. ex Da Veiga	11	9	4	3	4	2	0
1397012	Orchidaceae	<i>Serapias nurrica</i> Corrias	11	10	4	2	3	2	0
1397013	Orchidaceae	<i>Serapias politisii</i> Renz	11	10	4	2	4	2	0
1397014	Orchidaceae	<i>Serapias bergonii</i> E. G. Camus	10	8	5	3	4	2	0
1394035	Orchidaceae	<i>Ophrys subfusca</i> (Rchb. fil.) Batt.	8	9	4	3	6	3	0
1394021	Orchidaceae	<i>Ophrys mirabilis</i> Geniez & Melki	8	9	4	3	6	3	0
1394023	Orchidaceae	<i>Ophrys icolor</i> subsp. <i>maxima</i> (A. Terracc.) Paulus & Gack	8	9	4	3	6	3	0
1394024	Orchidaceae	<i>Ophrys tardans</i> O. Danesch & E. Danesch	8	9	4	3	7	3	0
1394025	Orchidaceae	<i>Ophrys argolica</i> H. Fleischm.	8	8	5	4	9	3	0
1394026	Orchidaceae	<i>Ophrys candica</i> (E. Nelson ex Soó) H. Baumann & Künkele	10	9	5	3	6	3	0
1394027	Orchidaceae	<i>Ophrys lacaitae</i> Lojac.	8	8	4	3	6	3	0
1394028	Orchidaceae	<i>Ophrys oxymyrmachos</i> Tod.	8	9	4	3	6	3	0
1394017	Orchidaceae	<i>Ophrys exaltata</i> Ten.	8	9	4	3	6	3	0
1394029	Orchidaceae	<i>Ophrys incubacea</i> Bianca	8	8	5	4	9	3	0
1394030	Orchidaceae	<i>Ophrys splendida</i> Gözl & H. R. Reinhard	8	8	5	4	9	3	0
1394031	Orchidaceae	<i>Ophrys sipontensis</i> R. Lorenz & Gemhardt	8	9	5	4	7	3	0
1394032	Orchidaceae	<i>Ophrys panattensis</i> Scrugli, Cogoni & Pessei	8	9	5	3	6	3	0
1394033	Orchidaceae	<i>Ophrys tarentina</i> Gözl & H. R. Reinhard	8	8	5	4	6	3	0
1394037	Orchidaceae	<i>Ophrys promontorii</i> O. Danesch & E. Danesch	8	8	5	4	7	3	0
1394052	Orchidaceae	<i>Ophrys aranola</i> Rchb.	8	8	4	4	9	3	0
1394051	Orchidaceae	<i>Ophrys benacensis</i> (Reisigl) O. Danesch, E. Danesch & Ehrend.	8	8	4	3	6	3	0
1394047	Orchidaceae	<i>Ophrys bertoloniiiformis</i> O. & E. Danesch	8	10	3	3	6	3	0
1394053	Orchidaceae	<i>Ophrys biscutella</i> O. & E. Danesch	8	8	5	4	9	3	0
1394048	Orchidaceae	<i>Ophrys calliantha</i> Bartolo & Pulv.	8	9	4	3	6	3	0
1394046	Orchidaceae	<i>Ophrys conradiae</i> F. Melki & R. Deschatres	8	9	5	3	6	3	0
1394050	Orchidaceae	<i>Ophrys crabronifera</i> Mauri	8	8	5	4	8	3	0
1394043	Orchidaceae	<i>Ophrys dinarica</i> R. Kranicev & P. Delforge	8	9	4	3	6	3	0
1394034	Orchidaceae	<i>Ophrys discors</i> Bianca	8	9	4	3	6	3	0
1394049	Orchidaceae	<i>Ophrys explanata</i> (Lojac.) P. Delforge	8	9	4	3	7	3	0
1394036	Orchidaceae	<i>Ophrys panormitana</i> (Tod.) Soó	8	8	5	4	7	3	0

Annex 1. continued.

