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Canary Island Pine

– A candidate species for climate change adaption in Australia

The Canary Islands

- Varied habitats influenced strongly by trade winds and rain-shadow effects.
- Rainfall varies from 300mm to more than 1,500mm per annum.
- Mean annual temperature range from 12 degrees to 18 degrees. Very similar to southern Australia.

Canary Island Pine in Australia

- Planted in arboretums and test plots.
- Growth rates are much lower than radiata pine.
- Interest has increased with observations of fire survival.

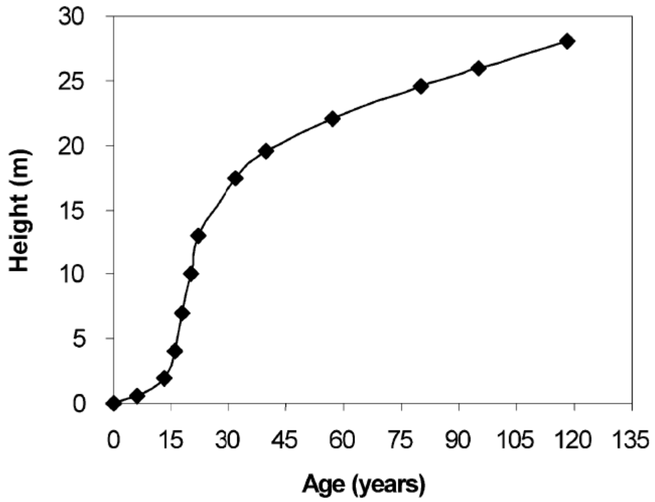

Figure 2. Typical height growth curve for an aged individual of *Pinus canariensis*. Rapid height growth takes place between 15 and 30 years and slows approximately coinciding with the onsets of heartwood formation and cone bearing.

Fire Adaptions 1

- Epicormic resprouting after fire and complete defoliation.
- Thickened xylem resists cavitation and “ring barking” during fire.

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Only a small amount of *pinus radiata* in the plantation appeared to be coppicing.

Coppicing is usually seen with native trees.

The great coppice conundrum

By Peter Carr

A recent and seemingly unheard of discovery of *pinus radiata* coppicing following a fire has piqued the interest of some of our foresters.

Operations Officer Hal Chambers stumbled across the find in a small area of pine after the fire in the Mundaring plantations earlier this year.

"I've asked several other foresters if they've ever seen anything like it, and every single one of them have said that they haven't," Hal said.

Coppicing usually occurs with native trees following a fire, which is why it's so unusual for it to be found occurring in a pine tree.

"I also asked some of the contractors from New Zealand if they'd ever seen pine do it before, and they hadn't either," Hal said.

Even a google search doesn't bring up any examples, which is why we want to open it up to the rest of the FPC and ask, have you ever seen pine coppicing?

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Fire Adaptions - 2

- Resprouting from stump.
- Could be cut stump or fire damaged upper tree.
- Thick bark.

Stump Coppice

- Thinned stand in Western Australia.
- Nearly 100% resprout.
- Low cost/low disturbance second rotation on steep slopes?

Applications in Australia

- Lower risk species for high risk areas.
- Tradeoff with productivity – take the risk the with radiata?
- Buffer plantings for forest protection – prescribed underburning.
- Increase the defendable area for fire-fighters.
- Expand plantation estate into lower rainfall areas.
- Second rotation could be more productive due to established root infrastructure.

Genus	Species	MTH	Basal Area (m3/ha)	Stocking (stems/ha)	Volume (m3/ha)	MAI (m3/ha/year)	Age (years)
Pinus	canariensis	22.8	60.0	753	567	10.3	55
Pinus	radiata	25.6	64.7	458	754	14.2	53

