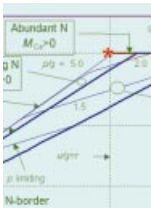




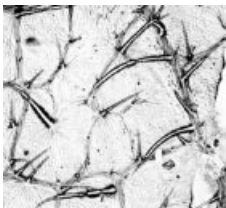
Species partitioning and patterns of germination

The formation of zonal communities may be attributed to differences in germination across zonal communities for different species. However, **Carter and Ungar (pp. 119–125)** show that partitioning of salt marsh species is not determined at the germination stage of development. Seed dormancy and germination patterns of *Spergularia marina* are discussed.



Equilibrium and balanced growth of a vegetative crop

When young plants grow in a constant environment, their chemical composition 'equilibrates' with that environment. In particular, if source and sink strengths match, growth is considered to be 'balanced'. **Seginer (pp. 127–139)** utilises a lettuce crop model to map the crop's 'equilibrium' composition and relative growth rate over a wide range of environmental conditions. The results are presented in a compact normalised form.



Defence differences in early and late leaves of birch

Birch species form both early and late leaves, a type of heterophylly. **Matsuki et al. (pp. 141–147)** investigate differences in chemical and physical defence mechanisms between these two leaf

types. From the results the authors propose an 'Optimal Defence' theory based on the notion that leaves contributing most to subsequent plant growth are the most heavily defended.



Mathematical treatment of leaf veins

Many dicotyledonous species have leaves in which secondary veins have clearly measurable lengths. **Burton (pp. 149–156)** shows that, in at least 23 species, a single empirical formula effectively relates secondary vein lengths to their positions on the midrib. Its generality across eight or more families suggests that there are corresponding quantitative similarities in growth processes.



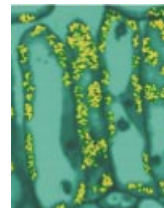
Genetic relationships of cultivated Aglaonema

Aglaonema is one of the most popular houseplants. AFLP analysis by **Chen et al. (pp. 157–166)** reveals that cultivated interspecific hybrids are genetically similar. Their close relationships are attributed to the probability that *A. crispum* and *A. nitidum* are progenitors of *A. commutatum*. These three species are the ones commonly used for hybrid development.



Breeding system and pollination ecology of *Impatiens reptans*

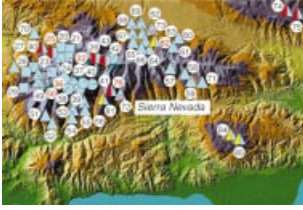
Tian et al. (167–175) are the first to report pollination by butterflies of *Impatiens reptans*, a species endemic to subtropical China. In addition, seven other insect pollinators or nectar robbers are identified. Nectar robbers are shown to be active mainly during late flowering, thereby hastening the end of flowering for the population. The authors discuss reasons for the limited distribution of *I. reptans*.



Development of single-celled C₄ photosynthesis

The marked plasticity inherent in plant cells is elegantly illustrated by development of the single-celled C₄ syndrome in cotyledons of *Borszeowia aralocaspica*. **Voznesenskaya et al. (pp. 177–187)** demonstrate conversion from storage function to C₄ photosynthetic function within an individual cell that is induced by light. The process includes polarization of organelle location and biochemical specialization at opposite ends of mature cells.

Continued overleaf



Gene flow and concerted evolution

Phylogenetic studies that use nuclear ribosomal ITS sequences usually stress the negative impact of finding intra-genomic variability. By adopting a fine-scale focus on southern Spanish populations of thrifts, **Nieto Feliner *et al.* (pp. 189–200)** confirm and provide insights into the unusual—and species-independent—geographic structure of variation shown by this marker. The results support an evolutionary role, in the genus, for hybridization.



Population genetic structure of bulbiferous plants

Bulbiferous species often have mixed reproductive strategies since clonal

reproduction and seed reproduction are both possible from the inflorescence. **Wang *et al.* (pp. 201–209)** show the consequences of this mixed strategy for the genetic structure of populations of *Titanotrichum oldhamii* that have a very low genetic variation and thus a dominant asexual reproduction system. However, there is considerable between-population variation that the authors relate to population history and paleogeography.



Phloem fibre mutant of jute

Sengupta and Palit (pp. 211–220) demonstrate that secondary phloem fibres can be mutated without affecting the development of surrounding vascular tissues. Mutation affected phloem fibres only during specific stages of plant development, indicating that the genetic regulation of bast fibre development may be more complex than had sometimes been assumed. The principal biochemical consequence of the mutation is decreased lignin synthesis.



Root border cells take up and release glucose-C

Root border cells are released into the rhizosphere from root tips and remain viable for a considerable time. Using ^{14}C glucose and an uptake inhibitor, **Stubbs *et al.* (pp. 221–224)** demonstrate that detached root border cells maintain an active metabolism and are able to both take up and release glucose.