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Mechanical Ecology: Taking Biomechanics to the Field

SPECIAL ISSUE

**Edited by
Ulrike Bauer and
Simon Poppinga**

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Mechanical Ecology: Taking Biomechanics to the Field

Mechanical ecology is an interdisciplinary research field at the intersection of biomechanics and organismal ecology. It has rapidly gained momentum over the past two decades. By focusing on biomechanical adaptations and interactions between organisms and their environment, mechanical ecology complements the better known fields of chemical and behavioural ecology. This special issue gives an overview over the recent advances in the field and presents a number of exemplary original research papers on the topic.

Darwin Review

Karl Joseph Niklas and Frank Telewski Environmental-biomechanical reciprocities and the evolution of plant material properties

Reviews

Mimi A.R. Koehl Ecological biomechanics of marine

macrophytes

Anne-Kristin Lenz, Ulrike Bauer, and Graeme Ruxton An ecological perspective on water shedding from leaves

Christiano Gallego and Daniel Robert What if the gravimetric tide could trigger life cycles?

Heike Beismann Mechanics of fruit opening of invasive *Hakea* species in Southern Europe

Nicholas Burnett and Brian Gaylord Flow, forces and form: methods and frameworks for *in situ* studies of macroalgal biomechanics

Mario Vallejo-Marin Why and how do bees buzz

Arildo Souza Dias Gas inside wood and its implications to plant biomechanics

Tim Higham et al. Plants as locomotor surfaces: how animals attach to, and move on, branches, leaves and stems

Curt Holder and Leal Lauderbaugh The biomechanics of leaf oscillations during rainfall events

Wilfried Konrad and Anita

Rothnabelsick The physics of drop impact processes and how leaves can withstand them

Research articles

Jana Dlouha, Pauline Défossez, Hans-Joel Dongmo, François Ningre, Meriem Fournier, and Thiéry Constant Mechanical vulnerability of forest trees after thinning: securing stems or roots?

Max Langer, Elena Hegge, Thomas Speck, and Olga Speck Responses of plant leaves of *Pilea peperomioides* to wind loads and/or contact stimuli

Rosario Sierra-de Grado et al. Adaptive implications of tree stem postural control

Frederike Klimm, Stefanie Schmier, Holger F. Bohn, Svenja Kleiser, Marc Thielen and Thomas Speck Biomechanics of tendrils and adhesive pads of the climbing passionflower *Passiflora discophora*

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Invitation to submit

We welcome other contributions to this special issue. If you would like to submit a paper (either research or review), please [email](#) a title and brief outline for the consideration of the editors. All papers are peer reviewed to the usual standards and must fit within the scope of the journal. The deadline for submissions is July 2021. ■

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