

A.N.P.S.A. Fern Study Group

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Please note: Subscriptions for 2014- 2015 are now due (see back page & attachments).

Program for South-east Queensland Region

Dan Johnston / Peter Bostock

Sunday, 3rd August, 2014. Excursion to Tamborine National Park. We will (initially at least) visit the Palm Grove section of the park. Meet at 9:30am at the end of Palm Grove Avenue in Eagle Heights.

Sunday, 7th September. Meet at 9:30am Julie Major's residence.

Peter Bostock will lead a discussion on fern identification. Bring a chair.

Friday 10th October to Sunday, 12th October, 2014. Participation in the SGAP Spring Flower Show and Plant Sale at Mt Coot-tha auditorium. Friday is for set up with the show being on Saturday and Sunday.

Sunday, 2nd November. Excursion to Baroon Pocket Dam. We intend to walk some way along the start of the Sunshine Coast Hinterland Great Walk from Baroon Pocket Dam returning by the same route. The track follows Obi Obi Creek a short distance from it. Suggested Route from Brisbane: Take the Steve Irwin Way off the Bruce Highway and turn left at Landsborough towards Maleny. On top of the range but considerably before Maleny turn right for Montville. Just before Montville township, turn left into Western Avenue. About 3km along Western Avenue, turn left into Narrows Road which descends steeply for about 2km to the dam. At the bottom, turn left to the picnic area. We will meet there at 9:30am. The map reference is J5 on map 74 on the Sunshine Coast section of the UBD street directory.

Sunday, 7th December. Christmas meeting and plant swap, Rod Pattison's residence,
Meet at 9:30am.

Program for the Sydney Region

Dot Camp/Peter Hind

Saturday 16 August. Meet about 10.30am at Bexley North Railway Station car park. Dorothy Luther, a member of the East Hills Group of ANPSA and a volunteer at Wolli Ck, will lead us on a walk of the Wolli Ck western section as far as Bardwell Park, the next railway station to the east. Toilets are available only at the railway station. There are no facilities in the Reserve. Carry picnic lunch and water. Restaurants are to be found in the RSL club near the end of the walk on the northern side of the railway. The walk is on the northern side of both the railway line and Wolli Creek.

Saturday 20 Sept. Meet about 10.30am at the Taylors residence, Bring
lunch etc. Study a few small (in Australia) genera that are reasonably easy to cultivate in Sydney. How do

you grow *Belvisia*, *Goniophlebium*, *Bolbitis* and *Tectaria*? This should be easy, so please feel free to raise other ferny subjects for discussion.

Saturday 18 Oct. Meet at 11am at the home of Dot Camp,

We plan to do a bushwalk in a nearby reserve in Wyoming. Bring lunch, water etc. and wear comfortable walking shoes. Dot will be our guide.

Saturday 15 November. Meet at Margaret and Peter Olde's country residence

No study, please bring a plate to share and as usual we will look around the fern collection and plantings.

December 2012 and January 2013 – No Meetings, - MERRY CHRISTMAS.

Saturday 21 February 2015. Meet from about 10.30am at the home of Peter and Margaret Hind,

Study to be decided, but definitely to agree on the next lot of forthcoming events. Please bring plenty of ideas. Think of places you would like to visit or revisit?

Please bring a plate to share for morning or afternoon tea.

All outings are subject to weather conditions being favourable.

