Genus *Hypolimnas* Hübner, [1819]
Diadems

In: Hübner, [1816-[1826]. *Verzeichniss bekannter Schmettlinge* 45 (432 + 72 pp.). Augsburg. Type-species: *Papilio pipleis* Linnaeus, by subsequent designation (Scudder, 1875. *Proceedings of the American Academy of Arts and Sciences* **10**: 194 (91-293).) [extralimital].

= *Diadema* Boisduval, 1832. *Voyage de Découvertes de L'Astrolabe sous le commandement de M. J. dumont D'Urville. Faune entomologique de l'Océan Pacifique. Lépidopteres* (1): 133 (267 pp.). Paris. Type-species: *Papilio bolina* Linnaeus, by subsequent designation (Blanchard, 1840. *Histoire naturelle des Insectes. Orthoptères, Néuroptères, Hémiptères, Hyménoptères, Lépidotères et Diptères* **3**: 451 (672 pp.). Paris.). Invalid; junior homonym of *Diadema* Gray, 1825.

= *Eucalia* Felder, 1861. *Nova Acta Academiae Caesarea Leopoldino-Carolinae Germanicum Naturae Curiosorum* **28** (3): 25 (50 pp.). Type-species: *Diadema anthedon* Doubleday, by subsequent designation (Hemming, 1939. *Proceedings of the Royal Entomological Society of London* (B) **8**: 134 (133-138).).

= *Euralia* Westwood, 1850 *in* Doubleday & Westwood, [1846-52]. *The genera of diurnal Lepidoptera*, London: 81 (**1**: 1-250 pp.; **2**: 251-534 pp.). London. Type-species: *Papilio dubius* Palisot de Beauvois, by subsequent designation (Scudder, 1875. *Proceedings of the American Academy of Arts and Sciences* **10**: 173 (91-293).).

The genus *Hypolimnas* belongs to the Family Nymphalidae Rafinesque, 1815; Subfamily Nymphalinae Rafinesque, 1815; Tribe Junoniini Reuter, 1896. The other genera in the Tribe Junoniini in the Afrotropical Region are *Junonia*, *Salamis*, *Protogoniomorpha* and *Precis*.

Hypolimnas (**Diadems**) is an Old World genus of 29 species, 15 of which are Afrotropical. Two of the Afrotropical species extend extralimitally. A study of the evolution of the genus *Hypolimnas* has been published by Sahoo *et al*., 2018. These authors identified three distinct clades. Clades I and II are constituted by Afrotropical species, whereas Clade III consists of Cosmopolitan and Oriental/Australasian taxa (see table below). They did not sample three Afrotropical species (*aubergeri*, *chapmani* and *macarthuri*). These species have provisionally been placed in Clade I. *Hypolimnas* probably diverged from its sister genus, *Precis*, about 15 Mya. Clades I and II split about 13.4 Mya, when the ancestor of *H. misippus* diverged. The Afrotropical Clades I and II split about 11.2 Mya. The ancestors of *misippus* (Clade III) dispersed into the Oriental Region 13.4 Mya, most likely via a forested land bridge across Arabia during the mid-Miocene Climatic Maximum.

Most species of *Hypolimnas* utilize Urticaceae as larval host plants and it is thought to be the ancestral larval host plant family. The members of Clades I and II utilize only Urticaceae but there is a single record of Asteraceae for *anthedon*. The members of Clade III are oligo- to polyphagous.

The cosmopolitan *misippus* and *bolina* each use plants belonging to more than 10 families.

Phylogenetic hypothesis for the genus *Hypolimnas*
(after Sahoo *et al*., 2018)

Clade I	*usambara*[1], *dexithea*[1], *mechowi*[1], *bartelotti*[1], *dinarcha*[1], *antevorta*[1], *monteironis*[1], *salmacis*[1], *aubergeri*[1], *chapmani*[1], *macarthuri*[1]
Clade II	*deceptor*[1], *anthedon*[1]
Clade III	*misippus*[2], *bolina*[2], *inopinata*[3], *alimena*[3], *anomala*[3], *antelope*[3], *saundersi*[3], *sumbuwana*[3], *errabunda*[3], *pithoeka*[3], *octocula*[3], *diomea*[3], *pandarus*[3], *dimona*[3], *exiguous*[3], *deois*[3]

[1] = Afrotropical species; [2] = Cosmopolitan species; [3] = Oriental/Australasian species

**Hypolimnas usambara* (Ward, 1872)
Red Spot Diadem

Diadema usambara Ward, 1872. *Entomologist's Monthly Magazine* **9**: 148 (147-149).

