An investigation of the invertebrate fauna on the Aride *Peponium* sp.

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The *Peponium* species (species status not yet confirmed) (Cucurbitaceae) present on Aride island is similar to *P. sublittorlae* which is endemic to Aldabra. It is possibly a Seychelles endemic subspecies of the African *P. vogelii* (Castle & Mileto 1994; Friedmann 1994). There are however morphological differences between it and the African species which has white or yellow flowers whereas the Aride *Peponium* flowers are solely yellow. The fruits of the African species ripen to red wheas the Aride plants turn brown. In Africa the plants are found from 80 to 240m in altitude wheras on Aride they are fond a few meters above sea level up to 134m. The plant found on Aride is currently identified as *P. vogelii* but not all taxonomists are in agreement with this (Friedmann 1994).

The Aride *Peponium* is a climbing creeper often going up into the canopy. Mature stems may grow up to 4cm in diameter. The weight of the plant is taken by supporting trees. Younger stems are green and fibrous. Leaves are ovate, base cordate 20cmx20cm 5-lobed and toothed at the margin. Older leaves are coarse to the touch. The petiole is curved, grooved up to 15cm long. Male flowers are green with 6 lanceolate lobes up to 5mm. It has 5 petals, which are yellow, obovate (broadest above the middle) and 4cm long. Female flowers are similar to the male but are always solitary with calyx (3cm) swollen at the base, peduncles are shorter than the male up to 10cm long. The flowers appear drooping and half closed during the day and at 5:30pm they open out fully and emit a pleasant fragrance, reminiscent of a primrose.

The fruit is hard and pale green when unripe, becoming ellipsoid, 6x4cm, brown, soft and dry when ripe. The seeds are ovate, flattened, dark grey, embedded in an orange gelatinous net in unripe fruit but dry and loose in dry fruit.

This study was carried out in an attempt to answer the following quesitons. Firstly, which invertebrates pollinate *Peponium* flowers? Secondly, which invertebrates live on the leaves? Thirdly, how are *Peponium* fruits dispersed and what makes use of them?

Species distriubtion

An all-island census was conduced in March to May 1999 (Crowley & Meegan 2000). At least 733 plants were located, compared to a previous total of 66 plants in March to May 1993 (Ayrton 1994). The 1999 study found 2 new sub-populations of plants. Highest densities were found to the west and south of the view point path on the west side of the island. They were mostly found where dense hill woodland was abundant though gaps created by fallen trees seemed important to allow young plants to climb and mature (Crowley & Meegan 2000).

Methods

3 *Peponium* sites were selected. One to the west of the lodge in the plateau area growing on *Morinda citrifolia* (GR 52223441). The second site was on the view point path with *Nephrolepis biserrata* as the supporting species (GR 51623445). The third site was on the plateau (GR 51733439) being supported by *M. citrifolia* and *Pisonia grandis*. The sites were studied during June to July 2000. All plants had both flowers and fruit present. Plants were observed for 30 minutes at a time. 20 randomly selected leaves were observed for invertebrates. 5 flowers were observed for any visiting invertebrates. New invertebrates were collected and preserved in 70% ethanol for identification. Invertebrates that had already been collected were subsequently noted only.

Results

Table 1 shows the species that were collected and identified at the 3 sites. Species observed visiting flowers were the small green and gold moth *Epicroesa* sp., the black and white moth *Diaphana indica* and a green aphid species. *D. indica* is an indigenous moth and was observed going from one flower to a second at 18:00hrs when the flowers were open. small 'sugar' ants *Monomorium floricola* were observed inside the *Peponium* flower.

Species observed on the fruit included coccoid scale insects, a 2-striped green caterpillar and the large ant *Camponotus grandidieri*. No fruit was found predated by skinks although skinks were ever present on the leaves.

Conclusion

The *Epicroesa* moth and the black and white moth *D. indica* were found at all 3 sites regardless of the type of supporting vegetation at each site. More drosophilid fruit flies were present near the lodge on the *Peponium* supported by *Morinda citrifolia*. *M. citrifolia* attracts many kinds of insects and was thought to influence those on the *Peponium* sp. It could be hypothesised that *Peponium* is pollinated by the *D. indica* as observations suggest. This moth was observed on the leaves throughout the day but was most active at dusk when the *Peponium* flowers opened.

Moorhens *Gallinula chloropus* have been observed feding on fallen *Peponium* fruit on the plateau and may also act as seed dispersers for this species.

