Not just 'woody weeds' - spreading shrubs have silver lining

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Wattles encroaching onto former grazing land in the semi-arid rangelands of western NSW. Credit: UNSW

The global spread of native trees and shrubs into open grazing land and abandoned farms can bring unexpected environmental and economic benefits, a major new international study has found.

While many landholders have a negative view of these so-called "woody weeds" because they reduce grass cover, the study found new evidence that they also improve soil health and provide important habitat for native animals.

Woody plants are likely to increase and become more prominent with rising concentrations of atmospheric carbon dioxide, says Associate Professor David Eldridge, who led the study published in the journal Ecology Letters. The research team also involved scientists from Spain

and the US.

"Climate change will probably result in even more encroachment of shrubs and trees than we have seen already," says Professor Eldridge, of the UNSW School of Biological, Earth and Environmental Sciences.

"This is seen as a problem by graziers because woody plants can hamper sheep mustering and reduce grass cover.

"But our findings demolish the view that encroachment equates with degradation.

"Landuses such as wildlife conservation, timber harvesting, ecotourism and carbon sequestration will be the big winners under an environment of denser woody plants."

The researchers reviewed information in 244 published and unpublished scientific reports from around the world, revealing a far more complex and more positive picture.

They looked a wide range of factors linked to woody plant encroachment, including grass cover, available soil phosphorus, soil organic carbon and above-ground carbon.

Surprisingly, perhaps, they found that increasing shrub density makes little difference to most of those attributes. Some of those that do change, however, hold out hope of significant environmental and economic benefits.

"Research has shown, for example, that dense stands of shrubs are substantial sinks for atmospheric carbon dioxide," Professor Eldridge says.

Credits gained from large carbon sinks could provide financial benefits to rural communities under dedicated carbon-trading programs."

In Australia, large areas of semi-arid woodland are now occupied by native shrubs growing more densely than before European settlement. The study found that areas dominated by shrubs have less grass but healthier soils, with more soil carbon and nitrogen, and more above-ground plant material.

"The studies show that these shrubs provide habitat for many birds, insects and mammals, such as marsupial mice.

"Although dense shrubs can create problems for some pastoralists in drier areas of NSW, other landholders are encouraging the natural spread of shrubs and trees to restore degraded environments and improve soil health."

Provided by University of New South Wales