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Functional Plant Biology

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Cover illustration: *Eucalyptus racemosa* Cav., one of approximately six eucalypts that have scribbles, occurs on low-nutrient, sandy soils on Stradbroke Island, Queensland, Australia. The scribbles are made by moth (*Ogmograptis scribula*) larvae. Photograph by Andrew Netherwood (www.ndesign.net.au).

^{15}N partitioning in tomato: vascular constraints versus tissue demand ***Amy E. Zanne, Steven S. Lower, Zoe G. Cardon and Colin M. Orians*** 457–464	The basis of this study is the notion that, within plants, available resources may not be distributed in proportion to tissue demand in sectored plants, since not all roots are connected to all leaves. The authors argue that resource allocation patterns in sectorial plants are a complex function of at least two influences: vascular conduit arrangement and tissue demand. In addition, these patterns may be a function of effective sectoriality, which is influenced both by ionic concentrations in xylem sap and the size of the resource being transported.
Adaptations of strangler figs to life in the rainforest canopy ***Susanne Schmidt and Dieter P. Tracey*** 465–475	This study was performed on Australian *Ficus* species with terrestrial and strangling habits in the forest and glasshouse to elucidate the figs' strategies to adapt to the epiphytic habitat, including nitrogen- and water-use. The authors compare strangler figs in epiphytic and mature soil-rooted life phases, comparing morphological and physiological traits, and examining two species of strangler figs under three water and three light regimes in the glasshouse.
Cyanogenesis in the Australian tropical rainforest endemic *Brombya platynema* (Rutaceae): chemical characterisation and polymorphism ***Rebecca E. Miller, Judy Simon and Ian E. Woodrow*** 477–486	This comprehensive investigation into the nature and consequences of an intriguing chemical defense polymorphism describes the presence of cyanogenic compounds and their characterisation in a rainforest tree species, *Brombya platynema*. The authors identify the cyanogenic glycosides in the first characterisation of cyanogens within the genus, and only the third within the Rutaceae. In addition, they describe both qualitative and quantitative variation in cyanogenesis within a single population.
Novel aspects of cyanogenesis in *Eucalyptus camphora* subsp. *humeana* ***Elizabeth H. Neilson, Jason Q. D. Goodger and Ian E. Woodrow*** 487–496	These authors report cyanogenesis for the first time in *Eucalyptus camphora*, a species that has not previously been considered cyanogenic They have identified at least three different cyanogenic glycosides present in foliage material and report quantitative polymorphism in two natural populations. In addition, a progeny trial revealed that seedlings exhibited markedly lower levels of cyanogenesis and condensed tannins, although the seedlings were higher in total phenolics. Their novel finding, that this species contains more than one cyanogenic glycoside, when considered against the background of other *Eucalyptus* species, is intriguing.
The accumulation of terpenoid oils does not incur a growth cost in *Eucalyptus polybractea* seedlings ***Drew J. King, Roslyn M. Gleadow and Ian E. Woodrow*** 497–505	Phylloxera infestation is a significant threat to viticulture worldwide, and the key to effective management is early detection to avoid substantial economic losses. These authors show that phylloxera infestation produces significant changes in leaf pigmentation soon after infestation. With development, this may allow the early identification of phylloxera infestation in vines using remote sensing technologies.
