Carbon Storage at the UoW main campus

Nicholas Agostino and Owen Price
Submitted as an honours thesis to the School of Earth, Atmosphere and Life Science, UoW , 2020

The Problem

Every year, the University of Wollongong emits 45,000 tonnes of CO_2 equivalent. We need a plan to reduce this, and one option is offsetting through tree planting. To understand how much tree planting might help UoW, Nick Agostino studied the Carbon storage and uptake in the campus trees. When UoW started in the 1970's it was an almost bare paddock, and we now have 3,888 tagged trees and another 3990 untagged ones.

The Project

Nick estimated the Carbon storage in each tagged tree using standard equations based on their diameter, details of which are on a campus database. The untagged trees were sampled to work out their average storage using similar equations. Nick then applied standard tree growth equations for the main species to work out how much carbon they sequester each year.

Main findings

1. The trees on the main campus store 15,082 tonnes of CO_2 equivalent.
2. That is approx. 30% of the campus CO_2 emissions each year.
3. The trees sequester 325 tonnes per year in growth or ~1% of annual emmisions.
4. The largest trees on campus weigh 41 tonnes and contain a CO_2 equivalent of 98 tons. They are turpentines (*Syncarpia glomulifera*) river peppermints (*Eucalyptus elata*).

5. While tree planting is useful, the campus is not nearly large enough to provide an adequate offsetting site for the University's emissions.