Wood Quality

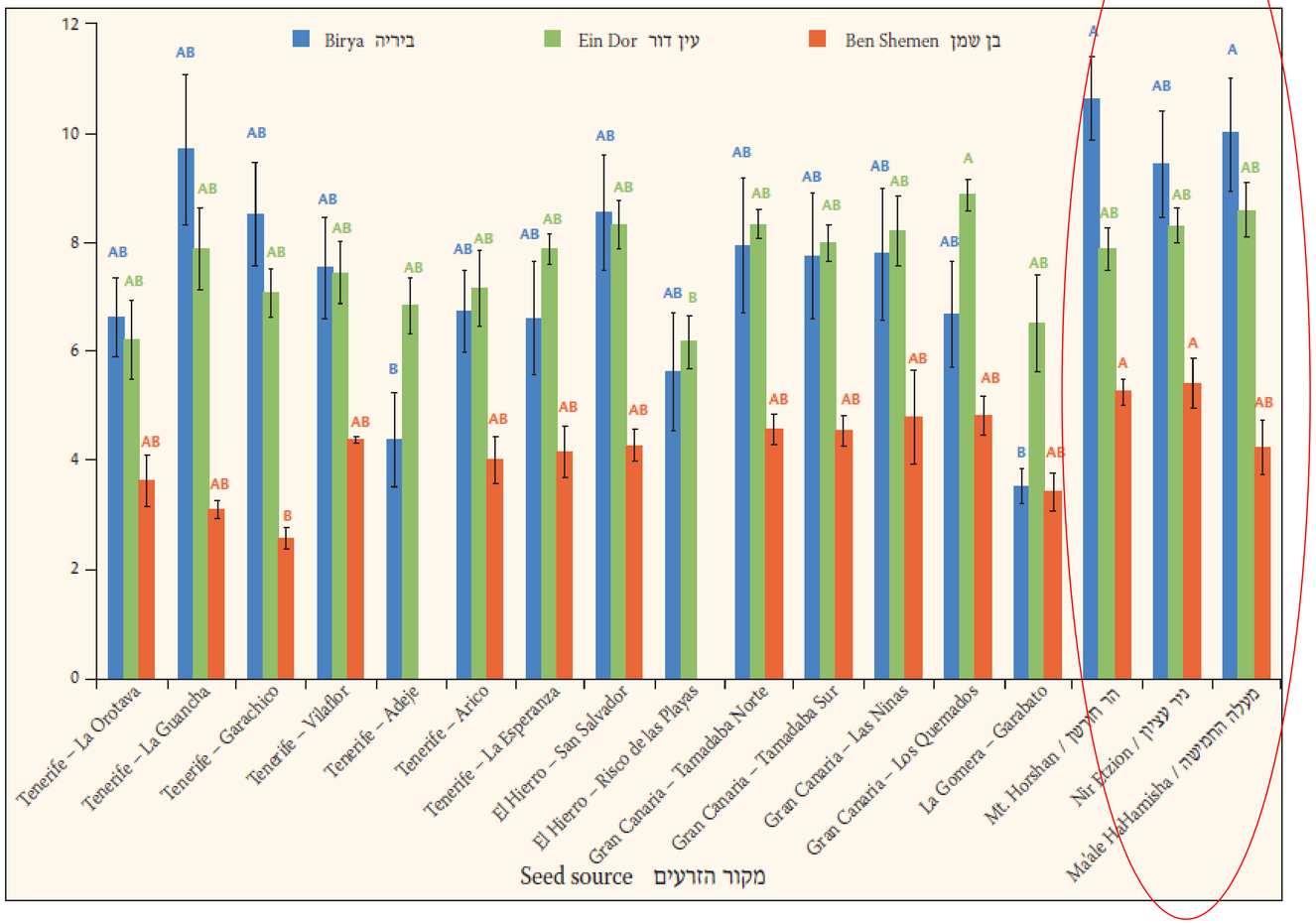
- Basic density 550kg/m^3 compared to radiata 420kg/m^3.
- Pulp yields lower than radiata, but increased density compensates (if purchasing by m^3).
- Structural grades show 27% in MGP/SG 12 and 20% in MGP 15.
- Premium grade recoveries could command a price premium for logs, compensating for slower growth?

Next steps

- Seed collection from South Australia.
- Seeds from Israeli provenances.
  - Outperform native Canary Island sources for survival and growth.
  - Israeli's wish to collaborate in research.
- Establish small trial plots for growth and yield monitoring.
- Establish trials to test fire resilience and prescribed burning with WA Parks and Wildlife.
- Breeding program, funds permitting.

איור 2: הגובה הממוצע של מקורות שונים של עצי אורן קנרי בחלקות הניסוי ביערות ביריה, עין דור ובן שמן. (אותיות שונות מייצגות הבדלים מובהקים ($P \leq 0.05$) בין מקורות הזרעים השונים בתוך חלקות הניסוי השונות).

Figure 2: The average height of the different seed source of *Pinus canariensis* in the experimental plots in the Biriya, En-Dor and Ben-Shemen forests. (Different letters represents significant ($P \leq 0.05$) differences between the seed source inside the experimental plot).



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