***One or two sentences providing a basic introduction to the field, comprehensible to a scientist in any discipline***

Photosynthesis is the primary function of leaves.

Leaves must optimise their ability to photosynthesise under the specific conditions in which they find themselves.

Eucalypts are the dominant grouping of tree species on the Australian continent and the mainstay of the global hardwood forestry industry.

***Two to three sentences of more detailed background, comprehensible to scientists in related disciplines***

The abundance of proteins associated with particular functions indicates the capacity of leaves to perform those functions.

Thus leaf protein abundances reveal important ecological information about environmental adaptation in plants.

***One sentence clearly stating the general problem being addressed by this particular study.***

To better understand how plants do photosynthesis in nature, we need quantitative information about how the abundance of photosynthetic enzymes in leaves varies on ecological scales: among many species and across broad gradients of environmental conditions.

***One sentence summarising the main result (with the words “here we show” or their equivalent).***

Here we present a continent-scale, quantitative proteomics study of leaf protein abundances in 32 species of wild Eucalyptus, across synoptic environmental gradients and in relation to key leaf functional traits.

The associated dataset contains absolute abundances for over 1900 leaf proteins and all major leaf protein functional categories.

***Two or three sentences explaining what the main result reveals in direct comparison to what was thought to be the case previously, or how the main result adds to previous knowledge.***

We found that the proportional abundance of light capturing photosystem proteins varied by 2.5-fold, and declined by X% with an X% increase in incident radiation.

Proportional abundance of Calvin-Benson cycle proteins involved in photosynthetic carbon assimilation was somewhat more constrained, varying by 1.3-fold. Unexpectedly, abundance of these proteins exhibited only minor changes in response to incident radiation (X% increase) proportionally, and no significant relationship with irradiance on a per area basis.

***One or two sentences to put the results into a more general context.***

Quantitative plant proteomics can answer many questions about adaptation of leaves and the photosynthetic apparatus in to environmental conditions.

Quantitative leaf protein abundance data will be of interest to a broad scientific audience, including ecologists, plant physiologists, and terrestrial biosphere modellers.

To this end we have released our eucalypt data into the public domain.

***Two or three sentences to provide a broader perspective, readily comprehensible to a scientist in any discipline***