

Genus *Protogoniomorpha* Wallengren, 1857

Öfversigt af Kongl. Vetenskaps-Akademiens Förhandlingar. Stockholm annis 1838-1845. Collecta (n.s.) 2 (4): 23 (55 pp.).

Type-species: *Papilio anacardii* Linnaeus, by monotypy.

An Afrotropical genus containing four species. Removed from synonymy with *Salamis* by Wahlberg *et al.* (2005).

**Protogoniomorpha anacardii* (Linnaeus, 1758)#

Clouded Mother-of-pearl



Clouded Mother-of-Pearl (*Protogoniomorpha anacardii*). Male dry season form (left) and male wet season form (right).
Images courtesy Steve Woodhall (left) and Troy Otto (right).



Clouded Mother-of-Pearl (*Protogoniomorpha anacardii*). Female dry season form (“old-gold” colour pattern).
Images courtesy Steve Woodhall.

Papilio anacardii Linnaeus, 1758. *Systema Naturae* 1, Regnum Animale, 10th edition: 467 (824 pp.). Holmiae.

Salamis nebulosa Trimen, 1881. Trimen & Bowker, 1887a. [Now a subspecies of *anacardii*]

Protogoniomorpha anacardii (Linnaeus, 1758). Pringle *et al.*, 1994: 117.

Salamis anacardii (Linnaeus, 1758). Ackery *et al.*, 1995.

Protogoniomorpha anacardii (Linnaeus, 1758). Wahlberg *et al.*, 2005.

Type locality: [West Africa]: No locality given. Lectotype designated by Honey & Scoble, 2001: 296.

Diagnosis: Similar to *Protogoniomorpha parhassus* but it is smaller, the ground colour is white without a strong pearly-green opalescence, and the black markings are more extensive. Autumn and dry-season females may have a beautiful old-gold colour (Pringle *et al.*, 1994).

Distribution: Sierra Leone, Ivory Coast, Ghana, Togo, Nigeria, Angola, Central African Republic, Democratic Republic of Congo, Ethiopia, Uganda, Kenya, Tanzania, Malawi, Zambia, Mozambique, Zimbabwe, Botswana, South Africa, Swaziland. Also in Arabia (Yemen), Madagascar.

Habitat: Open forest and riverine bush. Also in frost-free savanna (Pringle *et al.*, 1994). In West Africa in drier forests and the transition between forest and Guinea savanna (Larsen, 2005a). In Tanzania it occurs at altitudes from sea-level to 2 200 m (Kielland, 1990d). In Madagascar in forests and forest margins (Lees *et al.*, 2003). In Yemen it was found in steep, rocky wadis with little vegetation (Larsen, 2005a).

Habits: An uncommon butterfly in West Africa (Larsen 2005a). Males often defend territories from perches on trees in clearings or along roads. Individuals sometimes congregate near the ground in undergrowth along stream banks. Specimens have been noted feeding from the flowers of euphorbia and acacia trees (Pringle *et al.*, 1994). They may also gather at muddy patches. Males have been noted imbibing fluid from fresh elephant dung in Tsavo National Park, Kenya (Larsen, 1991c). When disturbed they tend to fly upwards and perch on leaves in the forest canopy but soon float down to resume their perches lower down (Pringle *et al.*, 1994). Females have been observed flying low down, in the undergrowth, searching for and ovipositing on their low-growing foodplants (Williams, unpublished). R. Schutte (pers. comm. April 2010) noted that ssp. *duprei* in Madagascar was a common resident along a forest track, mud puddling and sucking fresh carnivore dung.

Flight period: All year (Pringle *et al.*, 1994).

Early stages: Nothing published.



Egg, final instar larva and pupa of *Protogoniomorpha anacardii*. Images courtesy Allison Sharp.

Larval food:

Asystasia gangetica (L.) T.Anderson (Acanthaceae) [Williams and Carlston, *in* Pringle *et al.*, 1994: 117].

Asystasia mysurensis (Roth) T.Anderson (Acanthaceae) [Van Someren, 1974: 318; as *Asystasia schimperi* T. Anders.].

Brillantaisia species (Acanthaceae) [Larsen, 1991c: 344].

Hypoestes species (Acanthaceae) [Larsen, 2005a].