1394042	Orchidaceae	<i>Ophrys tetraloniae</i> W. P. Teschner	8	9	4	3	7	3	0
1394041	Orchidaceae	<i>Ophrys tyrnena</i> Götz & H. R. Reinhard	8	9	4	3	6	3	0
1482011	Orchidaceae	<i>Epipactis meridionalis</i> H. Baumann & R. Lorenz	3	5	5	5	7	5	0
1482015	Orchidaceae	<i>Epipactis ioussa</i> Bongiorno, De Vivo, Fori & Romolini	2	5	4	6	8	6	0
1482016	Orchidaceae	<i>Epipactis autumnalis</i> Doro	3	5	6	5	7	5	0
1482017	Orchidaceae	<i>Epipactis zaupolensis</i> (Barbaro & Kreutz) Bongiorno, De Vivo & Fori	5	6	2	3	8	3	0
1482021	Orchidaceae	<i>Epipactis bugacensis</i> Robatsch	3	5	6	5	7	5	0
1482018	Orchidaceae	<i>Epipactis thesaurensis</i> Agrezi, Ovatoli & Bongiorno	7	6	2	3	5	3	0
1482012	Orchidaceae	<i>Epipactis persica</i> (Soó) Nannf.	4	6	5	4	X	4	0
1482014	Orchidaceae	<i>Epipactis greuteri</i> H. Baumann & Künkele	3	5	6	5	7	5	0
1482013	Orchidaceae	<i>Epipactis placentina</i> Bongiorno & Grünanger	7	6	2	3	8	3	0
1482019	Orchidaceae	<i>Epipactis savelliana</i> Bongiorno, De Vivo & Fori	5	6	2	3	8	3	0
1482020	Orchidaceae	<i>Epipactis flaminia</i> P. R. Savelli & Aless.	3	6	5	5	7	5	0
1482010	Orchidaceae	<i>Epipactis aspromontana</i> Bartolo, Pulv. & Robatsch	3	6	5	5	7	5	0
1483002	Orchidaceae	<i>Limodorum trabutianum</i> Batt.	4	7	5	4	8	0	0
1483003	Orchidaceae	<i>Limodorum brulloi</i> Bartolo & Pulv.	4	7	5	4	8	0	0
provv06	Orchidaceae	<i>Bletilla striata</i> Rchb.fil.	6	7	4	4	5	5	0
0530001	Arecaceae	<i>Trachycarpus fortunei</i> (Hook.) H. Wendl.	7	7	6	3	6	3	0
0528003	Arecaceae	<i>Phoenix dactylifera</i> L.	11	10	4	5	X	4	0
0528002	Arecaceae	<i>Phoenix canariensis</i> Chabaud	11	10	2	4	X	4	0
0049002	Typhaceae	<i>Typha domingensis</i> (Pers.) Steud.	8	7	5	10	6	7	0
0936043	Juncaceae	<i>Juncus valvatus</i> Link subsp. <i>valvatus</i>	7	7	4	8	6	5	0
0936061	Juncaceae	<i>Juncus minutulus</i> (Albert & Jahand.) Prain	4	7	5	6	4	1	0
0936028	Juncaceae	<i>Juncus ranarius</i> Songeon & E. P. Perrier	7	7	5	9	6	5	1
0937034	Juncaceae	<i>Luzula sicula</i> Parl.	4	4	4	5	2	3	0
0937035	Juncaceae	<i>Luzula divulgatiformis</i> Bacic & Jogan	7	2	5	7	4	3	0
0937037	Juncaceae	<i>Luzula alpina</i> Hoppe	7	2	5	7	4	3	0
0937036	Juncaceae	<i>Luzula expectata</i> Bacic & Jogan	7	2	5	7	4	3	0
0525006	Cyperaceae	<i>Carex vulpina</i> L.	7	4	6	7	3	4	0
0525008	Cyperaceae	<i>Carex vulpinoidea</i> Michx.	4	4	4	9	7	6	0
0525201	Cyperaceae	<i>Carex randalpina</i> B. Walln.	7	4	7	9	6	4	0
0525082	Cyperaceae	<i>Carex hordeistichos</i> Vill.	5	7	5	3	3	4	0
