

Elkhorns & Staghorns - the non-natives -

In addition to the Australian species of *Platycerium* featured in Issue 39 there is a further fourteen species which occur in Africa, South America, southeast Asia and Papua New Guinea in predominantly tropical areas.

Heather Knowles continues her investigation, noting that many of these species can be grown in the subtropics. Some struggle, however, and grow much better in the tropical areas of Australia and in other countries.

Platyceerium alaicorne (syn. *P. vassei*) –
Madagascar form. Image Heather Knowles.

Platyceerium andinum.



Image Heather Knowles.

Platyceerium coronarium.



Image Rita Kupke.

Many selected forms and hybrids have been developed from these non-native species, particularly in tropical areas overseas.

***Platyceerium alaicorne* (syn. *P. vassei*)**

is native to Madagascar, the Seychelles and Comoros Islands, Mozambique and Zimbabwe. There are two distinct forms. The African form has round, waxy, emerald green shield fronds which turn rich chestnut brown when they age. The Madagascan form is quite different with dark green ridged shields and turns almost black when mature.

Both forms have seasonal growth and the shield fronds die in the colder months as the plants go into dormancy. In strong light the Madagascan form sometimes develops folds in the top of the shield fronds. Fertile fronds are typically erect when grown in sunlight.

This elkhorn tends to require a high rainfall situation (or high irrigation) and full sun to very bright light.

Platyceerium andinum is the only *Platyceerium* native to the tropical dry forests of Peru and Bolivia where it lives under the tree canopy and therefore cannot take full sunlight but likes to be in a bright light situation.

This specimen is a tall slender plant. It can reach almost 2 metres in height from top to base of the plant in its natural habitat, but is usually shorter in cultivation.

Shield fronds are shaped somewhat like *Platyceerium superbum*, but this American species generates pups along the sides of the original plant and in time can completely circle a tree trunk, making a stunning ring-shaped cluster. This may take 10-20 years.

Fertile fronds are rich green and deeply lobed to form long weeping antlers.

Platyceerium coronarium, sometimes known as Disk Staghorn, produces pups at the side of the mother plant which can eventually form a ring shaped cluster around a tree or branch.

It is native to Singapore, the Philippines, Indonesia, Malaysia, Vietnam, Thailand and Myanmar. In the forest, this species is often inhabited by ants.

Shield fronds are light green and waxy with distinctive veins visible in the top portions of the fronds. The pendulous fertile fronds are long (up to 2 metres) and can have either thin or wide lobes, depending on the form. Spores are carried in patches on kidney shaped lobes.

From the monsoonal tropics, this species needs a dry resting period.

***Platycerium elephantotis* (syn. *P. angolense*)** is commonly referred to as Elephant Ear Staghorn most likely because the fertile fronds are not lobed and hence appear like large fleshy ears or a painting from Salvador Dali. Spores occur at the bottom of the rounded fertile fronds.

It is native to the eastern and central areas of Africa where they have a distinct warm and wet growing season and a cooler, drier dormant season. The advent of the wet season sees the formation of the shield fronds which curve forward to catch water and plant debris. When they are completely formed, the fertile fronds appear.

When mature, pups are created at the edges of the shields.

This species can be grown in subtropical South East Queensland, but struggles a bit and is more suited to humid tropical climates. A shady situation and regular watering are needed for optimum growth during the warmer growing season.

Some references now refer this species as *Platycerium angolense*.

Platycerium ellisii from Madagascar is closely related to the African form of *Platycerium alcinone* having a similar yellow green waxy coating. Young shield fronds are bright yellow-green, circular, thin and have a waxy shine.

This species tends to grow shield fronds in spring and fertile fronds in late summer. With onset of colder weather the shield fronds start turning chestnut brown from the centre, moving gradually to the edge.

The fertile fronds are mildly lobed creating a subtle v-shape. These fronds tend to be erect.

[NOTE No image presented.]

Platycerium grande is native to the Philippines, mainly on the island of Mindanao where it grows from sea level on coconut trees to 5000 metres in the forest where it is under threat from land clearing for palm oil plantations. It has similar cultural requirements to *Platycerium superbum* and can grow as large.

Platycerium grande is very similar to *Platycerium superbum* though identified from other *Platycerium* species by having two spore patches on the fertile fronds (*P. superbum* only has one), no frills around the growth bud and thin papery sterile fronds.

Platycerium elephantotis.



Image Rita Kupke.

Platycerium grande.



Image Rita Kupke.

Platycerium holttumii is found in high light areas of monsoon forest in Cambodia, Laos, Vietnam, Thailand and the Malay Peninsula. Its fertile fronds have two lobes, one small and elevated and one larger and hanging down.