Iopsis species (Acanthaceae) [Larsen, 1991c: 344].

Isoglossa species (Acanthaceae) [Larsen, 1991c: 344].

Justicia species (Acanthaceae) [Larsen, 1991c: 344].

Justicia flava (Vahl) Vahl (Acanthaceae) [Williams, 1974; Abel Erasmus Pass; unpublished].

Mimulopsis species (Acanthaceae) [Larsen, 1991c: 344].

Paulowilhemia species (Acanthaceae) [Larsen, 1991c: 344].

Phaulopsis species (Acanthaceae) [Larsen, 2005a].

Ruellia malacophylla C.B. Clarke (Acanthaceae) [Otto *et al.*, 2013: 72].

Protogoniomorpha anacardii anacardii (Linnaeus, 1758)

Papilio anacardii Linnaeus, 1758. *Systema Naturae* 1, Regnum Animale, 10th edition: 467 (824 pp.). Holmiae.

Salamis anacardii anacardii (Linnaeus, 1758). Ackery *et al.*, 1995.

Protogoniomorpha anacardii anacardii (Linnaeus, 1758). Wahlberg *et al.*, 2005.

Type locality: [West Africa]: No locality given. Lectotype designated by Honey & Scoble, 2001: 296.

Distribution: Sierra Leone, Ivory Coast, Ghana, Togo, Nigeria (west), Central African Republic, Uganda, to the Rift Valley.

Specific localities:

Ivory Coast – Mount Peko (Larsen, 2005a).

Ghana – coastal forests at Cape Coast (Larsen, 2005a); Aburi (Larsen, 2005a); Kakum National Park (Larsen 2005a); Boabeng-Fiema Monkey Sanctuary (Larsen 2005a); Bobiri Butterfly Sanctuary (Larsen *et al.*, 2007).

Nigeria – Olekemeji Forest near Ibadan (Larsen 2005a).

Uganda – Semuliki N.P. (S. Forbes, pers. comm., 2015).

Protogoniomorpha anacardii ansorgei (Rothschild, 1904)

Salamis anacardii ansorgei Rothschild, 1904. *Novitates Zoologicae* 11: 452 (452-455).

Protogoniomorpha anacardii ansorgei (Rothschild, 1904). Wahlberg *et al.*, 2005.

Type locality: Angola: “Canhoca”.

Distribution: Angola, Democratic Republic of Congo (south).

Specific localities:

Angola – Canhoca (TL).

Protogoniomorpha anacardii duprei (Vinson, 1863)

Salamis duprei Vinson, 1863. *Annales de la Société Entomologique de France* (4) 3: 424 (424-426).

Salamis anacardii duprei Vinson, 1863. Ackery *et al.*, 1995.

(Vinson, 1863). Wahlberg *et al.*, 2005.



Clouded Mother-of-Pearl (*Protogoniomorpha anacardii duprei*) male upper- and underside.
Images courtesy Raimund Schutte.

Type locality: Madagascar: “intérieur de Madagascar”.

Distribution: Madagascar.

Specific localities:

Madagascar – Fianarantsoa (Butler, 1879); Antananarivo (Butler, 1879); Perinet Montadia primary forest (R. Schutte, pers. comm. April 2010).

definata Butler, 1879 (as sp. of *Salamis*). *Annals and Magazine of Natural History* (5) 4: 230 (227-246). Madagascar: “Fianarantsoa and Antananarivo”.

billerei Oberthür, 1925 (as var. of *Salamis duprei*). *Études de Lépidoptérologie Comparée* 22 (2): [63] (63-69). Madagascar.

Protogoniomorpha anacardii nebulosa (Trimen, 1881)#

Salamis nebulosa Trimen, 1881. *Transactions of the Entomological Society of London* 1881: 441 (433-445).

Salamis nebulosa Trimen, 1881. Trimen & Bowker, 1887a.

Salamis nebulosus Trimen. Swanepoel, 1953a.

Salamis anacardii nebulosa Trimen, 1881. Dickson & Kroon, 1978.

Protogoniomorpha anacardii nebulosa (Trimen, 1881). Pringle *et al.*, 1994: 117.

Salamis anacardii nebulosa Trimen, 1881. Ackery *et al.*, 1995.