0525198	Cyperaceae	<i>Carex brevicollis</i> DC.	5	4	7	4	X	2	0
0525204	Cyperaceae	<i>Carex clavaeformis</i> Hoppe	7	5	5	6	8	X	0
0525203	Cyperaceae	<i>Carex praetutiana</i> Parl.	7	5	5	6	8	X	0
0468021	Cyperaceae	<i>Scirpus georgianus</i> Harp. R. M.	8	4	5	9	5	2	0
0468620	Cyperaceae	<i>Schoenoplectus carinatus</i> (Sm.) Palla	8	7	6	10	8	4	1
0468610	Cyperaceae	<i>Schoenoplectus juncoides</i> (Roxb.) V. I. Krecz.	8	7	5	11	7	5	0
0468503	Cyperaceae	<i>Isolopis pseudosetacea</i> (Daveau) Gand.	8	6	4	9	4	1	0
0469019	Cyperaceae	<i>Eleocharis pellucida</i> J. & C. Presl	8	6	5	10	3	3	0
0471001	Cyperaceae	<i>Fimbristylis bisumbellata</i> (Forssk.) Bubani	8	6	4	9	4	2	0
0471004	Cyperaceae	<i>Fimbristylis cioniana</i> Savi	8	6	4	9	4	2	0
0459031	Cyperaceae	<i>Cyperus badius</i> Desf.	8	7	5	11	5	5	0
0459035	Cyperaceae	<i>Cyperus dives</i> L.	8	8	3	9	5	6	0
0459010	Cyperaceae	<i>Cyperus involucratus</i> Rottb.	9	9	3	9	5	6	0
0459034	Cyperaceae	<i>Cyperus hamulosus</i> M. Bieb.	9	8	4	8	5	5	0
0459030	Cyperaceae	<i>Cyperus alopecuroides</i> Rottb.	8	8	3	9	5	6	0
0459038	Cyperaceae	<i>Cyperus brevifolioides</i> Thieret & Delahoussaye	7	7	5	10	5	5	0
0204009	Poaceae	<i>Phalaris hirtiglumis</i> (Trab.) Baldini	7	7	5	4	6	4	0
0204902	Poaceae	<i>Phalaroides rotgesii</i> (Husnot) Holub	7	7	5	4	6	4	0
0378057	Poaceae	<i>Poa perigularis</i> H. Scholz	8	8	4	2	4	1	0
0378038	Poaceae	<i>Poa timoleontis</i> Heldr. ex Boiss.	8	8	4	2	4	1	0
0385914	Poaceae	<i>Vulpia setacea</i> Parl.	8	9	4	2	4	2	0
0385601	Poaceae	<i>Ctenopsis gypsophila</i> (Hackel) Paunero	10	10	3	1	7	1	0
0387009	Poaceae	<i>Catapodium pauciflorum</i> (Merino) Brullo, Giusso, Miniss. & Spamp.	11	9	3	1	X	1	2
0387011	Poaceae	<i>Catapodium zwierleinii</i> (Lojac.) Brullo	11	10	3	1	X	1	2
0385915	Poaceae	<i>Vulpiella tenuis</i> (Tineo) Kerguelen	11	10	3	1	5	1	2
0385192	Poaceae	<i>Festuca luedii</i> (Markgr.-Dann.) Foggi, Gr. Rossi, Parolo & Wallossek	8	5	5	3	6	2	0
0385187	Poaceae	<i>Festuca pseudovariva</i> Vetter	9	2	5	3	3	2	0
0385193	Poaceae	<i>Festuca winnebachensis</i> (Wallossek & Markgr.-Dann.) Foggi, Gr. Rossi, Parolo & Wallossek	9	2	5	3	3	2	0
0385185	Poaceae	<i>Festuca melanopsis</i> Foggi, Gr. Rossi & Signorini	8	2	5	4	6	4	0
0385191	Poaceae	<i>Festuca rivularis</i> Boiss. subsp. <i>rivularis</i>	8	4	5	6	4	3	0
0385176	Poaceae	<i>Festuca alfrediana</i> Foggi & Signorini subsp. <i>alfrediana</i>	9	4	5	3	6	2	0
0385177	Poaceae	<i>Festuca austrodolomitica</i> Pils & Prosser	9	3	5	3	6	2	0

Annex 1. continued.

