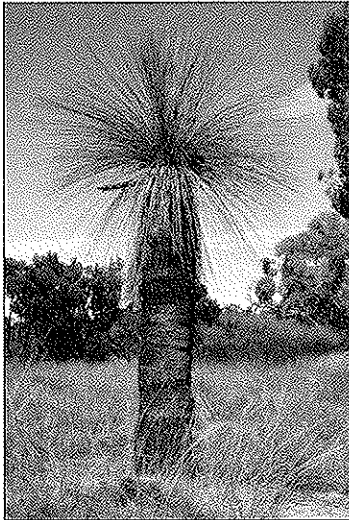


FLORA

SURVIVING THE DINOSAURS - THE DASYPOGONACEAE

Penny Hussey

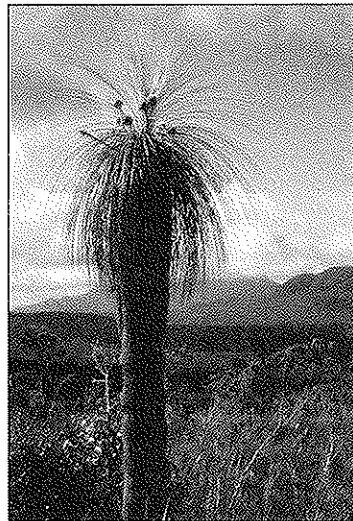


Xanthorrhoea thornstonii, Cundelea, WA

Recent advances in the techniques for handling genetic sequences in living things have led to an enormous amount of new knowledge about the relationships between different groups. The data can also be analysed to infer when the groups separated from each other, and this gives an approximate age for that lineage. A recent paper * looked at this for the Monocots, getting some surprising results.

Flowering plants appeared and started to diversify in the early Cretaceous (approx 140 million years ago). At that time, dinosaurs still dominated the Earth, and their extinction marks the end of the Cretaceous (66 mya). Monocots are a very distinct group of flowering plants, characterized by having only one seed leaf (the 'monocotyledon' of their name) and they, too, diversified at this time. Early monocots included palms, arums and orchids, while others such as grasses, bananas, yams and boryas came much later.

Early taxonomists depended



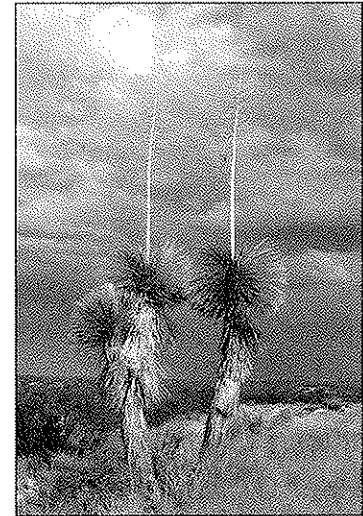
Kingia australis, Stirling Range, WA

on visual appearance for deciding whether one plant was related to another, but sometimes this can be deceptive as 'convergent evolution' can cause unrelated groups to have similar life forms. In WA, grasstrees and kingias have similar growth habits, a single trunk with a tuft of leaves on top, as do some yuccas in North America (see photos) and it was always thought that the Australian two were closely related. Indeed, Flora of Australia (1996) puts them all in the same family, Xanthorrhoeaceae.

It turns out that this is not so. Grasstrees are more closely related to onions, irises, orchids and even yuccas than they are to the kingia!

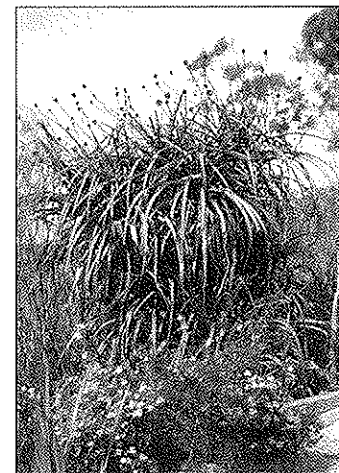
Kingias are in the Dasypogonaceae, a distinct family with 8 genera and 64 species found mostly in Australia, but a few are also in New Caledonia and New Guinea. It is amazingly old, and has no close relatives at all.

The family first appeared 119 mya in the Middle Cretaceous and has persisted ever since. It is named



Yucca eliator, Tombstone, Arizona, USA

after the WA endemic pineapple bushes, *Dasypogon*, that have coarse tufts of leaves and drumstick-like flower spikes. *D. bromeliifolius* is widespread from the Moore River to the Fitzgerald River National Park, but the tall, grasstree-like *D. hookeri* is only found in the high rainfall extreme south-west.

