What can kelp tell us about trees?

Sea palm (*Postelsia palmaeformis*) is a species of kelp, pictured on the cover of *New Phytologist* 212:3, growing in the intertidal zone near Big Sur, California. In a study published in 212:3, Sam Starko and Patrick Martone investigate how kelps compare to land plants in the ways that they divide their biomass between different parts of the plant.

Like most other plants, kelps partition their biomass between three organ systems, which have analogies in land plants: blades (leaves), stipes (stems), and holdfasts (roots). However, in kelps, these organs function slightly differently.
Postelsia palmaeformis, the sea palm, in the wave-swept intertidal zone (Big Sur, CA, USA). Courtesy of Patrick T. Martone.

In land plants, organs have mechanical and hydraulic functions – they transport water and nutrients from the roots to the leaves. In kelps, on the other hand, the main function is a mechanical one – the main purpose of a robust holdfast, for example, is to keep the kelp attached to the rock in stormy seas. Stipes, which are responsible for some internal transport of sugars (but not water) have a distinctive material composition that permits...
flexibility under breaking waves.

Despite the differences in function, land plants (particularly trees) and kelps appear to partition biomass in strikingly similar ways. The tree-like shape of the sea palm pictured on the cover is a fitting example of how, despite being distantly related, these photosynthetic taxa can be surprisingly convergent in how they partition their biomass. In their paper, Sam Starko and Patrick Martone provide a comprehensive view of the similarities in interspecific scaling, between a ‘plant’ lineage that evolved independently from land plants, and their land dwelling equivalents.

Mike Whitfield
Development Coordinator
New Phytologist

This entry was posted in Latest Posts, New Phytologist, NPCover and tagged evolution, interspecific scaling, kelp, New Phytologist, NPCover, plant science, traits. Bookmark the permalink.