Hypolimnas usambara. Male. Left – upperside; right – underside.
Amani Forest, Tanzania. January, 2015.
Images M.C. Williams ex J. Lawrence Collection.

Alternative common name: Usambara Diadem.
Type locality: [Kenya]: "Ribé, East Africa".
Diagnosis: Similar to *Hypolimnas anthedon* form *wahlbergi*, from which it differs in its greater size, red tornal area on the hind wing upperside, and a wide rusty marginal band and rusty red forewing apex on the underside (Kielland, 1990d).
Distribution: Kenya (coast), Tanzania (coast, inland to the Usambara Mountains).
Specific localities:
Kenya – Ribe (TL); Diani (Larsen, 1991c); Rabai (Larsen, 1991c); Shimba Hills (Larsen, 1991c); Jilore (Larsen, 1991c).
Tanzania – Zanzibar (Staudinger, 1885); East Usambara (Kielland, 1990d); Pugu Hills (Kielland, 1990d); Kimboza Forest (Kielland, 1990d); foot of Kanga Mountain (Kielland, 1990d).
Habitat: Primary coastal forest. In Tanzania at altitudes from 75 to 1 000 m (Kielland, 1990d).
Habits: A generally rare species (Larsen, 1991c). The habits are similar to those of *Hypolimnas anthedon* but it is very wary (Larsen, 1991c; Kielland, 1990d). It is a mimic of *Amauris niavius dominicanus* (Larsen, 1991c).
Early stages: Nothing published.

Larval food:
Laportea species (Urticaceae) [Sevastopulo, 1975; as *Fleurya* species].
Scepocarpus hypselodendron (Hochst. ex A.Rich.) Wedd. (Urticaceae) [Van Someren, 1974: 322; as *Urera hypselodendron*].

imperialis Staudinger, 1885 *in* Staudinger & Schatz, 1884-8 (as sp. of *Hypolimnas*). *Exotischer Schmetterlinge* **1**: 148 (333 pp.). Bayern. [Tanzania]: "Insel Zanzibar".

**Hypolimnas dexithea* (Hewitson, 1863)
Toothed Diadem

Diadema dexithea Hewitson, 1863. *Proceedings of the Zoological Society of London* **1863**: 65 (64-65).

Hypolimnas dexithea. Male. Left – upperside; right – underside.
Ranamofana, Madagascar. 10-13 April 2018. J. Dobson.
Images M.C. Williams ex Dobson Collection.

Type locality: Madagascar.
Distribution: Madagascar (excluding the south).
Specific localities:
Madagascar – Perinet Montadia primary forest (R. Schutte, pers. comm. April 2010); Ranamofana (male illustrated above).
Habitat: Forest (Lees *et al*., 2003).
Habits: R. Schutte (pers. comm. April 2010) noted that is was not uncommon at Perinet, suddenly appearing out of the dense forest into a clearing with rapid irregular flight, momentarily settling with open wings to display dazzling colours in sunshine.
Early stages: Nothing published.
Larval food: Nothing published.

imperialis Guenée, 1865 (as sp. of *Diadema*). *In*: Vinson, A., *Voyage à Madagascar au Couronnement de Radama II* 28 (25-48). Paris. *Nomen nudum*. Madagascar.

**Hypolimnas mechowi* (Dewitz, 1884)

Diadema mechowi Dewitz, 1884. *Berliner Entomologische Zeitschrift* **28**: 187 (187-188).

Hypolimnas mechowi. Male. Left – upperside; right- underside.
Ebogo, Cameroon. 28 April 2019. J. Dobson.
Images M.C. Williams ex Dobson Collection.