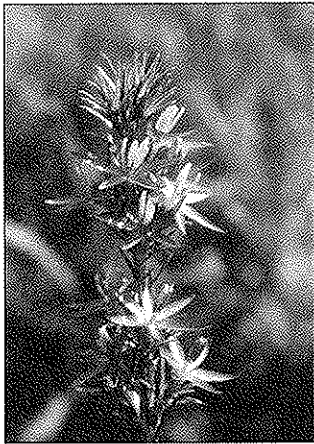


Dasypogon hookeri, Meelup, WA

Apart from the kingia, another well-known member of this family is *Calectasia*, the blue tinsel lilies. They are low shrubs, covered in

continued from page 16

Dasypogonaceae



Calectasia cyanea, Yanchep, WA

on separate plants. The other south-west genera, *Baxteria*, *Chamaexeros* and *Xerolirion* are less well known. (Note, some botanists believe that Dasypogonaceae should be divided into several families - eg Calectasiaceae - and the current family would then become an Order, Dasypogonales.)

The survival of this ancient plant lineage in the south west of WA once again confirms our biodiversity hot spot status.

* Jansen, T. and K. Bremer. The age of major monocot groups inferred from 800+ rbcL sequences. Botanical Journal of the Linnean Society, 2004, 146, 385-398.

FLORA

spring with starry blue/purple flowers having huge, bright yellow anthers. Coastal visitors will know the prickly lily, *Acanthocarpus preissii*, an undistinguished-looking plant, often most obvious when covered with knobby yellow fruit capsules in early summer. Then there are the mat rushes, *Lomandra*, reedy tussocks that sprout small flowers in

spring – males and females

THE NEXT HERBICIDE-RESISTANT WEEDS?

Farmers will be well aware of the problems caused when weeds develop resistance to commonly used herbicides. It is of particular concern where an agricultural practice that relies on herbicides, such as minimum till or no-till cropping, is used. In WA at the moment, only annual ryegrass, *Lolium rigidum*, is known to have developed glyphosate (Roundup®) resistant populations, however work in Qld and NSW has identified one definite and several possible problem weed species.

Glyphosate-resistant populations of awnless barnyard grass, *Echinochloa colona*, have been found. In addition, wild oats, *Avena* spp.; sowthistle, *Sonchus oleraceus*; flaxleaf fleabane, *Conyza bonariensis* and liverseed grass, *Urochloa panicoides*, have possibly done so. It is possible that testing in WA would reveal more possible problem species.

The Weeds Cooperative Research Centre has put together a manual with information on preventing and managing herbicide resistant weeds – primarily for farmers, but all concerned with weed management will find it interesting. **Farmers using minimum- or no-till, should find it most informative.**

www.weeds.crc.org.au/publications/iwm_manual_flyer.html

Did you know ...

“... that 18% of global carbon emissions are due to deforestation and altered land use – more than due to the world’s transport systems? Consequently, a global moratorium on further destruction of wild vegetation is urgently needed. Moreover, repair and restoration of damaged wild plant communities needs to be expanded where there is a will to do so. The use of locally and culturally appropriate plant species in agricultural, urban and suburban lands is a third key strategy if we wish to develop new landscape ethics and are willing to change long-standing behaviours. This combination of strategies will improve the amount of atmospheric carbon absorbed by plants in coming decades, and also help mitigate the coming plant extinction crisis should the world persist with a ‘business as usual’ approach.”

Steve Hopper, Director, Kew Gardens, UK, speaking at a public lecture in Perth on 4th September 2007.

THE DARLING RANGE WILDLIFE SHELTER NEEDS HELP!

The Darling Range Wildlife Shelter is a not for profit and totally volunteer organisation. Our aim is rehabilitate and release sick, injured, orphaned and displaced Australian native wildlife. Volunteers are looking for wildlife-friendly release sites for creatures unable to return to their home-range. Wildlife species we are frequently seeking ‘homes’ for include – parrots, waterbirds, shingleback skinks, bandicoots/quenda and kangaroos. There are some specific requirements for different species. If you might be interested, or able to assist, we would appreciate your contact.

Please contact Michelle on 9362 6272 or michelleh@darlingrangewildlife.com.au.

You can find out more about DRWS at:

www.darlingrangewildlife.com.au