

# *Santalum macgregorii* F. v. Muller in Papua New Guinea

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## Introduction

The fragrant heartwood from *Santalum* is of high commercial significance for many rural based economies. However, as a result of acute over-exploitation most *Santalum* species are now faced with declining populations. *Santalum macgregorii*, endemic to southern Papua New Guinea, is one of the least known *Santalum* species (Paul 1990), and the extent of exploitation until recently was unknown.

*S. macgregorii*'s former distribution extended continuously along the PNG southern savanna region.

## *Santalum macgregorii* for plantations

Morphologically, *S. macgregorii* appears quite close to *S. album* (native to southern India and eastern Indonesia). *S. album* produces the most widely utilised heartwood of all *Santalum* species, Indian sandalwood. If *S. macgregorii* and *S. album* are closely related then *S. macgregorii* may become a useful plantation species, both within and outside PNG.

As with all *Santalum* species *S. macgregorii* is an obligate root hemi-parasite. This parasitic habit complicates nursery propagation and plantation culture. However, the silvicultural protocols developed for *S. album* in India, Indonesia and

Australia and for *S. austrocaledonicum* in New Caledonia might be transferred to *S. macgregorii*. Thus making it feasible to consider *S. macgregorii* as a native plantation species in PNG.

## *Santalum macgregorii* heartwood oil analysis

The percentage content and composition of *S. macgregorii* heartwood oil is unknown. Oil analysis is being undertaken on a number of heartwood samples at the Department of Chemistry, University of Western Australia, Perth. This analysis will be compared with a number of exotic *Santalum* species and will assist in understanding differences between *S. album* and *S. macgregorii*.

## Seed collection and *ex situ* conservation

Two varieties of *S. macgregorii* may exist in southern PNG, a coastal and highland variety. The coastal variety has a broader leaf, a lighter coloured heartwood and less scented heartwood than that of the highland variety. However, detailed morphological examination on flowers and fruits is required to determine the actual extent of this variation.

Mature trees in natural stands produce moderate fruit crops, thus there should be reliable seed supplies for silvicultural research and species

introduction, *ex situ* plantings and small-scale plantation establishment work.

## Current status of *Santalum macgregorii*

*S. macgregorii* is considered scarce. Population decline is presumably a result of over-harvesting coupled with indiscriminate burning. Recent inventories have identified *S. macgregorii* as far west as the Paupala range, near Lese, in the Gulf Province. A complete inventory of remaining populations is urgently required to assist identifying areas that require germ plasm conservation measures.

As in most areas of PNG, the forested areas of Central and Gulf Provinces are relatively inaccessible. This inaccessibility impedes *S. macgregorii* harvesting and heartwood transport. By virtue of remoteness some remnant *S. macgregorii* populations have avoided exploitation.

There is limited traditional use of *S. macgregorii* in PNG, which is in contrast to the inherent utilisation of sandalwood for medicinal and religious purposes in Indonesia, India and several South Pacific countries.

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## References

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