

## PSG 72, *Phyllium giganteum* Hausleithner.

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### Key words

Phasmatodea, *Phyllium giganteum*, Breeding, Rearing.

### Classification

This species had been sold by dealers in Malaysia many years ago. Hausleithner had a specimen which he originally believed to be *Phyllium pulchrifolium* Serville but later received another specimen with some eggs and recognized that it was an undescribed species. Then in 1984 he described it as *Phyllium giganteum*.

### Culture history

*Phyllium giganteum* was in culture in mid 1984 (Fox, 1984: 6) and the culture may have been started in 1983, or even earlier.

### Distribution

This species is only recorded from West Malaysia (Cameron Highlands and Tapah Hills) and Sarawak. The thirteen females I have in my collection also come from West Malaysia. It seems to be quite common in West Malaysia, as large numbers of dead and living ones are sold by Malaysian dealers every year.

### Adults

As the name suggests, this is the largest species of this genus to be described so far. It is a very typical member of this genus, being very flattened and leaf-like. It is interesting to see that all our cultures here in Europe are parthenogenetic. The thirteen wild caught specimens in my collection (FH 25-28 & FH 571-579) range from 96-109mm in body length while my culture stock mainly ranges from 100-105mm. The maximum width of the body ranges from 52-57mm in my wild caught specimens. The head is quite big for *Phyllium* spp., being 12mm long. The antennae are very short (5.5mm) as in all *Phyllium* females. The sides of the mesonotum are serrated heavily

and the whole is granulated quite strongly. The tegmina are quite smooth for *Phyllium* spp. and reach lengths of 55-64mm. As in all *Phyllium* spp., except *Phyllium celebicum* de Haan, there are no hind wings. All the legs have lobes, but the lobes of the fore femora are very wide, being nearly triangular; the edges are covered by several, very small teeth. The abdomen is very

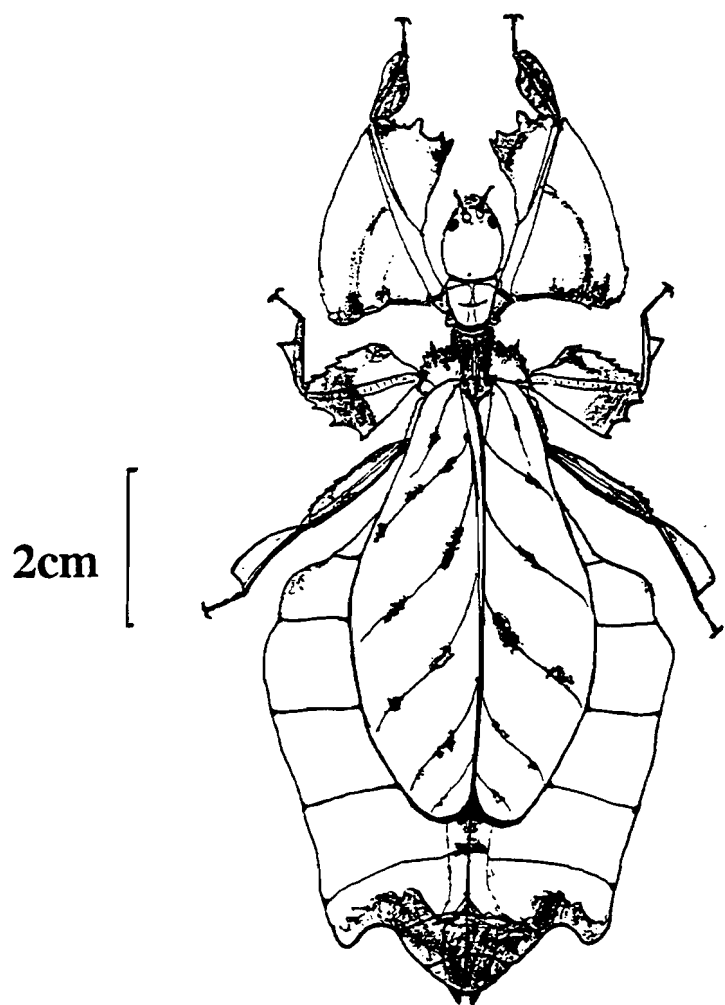


Figure 1 *Phyllium giganteum* female, typical coloration of culture stock.

broadened with irregular edges. The lateral margins of the 8<sup>th</sup> abdominal segment extend backwards, similar to *P. frondosum* Redtenbacher and *P. pulchrifolium* Serville; the lobes are however much smaller than in the other species.

