

**Ages of six kahikatea (*Dacrycarpus dacrydioides*)  
seedlings from Whataroa, South Westland.**

Report to Science and Research Division, Department of Conservation,  
Wellington.

R.P. Buxton, Landcare Research, Lincoln

24 March 1994

ISSN 1171-9834

© 1994 Department of Conservation

Reference to material in this report should be cited thus:

Buxton, R.P., 1994.

Ages of six kahikatea (*Dacrycarpus dacrydioides*) seedlings from Whataroa, South Westland.

*Conservation Advisory Science Notes No. 83*, Department of Conservation, Wellington. 2p.

Commissioned by: Science & Research Division  
Location: NZMS

---

## 1. Brief

---

Susan Timmins (DoC, S & R) requested Landcare Research to age six seedlings of kahikatea (*Dacrycarpus dacrydioides*) collected from her study site near Whataroa on 7 February 1994, to provide information on the regeneration rate of this species after the exclusion of stock.

---

## 2. Method

---

The seedlings were placed in a refrigerator, where they remained fresh, with green leaves, until they were examined on 23 March 1994. Seedling stem height and diameter at the base were recorded. A section of stem was cut at the base of each seedling using a sharp razor blade. The larger stems were sanded with progressively finer paper up to 1000 grit to enable clear definition of the growth rings; on small stems this was achieved by careful sectioning with a blade. Growth rings were counted using a dissecting microscope with up to 50X magnification. Due to the small size of the stems relative to the number of growth rings, several counts were made on each to confirm their age.

---

## 3. Results

---

The height, diameter and age of each seedling is recorded below. In most samples there were incomplete rings, some of which may have been false rings. Where this was unable to be determined, a range is given. Hand sections examined under a compound microscope offered little additional clarity, and to obtain sections using a microtome would have involved more time than the contract permitted.

Seedling	Height (cm)	Diameter (mm)	Age
1	40	7.0	23-25
2	41	5.0	22
3	83	9.0	26-28
4	23	2.0	12-13
5	25	2.5	12-14
6	28	5.0	17

Mean annual height increment was 2 cm, and mean radial increment 0.125 mm/year.

---

## **4. Discussion**

---

The linear relationship between diameter and age of the seedlings suggests ring formation has been annual. However, the very slow growth rates (mean annual height increment of 2 cm) suggest suppression, probably by canopy shading. Beveridge (1973) showed naturally regenerated kahikatea seedlings had an annual height increment of 8 to 10 cm, compared with less than 3 cm in seedlings suppressed by regenerating hardwoods. It appears that the growth of hardwood species at this site, since exclusion of stock by fencing, has been sufficient to suppress the growth of kahikatea seedlings.

---

## **5. References**

---

Beveridge, A.E. 1973: Regeneration of podocarps in a Central North Island Forest. *N.Z J. For.* 18(1): 23-35.