0385195	Poaceae	<i>Festuca plonkiae</i> Foggi & Signorini	9	2	4	2	3	2	0
0385181	Poaceae	<i>Festuca humifusa</i> Brullo & Guarino	11	10	5	1	6	2	0
0385194	Poaceae	<i>Festuca marginata</i> subsp. gallica (Hack. ex Charrel) Breistr.	11	6	5	1	6	2	0
0385113	Poaceae	<i>Festuca ovina</i> L.	8	8	6	3	8	3	0
0385190	Poaceae	<i>Festuca veneris</i> Gr. Rossi, Foggi & Signorini	11	8	5	2	6	2	0
0385188	Poaceae	<i>Festuca riccerii</i> Foggi & Gr. Rossi	8	3	4	3	4	2	0
0385182	Poaceae	<i>Festuca imperatrix</i> Catonica	9	2	5	3	6	2	0
0385180	Poaceae	<i>Festuca gamisansii</i> subsp. <i>aethaliae</i> Signorini & Foggi	9	4	3	3	6	2	0
0385183	Poaceae	<i>Festuca laevigata</i> Gaudin	9	2	5	3	6	2	0
0385178	Poaceae	<i>Festuca billyi</i> Kerguelen & Plonka	8	3	4	3	4	2	0
0385097	Poaceae	<i>Festuca arvensis</i> subsp. <i>costei</i> (St.-Yves) Auquier & Kerguelen	9	3	5	3	6	2	0
0385208	Poaceae	<i>Festuca bauzanina</i> (Pils) Arndt	8	6	8	3	6	2	0
0385160	Poaceae	<i>Festuca stricta</i> Host	8	4	5	3	6	2	0
0385198	Poaceae	<i>Schedonorus uechtritzianus</i> (Wiesb.) Holub.	9	8	5	6	8	6	0
0395008	Poaceae	<i>Lolium siculum</i> Parl.	8	8	5	4	X	6	0
0387010	Poaceae	<i>Desmazeria pignattii</i> Brullo & Pavone	11	10	3	1	X	1	2
0324002	Poaceae	<i>Sesleria leucocephala</i> (DC.) Deyl	9	2	4	3	8	2	0
0324032	Poaceae	<i>Sesleria pichiana</i> Foggi, Gr. Rossi & Pignotti	5	6	5	4	8	2	0
0324033	Poaceae	<i>Sesleria apennina</i> Ujhelyi	10	4	4	2	7	4	0
0324034	Poaceae	<i>Sesleria calabrica</i> (Deyl) Di Pietro	10	4	4	2	7	4	0
0402005	Poaceae	<i>Parapholis pycnantha</i> (Hack.) C. E. Hubb.	11	9	4	5	7	2	7
0402002	Poaceae	<i>Parapholis marginata</i> Runemark	11	9	4	5	7	2	7
0402003	Poaceae	<i>Parapholis filiformis</i> (Roth) C. E. Hubb.	11	9	4	5	7	2	7
0346014	Poaceae	<i>Koeleria australis</i> Kerner	11	7	6	3	7	1	0
0346015	Poaceae	<i>Koeleria calleri</i> (Domin) Ujhelyi	11	7	6	3	7	1	0
0346016	Poaceae	<i>Koeleria insubrica</i> Brullo, Giusso & Minissale	11	7	6	3	7	1	0
0346017	Poaceae	<i>Koeleria lucana</i> Brullo, Giusso & Minissale	11	7	6	3	7	1	0
0271926	Poaceae	<i>Trisetaria burnouffii</i> (Req. ex Parl.) Banfi & Soldano	8	9	5	8	8	6	0
0245004	Poaceae	<i>Gastridium phleoides</i> (Nees & Meyen) C. E. Hubb.	8	9	4	2	4	2	0
0273129	Poaceae	<i>Avenula adsurgens</i> subsp. <i>ausserdorferi</i> (Asch. & Graebn.) Sauer & Chmelitschek	8	3	5	7	4	4	0
0273214	Poaceae	<i>Helictotrichon petzense</i> Melzer	8	4	6	5	8	3	0