When young, it can be difficult to tell the difference between this species and *Platycerium grande*, *Platycerium superbum* and *Platycerium wanda*.

Platycerium madagascariense from the cloud forest of eastern Madagascar produces one of the most visually striking shields with distinctive raised veins that form tall ridges. They are thin and light green when new, darkening as they mature and this colour is retained until covered by another shield. The shield fronds are closed at the top to exclude water.

Its natural habitat means this fern needs high humidity, regular watering (perhaps twice or once a day), good air movement and shade.

This species plays host to ant colonies and the orchid *Cymbidiella rhodochila* (Red-lipped *Cymbidiella*).



Image Rita Kupke.



Image Eric Martinez.

P. madagascariense x *P. elephantotis*.



Image Eric Martinez.

P. madagascariense
x *P. stemaria*.

Platycerium
quadridichotomum.



Image Rita Kupke.

Platycerium quadridichotomum a small plant native to Madagascar's drier western side. In fact it is the only *Platycerium* species in this region of Madagascar, where it experiences a lengthy dry season (may be up to six months) and the shields turn crispy brown and the fertile fronds roll up and appear dead. As soon as the rains arrive, the plants resume growth and quickly become lush and green.

The species name refers to the fertile fronds which branch then branch again to form four tips, although mature specimens on the internet appear to have more lobe tips than four. The spore patch is dark brown, and located in the area of the second frond division, similar to *P. andinum*.

The shield fronds are tall and spread outward at the top, showing no lobes.



Platycerium ridleyi.

Image Rita Kupke.

Platycerium ridleyi is from Malaysia, Borneo and Indonesia (Sumatra). It is arguably the most striking and beautiful of all *Platycerium* species.

Its upright fertile fronds do very much resemble the antlers of a deer. The shield fronds form tall ridges which radiate outwards to the edge.

Spores are produced on a kidney shaped lobe on each frond – only *P. ridleyi* and *P. coronarium* do this.

Bright light, high humidity and good air movement seem to be important for this species.

In Sumatra it has been observed growing on tree branches more than 25 metres from the ground and often beside rivers.

Platycerium stemaria (syn. *Platycerium aethiopicum*) is an African species that has tall thin shields which are wavy at the top and with spaces between them which collect debris.

The fertile fronds are usually shiny on the upper surface and vary considerably in length even on the same plant. Shield fronds are green, quickly turning brown with colder weather.

In its natural habitat it is usually found in clusters on trees, high above the ground, often in shade from the tree canopy. This is a species perhaps better suited to the tropics as it dislikes temperatures below 10°C.

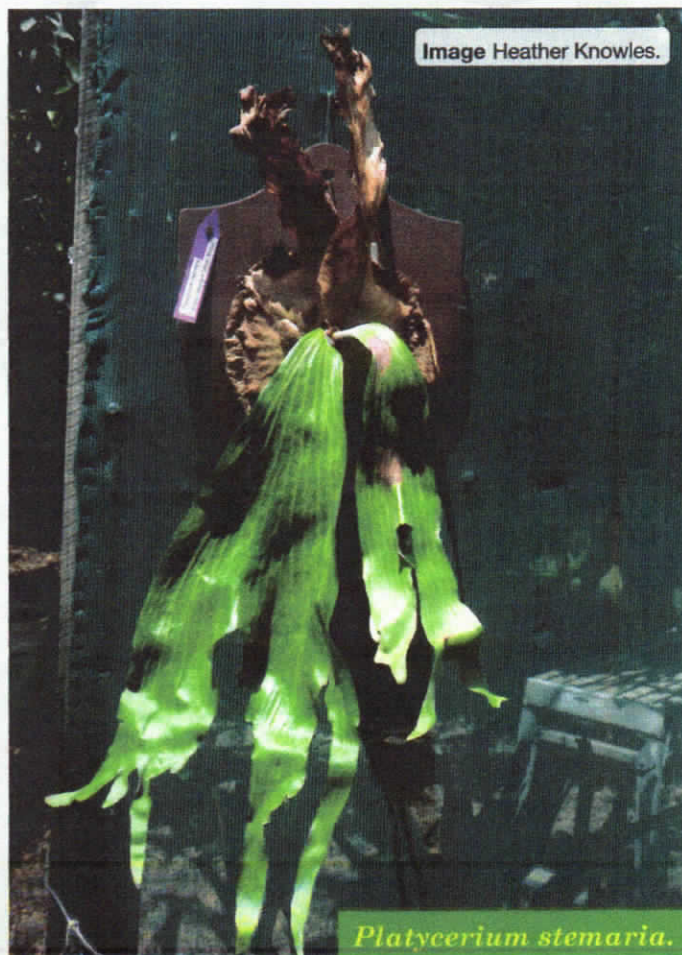


Image Heather Knowles.

