

The German Debate on Native Tree Production and Use®

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INTRODUCTION

Vilmorin is credited with the first testing of known-provenance pine tree seed sources around 1740: he needed a good source of timber for ships' masts. During the Industrial Revolution after the beginning of the 19th century wood was required in very large quantities, for example, to support shafts in the coal mining industry. Traditional felling of individual trees in forests was replaced with clear felling. As a result, forest tree nurseries were set up to supply saplings for reforestation.

In the middle of the 19th century the importance of seed source began to dawn on foresters. It took many years to ascertain that, for example, the so-called "Appel Pine" (named from the nursery of Conrad Appel, Darmstadt), which was grown from seed of southern French origin, was not suitable for Central Europe. In the late 19th and early 20th century *Alnus glutinosa* seed was collected in Belgium (Malines) from trees that were regularly pollarded for firewood — it was therefore easy to collect the seed. Trees from this seed were planted in many parts of Northern Europe and generally they did not establish well: Alder death was the result (<www.lwf.bayern.de/lwfbericht/42/kap-6.pdf>).

In the British Isles, many mistakes with provenance (seed source) have been made. In Ireland large tracts of land were, for example, planted with the so-called Lulu Island lodgepole pine (*Pinus contorta*) and are now described succinctly as being not suitable for Irish conditions (<www.agriculture.gov.ie/forestry/publications/irish_forest_species/LodgepolePine_low.pdf>). In Germany a seed producer was jailed for adding cheap acorns from Eastern Europe to "multiply" the quantity of a high valued German provenance.

The source of seed for forestry can be very restricted indeed. A good example is to be found in Norway spruce (*Picea abies*) for which there are 30 different regionally classified areas in Germany. For the Bavarian Alpine Region there are three official seed sources classified according to height above sea level: less than 900 m above sea level; between 900 m and 1300 m above sea level; above 1300 m. Foresters have long recognised that planting seedlings derived from lowland spruce do not survive in the higher mountains areas. There are similar regulations for some 25 species of forest trees in Germany.

The genetic differences between provenances of forest tree species are well documented. Differences in phenotype are not often perceived. There are very few studies on the values of autochthon plants in comparison to "foreign" genetic material. In one such study (Marzini, 1998) autochthon plants (named from the Greek: auto = self, chthon = earth, soil; natural habitat, aboriginal species) were regarded as superior to other provenances, but doubts exists as to the conclusions. Spethmann (1995) also found clear differences between, for example, Italian and Hannover provenances of *Acer campestre* and *Crataegus monogyna*, but not *Cornus sanguinea*.

In the amenity market in recent years it has become obvious that certain cultivars that were selected because of their ease in production have not always satis-

fied when planted out in the street. Classic examples are the *A. pseudoplatanus* cultivars 'Rotterdam', 'Negenia', and 'Erectum'. These cultivars may no longer be offered for sale in Upper Bavaria because they very quickly show stem damage that often leads to death. It is suggested that these cultivars came from stock that was not suited to the conditions in Bavaria.

For many years ecologists have been studying the variations between different populations of species of native plants. It is generally agreed that there can be very significant differences, which can have an effect the vitality of progeny, for example susceptibility to unfavourable climatic conditions, pests, and diseases, when planted in areas outside their local range. These ecologists turned their attention to the practice of planting native trees and shrubs in the open countryside. Of particular interest was the source of seeds for these plants.

SEED SOURCES FOR SOME SELECTED NATIVE PLANTS IN GERMANY

Seed collecting is very expensive. Seed of *C. mas* (Cornelian cherry) for the German market is almost all imported from Hungary and Russia. About 90% of *C. sanguinea* (common dogwood) is imported even though seed could be collected in Germany because the imported seed is much cheaper. *Corylus avellana* (hazel) seed comes mainly from southern Italy and Turkey. *Crataegus monogyna* (hawthorn) seed from Italy is preferred because it is less susceptible to mildew. *Rhamnus cathartica* and *R. frangula* seed is imported from south-eastern Europe. *Viburnum lantana* and *V. opulus* are cultivated from imported and German seed sources.

The source of most seed for planting in the open countryside has been imported for many years. Attempts have been made to indicate which plants are likely to have genetically different populations and which are likely to be more or less genetically similar (Schmidt and Krause, 1997).

THE BAVARIAN WAY

Some 15 years ago Bavarian nursery growers became aware of the discussion in scientific circles on the subject of autochthon plants. This interest was observed with some scepticism, perhaps with some amusement, by many nursery growers in Germany. However, a group of 14 Bavarian nursery growers have succeeded in getting their producer group officially recognised according to the Law on Structural Change in Agriculture (Marktstrukturgesetz). The Freestate of Bavaria has officially recognised "autochthon plants" as a product, which must be cultivated according to the strict regulations of the group. The seed must be collected in Bavaria and the plants must be cultivated there, too. The first certified plants were available in 2000. The authorities are giving full support to the nursery growers. For public plantings in the open countryside autochthon plants are recommended by the Ministry of the Environment, the Ministry of Agriculture and Forestry, and by the Ministry for Home Affairs of Bavaria. More and more requests for tenders demand autochthon plants and 100,000 autochthon plants are now available (<<http://www.autochthon.de7vorrat.htm>>).