0275004	Poaceae	<i>Arrhenatherum sardoum</i> (Em. Schmid) Brullo, Minissale & Spampinato	8	5	4	5	7	7	0
0275005	Poaceae	<i>Arrhenatherum bulbosum</i> (Willd.) C. Presl	8	5	5	5	7	7	0
0275006	Poaceae	<i>Arrhenatherum nebrodense</i> Brullo, Minissale & Spampinato	8	5	5	5	7	7	0
0273018	Poaceae	<i>Avena lusitanica</i> (Tab. Morais) Baum	8	8	4	3	7	2	0
0273017	Poaceae	<i>Avena matritensis</i> B. R. Baum	8	8	5	3	7	2	0
0273005	Poaceae	<i>Avena saxatilis</i> (Lojac.) Rocha Afonso	8	8	5	3	7	2	0
0273016	Poaceae	<i>Avena wiestii</i> Steud.	8	8	5	3	7	2	0
0273003	Poaceae	<i>Avena longiglumis</i> Dur.	6	7	6	6	7	2	0
0273015	Poaceae	<i>Avena insularis</i> Ladiz.	9	8	5	3	7	2	0
0273012	Poaceae	<i>Avena byzantina</i> K. Koch	8	8	5	3	7	2	0
0273007	Poaceae	<i>Avena strigosa</i> Schreb.	8	7	6	5	6	6	0
0273001	Poaceae	<i>Avena clauda</i> Dur.	6	7	6	6	7	2	0
0242013	Poaceae	<i>Agrostis tenerima</i> Trin.	8	9	4	2	3	1	0
0242026	Poaceae	<i>Agrostis monteluccii</i> (Selvi) Banfi	11	8	4	2	6	2	0
0247015	Poaceae	<i>Calamagrostis corsica</i> (Hack.) D. Prain	7	3	4	5	8	3	0
0331003	Poaceae	<i>Arundo collina</i> Ten.	10	9	4	5	4	4	1
0383009	Poaceae	<i>Glyceria spicata</i> Guss.	7	6	5	9	5	5	0
0389037	Poaceae	<i>Ceratocloa carinata</i> (Hook. & Arnott) Tutin	8	8	5	2	5	3	0
0393011	Poaceae	<i>Brachypodium caespitosum</i> (Host) Roem. & Schult.	8	6	4	5	8	4	0
0393010	Poaceae	<i>Brachypodium genuense</i> (DC.) Roem. & Schult.	8	7	6	4	7	3	0
0411902	Poaceae	<i>Taeniatherum asperum</i> (Simonk.) Nevski	6	6	4	4	5	4	0
0410111	Poaceae	<i>Psathyrostachys juncea</i> (Fisch.) Nevski	8	8	5	5	5	5	0
0410002	Poaceae	<i>Hordeum distichon</i> L.	8	8	5	5	5	5	0
0405031	Poaceae	<i>Agropyron desertorum</i> (Fisch. ex Link) Schult.	11	7	5	5	7	7	3
0405032	Poaceae	<i>Elytrigia scirpea</i> (C. Presl) Holub	10	6	4	5	6	6	2
0405033	Poaceae	<i>Elytrigia obtusiflora</i> (DC.) Tzvelev	10	6	4	5	6	6	2
0405034	Poaceae	<i>Elytrigia sartorii</i> (Boiss. & Heldr.) H. Scholz	10	6	4	5	6	6	2
0405036	Poaceae	<i>Elytrigia acuta</i> (DC.) Kerguelen ex Carreras Martinez	11	7	5	5	6	7	3
0408009	Poaceae	<i>Triticum compactum</i> Host	8	8	5	5	5	5	0
0408007	Poaceae	<i>Triticum spelta</i> L.	8	8	5	5	5	5	0
0408003	Poaceae	<i>Triticum dicoccon</i> Schrank	8	8	5	5	5	5	0
0408006	Poaceae	<i>Triticum polonicum</i> L.	8	8	5	5	5	5	0
0408912	Poaceae	<i>Triticum biunciale</i> (Vis.) K. Richter	8	8	5	5	5	5	0

Annex 1. continued.