Platycerium stemaria.

Platycerium wallichii.



Image Eric Martinez.

Platycerium wallichii, commonly known as Indian Staghorn, is found naturally in India, Burma, Malaysia and Thailand. In these monsoonal climate regions it goes into complete dormancy during the dry period when the plant appears 'dead' but it comes back to life with the wet season. This species is one of the most difficult to keep in cultivation outside its natural distribution region.

This fern has tall spreading shields with rounded lobes along the upper edges to form a broad basket of fronds to capture organic matter and moisture. Fertile fronds are produced in pairs and have distinctive prominent veins on the upper side.

Platycerium wanda, known as Queen Staghorn, is native to Papua New Guinea and is the largest of the *Platycerium* species. It is up to one third larger than *P. superbum* with upright shield fronds which are lobed along the top forming a massive basket. The fertile fronds have two lobes, each carrying a spore patch.

It is similar in many ways to *Platycerium holttumii*, but *Platycerium wanda* has frills around the bud while *Platycerium holttumii* does not; *Platycerium holttumii* sometimes has fingers on the raised lobe while *Platycerium wanda* does not.

Platycerium willinckii, known as Java Staghorn, is native to Indonesia, Java and Papua New Guinea. It is closely related to *Platycerium bifurcatum* but different – *Platycerium willinckii* shields are very tall and deeply lobed. Old shields turn an attractive chestnut brown and fade into a skeletal frond of old veins that are replaced with bright green shields the following season.

Pendulous fertile fronds are normally long and thin. Some forms have developed wide flat fertile fronds with pointed flat fingers at the ends.

Image Rita Kupke.

Platycerium wanda.

Image Rita Kupke.

Platycerium willinckii – mature forms and young plant.

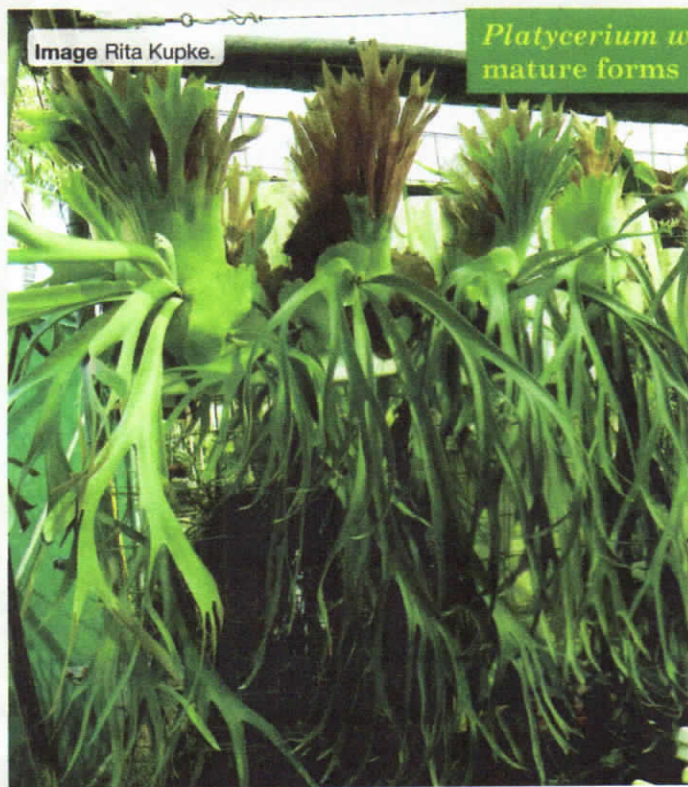
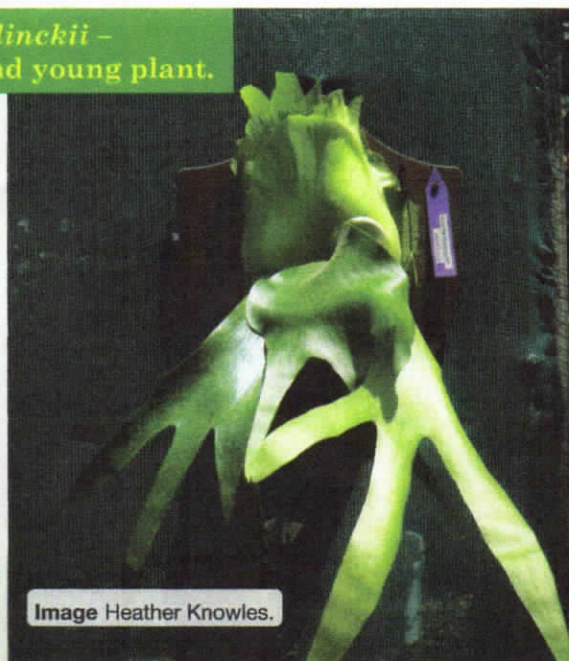


Image Heather Knowles.