Protogoniomorpha anacardii nebulosa (Trimen, 1881). Wahlberg *et al.*, 2005.



Protogoniomorpha anacardii nebulosa. Male wet season form (Wingspan 60 mm). Left – upperside; right – underside. Lekgalameetse Nature Reserve, Limpopo Province, South Africa. 19 December 2007. M. Williams. Images M.C. Williams ex Williams Collection.



Protogoniomorpha anacardii nebulosa. Male dry season form (Wingspan 64 mm). Left – upperside; right – underside. Lekgalameetse Nature Reserve, Limpopo Province, South Africa. 18 July 1981. M. Williams.



Protogoniomorpha anacardii nebulosa. Female dry season form (Wingspan 73 mm). Left – upperside; right – underside. Mphaphuli Nature Reserve, Limpopo, South Africa. 2 May 2009. J. Dobson. Images M.C. Williams ex Dobson Collection.

Type locality: [South Africa]: “St. Lucia Bay, in Zululand, D’Urban, Natal”; [Mozambique]: “Delagoa Bay”.

Distribution: Democratic Republic of Congo, Ethiopia, Kenya (east), Tanzania, Malawi, Zambia, Mozambique, Zimbabwe, Botswana, South Africa (Limpopo Province, Mpumalanga, KwaZulu-Natal, Eastern Cape Province), Swaziland, Yemen.

Specific localities:

Kenya – Between Kibwezi and Tsavo (Larsen, 1991c); Tsavo National Park (Larsen, 1991c).

Tanzania – In most parts but particularly in *Brachystegia* woodland. Absent from large parts of the north (Kielland, 1990d); Singa (Niepelt, 1920); Katavi National Park (Fitzherbert *et al.*, 2006).

Malawi – Mt Mulanje (Congdon *et al.*, 2010).

Zambia – Kamapanda (Heath *et al.*, 2002); Mwinilunga (Heath *et al.*, 2002); Mufulira (Heath *et al.*, 2002); Ndola (Heath *et al.*, 2002); Mpongwe (Heath *et al.*, 2002); Victoria Falls (Heath *et al.*, 2002); mid Luangwa Valley (Heath *et al.*, 2002).

Mozambique – Delagoa Bay [Maputo] (Trimen, 1881); Mt Inago (Congdon *et al.*, 2010); Mt Yao [-12.4432 36.5114] (Congdon & Bayliss, 2013).

Zimbabwe – Lundi (van Son, 1979).

Botswana – Okavango Delta (Pinhey); Moremi Gorge, Tswapong Hills (Larsen, 1991); Maun (M. Oake and T. liversedge *vide* Larsen, 1991); Moremi (R. Vane-Wright; single record *vide* Larsen, 1991); Kazungula (Larsen, 1991; single record); Orapa (M. Lunderstedt; single record *vide* Larsen, 1991); Shashe (G. Bailey; single record *vide* Larsen, 1991); Ngotwane Siding (G. Bailey *vide* Larsen, 1991).

Limpopo Province – Lekgalameetse Nature Reserve (“Malta Forest”) (Swanepoel, 1953); Duiwelskloof (Swanepoel, 1953); Abel Erasmus Pass (Williams); Soetdoring Farm [-24.561 28.233] (A. Mayer, pers comm. 2015).

Mpumalanga – Mariepskop area (Henning, 1994c).

KwaZulu-Natal – St Lucia Bay (TL); Durban (Trimen, 1881); Kosi Bay Nature Reserve (Pringle & Kyle, 2002); Tembe Nature Reserve (Pringle & Kyle, 2002); Ndumo Nature Reserve (Pringle & Kyle, 2002); Ongoye Forest (S. Woodhall, unpublished, 2009).

Eastern Cape Province – Port St Johns (J. Brill; single record); Port Elizabeth (P. Moore; sight record).

Swaziland – Mlawula Nature Reserve (www.sntc.org.sz).

lurida Niepelt, 1920 (as var. of *Salamis anacardii*). *Internationale Entomologische Zeitschrift* **18**: 17 (49-50). [Tanzania]: “Singa”.

formosa Stoneham, 1965 (as female f. of *Salamis anacardii*). *Bulletin of the Stoneham Museum* (81): [2] ([3 pp.]). Kenya to Zimbabwe”.

trimeni van Son, 1979 (as f. of *Protogoniomorpha anacardii nebulosa*). *Transvaal Museum Memoires* No. 22: 52 (286 pp.). [Zimbabwe]: “Lundi”.