Type locality: [Democratic Republic of Congo]: "Quango".
Distribution: Cameroon, Gabon, Congo, Central African Republic, Democratic Republic of Congo (Mongala, Uele, Ituri, Kivu, Tshopo, Equateur, Sankuru).
Specific localities:
Gabon – Massouna 2000 (Vande weghe, 2010); Langoue (Vande weghe, 2010); Ipassa (Vande weghe, 2010).
Central African Republic – Nola (Bernardi, 1959); Dzanga (Noss, 1998).
Democratic Republic of Congo – Quango (TL); Kassai (Capronnier, 1889); Yambuyu on the Aruwimi River (Grose-Smith, 1890); Ituri Forest (Ducarme, 2018); Semuliki Valley (Ducarme, 2018); Mt Mitumba (Ducarme, 2018).
Early stages: Nothing published.
Larval food: Nothing published.

ragiens Capronnier, 1889 (as sp. of *Diadema*). *Bulletin de la Société Entomologique de Belgique* **1889**: 123 (118-127). [Democratic Republic of Congo]: "Kassai".

stanleyi Grose-Smith, 1890 (as sp. of *Hypolimnas*). *Proceedings of the Zoological Society of London* **1890**: 467 (463-473). [Democratic Republic of Congo]: "from Yambuya on the Aruwimi River through the great forest of Central Africa".

paranarchadi Bernardi, 1959 (as f. of *Hypolimnas mechovi* [sic]). *Bulletin de l'Institut Française d'Afrique Noire* (A) **21**: 1030 (1021-1032). Central African Republic: "Nola, sud de l'Oubanghi-Chari".

**Hypolimnas bartelotti* Grose-Smith, 1890

Hypolimnas bartelotti Grose-Smith, 1890. *Proceedings of the Zoological Society of London* **1890**: 468 (463-473).

Hypolimnas bartelotti. Male. Left – upperside; right – underside.
Near Nebobongo, Haut-Uele, DRC. 24 June 2016. T. Desloges.
Images courtesy Thomas Desloges.

Hypolimnas bartelotti. Female. Left – upperside; right – underside.
Near Mbogi, Ituri, DRC. 10 June 2017. T. Desloges.
Images courtesy Thomas Desloges.

Hypolimnas bartelotti. Female. Left – upperside; right – underside.
Mbau Territory, North Kivu, DRC. 3 April 2017. R. Ducarme ex T. Desloges.
Images courtesy Thomas Desloges.

Type locality: [Democratic Republic of Congo]: "from Yambuya on the Aruwimi River through the great forest of Central Africa".
Distribution: Cameroon, to Central African Republic, Democratic Republic of Congo, Uganda (west).
Specific localities:
Central African Republic – Dzanga (Noss, 1998).

Democratic Republic of Congo – Yambuya on the Aruwimi River (TL); Medje (Holland, 1920); Ituri Forest (Ducarme, 2018); Mt Mitumba (Ducarme, 2018).
Habitat: Forest (Grose-Smith, 1890).
Early stages: Nothing published.
Larval food: Nothing published.

obliterata Holland, 1920 (as var. of *Hypolimnas bartteloti* [sic]). *Bulletin of the American Museum of Natural History* **43**: 156 (109-369). [Democratic Republic of Congo]: "Medje"; Cameroon".

**Hypolimnas dinarcha* (Hewitson, [1865])
Large Variable Diadem

Large Variable Diadem (*Hypolimnas dinarcha*). Male upper- and underside.
Images courtesy Raimund Scutte.

Diadema dinarcha Hewitson, [1865] *in* Hewitson, [1862-6]. *Illustrations of new species of exotic butterflies* **3**: 32 (124 pp.). London.

Hypolimnas dinarcha dinarcha. Male. Left – upperside; right – underside.
Ipassa, Ivindo N.P., Gabon. 19 June 2016. J. Dobson.
Images M.C. Williams ex Dobson collection.

Hypolimnas dinarcha dinarcha. Female. Left – upperside; right – underside.
Ivindo N.P., Gabon. 25 November 2017. J. Dobson.
Images M.C. Williams ex Dobson Collection.

Hypolimnas dinarcha dinarcha. Female. Left – upperside; right- underside.
Ebogo, Cameroon. 28 April 2019. J. Dobson.
Images M.C. Williams ex Dobson Collection.

