Systematic studies in eastern Australian *Lepidosperma* (Cyperaceae): identifying novel characters and data sources

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Lepidosperma (Cyperaceae) is a morphologically distinct genus, but can be taxonomically difficult at the species level: few obvious characters differentiate between species and intra-specific variation is often high. Consequently, various species complexes remain unresolved, particularly in eastern Australia (*c*. 12 species). At a minimum estimate there are also 200 undescribed species. To provide a sound assessment of biodiversity within this predominantly Australian genus, it is clear that more informative characters, denser sampling and an integration of anatomical and molecular data are needed. Variation in the morphologies of perianth and culm/leaf margin are taxonomically informative but hard to characterise under low magnification. Our work using high-resolution LM and SEM has allowed better visualisation of novel micro-morphological and anatomical characters. These characters have been added to phenetic analyses to delimit new taxa, such as the western Tasmanian endemic *Lepidosperma* sp. Eldon Bluff. A preliminary phylogeny has been constructed which identifies major clades in the genus that will be the subject of more intensive research. To resolve the more difficult groups, particularly the *L. laterale* complex, we plan to supplement morphological data with data from next generation sequence multiplexing. This will also allow the construction of a robust phylogeny which can be used to map the evolution of selected morphological characters and gain insight into structure-function relationships. Outputs of our study of eastern Australian *Lepidosperma* will include online floras, interactive identification and contributions to eMonocots.

Program and Abstracts

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