Spore List – July, 2014

Barry White

<i>Adiantum formosum</i> 1/12	<i>Doodia australis</i> 6/13
<i>Adiantum hispidulum</i> 6/12	<i>Doodia media</i> 6/13
<i>Amphineuron opulentum</i> 8/13	<i>Dryopteris wattsi</i> 8/13
<i>Amphineuron queenslandicum</i> 4/12	<i>Hypolepis glandulifera</i> 2/13
<i>Amphineuron terminans</i> 8/13	<i>Hypolepis muelleri</i> 3/12
<i>Arachniodes aristata</i> 8/13	<i>Lastreopsis acuminata</i> 10/12
<i>Asplenium aethiopicum</i> 10/12	<i>Lastreopsis decomposita</i> 1/12
<i>Blechnum chambersii</i> 4/12	<i>Lastreopsis marginans</i> 3/12
<i>Blechnum minus</i> 3/12	<i>Lastreopsis microsora</i> 8/13
<i>Blechnum wattsi</i> 3/13	<i>Lastreopsis nephrodioides</i> 7/14
<i>Blechnum wurunuran</i> 6/14	<i>Lastreopsis tenera</i> 6/13
<i>Bolbitis quoyana</i> 5/13	<i>Lastreopsis</i> × <i>Coveniella</i> 5/13
<i>Chingia australis</i> 11/12	<i>Lygodium reticulatum</i> 11/12
<i>Christella dentata</i> 3/12	<i>Macrothelypteris torresiana</i> 7/14
<i>Christella subpubescens</i> 4/12	<i>Plesioneuron tuberculatum</i> 5/13
<i>Cyathea australis</i> 1/12	<i>Platycterium superbum</i> 8/13
<i>Cyathea baileyana</i> 11/12	<i>Pneumatopteris sogerensis</i> 8/13
<i>Cyathea brownii</i> 10/12	<i>Pneumatopteris costata</i> 6/11
<i>Cyathea cooperi</i> 7/13	<i>Polystichum australiense</i> 6/13
<i>Cyathea cooperi</i> 'Cinnamon' 2/13	<i>Polystichum formosum</i> 6/13
<i>Cyathea exilis</i> 12/12	<i>Pronephrium asperum</i> 8/13
<i>Cyathea leichhardtiana</i> 8/12	<i>Psilotum nudum</i> 6/13
<i>Cyathea medullaris</i> 10/12	<i>Pteris biaurita</i> 3/12
<i>Cyathea rebecca</i> crested 8/13	<i>Pteris umbrosa</i> 8/12
<i>Dicksonia antarctica</i> 12/13	<i>Rumohra adiantiformis</i> 4/12
<i>Diplazium australe</i> 6/13	
<i>Diplazium assimile</i> 7/12	
<i>Diplazium dameriae</i> 8/13	

Thank you to a regular spore donor, Nada Sankowsky.

Sydney Area Meeting Reports

Sydney Fern Study Group Outing, 21 June 2014

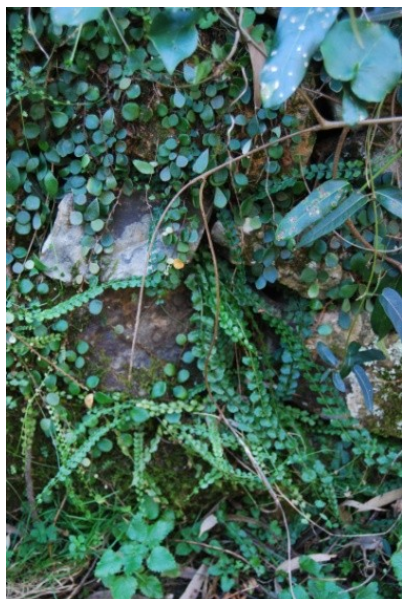
Kylie Stocks

Ann and Geoffrey Long's place,

It was a brisk morning when the intrepid Sydney FSG explorers set out for the home of Ann and Geoffrey Long. The Long's own a delightful but steep 20.74ha property on the Illawarra escarpment about 220m above sea level. The property is mainly remnant rainforest, following logging for *Toona ciliata* some 100 years ago. Ann and Geoff have taken a great deal of pride in regenerating the property, and encouraging the local species. The property is now heavily timbered, and houses some magnificent rainforest trees.



Buttressed roots - steep



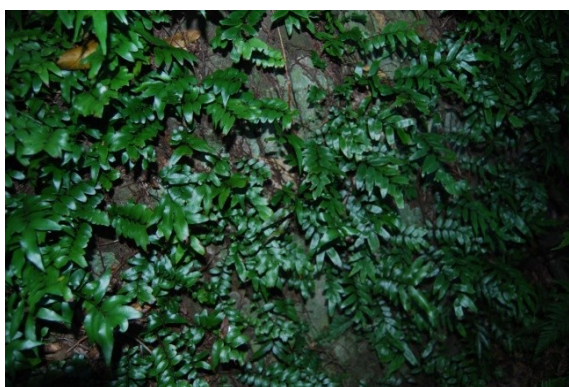
South facing rock wall in front of house

The Long's have established a number of walking trails around their property which allow visitors to see the rainforest close up, and gain an appreciation of the floristic diversity of the area. The last time the FSG visited was in 2010 and it was nice to return to see how the property has coped with recent dry weather.