Alternative common name: Large Variable Eggfly.
Type locality: Nigeria: "Old Calabar".
Distribution: Guinea, Sierra Leone, Liberia, Ivory Coast, Ghana, Togo, Nigeria, Cameroon, Gabon, Congo, Angola, Central African Republic, Democratic Republic of Congo, Uganda, Kenya, Tanzania.
Habitat: Heavy lowland forest, but also in secondary forest with a closed canopy (Larsen, 2005a). In Tanzania at altitudes between 800 and 1 200 m (Kielland, 1990d).
Habits: This species is generally uncommon and tends to fly higher up than *Hypolimnas anthedon* (Larsen, 2005a). Both sexes feed from flowers, and males are often found mud-puddling and are also occasionally attracted to fermented fruit, animal droppings and carrion (Larsen, 1991c; Congdon & Collins, 1998; Larsen, 2005a). There are a bewildering number of forms, all mimics of various species of *Amauris* (Larsen, 1991c). The light morph may be a mimic of a day-flying moth, while the dark morph appears to be a mimic of *Amauris vashti* (Larsen, 2005a).
Early stages:

Congdon *et al*., 2017 [final instar larva].

Larval food:
Fleurya cestuans (Urticaceae) [Fountaine, unpublished, *vide* Vane-Wright *et al*., 1977].
Scepocarpus sp. (Urticaceae) [Congdon *et al*., 2017; Minziro, Tanzania; as *Urera* sp.].

Hypolimnas dinarcha dinarcha (Hewitson, [1865])

Diadema dinarcha Hewitson, [1865] *in* Hewitson, [1862-6]. *Illustrations of new species of exotic butterflies* **3**: 32 (124 pp.). London.

Hypolimnas dinarcha dinarcha. Male. Left – upperside; right – underside.
Ipassa, Ivindo N.P., Gabon. 19 June 2016. J. Dobson.
Images M.C. Williams ex Dobson collection.

Hypolimnas dinarcha dinarcha. Female. Left – upperside; right – underside.
Ivindo N.P., Gabon. 25 November 2017. J. Dobson.
Images M.C. Williams ex Dobson Collection.

Hypolimnas dinarcha dinarcha. Female. Left – upperside; right- underside.
Ebogo, Cameroon. 28 April 2019. J. Dobson.
Images M.C. Williams ex Dobson Collection.

Type locality: Nigeria: "Old Calabar".
Distribution: Guinea, Sierra Leone, Liberia, Ivory Coast, Ghana, Togo, Nigeria (south and Cross River loop), Cameroon, Gabon, Congo, Angola (Cabinda), Central African Republic, Democratic Republic of Congo.
Specific localities:
Guinea – Ziama (Safian *et al*., 2020).
Liberia – Wologizi (Safian *et al*., 2020); Wonegizi (Safian *et al*., 2020).
Ghana – Accra (Suffert, 1904).
Nigeria – Old Calabar (TL).
Togo – Klouto (Safian *et al*., 2009).
Cameroon – Korup (Larsen, 2005a).
Gabon – Pongara (Vande weghe, 2010); Kinguele (Vande weghe, 2010); Bitam (Vande weghe, 2010); Mboumie (Vande weghe, 2010); Ndjole (Vande weghe, 2010); Waka (Vande weghe, 2010); Rabi (Vande weghe, 2010); Ipassa (Vande weghe, 2010); Massouna 2000 (Vande weghe, 2010); Bakouaka (Vande weghe, 2010); Franceville (Vande weghe, 2010); camp PPG (Vande weghe, 2010).
Central African Republic – Dzanga (Noss, 1998).
Democratic Republic of Congo – Ituri Forest (Ducarme, 2018); Semuliki Valley (Ducarme, 2018); Central Forest Block (Ducarme, 2018).

narchadi Suffert, 1904 (as ssp. of *Hypolimnas dinarcha*). *Deutsche Entomologische Zeitschrift, Iris* **17**: 110 (108-123). Ghana: "Accra". Synonymized with *dinarcha* (Hewitson, 1865) by Larsen, 2005a.

liberiensis Bernardi, 1959 (as ssp. of *Hypolimnas dinarcha*). *Bulletin de l'Institut Française d'Afrique Noire* (A) **21**: 1025 (1021-1032). Liberia: "Hinterland du Liberia".

Hypolimnas dinarcha grandis Rothschild, 1918

Hypolimnas dinarcha grandis Rothschild, 1918. *Novitates Zoologicae* **25**: 343 (338-345).

Hypolimnas dinarcha grandis. Male (Wingspan 75 mm). Left – upperside; right – underside.
Mabira Forest, Uganda. 15 June 2009. J. Dobson.
Images M.C. Williams ex Dobson Collection.

Hypolimnas dinarcha grandis. Female (Wingspan 82 mm). Left – upperside; right – underside.
Mabira Forest, Uganda. 15 June 2009. J. Dobson.
Images M.C. Williams ex Dobson Collection.

