assembled by freelance writer Brian Mackrell at the instigation of Director General Alan Familton during the Forest Service's final year. This material has been revised and supplemented by former Forest Service staff John Halkett and Peter Berg. They have also written an historical outline of the natural and social heritage which the Forest Service has bequeathed the nation.

The text is complemented by more than 100 black and white photographs which portray the people, places and activities of the Forest Service.

This book is not intended to be a formal history, but rather an attempt to show the human face and range of activities performed by the Forest Service.

"Tree People" will be a limited edition publication and will be sold largely by way of a discounted pre-publication offer.

John Halkett and Peter Berg sorting out photographs for "Tree People".

Paulownia – its potential role in NZ agroforestry

Tony Firth

China is the home of *Paulownia*. Many of its people live a rather drab existence through economic necessity but they do enjoy a good festive occasion and love colour. A common saying amongst the people, who are largely restricted to one child per family, is that if you are unfortunate and are blessed with a daughter rather than a son, plant a *Paulownia* tree. This single tree will eventually pay for a good wedding with trimmings and provide a dowry as well. Meanwhile it will provide colour with its beautiful flowers, nectar for the beehives and food for the animals to eat. That of course is in China, with its distinct continental climate with cold dry winters and hot wet summers, making it ideal for a deciduous species. Under these conditions, *Paulownia* fits well into the "Forest Net" shelter system and "Four Side" (open grown) agroforestry pattern or for city avenue, canal bank or boundary plantings so common in China. Professor Zhu Zhaohua, *Paulownia* Project Leader, China Academy of Forestry, Beijing, sees a rapidly increasing use of the genus for the area to the south east of a line between Beijing and Tibet, at altitudes from 500 m to 2000 m. It has high tolerance to cold winter conditions whilst in its dormant leafless state and can reputedly withstand – 10°C to –20°C frosts, dependent on species, of which nine are currently recognised.

Professor Zhu Zhaohua with nine-year *Paulownia elongata* in Beijing.

Paulownia timber of a quality acceptable to the Japanese market is very valuable. In Hunan Province we were shown a small log 4 metres long with mid-length diameter of 25 cm. This, we were told, was worth 600 Yuan or equal to a scientists's salary for two months and this from a 12-year-old tree. Site fertility, as seen, was never particularly good – yet 16-year-old trees had diameters approaching 40 cm. Wood density of *Paulownia* species is low, ranging between 250 kg/m^3 and 300 kg/m^3. It seasons well, is highly stable, peels well and produces an excellent finish with a silky feel. Utilisation appears extremely broad, ranging from construction to musical instruments, but with strength restrictions due to its low density.

The preferred method of growing this genus to timber size is to concentrate on producing a 4-6 m butt log in the nursery, where plants are set at roughly 1 m x 1 m spacing, regularly watered and fertilised, with the aim to produce a 4-6 m pole without branches. These are root pruned and dug out just prior to leaf fall for outplanting at wide spacing, ranging from 50 to 200 stems per hectare, dependent on land utilisation type. Trees planted in this fashion apparently do not suffer mortality or stability problems but lifting and planting must be time-consuming. This method, however, ensures a butt log free of knots from the time of planting.

What do we know of the performance of *Paulownia* in New Zealand? There are many specimen type trees from a variety of species. Most are poor examples compared to the good potential form of this genus. Climatically, we are subject to unstable weather conditions, largely with year-round rainfall and rapid fluctuation of temperature. Unseasonal frosts are common to many parts of the country. Agroforestry in New Zealand implies not undercropping but pastoral forestry involving cattle, sheep and goats. Unfortunately the palatability of *Paulownia* to stock is well known and would necessitate protection of both bark and foliage. Unseasonal frosts occurring after the spring flush could also create problems, dependent on location or topography. Wind stripping of foliage would be an additional problem in exposed situations. (It should be borne in mind that high winds in China occur during the winter whilst *Paulownia* trees are leafless.)