The rock walls around the house were well endowed with ferns which had volunteered. It was lovely to see the *Pyrrosia rupestris*, *Asplenium flabellifolium*, *Asplenium australasicum* and even a *Platyserium bifurcatum* taking up residence of their own accord.

Geoff shared some advice he had received from the local bush fire brigade on how to prevent bushfires on their bushy block. This was of particular

interest following the fires of last summer experienced by those in the Blue Mountains. Interestingly, it focussed largely on removing the middle storey, particularly the vines and shrubs. By removing these, and any ground material (fallen branches and the like), the Long's are able to prevent the spread of any fire to the crowns of the trees on the property (in conjunction with a large water tank that they keep on site which is dedicated to fire fighting).



Arthropteris tenella on rock wall

Members of the FSG went on two different walks – one for the more enthusiastic walkers, and another, gentler walk for the sightseers. The enthusiastic walkers saw many of the 27 species of ferns recorded for the property, in particular some lovely *Arthropteris tenella* which grew in large colonies on the rocks.

Despite their predominance in the area, few tree ferns were found on the property. In addition, an enthusiastic search failed to locate *Pteris comans* which was seen during our last visit.

Nonetheless, a great day was had by all. The FSG would like to extend their thanks to Ann and Geoff for again hosting us. We hope to be back again!!

Sydney Fern Study Group Meeting, 19 July, 2014

Dot Camp

On the 19th July, 2014, some 15 members of the Fern Study group enjoyed the warm hospitality provided by Natalie and John. They have a varied collection of rare and interesting plants, including a few robust *Huperzia* spp. growing under the eaves on the southern side of the house. We thought we would make this our study, with many of the group contributing to the growing points below.

Growing *Huperzia* (Fern allies)

Some *Huperzia* suggested for growing in the Sydney region—*H. phlegmaria*, *H. phlegmarioides*, *H. squarrosa*.

These epiphytes listed above need to be grown in a very free draining coarse mix such as orchid bark, tree fern fibre, sphagnum moss, coconut fibre with maybe some added charcoal.

A hanging basket can be used, but take care with the galvanised wire baskets as they can cause damage to the stems- use plastic coated wire baskets and plastic or terracotta pots instead.

They like to grow in the shade, out of the wind and be kept on the dry side particularly in winter.

They can suffer from stem rot so don't water late in the day. They also like high humidity and good air movement.

They resent root disturbance. Weak plants can sometimes be infested with white coconut scale.

Fertilise with a weak solution of seaweed or fish emulsion.

To propagate, when the ends of the 'tassels' turn up, peg them down in sand or similar and be patient! Plants are virtually impossible to raise from spore, due to their subterranean nature, and requirement for a mycorrhizal fungi.



Comment on above by study group leader

Peter Bostock

As co-author of a paper transferring epiphytic members of the genus *Huperzia* to the genus *Phlegmariurus*, I feel bound to suggest that we use the new names! Hence *Phlegmariurus phlegmaria*, *P. phlegmarioides* & *P. squarrosus*. Don't blame Ashley Field or me for the generic name – it was originally proposed as a subdivision (section) of *Lycopodium* in 1909.

South-East Queensland Meeting Reports

Kyogle, May Weekend, 2014

Claire Shackel

For the May meeting of the Queensland group, a three day excursion was arranged to the Kyogle area. The group visited the area seven years ago and our tally for that weekend was 60 species of ferns. We did not find all those species on this trip but did add some new ones.

On Friday the weather was a little damp and we started with the Murray Scrub track in the Toonumbar National Park. Of special interest in 2007 was *Botrychium australe* but it could not be found this time. Due to the weather we did not go as far as in 2007 and so the fern count was not as good. After lunch the return route to Kyogle had to be modified as roads were closed. The convoy drove across the Cambridge Plateau forest road but only glimpses of the spectacular scenery could be seen between the clouds. At the picnic ground at Culmaren Valley, the party did a short walk over the edge and saw a typical list of ferns for the moist open forest country.

On Saturday the car convoy headed for Bar Mountain in the Border Ranges National Park. As we proceeded along Williams Road, we pulled up at Hanging Rock Falls Reserve. A short walk to the creek gave a surprising number of ferns and a good swimming hole.

On the previous trip, Bar Mountain produced a wonderful array of ferns. There was a circuit track over the edge of the range and the party opted to go down the steep end (counter-clockwise) and come up the more gently graded well-formed forestry track. It proved more arduous than any remembered but we made it eventually. A large selection of ferns were seen, thirty-eight in all. *Doodia hindii* was recognised for the first time—on a wet rock-face beside the track, growing with *Doodia australis*—and the patch of the putative hybrid, *Arthropteris beckleri* × *tenella*, was located again near the end of the Loop track.