Type locality: [Uganda]: "Port Alice, Msarosaro, Entebbe, Hoima, Unyoro, Measa, Usogo".
Diagnosis: Differs from the nominate subspecies in that the forewing white markings are reduced and the hindwing basal areas are ochreous (Congdon and Collins, 1998).
Distribution: Uganda, Kenya (west), Tanzania (north-west).
Specific localities:
Uganda – Port Alice (Rothschild, 1918); Msarosaro (Rothschild, 1918); Entebbe (Rothschild, 1918); Hoima (Rothschild, 1918); Unyoro (Rothschild, 1918); Measa (Rothschild, 1918); Usogo (Rothschild, 1918); Budongo Forest (Stoneham, 1965).
Kenya – Kakamega Forest (Larsen, 1991c).
Tanzania – Luntampa Forest in Mpanda (Kielland, 1990d); Ntakatta Forest in Mpanda (Kielland, 1990d); Mukuya Forest in Kigoma (Kielland, 1990d); Minziro Forest (common) (Congdon & Collins, 1998); Kikuru Forest (less common) (Congdon & Collins, 1998).

Note: Larsen (2005a) doubts that *grandis* is subspecifically distinct from the nominate subspecies.

antiope Stoneham, 1965 (as f. of *Hypolimnas dinarcha*). *Bulletin of the Stoneham Museum* (81): [2] ([3 pp.]). No locality given.

cytherea Stoneham, 1965 (as f. of *Hypolimnas dinarcha*). *Bulletin of the Stoneham Museum* (81): [2] ([3 pp.]). Uganda: "Budongo Forest".

**Hypolimnas antevorta* (Distant, 1880)

Diadema antevorta Distant, 1880. *Proceedings of the Zoological Society of London* **1879**: 703 (703-709).

Type locality: [Tanzania]: "Magila, East Africa".
Distribution: Tanzania (north-east).
Specific localities:
Tanzania – Magila (TL); Amani in the Usambaras (Kielland, 1990d).
Habitat: Submontane forest at altitudes around 1 000 m (Kielland, 1990d).
Habits: Nothing published.
Early stages:

Congdon *et al*., 2017 [final instar larva].

Larval food:
Laportea species (Urticaceae) [Sevastopulo, 1975; as *Fleurya* species].
Scepocarpus hypselodendron (Hochst. ex A.Rich.) Wedd. (Urticaceae) [Sevastopulo, 1975; as *Urera hypselodendron*].
Scepocarpus sansibarica Engl. (Urticaceae) [Congdon *et al*., 2017; Amani, Tanzania; as *Urera sansibarica*].
Scepocarpus species (Urticaceae) [Van Someren, 1974: 322; *Urera* species].

**Hypolimnas monteironis* (Druce, 1874)
Scarce Blue Diadem

Male Scarce Blue Diadem. Camp Combo, Cameroon. May 2019.
Image courtesy Jeremy Dobson.

Diadema monteironis Druce, 1874. *Cistula Entomologica* **1**: 286 (285-290).

Hypolimnas monteironis monteironis. Male. Left – upperside; right- underside.
Camp Kombo, Cameroon. 7 May 2019. J. Dobson.
Images M.C. Williams ex Dobson Collection.

Hypolimnas monteironis major. Female (Wingspan 92 mm). Left – upperside; right – underside.
Mpanga Forest, Uganda. 12 June 2009. J. Dobson.
Images M.C. Williams ex Dobson Collection.

Alternative common name: Black-tipped Diadem.
Type locality: Nigeria: "Old Calabar"; Angola.
Diagnosis: Similar to *Hypolimnas salmacis* but in the male differs in the less extensive blue areas on the upperside of the wings, the wider discal white band in the forewing and the absence of subapical white spots in both sexes (Kielland, 1990d).
Distribution: Nigeria, Cameroon, Gabon, Congo, Angola, Central African Republic, Democratic Republic of Congo, Uganda, Kenya, Tanzania.
Habitat: Forest.
Habits: Generally flies higher than *Hypolimnas salmacis*, sometimes rapidly and at other times with a slow sailing flight pattern (Larsen, 2005a). Males often swoop down from the tree-tops to feed from flowers, muddy patches or animal dung (Larsen, 1991c). A specimen was collected at light on a moored ship in Cameroon (Schultze, 1920).
Early stages: Nothing published.
Larval food:
Laportea species (Urticaceae) [Sevastopulo, 1975; as *Fleurya* species].
Scepocarpus hypselodendron (Hochst. ex A.Rich.) Wedd. (Urticaceae) [Van Someren, 1974: 322; as *Urera hypselodendron*].

