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Are Red Lists really useful for plant conservation? The New Red List of the Italian Flora in the perspective of national conservation policies

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Abstract

"The New Red List of the Italian Flora" includes all the Italian policy species and other species of known conservation concerns for a total of 400 *taxa*, 65% of which are threatened with extinction. The Red List is based on a huge georeferenced data-set useful for conservation purposes.

Keywords: *Endemic species, GIS database, IUCN protocol, Italy, policy species*

The New Red List of the Italian Flora in the perspective of national conservation policies

In line with the global strategy for plant conservation and the European strategy for plant conservation, the Italian national strategy for the conservation of biodiversity (MATTM 2010) declared the necessity to enhance the knowledge about the conservation status of the national flora in order to set up an effective conservation strategy by 2020. Rossi and Gentili (2008) highlighted the need of a national reliable list of plants deserving legal protection and focused the attention on the most recent International Union for Conservation of Nature (IUCN) Red List protocol as “starting point” to guide it. The IUCN Red Lists provide reliable tools to evaluate the extinction risk of species; IUCN criteria are clearly defined, scientifically sound, adaptable from global to local scale and based on quantitative data, which makes the Red Lists the most used assessment system all over the world (De Grammont & Cuarón 2006; IUCN 2012). To date, there have been attempts to define the conservation status of Italian species, but just for restricted geographical areas (Argenti & Lasen 2004; Wilhalm & Hilpold 2006; Cortini Pedrotti & Aleffi 2011), or taxonomic groups (i.e. Cogoni et al. 2012; Fenu et al. 2012; Nascimbene et al. 2012; Foggi et al. 2013) or on setting priorities among large number of endemic species (Bacchetta et al. 2012). The only comprehensive national Red List of threatened plants (Conti et al. 1992, 1997) is based on an older version of the Red List system, different from the current IUCN standards (IUCN 2012).

The first challenge of the agreement between the Italian Ministry of Environment for the Protection of Land and Sea (MATTM) and Italian Botanical Society (SBI) for a New Red List of the Italian Flora (Rossi et al. 2013a) was the choice of species to be first assessed. Target species selection was on *taxa* listed in the Habitat Directive 92/43 EEC and the Bern Convention annexes occurring in Italy (*policy species*, PS) on one side, while a screening process was conducted to add further *taxa* of conservation concern, not included in the aforementioned annexes (*non-policy species*, NPS). NPS were chosen among *taxa* endemic to Italy and/or species living in highly threatened habitats (e.g. wetlands and coastal habitats) with a documented decline in the last 30 years. More than 1500 vascular *taxa* and a short list of non-vascular *taxa* were identified and a further selection was made to obtain a “ready to use” list. Most of the assessments was made applying the IUCN criterion B, based on the extent of the range of geographical species. In particular, the area of occupancy of the species was assessed by counting the number of cells occupied by each *taxon* in a

2 × 2 km grid superimposed to a map of Italy in a Geographical Information System (GIS) (Gargano 2011).

To promote and improve non-vascular *taxa* conservation, 86 lichen and bryophyte entities were also assessed, of which 51 were PS and 13 were fungal species, in order to support the initiatives of the IUCN Species Survival Commission’s fungal and bryophyte specialist groups and the International Society for Fungal Conservation (Minter 2011). Such assessments were conducted by the relative specialistic working groups from SBI.

But, what does this Red List imply in a national conservation strategy? What is its role and how could it improve plant conservation in Italy?

Red Lists highlight the most pressing issues in biodiversity conservation, showing which *taxa* are closer to extinction (Cogoni et al. 2013).

Citing Mace et al. (2008), “there is an important difference between measuring threats and assessing conservation priorities”, Red Lists only allow to identify the species risk status, without establishing direct conservation priorities (Possingham et al. 2002; Bacchetta et al. 2012). In fact, Red Lists may be policy relevant, but they cannot be considered policy prescriptive (IUCN 2012; Bilz et al. 2011). Conservation priorities have to be set in a policy perspective and Red Lists can only provide suggestions.

“The New Red List of the Italian Flora” (Rossi et al. 2013a; www.governo.it/backoffice/allegati/71184-8693.pdf), including at the moment about 400 *taxa*, 65% of which identified as threatened with extinction, should provide a road map to implement a future national strategy for the conservation of plant biodiversity. A national law act, or a guide for the different regional laws (the administrative regions Sardinia, Sicily, Apulia, Marches and Piedmont are still currently lacking a regional law for the protection of the flora), might start from this Red List to compile priority lists for legal protection of species, but should also take into account other elements, such as distribution (e.g. endemic *taxa*) and potential economic value (e.g. Crop Wild Relatives; Keller & Bollman 2004; Bilz et al. 2011) and cost and feasibility of the conservation actions (Rodrigues et al. 2006).

Moreover, we stress that the establishment of protected areas or implementation of laws alone is not sufficient to prevent the loss of biodiversity (Heywood & Iriondo 2003; Stoll-Kleemann 2010), as confirmed by the percentage of threatened PS (45%) found in Italy and also in the European Union (Bilz et al. 2011).

Further active measures have to be studied and applied based on a systematic conservation planning approach (Margules & Pressey 2000). Efforts for

in situ and *ex situ* (e.g. conservation of germplasm in seed banks and cultivation in botanical gardens) conservation measures should be improved, both inside and outside protected areas (Rossi et al. 2012). In particular, translocations are likely to become very important for conservation in a changing climate (Sala et al. 2000; Godefroid et al. 2011; Rossi et al. 2013b). Moreover, since many threats will show their effects on plant species in the next decades (e.g. climate change, biological invasions and so on), long-term monitoring programmes have to be developed in order to show changes in the species conservation status (Balmford et al. 2003). In this context, the huge amount of data collected in this project represent a very important conservation data source, as a first georeferenced data-set equipped with distribution and trend information about the PS of the Italian flora. The data-set might support threatened monitoring and subsequent conservation actions (e.g. helping in the species periodic monitoring report specified by article 17 of Habitat Directive 92/43 EEC). Accordingly, many data included in the 2013 Italian report for the European Commission are derived from the Red List project. However, to make the database an effective tool in a rapidly changing world, we strongly recommend to frequently update it by a continuous flow of information from experts (Magurran et al. 2010).

We hope a rapid improvement of “the New Red List of the Italian Flora” with the assessment of all the NPS identified (at least 1500 vascular *taxa* and more threatened non-vascular *taxa*), as a first step towards the Red List of the whole Italian flora (about 15,000 *taxa*). Finally, an implementation at the biogeographical level would also be desirable for a better knowledge of plant conservation status (Gentili et al. 2010), not just depending on artificial administrative boundaries but also on effective transnational management policy species (e.g. Alps and Mediterranean area).

Hence, “the New Red List of the Italian Flora” represents just the starting point of a process of conservation of the national biodiversity and provides a powerful tool to support future management and legislative choices.

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