

Pine invasion threatens South West native forests

June 6 2018

Unintentional seeding from pine plantations poses a grave threat to Australian native forests, new research by Edith Cowan University (ECU) suggests.

Surveys of forests skirting *Pinus radiata* plantations in WA's South West region, a global biodiversity hotspot, found invading mature pines (wildlings) at nearly all distances measured.

Their density averaged 71 per hectare in jarrah forests and 25 per hectare in karri forests.

"The spread of *Pinus radiata* raises a red flag for the conservation of karri and jarrah forest in the region," said Dr. Eddie van Etten from ECU's School of Science.

"Pine plantations constitute a threat to native vegetation for their invasion capacity, as indicated by the presence of wildlings in all [native forests](#) studied.

"Our results suggest that a shift from the use of exotic pines to eucalypts would be desirable in order to reduce environmental impacts."

Pinus radiata (Monterey pine) is the most commonly used conifer in forestry, both in Australia (74.5% of the softwood planted area) and around the world, and has become invasive in some regions, causing serious ecological impacts in New Zealand, Chile and South Africa.

Growth rates important factor

The study also surveyed native forests around Tasmanian blue gum plantations (*Eucalyptus globulus*), but found minimal encroachment.

Whereas 1215 *Pinus radiata* were found up to 300 metres from their plantations, only three of 26 areas surveyed around blue gum plantations had eucalyptus wildlings, accounting for only six trees.

The difference relates to harvest cycles and seed dispersal.

Whereas eucalypt seeds tend to fall short distances, pines make use of winds and sometimes birds to disperse them, with their distinct winged seeds enabling them to travel long distances.

And while *Eucalyptus globulus* are typically harvested in short rotations of eight to 10 years, *Pinus radiata* grow for up to 30 years.

"This allows the trees to reach much higher seed production capacity, which peaks between ages 10 to 20 years," Dr. van Etten said.

"That, along with their use as a food source for birds such as cockatoos, leads to a much greater ability to spread [long distances](#) from plantations."

Need to act now

Once established, invading species can exert significant impacts on the natural [forest](#) communities by altering the canopy structure and light penetration to the understory vegetation, modifying critical habitat features and disrupting ecosystem processes, such as litter accumulation and nutrient cycling.

"Tree invasions usually proceed slowly and may take years to reach the phase of rapid spread," Dr. van Etten said.

"However, only then do they start to receive attention, which is also when control has become very difficult and costly.

"Awareness about wildling [pine](#) spread is urgently needed in South West Australia, in order to minimise the risks."

"Invasive potential of *Eucalyptus globulus* and *Pinus radiata* into native eucalypt forests in Western Australia," by Maria Calvino-Cancela (University of Vigo, Spain) and Eddie van Etten, is published in *Forest Ecology and Management*.

Provided by Edith Cowan University

Citation: Pine invasion threatens South West native forests (2018, June 6) retrieved 26 April 2024 from <https://phys.org/news/2018-06-invasion-threatens-south-west-native.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.