Hypolimnas monteironis monteironis (Druce, 1874)

Diadema monteironis Druce, 1874. *Cistula Entomologica* **1**: 286 (285-290).

Hypolimnas monteironis monteironis. Male. Left – upperside; right- underside.
Camp Kombo, Cameroon. 7 May 2019. J. Dobson.
Images M.C. Williams ex Dobson Collection.

Type locality: Nigeria: "Old Calabar"; Angola.
Distribution: Nigeria (Cross River loop), Cameroon, Gabon, Congo, Angola, Central African Republic, Democratic Republic of Congo.
Specific localities:
Nigeria – Calabar (TL).
Gabon – Safala (Vande weghe, 2010); Akaka (Vande weghe, 2010); Kinguele (Vande weghe, 2010); Tchimbele (Vande weghe, 2010); Bitam (Vande weghe, 2010); Waka (Vande weghe, 2010); Ipassa (Vande weghe, 2010); Langoue (Vande weghe, 2010); camp PPG (Vande weghe, 2010).
Central African Republic – Dzanga (Noss, 1998).
Democratic Republic of Congo – Ituri Forest (Ducarme, 2018); Mt Mitumba (Ducarme, 2018); Mt Blue (Ducarme, 2018).

Hypolimnas monteironis major Rothschild, 1918

Hypolimnas monteironis major Rothschild, 1918. *Novitates Zoologicae* **25**: 344 (338-345).

Hypolimnas monteironis major. Male. Left – upperside; right – underside.
Kakamega Forest, Kenya. 9 October 1997.
Images M.C. Williams ex J. Greyling Collection.

Hypolimnas monteironis major. Male. Left – upperside; right – underside.
Mpanga Forest, Uganda. 3 July 2015. J. Dobson.
Images M.C. Williams ex Dobson Collection.

Hypolimnas monteironis major. Female (Wingspan 92 mm). Left – upperside; right – underside.
Mpanga Forest, Uganda. 12 June 2009. J. Dobson.
Images M.C. Williams ex Dobson Collection.

Type locality: [Uganda]: "Port Alice, Entebbe".
Diagnosis: Compared to the nominate subspecies, *major* has broader white bands on both wings and the ground-colour is more greenish (Congdon & Collins, 1998).
Distribution: Uganda, Kenya (west), Tanzania (north-west).
Specific localities:
Uganda – Port Alice (TL); Entebbe (Rothschild, 1918); Semuliki N.P. (Davenport & Howard, 1996).
Kenya – Kakamega Forest (Larsen, 1991c).
Tanzania – Luntampa Forest (Kielland, 1990d); Ntakatta Forest (Kielland, 1990d); Minziro Forest (Congdon & Collins, 1998); Munene Forest (Congdon & Collins, 1998).

**Hypolimnas salmacis* (Drury, 1773)

Blue Diadem

Male Blue Diadem; upper and underside. Camp Kombo, Cameroon. May 2019.
Images courtesy Jeremy Dobson.

Papilio salmacis Drury, 1773. *Illustrations of Natural History* **2**: index et 14 (90 pp.). London.

Hypolimnas salmacis salmacis. Male (Wingspan 89 mm). Left – upperside; right – underside.
Bobiri Forest, Ghana. 22 November 2011. J. Dobson.
Images M.C. Williams ex Dobson Collection.

Hypolimnas salmacis salmacis. Female (Wingspan 94 mm). Left – upperside; right – underside.
Bobiri Forest, Ghana. 22 November 2011. J. Dobson.
Images M.C. Williams ex Dobson Collection.

Type locality: Sierra Leone: "Sierra Leon".
Diagnosis: Similar to *Hypolimnas monteironis* but has two small white apical spots, which are absent in

monteironis. There are two female forms, one with blue and the other with ochreous ground-colour (Congdon & Collins, 1998).