****Protogoniomorpha parhassus* (Drury, 1782)#**

Mother-of-pearl



Common Mother-of-Pearl (*Protogoniomorpha parhassus*). Male wet season form (left and centre) and male dry season form (right). Images courtesy Herbert Otto (left) and Steve Woodhall (centre and right).

Papilio parhassus Drury, 1782. *Illustrations of Natural History* 3: index et 4 (76 pp.). London.

Junonia anacardii Linnaeus. Trimen, 1862c. [Misidentification]

Salamis anacardii (Linnaeus, 1764). Trimen & Bowker, 1887a. [Misidentification]

Salamis parhassus Drury. Swanepoel, 1953a.

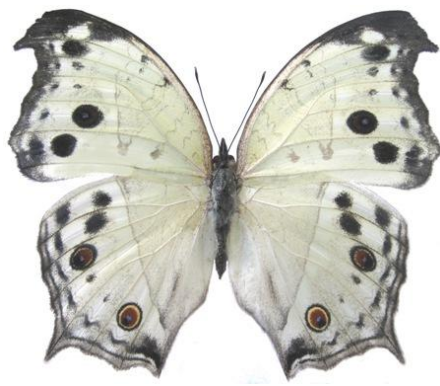
Salamis parhassus aethiops (Palisot de Beauvais). Dickson & Kroon, 1978.

Protogoniomorpha parhassus (Drury, 1782). Pringle *et al.*, 1994: 116.

Protogoniomorpha parhassus (Drury, 1782). Wahlberg *et al.*, 2005.



Protogoniomorpha parhassus. Male wet season form (Wingspan 67 mm). Left – upperside; right – underside. Lekgalameetse Nature Reserve, Limpopo Province, South Africa. 19 December 2007. M. Williams. Images M.C. Williams ex Williams Collection.



Protogoniomorpha parhassus. Female wet season form (Wingspan 80 mm). Left – upperside; right – underside.
Lekgalameetse Nature Reserve, Limpopo Province, South Africa. 4 January 2012. M. Williams.
Images M.C. Williams ex Williams Collection.



Protogoniomorpha parhassus. Male dry season form (Wingspan 76 mm). Left – upperside; right – underside.
Mariepskop, Mpumalanga, South Africa. 6 March 2005. J. Dobson.
Images M.C. Williams ex Dobson Collection.



Protogoniomorpha parhassus. Female dry season form (Wingspan 86 mm). Left – upperside; right – underside.
Lekgalameetse Nature Reserve, Limpopo Province, South Africa. 8 April 2006. M. Williams.
Images M.C. Williams ex Williams Collection.

Alternative common names: Common Mother-of-pearl; Forest Mother-of-pearl.

Type locality: Sierra Leone: “Sierra Leon”.

Diagnosis: See *Protogoniomorpha anacardii* for differentiation.

Distribution: Sub-Saharan Africa, including, Guinea, Sierra Leone, Liberia, Ivory Coast, Ghana, Togo, Benin (Fermon *et al.*, 2001), Nigeria (south and Cross River loop), Cameroon, Equatorial Guinea, Gabon, Congo, Central African Republic, Angola, Democratic Republic of Congo, Sudan (south), Ethiopia, Uganda, Rwanda, Burundi, Kenya, Tanzania, Malawi, Zambia, Mozambique, Zimbabwe, Namibia (Caprivi), South Africa (Limpopo Province, Mpumalanga, KwaZulu-Natal, Eastern Cape Province), Swaziland.

Specific localities:

Ghana – Bobiri Butterfly Sanctuary (Larsen *et al.*, 2007); Boabeng-Fiema Monkey Sanctuary (Larsen *et al.* 2009).

Benin – Noyau Central, Lama Forest (Fermon *et al.*, 2001).

Cameroon – Korup (Larsen, 2005a).

Gabon – Probably throughout (van de Weghe, 2010).

Central African Republic – Dzanga (Noss, 1998).