On Sunday, after packing up, the morning was spent at Brindle Creek in the Border Range National Park. The walks there are called Cedar and Helmholtzia Loop and follow along the edge of the creek, where conditions are very moist. The *Helmholtzia* plants were massive and the ferns not often seen by Queenslanders included *Blechnum watsii*, *Diplazium dilatatum* and *Pteris comans*. One of the filmy ferns seen previously, *Hymenophyllum australe*, was not located this time - perhaps due to the host Beech tree

having toppled into the creek. For lunch the convoy climbed out of the creek to the top of the range and stopped at the Antarctic Beech forest. After lunch it was a short drive along the Range to Pinnacle Lookout where the clouds allowed a good view of a vast area. It was back out of the Border Range National Park and on to the Lions Road and home.

Ferns Seen on the Kyogle Trip		Murray Scrub	Culmaren Valley	Hanging Rock Falls	Bar Mt	Brindle Ck
<i>Adiantum</i>	<i>atroviride</i>			x		
<i>Adiantum</i>	<i>diaphanum</i>				x	x
<i>Adiantum</i>	<i>formosum</i>	x	x	x	x	
<i>Adiantum</i>	<i>hispidulum</i>			x		
<i>Pellaea</i>	<i>nana</i>	x			x	x
<i>Asplenium</i>	<i>australasicum</i>	x		x	x	x
<i>Asplenium</i>	<i>harmanii</i>				x	
<i>Asplenium</i>	<i>polyodon</i>	x			x	x
<i>Deparia</i>	<i>petersenii</i>					x
<i>Diplazium</i>	<i>assimile</i>	x			x	x
<i>Diplazium</i>	<i>australe</i>				x	
<i>Diplazium</i>	<i>dilatatum</i>					x
<i>Blechnum</i>	<i>cartilagineum</i>				x	x
<i>Blechnum</i>	<i>patersonii</i>				x	x
<i>Blechnum</i>	<i>wattsii</i>					x
<i>Doodia</i>	<i>australis</i>				x	
<i>Doodia</i>	<i>aspera</i>	x	x	x	x	
<i>Doodia</i>	<i>caudata</i>			x	x	
<i>Doodia</i>	<i>hindii</i>				x	x
<i>Cyathea</i>	<i>cooperi</i>				x	x
<i>Cyathea</i>	<i>leichhardtiana</i>				x	x
<i>Arthropteris</i>	<i>beckleri</i>				x	x
<i>Arthropteris</i>	<i>tenella</i>	x	x		x	
<i>Arthropteris</i>	<i>beckleri</i> × <i>tenella</i> *				x	
<i>Davallia</i>	<i>pyxidata</i>	x			x	x
<i>Dennstaedtia</i>	<i>davallioides</i>			x	x	x
<i>Histiopteris</i>	<i>incisa</i>					x
<i>Hypolepis</i>	<i>glandulifera</i>		x		x	
<i>Hypolepis</i>	<i>muelleri</i>	x				x
<i>Pteridium</i>	<i>esculentum</i>	x	x	x	x	
<i>Dicksonia</i>	<i>youngiae</i>				x	x
<i>Lastreopsis</i>	<i>decomposita</i>		x		x	
<i>Lastreopsis</i>	<i>marginans</i>				x	
<i>Lastreopsis</i>	<i>microsora</i>	x	x		x	x
<i>Lastreopsis</i>	<i>munita</i>	x			x	
<i>Lastreopsis</i>	<i>silvestris</i>				x	
<i>Lastreopsis</i>	<i>smithiana</i>				x	x
<i>Abrodictyum</i>	<i>caudatum</i>				x	x
<i>Crepidomanes</i>	<i>vitiense</i>	x				
<i>Hymenophyllum</i>	<i>cupressiforme</i>				x	
<i>Hymenophyllum</i>	<i>flabellatum</i>				x	x
<i>Todea</i>	<i>barbara</i>				x	x
<i>Dictymia</i>	<i>brownii</i>				x	x
<i>Microsorium</i>	<i>pustulatum</i>				x	
<i>Microsorium</i>	<i>scandens</i>	x	x		x	x
<i>Platycterium</i>	<i>bifurcatum</i>		x	x		x
<i>Platycterium</i>	<i>superbum</i>	x	x	x		
<i>Pyrrosia</i>	<i>confluens</i>	x	x	x	x	
<i>Pyrrosia</i>	<i>rupestris</i>	x	x	x	x	x
<i>Pteris</i>	<i>comans</i>					x
<i>Pteris</i>	<i>tremula</i>	x	x			
<i>Pteris</i>	<i>umbrosa</i>	x			x	
<i>Christella</i>	<i>dentata</i>			x		x
<i>Vittaria</i>	<i>ensiformis</i>					x