0408901	Poaceae	<i>Triticum speltoides</i> (Tausch) Gren. ex K. Richter	8	8	5	5	5	0
0209048	Poaceae	<i>Stipa eriocalis</i> Borbás	8	8	8	1	8	2
0209049	Poaceae	<i>Stipa etrusca</i> Moraldo	8	8	8	1	8	2
0209053	Poaceae	<i>Stipa veneta</i> Moraldo	9	7	7	1	8	1
0209047	Poaceae	<i>Stipa dasyvaginata</i> subsp. <i>apenninica</i> Martinovský & Moraldo	8	8	8	1	8	2
0209052	Poaceae	<i>Stipa oligotricha</i> Moraldo	9	9	7	2	8	2
0209007	Poaceae	<i>Stipa epilosa</i> Martinovský	8	8	8	1	8	2
0209046	Poaceae	<i>Stipa aquilana</i> Moraldo	8	8	8	1	8	2
0209050	Poaceae	<i>Stipa gussonei</i> Moraldo	10	9	7	2	8	2
0209801	Poaceae	<i>Amelichloa caudata</i> (Trin.) Arriaga & Barkworth	9	10	3	1	1	5
0209054	Poaceae	<i>Nassella fornicarum</i> (Delile) Barkworth	9	8	5	2	8	2
0209055	Poaceae	<i>Nassella hyalina</i> (Nees) Barkworth	9	8	5	2	8	2
0210005	Poaceae	<i>Piptatherum holciforme</i> (M. Bieb.) Roem. & Schultes	7	7	4	4	7	5
0210003	Poaceae	<i>Piptatherum paradoxum</i> (L.) P. Beauv.	7	7	4	4	7	5
0376002	Poaceae	<i>Schismus arabicus</i> Nees	10	11	5	3	7	4
0329001	Poaceae	<i>Cortaderia seloana</i> (Schult.) Asch. & Graebn.	8	9	5	6	5	6
0341011	Poaceae	<i>Eragrostis mexicana</i> subsp. <i>virescens</i> (J. Presl) S. D. Koch & Sánchez Vega	8	8	5	4	6	3
0341010	Poaceae	<i>Eragrostis franki</i> C. A. Mey. ex Steud.	8	8	5	4	6	3
0341015	Poaceae	<i>Eragrostis capillaris</i> Nees	8	8	5	4	6	3
0341014	Poaceae	<i>Eragrostis curvula</i> (Schrad.) Nees	8	8	5	4	X	3
0337002	Poaceae	<i>Diplachne fusca</i> (L.) P. Beauv. ex Roem. & Schultes	9	8	3	6	8	6
0337003	Poaceae	<i>Diplachne fascicularis</i> (Lam.) P. Beauv.	9	8	3	6	8	6
0337004	Poaceae	<i>Diplachne uninervia</i> (J. Presl) Parodi	9	8	3	6	8	6
0304003	Poaceae	<i>Eleusine tristachya</i> (Lam.) Lam.	10	8	4	2	7	2
0304002	Poaceae	<i>Eleusine coracana</i> (L.) Asch. & Gr.	10	8	5	2	7	2
0150001	Poaceae	<i>Zoysia matrella</i> (L.) Merr.	8	8	6	4	X	4
0208002	Poaceae	<i>Aristida longispica</i> Poir.	9	11	5	1	7	1
0193001	Poaceae	<i>Oryza sativa</i> L.	7	8	6	9	8	8
0166008	Poaceae	<i>Panicum philadelphicum</i> Bernh. ex Trin.	6	8	5	4	5	0
0166601	Poaceae	<i>Dichanthelium acuminatum</i> subsp. <i>implicatum</i> (Scribn. ex Nash) Freckman & Lelong	8	8	5	4	X	4
0166602	Poaceae	<i>Dichanthelium clandestinum</i> (L.) Gould	8	8	5	4	X	4
0166909	Poaceae	<i>Echinochloa microstachya</i> (Wiegand) Rydb.	8	8	5	9	6	8
0166805	Poaceae	<i>Digitaria violascens</i> Link	7	7	5	3	6	4