Democratic Republic of Congo – Mabwe (Overlaet, 1955).

Uganda – Semuliki N.P. (Davenport & Howard, 1996).

Kenya – Kakamega Forest (Larsen, 1991c); Ngong Forest (Larsen, 1991c); Teita Hills (Larsen, 1991c); Chyulu Hills (Larsen, 1991c); Mount Sagala (Larsen, 1991c); coastal forests (Larsen, 1991c); Maralal (Larsen, 1991c); Mount Kulal (Larsen, 1991c); Kibwezi area (Larsen, 1991c); Voi (Larsen, 2005a).

Tanzania – All forested areas (Kielland, 1990d); Arusha (Stoenham, 1965).

Malawi – Mt Mulanje (Congdon *et al.*, 2010); Zomba Mountain (Congdon *et al.*, 2010).

Zambia – Kamapanda (Heath *et al.*, 2002); Ikelenge (Heath *et al.*, 2002); Mwinilunga (Heath *et al.*, 2002); Mufulira (Heath *et al.*, 2002); Ndola (Heath *et al.*, 2002); Chisamba (Heath *et al.*, 2002).

Mozambique – Mount Chipirone (Timberlake *et al.*, 2007); Mt Inago (Congdon *et al.*, 2010); Mt Namuli (Congdon *et al.*, 2010); Mt Mabu (Congdon *et al.*, 2010); Mt Mecula [-12.0772 37.6297] (Congdon & Bayliss, 2013).

Namibia – Katima Mulilo (Pringle *et al.*, 1994).

Limpopo Province – Woodbush (Swanepoel, 1953); Ramatoelaskloof (Swanepoel, 1953); Sibasa (Swanepoel, 1953); Entabeni Forest (Swanepoel, 1953); Lekgalameetse Nature Reserve (“Malta Forest”) (Swanepoel, 1953); Wyliespoort (Swanepoel, 1953); Louis Trichardt (Swanepoel, 1953).

Mpumalanga – Barberton (Swanepoel, 1953); Graskop (Swanepoel, 1953); Marieps Kop (Swanepoel, 1953); Buffelskloof Nature Reserve (Williams).

KwaZulu-Natal – Oribi Gorge (Swanepoel, 1953); Umkomaas (Swanepoel, 1953); Durban (Swanepoel, 1953); Pietermaritzburg (Swanepoel, 1953); Eshowe (Swanepoel, 1953); Mtubatuba (Swanepoel, 1953); St Lucia Bay (Swanepoel, 1953); Kosi Bay Nature Reserve (Pringle & Kyle, 2002); Tembe Nature Reserve (Pringle & Kyle, 2002); Ndumo Nature Reserve (Pringle & Kyle, 2002).

Eastern Cape Province – Bashee River (Swanepoel, 1953); Port St Johns (Swanepoel, 1953); Cintsa East (Dobson).

Swaziland – Mlawula Nature Reserve (www.sntc.org.sz); Malolotja Nature Reserve (www.sntc.org.sz).

Habitat: Forest and heavy woodland, including degraded forest. Found, particularly, near forest streams and rivers (Kielland, 1990d). In Tanzania it occurs at altitudes from sea-level to 2 400 m (Kielland, 1990d).

Habits: A common species that flies along the edges of forest, settling on leaves some metres above the ground. Males perch on leaves with wings held three-quarters open and chase any passing butterflies from their territories (Larsen, 2005a). Females are often found low down, searching for plants on which to oviposit (Larsen, 2005a). Both sexes feed from flowers and males occasionally mud-puddle (Pringle *et al.*, 1994). Males have also been seen on elephant dung (Larsen, 2005a). Specimens sometimes congregate in numbers in heavy undergrowth on stream banks. If disturbed it will fly upwards and perch on leaves higher up (Pringle *et al.*, 1994). Males and females may sometimes circle each other in a lazy manner, in a forest clearing (Larsen, 2005a). At night they may roost in small aggregations on the underside of large leaves (Larsen, 1991c; Williams, unpublished). Bampton noted a northward migration of this species in central

Tanzania, over a distance of at least 480 km (Henning, 1989). In dry savanna at Voi, Kenya, Larsen (2005a) noted numbers of specimens and believed that he might be witnessing a migration event. Williams (unpublished) noted numbers flying from west to east over open grassland in the Wolkberg mountains in April – at the time the species was super-abundant in the forests of the district, so this was probably a dispersal phenomenon.