* this putative hybrid has been referred to *Arthropteris palisotii*, and it does seem to match that species. Chromosome analysis is needed to determined hybrid status.

Some shortcuts in the identification of ferns in Australia

Peter Bostock

I have always believed that it is better to find a single diagnostic feature, if one exists, to separate two fern species that might be superficially similar (to the less well-trained eye) than to have to run through a long list of distinguishing features. Sometimes, such characters are difficult to find, and sometimes not! I will list a few that I have discovered over the years; they are for the most part easily testable, and therefore come with few gotcha's. Of course, the premise on which these are built is that I have correctly identified the ferns that these characters are intended to distinguish!

Adiantum - venation of pinnules (leaflets, ultimate segments) define native species

This is easy – find a sterile pinnule (or a fertile pinnule with some portion that is sterile) – examine the veins (easy with a backlight). If the veins end in or near the apex of the marginal teeth (Δ), the species **is a native Australian one**, but if the veins end at the base of the V-shaped sinus between the teeth, then **not Australian**. This test can distinguish a large range of exotic cultivars in species such as *A. concinnum*, *A. raddianum* etc. from similar native species including *A. atroviride*, *A. capillus-veneris* and *A. aethiopicum*. Some species such as *A. aethiopicum* and *A. philippense* may appear never to produce marginal teeth, but with persistence some may be found. Pinnae of young plants are more likely to be sterile.

Adiantum - presence of hairs on rachises and pinnae

1. *Adiantum aethiopicum*, *A. atroviride* and *A. capillus-veneris* – hairs not present, although microscopic yellowish glands may be present on rachises of young fronds of *A. atroviride*;
2. *Adiantum diaphanum* – no hairs on any rachis surfaces; stiff black hairs on the pinnule surfaces, often not many but usually quite obvious under 10× magnification;
3. *Adiantum formosum* - stiff red-brown hairs on the upper surface of rachises (and pinnule stalks); pinnules either lacking hairs entirely OR fine hairs present on undersurface of pinnules;
4. *Adiantum hispidulum* – rachises, pinnules and soral flaps short-hairy, often described as ‘pubescent’;
5. *Adiantum philippense* – no hairs on pinnules or rachis;
6. *Adiantum silvaticum* – pinnae lacking hairs, but upper surface of the rachises usually with stiff forward-pointing hairs (hairs are ‘antrorse’ – pointing towards the ends of the axis on which they are borne).

Adiantum hispidulum - distinguish varieties based on hairs of the pinnule surface and/or lower surface of the indusium.

1. *Adiantum hispidulum* var. *pubescens* (N.Z.) and *A. hispidulum* var. *hypoglaucum* have long silky hairs on their pinnules;
2. *Adiantum hispidulum* var. *hispidulum*, var. *whitei* and var. *minus* have short stiff erect hairs, usually fairly sparsely distributed, some are long, the majority are shorter;
3. *Adiantum hispidulum* var. *whitei* has hooked hairs under the indusium, among the sporangia; no other variety has these hooked hairs. Unfortunately they are quite tiny - difficult to see even with a 10× magnifier.

New Fern Publication

Peter Bostock

P.H. Labiak, M. Sundue, G. Rouhan, J.G. Hanks, J.T. Mickel & R.C. Moran (2014). Phylogeny and historical biogeography of the Lastreopsid ferns (Dryopteridaceae). *American Journal of Botany* vol. 101, pages 1–22.

This is a somewhat paraphrased version of the abstract provided with the above paper, with my comments in square brackets:

“As currently understood, *Lastreopsis* has about 45 species and occurs in Australia, southern Asia, Africa, Madagascar, and the New World tropics. Previous molecular studies suggested that *Lastreopsis* is paraphyletic [that is, it encompasses more than one clade (a group of organisms believed to comprise all the evolutionary descendants of a common ancestor)]. This study focuses on resolving relationships among the lastreopsid ferns (*Lastreopsis*, *Megalastrum*, and *Rumohra*), the evolution of morphological characters, and an understanding of the temporal and spatial patterns that have led to the current diversity and geographical distribution of its living species.