Compared with radiata pine, which we now know extremely well, *Paulownia* is virtually an unknown quantity. However it appears to be an attractive possibility and, being a high-valued specialised species, fills a totally separate market niche. More information is required before we can say that we fully understand the capabilities of this genus in New Zealand.

The introduction of a genus into a new environment requires answers to a number of questions.

- Which *Paulownia* species is the most suitable for different site types?
- Are there provenance or population differences which may be exploited?
- What magnitude of clonal variation exists within species, provenances and families?
- Are clones stable over different environmental conditions?
- Is clonal material selected under entirely different selection pressures suitable for NZ conditions?
- Is the genetic base introduced into NZ adequate to cope with possible future disease or insect pests?
- Will timber quality be acceptable to the Japanese market?

Paulownia, with its excellent coppicing ability and simplicity of repropagation by root cuttings, is an excellent species for a clonal improvement programme. Winners, however, cannot be identified without adequate (and costly) clonal testing.

Justification for a research programme into *Paulownia* will depend on its perceived role in New Zealand agroforestry, which in turn can probably best be identified by a survey of existing plantings by species performance and site classification.

Three seedlots from the Chinese improvement programme have recently been gifted to the Rotorua Forest Research Institute for distribution.

1. *P. fortunet,* white flowering variety, preferred as a timber producer, Hunan Province, mix of seven selected clones.
2. *P. fortunet,* blue variety, Hunan province, three clone mix, selected for flower and wood production.
3. *P. fargesti,* Longli, Guizhou, 12-clone mix. Preferred species for high-altitude planting in Guizhou Province.

The above seed has been allocated to G. Rogers, FWE, Ilam; W. Brown, FRI Nursery, Rotorua and I. Nicholas, FRI, Rotorua (member – Paulownia Action Group). The gift implies that this material be distributed as widely as possible, with potential for selection and clonal testing at some later date.

The new Husky Hunter

The new Husky Hunter 16, a successor to the Husky Hunter that is widely used for mensurational, log-scaling and log-making applications in plantation forestry in New Zealand, is now commercially available. The very rugged Hunter is a CP/M based machine, but the Hunter 16, while retaining an ability to withstand all sorts of mishandling, is compatible with IBM PC hardware and operates on a MS DOS version 3.3 system running on a 16 bit NEC V25 micro-processor at 8MHz.

The unit, as shown in the accompanying photograph, measures 216 x 156 x 32 mm, weighs 1.3 kg and offers up to 2.2 Mbytes of on-board RAM. Software can be loaded through one of two RS232 ports.

Further information is available from:

Actronic Systems Ltd
P.O. Box 9341
AUCKLAND

Phone (09) 520-4998 or 524-8819
Fax (09) 524-7623

ELMIA WOOD 91

Once again the Elmia Wood team and the Swedish forest industry is combining to mount the great biennial forest expo in southern Sweden.

The 1991 event (May 27-31) will focus more than ever on the growing international market for forest management technology in methods, expertise and equipment. To deliver this international theme Elmia Wood 91 will be conducted as a number of short specialist study tours and workshops (full English language option), instead of the usual major standing show.

The highly successful Scandinavian system of forest technology development will be a central feature, with its "creative triangle" of close interaction between manufacturing, research and silviculture. The great potential for international extension of Scandinavian systems will be explored. Specific subjects to be addressed at Elmia Wood include: forest mensuration, thinning, clearfelling, policy development, ecology and training.

With the imminent great expansion in New Zealand wood production, further development of our forestry technology is ever more vital. First-hand observation of the very advanced systems developed by our Scandinavian colleagues is a step in this process.

Following the successful tour venture in 1989, a group tour is planned to visit Elmia Wood 91. In addition to full coverage of the expo, it is planned to visit Norway (especially for steepland harvesting) and Finland.

Your inquiries are welcome, to:
Elmia Wood 91 Tour,
c/- P.O. Box 1070, WELLINGTON.
or ring Project Organiser, Kevin Jamieson (04) 781-165.