Flight period: All year, with distinct seasonal forms (Pringle *et al.*, 1994).

Early stages:

Bowker, in Trimen & Bowker, 1887, Vol. 1: 246 [as *Salamis Anacardii* (Linn.); Durban; egg only].

Aurivillius, 1894: 276 [noted in Van Son, 1979, but no reference given].

Fountaine, 1911: 55 [as *Salamis anacardii*; Durban, KwaZulu-Natal, South Africa].

Clark, in Van Son, 1979: 50 (Plate 44) [as *Protogoniomorpha parhassus*].

“The eggs are laid singly between the young terminal leaves and are 1,1 mm in diameter by 1 mm high, pale watery-green at first, changing to pale dirty green. There are some 16 longitudinal keels braced by about 50 faint transverse ribs. The egg stage lasts five days. The young larva devours the empty shell after eating its way out near the top. It is 3-3,2 mm long, pale brown dorsally, shading to brownish-green down the sides to yellowish ventrally. The setae and head are black. The larva rests with its head to one side; it feeds on young shoots; the first instar lasts three days and the larva grows to 5,5-6 mm. In the second instar the setae have been replaced by rows of black protuberances with black spines. The dorsal row has one protuberance per segment, missing the first three and the last two, but having two on segment 11; the subdorsal row misses the first segment, the lateral row misses the last two segments, and the ridge row also misses the last two. Above the first claw there is a single protuberance and there are two above each of the other claws; the prolegs have a pair of protuberances on each. The body is olive above, shading down the sides to pale dull yellow ventrally. The head is black with two black horns. The first and the three final segments are yellowish. This instar lasts four to five days and the larvae grow to 8,7-9,5 mm. In the third instar the colour has darkened. The head is salmon with black horns. The instar lasts four days and the larvae grow to 14,7-16,2 mm. Towards the end of the instar the posterior wrinkles of the middle segments are touched with white over the dorsum. In the fourth instar the larger larvae are black with a black head and black horns, the smaller are deep olive with salmon head and black horns. The protuberances are black with black spines. The first segment is whitish-yellow and the last three are inclined to salmon towards the end of the instar, the dorsal markings change from white to salmon; the larvae grow to 22-26 mm. The larger larvae take 12 days, but the smaller take only four and have an additional moult. In this additional instar the larva is somewhat the same as at the end of the last except that the dorsal markings are a richer salmon and the head duller. The instar lasts eight days and the larvae grow to 32 mm. In the final instar the two types are alike except that the five-instar larvae have a dark brown head, almost black, with black horns, while the six-instar larvae generally have a salmon-brown head with black horns; some have dark brown heads. The dorsal markings are at first reddish-salmon, but fade to dirty brown. The protuberances which have been black throughout are now semitransparent dirty yellow darkening towards the base and changing to blue on the base. There is a faint brown ridge or subspiracular line. The protuberances on the prolegs are black at the base and change halfway up the stem to dull yellow. The instar lasts 12 days and the larvae grow to 50-56 mm. The pupa is suspended by cremastral hooks gripping a silken mat. The head is widely bifid and the dorsum is raised to a sharp edge ending in a point near the end of the thorax. There are two rows of prominent spines astride the dorsum, starting at the end of the wing case, and there are very small moles on the dorsal line on the anterior edge of each segment. The pupa is 30 mm long. The imago emerges 13-17 days after pupation.”



Early stages of *Protogoniomorpha parhassus*. Left – egg. Right – 1st instar larva.

Images courtesy Steve Woodhall.



Early stages of *Protogoniomorpha parhassus*. Left – final instar larva. Right – pupa.
Images courtesy Steve Woodhall.

Larval food:

Asystasia gangetica (L.) T.Anderson (Acanthaceae) [Platt, 1921: 101].

Asystasia mysurensis (Roth) T.Anderson (Acanthaceae) [Van Someren, 1974: 318; as *Asystasia schimperi* T. Anders.].