Coloration is quite variable and interesting. Our cultured specimens are usually of a light green colour with several brown patches on the abdomen, tegmina, and legs. However the wild caught ones in my collection vary greatly from a uniform light or dark green to nearly brown. There are also specimens looking like our cultured ones and some with many small brown patches and spots all over the body, legs and head. Altogether they have much stronger colours which I think mainly depends on the foodplants. The wild caught ones often show leaf-fungus and virus-like spots and blemishes on the underside of their abdomens which I have also never seen in any of my culture.

As our cultures are all parthenogenetic, I am not describing the male, which has been described by Paul Brock (1994).

### Eggs

These are about 6mm long, 4.5mm high and 4.8mm wide. Their colouring is a greyish brown or black and with age they become more or less brown. The operculum is cone shaped with a height of 1.5-1.8mm. The micropylar plate is elongated with the mid part being thicker than the ends. The whole egg is covered by several big holes and is granulated. When incubated at about 25°C and quite damp conditions, hatching takes some 6-8 months. Eggs of wild caught specimens usually have hatching rates of about 80-90% while those of bred specimens do not have more than 30%. The adults are not very prolific egg layers and egg production is not very frequent. There might be days, when each specimen produces up to three eggs and then a whole week when not a single egg is produced.

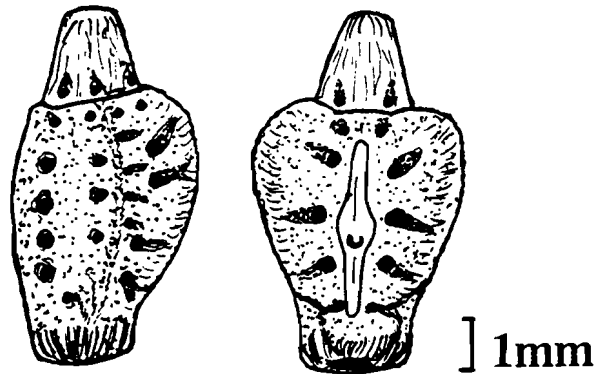


Figure 2 Lateral and dorsal views of egg.

### Nymphs

These are dark orange-brown with several darker patches on the legs and body when newly hatched and have a body length of about 22mm with a maximum body width of the abdomen of 7mm. The lobes on the 8<sup>th</sup> abdominal segment do not project as far back as in the adults and the abdomen is more pointed and rhombic. They are the biggest nymphs of *Phyllium* spp. which I have ever seen. When they have started feeding, they change colour to a light apple green while there are still many brown markings on the legs and body. I have not counted but I think they have to do seven skin sheds before they get to adult.

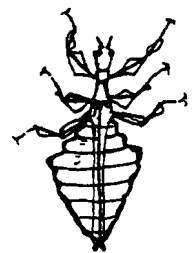


Figure 3 First instar nymph.

When nymphs are kept in plastic boxes or a larger cage full of fresh food, which provides a high humidity, and are not sprayed, they will grow very well and the mortality rate within the first instar will be kept to a minimum. I have had success rates of more than 95%. In my experience, when the nymphs have reached second instar there will not be any more losses.

### Defence

Not surprisingly, defence is almost entirely reliant upon camouflage. While the younger nymphs are quite active, the larger ones will often drop from the foodplant and remain motionless for some time.

### Development

Directly after hatching, the young nymphs are quite active and try to climb as high up into the leaf region as possible. After about two weeks, when they have fed, they change to a green colour and are not as active any more. After about three to four weeks they make their first skin change and turn to a uniform light green colour. The nymphs have to do about seven skin changes before they become adult, which usually takes about ten months or more. The adult females start producing eggs some 10 weeks after they have done their final skin shed.

### Foodplants

In captivity, this species feeds readily on bramble (*Rubus* spp.) and Oaks (*Quercus* spp.). According to Michael Yeh (personal communication), in the wild they feed on guava (*Psidium guajava*) and Mango (*Mangifera* sp.). My *Phyllium bioculatum* and *Phyllium celebicum* also feed on pyracantha but I have not yet offered it to *P. giganteum*.

### Breeding

In my opinion, this species is not really difficult to breed, however the hatching rates are often very low and there might be some problems with the final moult, when the humidity is too low. This species prefers high temperatures of 25-28°C and a high humidity of at least 70%. However, they should in my opinion not be sprayed at all, except the eggs of course. It is important that they always have plenty of fresh food and are best fed with oak when it is available, as they prefer it to bramble. They do also not accept dirt, either on the floor of the cage or on the foodplant, and plenty of light and fresh air must be provided. For the young nymphs, it is important to make sure, there is always enough food within the cage as they often walk along the sides and might never get in contact with food, when there is not.

### References

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