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References

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Table 1. Invertebrates recorded on *Peponium*.
F = present on flower, Fr= present on fruit, a = abundant

Class	Species	Day from 25/6/2000																									
		Lodge										Viewpoint										West- end					
		1	2	3	4	5	8	10	10	11		1	2	3	5	6	8	8	9	10		10	11	11	12		
	Time (hrs)	16	11	10	11	11	14	15	18	11		18	18	16	14	15	15	18	11	18		14	12	14	17		
Hemiptera	*Osaka relata*	1	-	-	-	-	-	1	-	1		-	-	-	-	-	1	1	1	-		-	-	-	-		
	Bathycoelia praelongirostris	-	-	-	-	1	-	-	-	-		-	-	-	-	-	-	-	-	-		-	-	-	-		
	Fulgoroidea sp. (juv.)	1	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-		1	-	-	-		
	Coccoidea sp.	-	F	-	-	-	-	-	-	-		-	-	-	-	1	-	-	-	-		-	-	-	-		
	Aphididae sp.	-	-	-	-	-	1	-	-	-		-	-	-	-	-	-	-	-	-		3	-	-	-		
Coleoptera	*Chilocorus nigritus*	1	-	-	-	-	1	-	-	1		-	-	-	-	-	-	-	-	-		-	-	-	-		
Lepidoptera	*Epicroesa* sp.	2	1	F	-	-	-	1	-	-		1	-	-	1	1	1	a	a	1		-	1	1	1		
	Diaphana indica	-	-	-	-	-	-	-	-	-		1	F	-	1	1	-	1	1	1		-	1	1	1		
	Psara cf. *basalis*	-	-	-	-	-	-	-	-	-		-	1	-	-	-	-	-	-	-		-	-	1	-		
	Marasmia poeyalis	-	-	-	-	-	-	-	-	-		-	-	-	1	-	-	-	-	-		-	-	-	-		
	Lithocolletidae sp.	-	-	-	-	-	-	-	1	-		-	-	1	-	-	-	-	-	-		-	-	-	-		
	Tineidae sp.	-	-	-	-	-	-	-	-	-		-	-	-	1	-	-	-	-	-		-	-	-	-		
	larva sp. 1	-	-	-	1	-	-	-	-	-		-	-	-	-	-	-	-	-	-		-	-	-	-		
	larva sp. 2	-	-	-	-	1	-	1	-	1		1	-	1	-	1	-	-	a	-		3	-	Fr	-		
	larva sp. 3	-	-	-	-	-	-	-	-	-		1	-	-	-	-	-	-	-	-		-	-	-	-		
Diptera	*Melanostoma annulipes*	-	-	-	-	1	-	1	-	-		-	-	-	-	-	-	-	-	-		-	-	-	-		
	Calliphora 'luciola'	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-		1	-	-	-		
	Sarcophagidae sp.	1	-	-	-	1	1	1	-	1		-	-	-	-	-	-	-	-	-		-	-	-	-		
	Drosophilidae sp. 1	a	a	a	-	a	a	a	1	-		1	1	1	1	1	1	1	a	1		-	-	-	-		
	Drosophilidae sp. 2	1	-	1	F	-	-	-	-	-		-	-	-	-	-	-	-	-	-		-	-	-	-		
	Drosophilidae sp. 3	-	1	-	-	a	1	1	-	-		-	-	-	-	-	-	-	-	-		-	-	-	-		
	Pipunculidae sp.	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-		1	1	-	-		
Orthoptera	*Zarceus fallaciosus*	1	-	-	-	-	-	-	-	-		-	1	-	1	-	-	-	-	-		-	-	1	1		
Hymenoptera	*Camponotus grandidieri*	-	-	-	-	1	1	F	-	1		1	-	-	-	a	a	1	1	1		-	-	-	-		
	Technomyrmex albipes	-	-	-	-	-	-	-	-	-		1	1	-	a	a	1	F	1	aF		-	-	1	1		
	Monomorium floricola	-	-	-	-	-	-	-	-	-		F	-	-	F	-	-	-	-	-		F	-	F	-		
Araneae	*Myrmarachne constrictus*	1	-	1	1	1	-	-	-	-		-	-	-	-	-	-	-	-	-		-	-	-	-		
	Nephila inaurata	-	-	-	-	-	-	-	-	-		2	1	-	2	-	-	-	-	-		1	-	-	-		
	Argyrodes cognatus	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-		1	-	-	-		
	Salticidae sp.	1	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-		-	-	-	-		
	sp. 1	-	-	-	-	1	-	1	-	-		-	-	-	-	-	1	-	-	-		-	-	-	-		
	sp. 2	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	1	-	1		-	-	-	-		
Acari	sp.	-	-	-	-	-	-	-	-	-		-	1	-	1	a	-	a	a	-		-	-	-	-		