Brilliantaisia owariensis P.Beauv. (Acanthaceae) [Owen & Owen, 1973; as *Brilliantaisia nitens*; Mount Aureol, Sierra Leone].

Brilliantaisia subulugurica Burkill (Acanthaceae) [Paré, *in* Pringle *et al.*, 1994: 117].

Dicliptera heterostegia Nees (Acanthaceae) [Nichols, *vide* Botha & Botha, 2006].

Isoglossa mossambicensis Lindau (Acanthaceae) [Platt, 1921: 101].

Isoglossa woodii C.B.Clarke (Acanthaceae) [Fontaine, 1911: 55; Durban, KwaZulu-Natal, South Africa].

Justicia species (Acanthaceae) [Kielland, 1990d: 137].

Mimulopsis species (Acanthaceae) [Kielland, 1990d: 137].

Paulowilhelmia species (Acanthaceae) [Larsen, 1991c: 343].

Relevant references:

Bonte & Van Dyck, 2009 [Behaviour modification and rainforest disturbance].

aethiops Palisot de Beauvois, 1805 (as sp. of *Papilio*). *Insectes recueillis en Afrique et en Amérique* 22 (276 pp.). Paris. Nigeria: “de la ville d’Agathon, royaume de Benin”. Invalid; junior primary homonym of *Papilio aethiops* Esper, 1777 [Satyrinae].

aglatonice Godart, 1819 *in* Latreille & Godart, [1819], [1824] (as sp. of *Vanessa*). *Encyclopédie Méthodique. Histoire Naturelle [Zoologie]* 9 Entomologie: 299 (1-328 [1819], 329-828 [1824]). Paris. No locality given.

modestus Overlaet, 1955 (as f. aest. of *Salamis parhassus aethiops*). *Exploration du Parc National de l’Upemba* 27: 52 (1-106). [Democratic Republic of Congo]: “Mabwe”.

pyricolor Stoneham, 1965 (as female f. of *Salamis parhassus*). *Bulletin of the Stoneham Museum* (81): [2] ([3 pp.]). [Tanzania]: “Arusha, Tanganyika”.

****Protogoniomorpha cytora* (Doubleday, 1847)**

Western Blue Beauty

Junonia ? (*Salamis*) *cytora* Doubleday, 1847 *in* Doubleday & Westwood, [1846-52]. *The genera of diurnal Lepidoptera*, London: pl. 25 [1847]; 211 [1849] (1: 1-250 pp.; 2: 251-534 pp.). London.

Salamis cytora (Doubleday, 1847). Ackery *et al.*, 1995.
Junonia cytora Doubleday, 1847. Wahlberg *et al.*, 2005.
Protogoniomorpha cytora (Doubleday, 1847). Larsen, 2005a: 337.



Protogoniomorpha cytora. Male (Wingspan 70 mm). Left – upperside; right – underside.
Bobiri Forest, Ghana. 22 November 2011. J. Dobson.
Images M.C. Williams ex Dobson Collection.

Common name: Western Blue Beauty.

Type locality: Ghana: “Ashanti”.

Distribution: Guinea, Sierra Leone, Liberia, Ivory Coast, Ghana, Togo, Benin.

Specific localities:

Sierra Leone – Loma Mountains (Condamin, 1971).

Ivory Coast – Nimba (Larsen, 2005a); Mount Peko (Larsen, 2005a).

Ghana – Ashanti (TL); Atewa Range (Larsen, 2005a); Kwelu (Larsen, 2005a); Bobiri Butterfly Sanctuary (Larsen *et al.*, 2007).

Habitat: Open places in primary forest and mature secondary forest (Larsen, 2005a).

Habits: Scarce in the west of its range but may be numerous on the Atewa Range in Ghana (Larsen, 2005a). Males perch along roads, forest edges and clearings attacking other large butterflies that enter their territories (Larsen, 2005a).

Early stages: Nothing published.

Larval food:

Acanthaceae [Larsen, 2005a; Ghana; oviposition only].

****Protogoniomorpha temora* (Felder & Felder, 1867)**

Eastern Blue Beauty



Eastern Blue Beauty (*Protogoniomorpha temora temora*) – Males from Uganda.
Images courtesy Raimund Schutte.

