

The Millenium Seed Bank and Wakehurst Place

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On May 21, 2003, a large group of IDS members met for a day tour of the Millenium Seed Bank and garden at Wakehurst Place, Sussex.

Wakehurst has an ancient history, and records date back to 1205, when William de Wakehurst bought some 40 acres of land from Philip de Crauele (Crawley). Gerald Loder acquired it in 1903 and planted prodigiously. It was then bequeathed to the National Trust, who leased it to MAFF in 1965, and it is now funded and managed by RBG Kew.

We first enjoyed a tour of the Seed Bank with Roger Smith, OBE, who is in charge of it. He explained that the Millenium Seed Bank project (MSBP) is an international global conservation project, conceived, developed and managed by the Royal Botanic Gardens at Kew. The two principal aims of the programme are:

- To collect and conserve 10% of the world's seed-bearing flora (some 24,000 species) by 2010.
- To develop bilateral research, training and capacity - building relationships worldwide. MSBP partners are W. Australia, Burkina Faso, Botswana, Chile, Egypt, Jordan, Kenya, Lebanon, Madagascar, Mali, Malawi, Mexico, Namibia, Saudi Arabia, South Africa, USA.

The importance of seed banks

The world flora is the sum of each continent's evolutionary history; conifers, for example, are pre-Triassic, dating back 200 million years or more. The human population is expanding (the United Nations predicts an increase of 50% over the next 400 years) and in the meantime 584 plant species have been recorded as extinct (this has happened 70 times faster than expected), 140,000 square km of moist tropical rainforests are deforested annually under external economic pressure and in areas such as the Cape the flora is threatened.

Not all seeds, particularly those from moist tropical forests, can be successfully banked. For example *Prunus africanus*, used as a medicinal treatment for prostate cancer, cannot unfortunately be stored, and many species, notably oaks, cannot be stored because of their dessication sensitivity.

Longevity of storage depends on initial quality, moisture content and storage temperature. 80% of seeds should live for 200 years and 30% for a thousand years. In phase 1 (1997-2000) 90% of the UK flora was

collected.

Phase 2 aims to collect 10% of the world flora, principally from dry lands. Since August 2000, about 180 collecting expeditions have been undertaken, in partnership with 16 countries. Half the seed collected is retained in the country of origin, and half stored in the UK (the collection at Wakehurst has a back-up near Edinburgh).

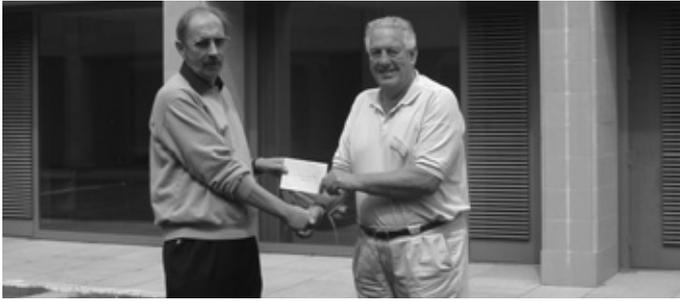
Several interesting points were discussed, including the possibility of the seed deteriorating. It was explained that the Seed Bank does not halt ageing completely, it merely slows the process. There are currently some 4-5000 jars stored in a bomb-proof vault which we visited - it was extremely cold (-18°)!

At the end of the morning we stepped out of the elegant modern building, stopping outside the entrance to view some of the eight different plantings in the area. These show plants in their different habitats - for example shifting shingle plants for beaches (*Daucus carota*, *Crambe maritima*, *Glaucium flavum*, *Lathyrus japonicus*, *Vicia lutea*) for precarious cliff faces (*Armeria maritima*, Thyme, *Ononis reclinata*) and chalk downland (*Polygala vulgaris*, *Primula veris*, *Pulsatilla vulgaris*).

