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Pueraria lobata in Europe: current and future potential spread of an alien species of union concern

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Pueraria lobata (Fabaceae), so-called "kudzu", is one of the 100 worst invasive species in the world. It is a perennial, semi-woody climber and crawling vine native to Asia and some western Pacific Islands. Kudzu has been exported all over the world with dietary, pharmaceutical, foraging, ornamental and habitat-restoring purposes. The downside is that kudzu, when uncontrolled, can be highly destructive for ecosystems and human activities. Its invasive range includes all continents, but the severity of its impact varies among countries. In USA, kudzu is the most devastating alien plant. In Europe, kudzu is considered a serious pest in Switzerland and Italy. The widest "hotspot" of presence of kudzu lies at the border between Italy and Switzerland (Maggiore and Lugano lakes). Kudzu is a species of European Union concern (Regulation (EU) No. 1143/2014), and Member Countries have the obligation to prevent its spread, to manage and, if possible, to eradicate it.

In order to understand the potential spread of kudzu in Europe and contribute to an effective management of the species, we investigated the climatic niche dynamics in its invasive range (niche expansion, stability and unfilling) and modelled its current and future potential distribution (Maxent). Analysis in the environmental space highlighted a low niche overlap between native and all invasive ranges, in line with high unfilling values, suggesting that kudzu could fill a widest niche. Currently niche filling seems to be affected by dispersal mechanism (natural and human mediated) and residence time. Also preliminary results in geographical space showed that kudzu occurs only in a limited part of its European present potential range. Future projections suggest a further potential expansion of kudzu throughout Europe. Then, in the future the role of Regulation (EU) No. 1143/2014, weakening the main dispersal vectors, will be fundamental in reducing its spreading favoured by climate change.

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An assessment of the impacts of invasive alien plants on habitats in Italy: first results from the ISPRA-SISV convention

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The EU Regulation 1143/2014 sets out rules to tackle the adverse impacts on biodiversity of invasive alien species within the Union. The regulation, *inter alia*, includes the possibility for the member state to establish a national list of invasive alien species. Toward the aim of a correct and effective implementation of legislation regarding the management of alien species on the national territory the Ministry of Environment, under the supervision of ISPRA, developed a large survey, conducted by botanist members of the Italian Society of Vegetation Science (SISV) and involving about 50 contributors from all Italian regions. The survey was aimed to the assessment of the impacts of invasive alien plants on habitats and vegetation in Italy, including information concerning the main mechanisms of impact and impact outcomes, given at the regional scale. The resulted data allows to pinpoint the current state of art concerning this topic, to highlight the main knowledge gaps and provide future hot topics to be further investigate.

Particularly the survey covered more than 230 species considered to be invasive in Italy, underlining competition as the main impact mechanism. Particularly *Ailanthus altissima* (Mill.) Swingle was assessed to exert impacts in all Italian regions, while other 20 species were reported to exert impacts on up to ten regions. As to the habitat worthy of conservation 83 out of 132 Habitat listed in the "Habitats" Directive (Dir. 92/43/EEC) are subjected to some degree of impact by alien plants. Forests resulted the most threatened habitat, followed by freshwater habitats, marine coastal habitats, dunal ecosystems and open grasslands.

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Rapid responses against invasive species on islands: lessons from the introduced Barbary ground squirrels in the Canary Islands

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Despite efforts to combat invasive species, further measures are still required to prevent their arrival and translocation, especially into island ecosystems, one of the most important biodiversity hotspots. Although governments worldwide have already set up full protocols to control alien species, the European outermost regions are still far from implementing effective prevention or rapid response procedures. The numerous translocations of the invasive Barbary ground squirrel (Atlantoxerus getulus) between the Canary Islands illustrate this situation. From 1996 to 2016, at least 2.1 individuals per year have been moved from Fuerteventura to other islands. If movements of these medium-sized vertebrates are taking place regularly, the number of smaller species transported within the archipelago could be much greater. We argue that it is urgent to implement stricter strategies in most of these remote biodiversity-rich islands to carry out effective invasive species prevention, early detection and rapid response to minimize their impact on native biodiversity