Salamis temora Felder & Felder, 1867 *in* Felder & Felder, [1865-7]. *Reise der Österreichischen Fregatte Novara* 404 (549 pp.). Wien.

Junonia temora (Felder & Felder, 1867). Wahlberg *et al.*, 2005.

Protogoniomorpha temora (Felder & Felder, 1857). Larsen, 2005a: 338.

Alternative common name: Blue Mother-of-pearl.

Type locality: Nigeria: “Calabar Vetus”.

Distribution: Nigeria, Cameroon, Congo, Angola, Central African Republic, Democratic Republic of Congo, Sudan, Ethiopia, Uganda, Kenya, Tanzania.

Habitat: Dense forest and riverine thicket. Also in disturbed forest and even in agricultural lands (Larsen, 2005a). In Tanzania the nominate subspecies occurs from 800 to 1 600 m and subspecies *virescens* from 250 to 800 m (Kielland, 1990d).

Habits: A relatively common butterfly (Larsen, 1991c). Usually flies low down, circling around bushes and low vegetation. Often settles with opened wings (Kielland, 1990d). Males mudpuddle, usually singly (Larsen, 1991c).

Early stages: Nothing published.

Larval food:

Asystasia species (Acanthaceae) [Kielland, 1990d: 137; subspecies *temora*].

Eremomastax speciosa (Hochst.) Cufod. (Acanthaceae) [Kielland, 1990d: 137; as *Sclerochiton paulowilhelmina*; subspecies *temora*].

Eremomastax speciosa (Hochst.) Cufod. (Acanthaceae) [Van Someren, 1974: 318; as *Paulowilhelmia sclerochiton* Lindau].

Justicia species (Acanthaceae) [Van Someren, 1974: 318; subspecies *temora*].

Mellera species (Acanthaceae) [Larsen, 1991c: 343].

Mimulopsis spathulata C.B.Clarke (Acanthaceae) [Van Someren, 1974: 318; subspecies *temora*].

Protogoniomorpha temora temora (Felder & Felder, 1867)

Salamis temora Felder & Felder, 1867 *in* Felder & Felder, [1865-7]. *Reise der Österreichischen Fregatte Novara* 404 (549 pp.). Wien.

Junonia temora (Felder & Felder, 1867). Wahlberg *et al.*, 2005.

Protogoniomorpha temora (Felder & Felder, 1857). Larsen, 2005a: 338.

Type locality: Nigeria: “Calabar Vetus”.

Distribution: Nigeria, Cameroon, Congo, Angola, Central African Republic, Democratic Republic of Congo, Sudan (south), Ethiopia, Uganda, Kenya (west), Tanzania (west).

Specific localities:

Nigeria – Calabar (TL); Omo Forest (Larsen, 2005a); Okomu Nature Sanctuary (Larsen, 2005a); Kagoro Forest near Kafanchan (Larsen, 2005a).

Uganda – Semuliki N.P. (Davenport & Howard, 1996); Kibale Forest (R. Schutte, unpublished).

Kenya – Nandi (Larsen, 1991c); Kakamega Forest (Larsen, 1991c); Kericho (Larsen, 1991c); Mau Escarpment (Larsen, 1991c).

Tanzania – Ntakatta Forest (Kielland, 1990d); Gombe (Kielland, 1990d).

amarantha Butler, 1869 (as sp. of *Salamis*). *Cistula Entomologica* **1**: 6 (1-16). Nigeria: “Old Calabar”.

Protogoniomorpha temora virescens (Suffert, 1904)

Salamis temora virescens Suffert, 1904. *Deutsche Entomologische Zeitschrift, Iris* **17**: 109 (108-123).

Junonia temora virescens (Suffert, 1904). Wahlberg *et al.*, 2005.

Protogoniomorpha temora virescens (Suffert, 1904). Larsen, 2005a: 338.

Type locality: [Tanzania]: “Mhonda”.

Diagnosis: The upperside of the wings in the male of the nominate subspecies is blue to violet-blue. In subspecies *virescens* the colour is deep greenish blue and extends close to the wing margins. In females of *virescens* the violet-blue area is more extensive than that of the nominate female (Kielland, 1990d).

Distribution: Tanzania (east – Nguru and Uluguru Mountains).

Specific localities:

Tanzania – Mhonda (TL).