The Debate. Now that millions of autochthon plants are being cultivated according to the regulations of the Bavarian producer group, and other groups are being set up in different German states, many nursery people in the traditional growing centres are up in arms at these practices. They view the Bavarian Way as a threat

to their existences. The German Nurserymen's Association (BdB) considered taking legal action to question the legality of the Bavarian practice. This would have been very unusual because the Bavarian Nurserymen's Association, a part of the federal BdB, fully supports the Bavarian producer group.

Major producers of plants for the open countryside and some individual state nurserymen's associations (e.g., Schleswig-Holstein, Pinneberg, Saxony, Weser-Ems, and Oldenburg) have joined together to try and get legal clarification on this matter.

A 42-page legal expertise for this group suggests that the Bavarian Way is contrary to German and E.U. law for these key reasons:

- Bavaria should not recognise autochthon plants because they are not mentioned in the German law to protect nature. The law only refers to species not local populations. **Bavarian answer:** At the United Nations Conference on Environment and Development in 1992 it was agreed that the protection of bio-diversity should be a matter of utmost importance for mankind. Furthermore, the importance of local races has been clearly indicated by the laws regulating the supply of saplings for reforestation.
- Local subspecies, or varieties, would be permissible if they are independently taxonomically classified. In other words a specific native seed source can be accepted only if it has a taxonomic name. **Bavarian answer:** The E.U., German, and Bavarian laws can be interpreted in different ways.
- The Bavarian and Baden-Württemberg recommendation that autochthon plants should be used in built-up areas is not lawful. **Bavarian answer:** German environmental protection law relates to the open countryside but the Bavarian nursery people go further to protect the genetic population of the region.
- The law governing tenders is contravened in a number of points because only plants produced by the producer group are permitted for tendering. **Bavarian answer:** Any further group of nursery people in the E.U. can set up a certification system as done by the Bavarians and compete openly in the market. They would welcome such a move so as to seriously establish autochthon plants as the norm for all plantings in a region.

The BdB has agreed to support a study on the questions regarding autochthon plants under the guidance of Prof. Jesch, at Humboldt University, Berlin. The matter has now become a wrangle of legal questions in which the lawyers, at least, should do well. Many different laws are concerned in the meantime.

The long-term concern of many growers in the main nursery stock production centres of Pinneberg and Weser-Ems-Oldenburg is that in future large native trees and shrubs might be subjected to the same rules of cultivation as for smaller trees and shrubs for the open landscape. There is an agreement within the BdB at the moment that autochthon trees of larger grade than twice transplanted should not be demanded in tenders and that autochthon trees should not be demanded in built-up areas.

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The Role of Propagation in Conserving Endangered Endemic Plants of the Virgin Islands[©]

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INTRODUCTION

In the last 5 years, a number of plant species in need of conservation attention have been identified in the British Virgin Islands (BVI). *Zanthoxylum thomsonianum* (Rutaceae), *Calyptanthus thomasiana*, and *C. kiaerskovii* (Myrtaceae), which grow in Gorda Peak National Park, on Virgin Gorda, are particularly in need of help. *Cordia ruplicola* (Boraginaceae) is also of great interest. It was discovered on Anegada Island after being thought to only exist in Puerto Rico.

Calyptanthus thomasiana and *Z. thomsonianum* are also known to exist in the United States Virgin Islands (USVI) but with few known individuals they are vulnerable. Most of the individuals of *C. thomasiana* are found in protected areas of the United States National Parks Service; however, this is not the case for the majority of *Z. thomsonianum*.

A survey was necessary to determine the conservation status of these species on the islands. The evaluation of the plants and their habitats would include propagation potential, current threats, and population diversity.

The project, undertaken as part of my 3-year Diploma Course at RBG Kew, was based on assisting the J.R. O'Neal Botanic Garden, Road Town, Tortola, BVI, with nursery and propagation techniques and with field research focusing on the above mentioned plants on the islands of Tortola, Virgin Gorda, and Anegada. The work in the USVI was limited to meeting with conservationists and viewing plants in the wild and in cultivation. This would be the focus of the first leg of the trip in the hope that it would enable me to perform the work in the BVI more effectively.

UNITED STATES VIRGIN ISLANDS

The first island visited was St. Croix, 132 km² in area and the largest of the USVI. There are two towns, Christiansted and Frederiksted, rich in the history of the Danish West Indies.

The island is home to St. George Village Botanic Garden. Built on the grounds of a ruined sugarcane plantation, the garden currently encompasses 6.5 ha. The collection contains over 800 tropical plant species. One of the most noteworthy areas of the garden is the collection of West Indian endangered plants, which includes the only cultivated individual of *Z. thomsonianum* observed on the trip. Visiting the gar-

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