01 | Immature spores of an elkhorn.

Propagation of native and non-native elks and stags

Staghorns and elkhorns can be propagated by tissue culture, but for the home gardener there are two simple ways to produce more plants for the garden. These wonderful ferns can be propagated by division for those species that produce 'pups' and by spore (with varying degrees of success).

To divide a plant with pups, select a pup growing close to the edge of the mother plant and carefully excise it using a sharp knife. Try to leave as much plant material (of the staghorn/elkhorn) at the back of the shield as possible. If the pup is large, trim some fertile fronds off so there is less stress on the new plant. Mount the new separated specimen on board (timber,

cork, plastic) or other material – some growers overseas use wire frames.

Do not allow the new plant to dry out – watering can be decreased once the plant is producing new shield fronds.

It is best to do this when the shield fronds are brown (and therefore dead). Accidentally cutting into the green shield can leave the living shield vulnerable to fungal rot that could adversely affect the mother plant or the new pup.

For propagation by spore, first collect the spores from the frond and place into a paper bag.

Sterilise your growing medium (either coir fibre or sphagnum moss) with hot boiling water.

Once cooled, sow the spores directly over the growing medium. Place a lid on the container (many fern growers use takeaway containers that have lids) and then place this in a cool and shaded location. Every few weeks open the lid to check that it is moist and add rainwater (or filtered water) if necessary via a mister. Misting is critical to assist the 'fertilising' of the young spores as they grow.

After about 1-2 years, the plantlets can be separated and grown on.

Successful spore propagation is all based on patience.

For more visual assistance, there are many excellent videos on YouTube showing this technique.



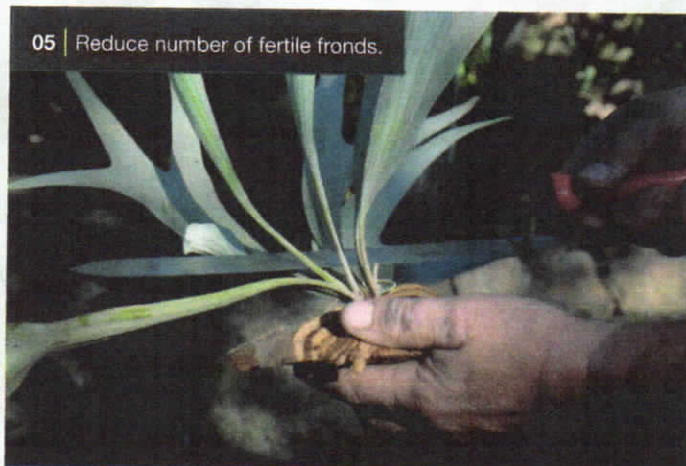
02 | Select a suitable pup from the side.



03 | Carefully cut and remove the pup.



04 | Removed pup showing retention of fibre.



05 | Reduce number of fertile fronds.



06 | Ready for mounting.



07 | Newly removed pup in a bespoke elkhorn cradle mount.

Cultivation

Staghorns and elkhorns are usually grown outdoors, either mounted on a board, placed in a hanging basket or attached directly to a tree or rock. They can also be grown indoors on a board mounted on a wall. The current international trend is to buy and grow these plants in pots so that the antlers grow upwards to create an attractive potted specimen for indoors.

Outdoors, *Platycerium* specimens grow best in bright, indirect light (except for *P. veitchii* which will grow in full sun) and should be allowed to almost dry out between waterings but should never be kept so wet that the shield fronds rot. Check our article to verify which species need more regular watering or humidity.

Australian species of *Platycerium* will usually require little attention apart from watering, but an occasional misting is beneficial during extended dry periods.

To water an indoor plant, place the root section of the plant into room temperature water for 10-15 minutes, and then allow the pot to drip dry. Generally, humidity inside offices and homes is fairly low so a regular misting of the fronds will help to compensate for this.