As a result of this study, *Lastreopsis* is confirmed to be paraphyletic, and at least one of its clades should be recognized as a distinct genus, *Parapolystichum*. *Coveniella poecilophlebia* and *Oenotrichia tripinnata* were nested within *Lastreopsis* s.s. (*sensu stricto* = in the narrow sense, hence excluding species mentioned in last paragraph below). [This latter statement implies that these two species will be transferred to the genus *Lastreopsis*]. The initial diversification of the lastreopsids took place at about 56.55 Ma, from a neotropical ancestor.

Conclusions: Taxonomic recognition of *Parapolystichum* is warranted to preserve the monophyly of *Lastreopsis*. Diversification among the main clades of the lastreopsid ferns was influenced by climatic and geological changes in the southern hemisphere. The biogeographic history of the group is intimately related to the trans-Antarctic corridor between Australia and South America, with evidence for multiple lineage interchanges between Australia and South America during the Oligocene [23–34 MYA] and the Eocene [34–55 MYA] epochs.”

The above-mentioned authors have a second paper in press, transferring certain species of *Lastreopsis* to the existing genus *Parapolystichum*. *Parapolystichum* was originally described as a section of *Polystichum*, before being raised to generic status. At least one of our *Lastreopsis* species, *L. decomposita*, already has a combination in *Parapolystichum*. Other species likely to be transferred to the genus are *L. microsora*, *L. munita*, *L. rufescens*, *L. smithiana*, *L. tinarooensis* and *L. windsorensis*.

***Adiantum caudatum*, a new record for Australia**

Peter Bostock

A recent collection from a limestone outcrop SSW of Cooktown by Keith McDonald and Rigel Jensen has resulted in the recognition of *Adiantum caudatum* L. as a native species. This is, as far as I know, the first record for Australia. *A. caudatum* is a so-called ‘walking fern’, with habit somewhat like *Adiantum philippense* or *Asplenium flabellifolium*. It has a simply pinnate frond, and the rachis usually extends beyond the pinnae to produce a long tail, ending in a proliferous bud.



Undersurface of pinnule of *Adiantum caudatum*

This fern has many forms throughout its range, and some have been recognised as species in their own right. Based on the stiff dark green hairy pinnae with relatively few marginal incisions, the brown rhizome scales with dark centres, and the general form of the plants, I believe the Queensland collection matches the true *Adiantum caudatum*. Note this species appears to have veins ending in the apex of marginal teeth (so it does not break my rule #1 above). The pinnae themselves are somewhat lime-green, asymmetric, but not as blunt or rounded as *Adiantum hispidulum*. If anything they are more leathery than that species. This is not a large fern – the sampled population had fronds up to about 15 cm long.

ANPSA Fern Study Group Financial Statement: July 1, 2013 to June 30, 2014

* Because a number of members withdrew from this excursion for medical reasons, part of the accommodation at Bunya Mts was not required and the deposit was forfeited.

(This statement should be considered as a draft, as auditing is not yet complete.)

ANPSA Fern Study Group Fees for 2014-2015

Dan Johnston, treasurer

The annual subscription to the Fern Study Group is \$5 for a single person, or more than one person receiving a single copy of the Fern Group Newsletter. Please note also that membership of an ANPSA affiliated body, such as SGAP (Qld Region) Inc., is a necessary prerequisite for study group membership.

If you get your newsletter by mail, the envelope address and an enclosed note will show your current paid-to date:

June 2012 Payment of \$15 is now due. Membership will be cancelled if payment is not received before the next newsletter goes out.

June 2013 Payment of \$10 is now due.

June 2014 Payment of \$5 for the 2014-2015 year is now due.

June 2015 or later. You have already paid for the coming year.

We accept payments for up to 4 years in advance i.e. \$20 if you are currently up to date to June 2014.

If you receive your newsletter by email, you will be advised in the body of the email of your paid-to date.

Methods of payment:

- In person at a Queensland group meeting.
- By cheque or money order posted to me:
Dan Johnston,

Please also include the completed form accompanying this newsletter.

Make cheques payable to 'ASGAP Fern Study Group'.

- By electronic bank transfer. You can transfer into our account