After a delicious lunch we divided into two groups (one led by David Harman, Head of Collections, and the other by Iain Parkinson) for a tour of the garden itself. Wakehurst holds the National Plant Collections of *Betula*, *Hypericum*, *Nothofagus* and *Skimmia* and we saw many choice specimens of all four genera. Bethlehem Wood, where we saw a splendid specimen of *B.alleghaniensis*, is regarded as having the most comprehensive collection of *Betula* anywhere, and has been awarded scientific status by the NCCPG. (Incidentally, I was interested to see that the *Proceedings of the IDS Betula Symposium of October 1992* was taken as a source for the information leaflet!).

From *Betula* we passed on to *Nothofagus*, and were especially interested to see *N.moorei*, which has been grown from seed (see article on p.131-135). There is a splendid collection of *Nothofagus* in Coates Wood, an area of the garden which had been hit by the storms in 1987, which has about 15 of the 19 species found in S.America, Australia, New Zealand, Tasmania and the highlands of New Caledonia and New Guinea. Many are not considered to be hardy in the UK, but *N.antarctica*, *N.betuloides*, *N.cunninghamii*, *N.dombeyi*, *N.fusca* (very large), *N.glauca* (very attractive pink bark), *N.gunnii*, *N.hirsuta*, *N. x leonii*, *N.obliqua*, *N.moorei* and *N.solanderi* are all represented.

Also of interest were *Cornus mas*, *Davidia involucrata* var. *vilmoriniana*, *Drimys winteri*, *Eucryphia cordifolia*, a *Parrotia persica* of exquisite shape,



Charles Notcutt handing over a cheque (£1,000) to Roger Smith, for the Seed Bank

Drimys winteri, *Eucryphia cordifolia*, a *Parrotia persica* of exquisite shape, *Pinus thunbergii*, and, near the bog garden, an absolutely hardy *Phillyrea latifolia*.

In the Loder Valley Nature Reserve plants are conserved in their natural habitat. The 60 ha reserve encompasses three main habitats - woodland, wetland and meadowland - and includes production of charcoal in a special kiln.

We had a final view of more wonderful plants, including *Cardiocrinum giganteum* and *Meconopsis betonicifolia*, trees, including *Quercus robur* 'Atropurpurea' and *Pterocarya insignis* and wild orchids such as *Dactylorhiza fuchsii*, before taking our leave.

ACKNOWLEDGEMENTS

A wonderful day, full of variety and interest, and very well organised. Thank you very much to Roger Smith and Iain Parkinson, to David Harman and to Sara Moss, and all those unnamed who were involved in our arrangements, and in particular to Jo Earle, who took so much trouble to give us such a special day.

PARTICIPANTS

Mrs A.Allard (UK), Mr & Mrs D.Bishop (UK), Mrs E.Bonn (CI), The Lady Brownlow(CI),Mrs J.Carr (UK), Mrs A.Corcoran(Ire), Mrs J.Cory (UK), Mr J.d'Arcy(UK), Ms M-C de Laubarede (UK),Vicomte P. de Spoelberch (B), Sir David Davies (Ire), Viscountess Dungarvan (UK), Mr & Mrs RG Earle (UK), Mrs MAG Fenston (UK), Mr P Forde (N.Ire), Mr D Gilliland (N.Ire), Mr & Mrs C.Gurney (UK), Dr & Mrs R.Hayter (Aus), Admiral & Mrs R.Holley (UK), Mrs L.Kingsbury-Joll (UK), Mrs S.Lea (CI), Mr C.Notcutt (UK), Mr & Mrs J.Paton (UK), Mr F.Picard (F), Lord Rees (UK), Mrs A.Richards (UK), Viscount Ridley (UK), Lady Roberts (UK), Mr & Mrs M.Ryan (UK), Mrs J Speare - Cole (UK), Mrs H.Tupper (UK), Mr RT Whiteley (UK).

Further Information

An article on the Millenium Seed Bank, by Clare Tenner, the International Programme Officer of the Seed Conservation Dept at Wakehurst, appears on pp.91-94 of *Curtis's Botanical Magazine*, Vol 21. 2004.

An illustrated article on *Betula lenta f.uber*, by Hugh McAllister and IDS member Kenneth Ashburner, appears on pp.54-60 of *Curtis's Botanical Magazine*, Vol 21. 2004.

More information is available on the Seed Information Database at www.rbgekew.org/data/sid