A weak foliar fertiliser whilst in active growth can be beneficial. Some gardeners throw a few fertiliser pellets (such as chicken manure) or a cow pat into the top nest of shield fronds to give the plant a nutrient boost. Fish emulsion liquid fertilisers are also used by other gardeners. **STG**



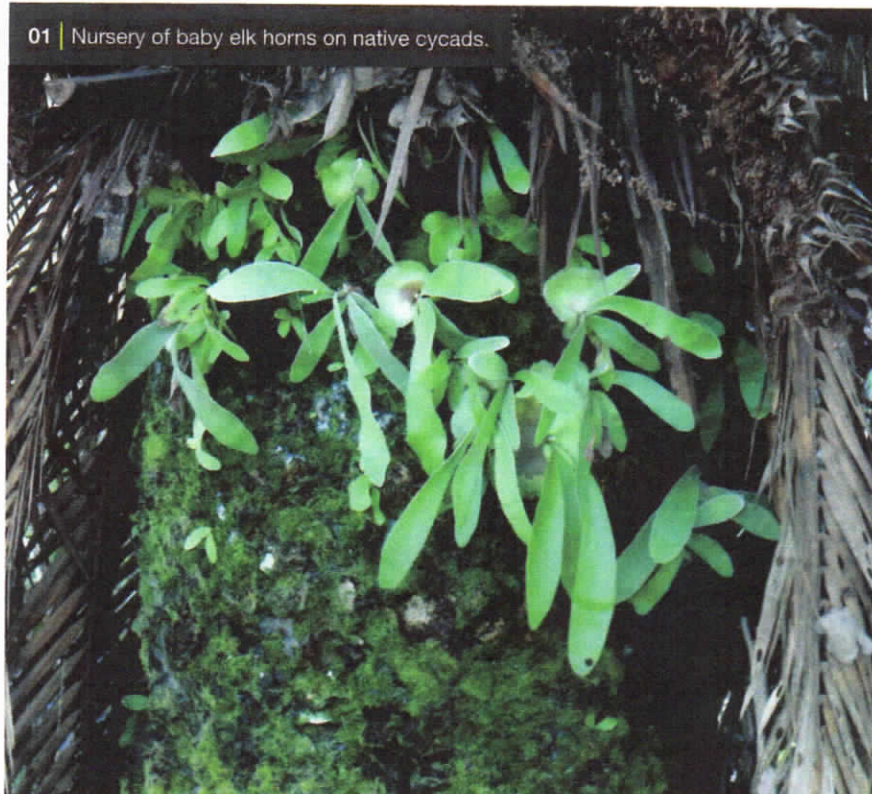
PLATYCERIUM OBSERVATIONS

IN CARNARVON GORGE, QUEENSLAND

Seeing staghorns and elkhorns in home and botanic gardens is a joy most gardeners have experienced. To see them in their natural habitat growing where and how you do not expect them is a whole new different thing. Horticulturist [Mike Kvauka](#) reveals what he saw there.

Main | Elkhorns growing on boulders at Carnarvon Gorge.

01 | Nursery of baby elk horns on native cycads.



02 | Elkhorns habitat on rock faces.



Earlier this year I was lucky enough to have the opportunity to explore Carnarvon Gorge, Central Queensland. It was a dream come true – all the plants I had seen on television I was finally going to see in the flesh. Being a plant nutter, I could not wait!

I noticed whilst walking through the Gorge that all the Elkhorns (*Platynerium* spp.) were growing on rock faces and boulders or on the trunks of the native cycad (*Macrozamia moorei*) – not trees!

All my life prior to this I had only ever seen elkhorns growing on trees in the wild. Here, the only elkhorn specimens on trees appeared to be plants that had broken off from a larger cluster higher in the landscape and fallen onto the ground. By chance, they had fallen against the base of trees which stopped them from rolling further down the bank of the Gorge. These ferns were slowly trying to grow upwards.

Other observations were that the shield fronds were a lighter colour and the tops were more pointed. The fertile antler fronds were finer and more erect. Clearly the harsher environmental conditions necessitated that the plants make a few adaptations.

Examining various boulders and rock faces I never saw any baby specimens or a 'nursery' for the elkhorns. However to my astonishment, the *Macrozamia moorei* appeared to be the primary nursery host for the elkhorn spores and baby specimens.

Looking back at pictures I had taken my theory is that most of the canopy trees appeared to be *Eucalyptus* species. Most seemed to shed their bark leaving a fine smooth trunk – ideally suited to the native sugar gliders.

I believe consequently that these trees would neither offer a suitable environment or lodging site for fern spores to establish.

It was an amazing adventure to visit Carnarvon Gorge and a great horticultural experience to see elkhorns adapting to their unique conditions in the middle of Central Queensland. **STG**