

Guidelines for handling invasive and potentially invasive plant species in botanical gardens

Verband Botanischer Gärten e.V.
&
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Preamble

- The botanical gardens in Germany and Austria are aware of the problems caused by invasive plant species². In the past, botanical gardens have contributed to the establishment of a few species that later became invasive³. So they bear a particular responsibility in handling invasive and potentially invasive plant species.
- Botanical gardens are most important partners for authorities dealing with the problems of invasive plants. They are well equipped to deal with prevention activities because of their horticultural and botanical knowledge as well as their large plant collections. They are able to contribute through practical experience as well as through scientific research to the identification of potentially invasive species and to develop management strategies based upon studies on the ecology of species.
- The publicity from botanical gardens raises awareness about the problem of invasive plants among the general population. The focus of this publicity is on education and prevention thus contributing to the prevention of further spread of invasive species.

¹ These guidelines were compiled in 2007/08 by the „Invasive Species“ working group of the Verband Botanischer Gärten e.V. (Association of German Botanic Gardens): Michael Kiehn (also representing the Austrian Botanic Gardens Working Group), Marianne Lauerer, Wolfram Lobin & Hartwig Schepker in cooperation with Frank Klingenstein, Bundesamt für Naturschutz (German Federal Agency for Nature Conservation). The guidelines became effective for all members in September 2008 after the final adoption by both the Association of German Botanic Gardens and the Austrian Botanic Gardens Working Group.

² Invasive species are defined as alien (non-native) plant species causing negative impacts on biological diversity, the economy or human health (see definition at www.neophyten.de).

³ Examples: The 1859 release of *Elodea canadensis* in nearby water bodies by the Botanical Garden in Berlin is seen as the starting point for the rapid spread of the species in the rivers Oder and Havel and their canal systems. *Impatiens parviflora* started spreading in 1837 from the Botanical Gardens of Dresden and Geneva.

Guidelines

1. **Distribution of plant material:** Botanical gardens should not distribute any plants, seeds, cuttings or other propagules of species from their collections that are known to be invasive or potentially invasive in their region nor any species for which a reasonable suspicion of invasive potential exists⁴. If the transfer should nevertheless be necessary, warning information⁵ should be added.
2. **Prevention:** For every species intended for planting in outdoor areas of a botanical garden and newly introduced to the garden's region the known or potential invasiveness of the species should be assessed⁶. When a species known to be invasive or potentially invasive in the garden's region has to be planted, for example for reasons of publicity or for research on the problems of its invasiveness, measures⁷ must be taken to prevent the escape of the species.
3. **Monitoring:** Alien species already growing in the garden and showing a noticeable spreading capacity spread as a sign of potential invasiveness should be monitored. The results should be made available to other botanical gardens, authorities and the public⁸.

⁴ To prevent further spread of invasive species the following databases can be used: invasive plant species in Germany/Switzerland/Austria: www.neophyten.de, www.cps-skew.ch and www.umg.at, invasive species in Europe: www.nobanis.org and www.aliens-europe.org, invasive species globally: "Global Invasive Species Database" www.issg.org/database.

⁵ An example of warning information: „You have obtained a plant that is considered invasive in Germany/Austria/Europe/...Please take the necessary security measures to prevent it from spreading in your garden or its surrounds. “

⁶ For your own garden think "is the species known to be invasive or potentially invasive" before accessing a new species. Support for this preventive measure can be obtained through the databases in footnote 4 or from expert advice from the German Federal Agency for Nature Conservation, the Umweltbundesamt (Austria) or the „Invasive species“ working group of the Verband Botanischer Gärten.

⁷ Examples of measures to be taken include the early removal of seeds, the prevention of rhizomes from spreading, preventing the species from escaping from the garden (woodlands, water bodies etc.). Furthermore, each garden could consider an evaluation of the long term prospects of newly accessed species before release into the outdoor areas (e.g. as student projects or theses).

⁸ In the garden first signs of spreading and invasive behaviour are most likely to be noticed by informed garden staff. These observations as well as possible results from "evaluations" (see ⁶) should be centrally collected and made available to other gardens, authorities and the public. Botanical gardens can be involved in the recording of potentially invasive species e.g. in externally funded projects. In garden areas comparable to native habitats, investigations can be carried out into the behaviour of non-native invasive and potentially invasive plants.

4. **Knowledge transfer:** Botanical gardens should inform their visitors, nurseries, trade associations and plant users about invasive species and their consequences and about the potential measures to prevent the introduction and spread of invasive species⁹.

5. **Management and control:** Species already present in the outdoor collections of a garden and known to be invasive in the region of the garden or for which invasive potential has been recognised in the garden should be prevented from spreading¹⁰ or, if possible, removed from the collections.

⁹ Potential activities include: guided tours, beds planted with examples of invasive species, brochures, field trips to localities with invasive plants near the garden, presentation of project results on the “evaluation” of potentially invasive species, advice for authorities.

¹⁰ Which measures to adopt depends on the particular botanical garden. Options include for example: a) regular control to prevent further spread, b) stop cultivation of the species after a fixed period or c) immediate complete removal. The effectiveness of measures taken to remove invasive plants or to prevent their reappearance should be documented and the reports made available for other gardens.