0161007	Poaceae	<i>Paspalum vaginatum</i> Sw.	11	9	5	3	6	8
0161008	Poaceae	<i>Paspalum exaltatum</i> J. Presl & C. Presl	10	8	5	4	6	8
0171008	Poaceae	<i>Setaria faberi</i> F. Herm.	7	6	5	4	6	7
0171009	Poaceae	<i>Setaria pycnocomia</i> (Steudel) Henr. ex Nakai	7	7	5	4	5	6
0171007	Poaceae	<i>Setaria adhaerens</i> (Forssk.) Chiov.	7	7	5	4	7	8
0171004	Poaceae	<i>Setaria italica</i> (L.) P. Beauv.	7	8	5	4	6	8
0174003	Poaceae	<i>Cenchrus longispinus</i> (Hack.) Fernald	9	9	0	1	X	1
0110001	Poaceae	<i>Miscanthus sinensis</i> Anders.	10	12	6	1	X	1
0111001	Poaceae	<i>Saccharum spontaneum</i> subsp. <i>aegyptiacum</i> (Willd.) Hack.	11	11	4	5	4	0
0111002	Poaceae	<i>Saccharum officinarum</i> L.	12	11	4	5	5	6
0134903	Poaceae	<i>Sorghum bicolor</i> (L.) Moench	8	9	4	6	6	8
0134004	Poaceae	<i>Dichanthium annulatum</i> (Forssk.) Stapf	11	10	5	2	6	3
0134703	Poaceae	<i>Bothriochloa laguroides</i> (DC.) Herter	9	7	4	4	4	4
0134602	Poaceae	<i>Hyparrhenia sinaica</i> (Delile) Llaurodó ex G. López	11	12	5	2	7	3
0424001	Poaceae	<i>Pleiblastus pygmaeus</i> (Miq.) Nakai	7	8	4	3	5	4
0424002	Poaceae	<i>Pleiblastus chino</i> (Franch. & Savat.) Makino	8	8	4	3	5	4
0424003	Poaceae	<i>Bambusa multiplex</i> (Lour.) Raeuschel ex J. A. Schultes & J. H. Schultes	8	9	5	5	4	6
0414003	Poaceae	<i>Pseudosasa japonica</i> (Sieb. & Zucc. ex Steudel) Makino ex Nakai	8	8	5	3	5	6
0417001	Poaceae	<i>Phyllostachys nigra</i> (Lodd.) Munro	8	7	5	3	5	6
0417002	Poaceae	<i>Phyllostachys edulis</i> (Carrière) Houz.	8	8	5	3	5	6
0417003	Poaceae	<i>Phyllostachys reticulata</i> (Rupr.) K. Koch	8	8	5	3	5	6
0417004	Poaceae	<i>Phyllostachys aurea</i> (Carrière) A. Rivière & C. Rivière	8	8	5	3	5	6
0417005	Poaceae	<i>Phyllostachys sulphurea</i> (Carrière) Rivière & C. Rivière	7	8	4	3	5	6
0417006	Poaceae	<i>Phyllostachys viridiglaucescens</i> (Carrière) A. Rivière & C. Rivière	8	7	5	3	5	6
0918001	Commelinaceae	<i>Zebrina pendula</i> Schnizl.	7	6	5	8	6	2
0911003	Commelinaceae	<i>Tradescantia albiflora</i> Kunth	7	6	5	8	6	2
0924002	Pontederiaceae	<i>Heteranthera limosa</i> (Sw.) Willd.	8	8	5	10	6	6
0924003	Pontederiaceae	<i>Heteranthera rotundifolia</i> (Kunth) Griseb.	8	8	5	10	6	6
0920001	Pontederiaceae	<i>Monochoria korsakowii</i> Regel & Maack	8	7	5	12	7	7
1363002	Cannaceae	<i>Canna glauca</i> L.	9	10	5	5	7	6
1363001	Cannaceae	<i>Canna indica</i> L.	9	9	5	5	7	6