Distribution: Guinea, Sierra Leone, Liberia, Ivory Coast, Ghana, Togo, Benin (Fermon *et al*., 2001), Nigeria, Cameroon, Gabon, Congo, Angola, Equatorial Guinea, Sao Tome & Principe, Central African Republic, Democratic Republic of Congo, Uganda, Sudan, Ethiopia, Kenya, Tanzania.

Erroneously recorded from South Africa by Trimen, 1862c (as *Diadema salmacis* Drury) (MCW).

Habitat: Mainly in secondary forest and disturbed environments. Also in dense Guinea savanna (Larsen, 2005a).

Habits: A common butterfly (Larsen, 2005a). Males are found flying along forest roads and paths and are known to mud-puddle. They are irregular visitors to banana-baited traps (Larsen, 2005a). Females are usually noted flying slowly through the forest, low down, in search of larval host-plants on which to oviposit (Congdon & Collins, 1998; Larsen, 2005a). Males defend territories from high perches along forest paths and on forest edges (Larsen, 2005a). Larsen (2005a) noted numbers feeding from teak flowers some distance from forest in Ghana. Individuals often roost on the underside of leaves, close to the ground (Larsen, 2005a). Up to a hundred specimens were once noted flying in a specific direction in open country in Ghana, from five to 20 metres above the ground, possibly representing a 'mini-migration'. A similar phenomenon was noted in Ivory Coast (Larsen, 2005a). T. Helps noted a specimen attracted to his moth-light at midnight (Larsen, 2005a).

Early stages: Nothing published.

Larval food:

Fleurya cestuans (Urticaceae) [Fountaine, unpublished, *vide* Vane-Wright *et al*., 1977].

Laportea species (Urticaceae) [Sevastopulo, 1975; as *Fleurya* species].

Scepocarpus hypselodendron (Hochst. ex A.Rich.) Wedd. (Urticaceae) [Van Someren, 1974: 322; as *Urera hypselodendron*].

Scepocarpus trinervis (Hochst.) Friis & Immelman (Urticaceae) [Congdon & Collins, 1998: 41; as *Urera cameroonensis* Wedd.].

Hypolimnas salmacis salmacis (Drury, 1773)

Papilio salmacis Drury, 1773. *Illustrations of Natural History* **2**: index et 14 (90 pp.). London.

Hypolimnas salmacis salmacis. Male (Wingspan 89 mm). Left – upperside; right – underside.
Bobiri Forest, Ghana. 22 November 2011. J. Dobson.
Images M.C. Williams ex Dobson Collection.

Hypolimnas salmacis salmacis. Female (Wingspan 94 mm). Left – upperside; right – underside.
Bobiri Forest, Ghana. 22 November 2011. J. Dobson.
Images M.C. Williams ex Dobson Collection.

Type locality: Sierra Leone: "Sierra Leon".
Distribution: Guinea, Sierra Leone, Liberia, Ivory Coast, Ghana, Togo, Benin (south), Nigeria (south and Cross River loop), Cameroon, Gabon, Congo, Angola (Cabinda), Central African Republic, Democratic Republic of Congo, Uganda (west – Bwamba Valley).
Specific localities:
Guinea – Ziama (Safian *et al*., 2020).
Liberia – Wologizi (Safian *et al*., 2020); Wonegizi (Safian *et al*., 2020).
Ivory Coast – Man (Dufrane, 1953).
Ghana – Kogyae (Larsen, 2005a); Ankasa (Larsen, 2005a); Bobiri Butterfly Sanctuary (Larsen *et al*., 2007); Boabeng-Fiema Monkey Sanctuary (Larsen *et al*. 2009).
Benin – Noyau Central, Lama Forest (Fermon *et al*., 2001); Houeyogbe Forest (Coache & Rainon, 2016); see Coache *et al*., 2017.
Cameroon – Korup (Larsen, 2005a).
Gabon – Nyonie (Vande weghe, 2010); Pongara (Vande weghe, 2010); Mondah (Vande weghe, 2010); Ndougou (Vande weghe, 2010); Rabi (Vande weghe, 2010); Kinguele (Vande weghe, 2010); Mboumie (Vande weghe, 2010); Ndjole (Vande weghe, 2010); Bitam (Vande weghe, 2010); Ipassa (Vande weghe, 2010); Massouna 2000 (Vande weghe, 2010); Langoue (Vande weghe, 2010).
Central African Republic – Dzanga (Noss, 1998).
Democratic Republic of Congo – Gombe (Dufrane, 1953); Ituri Forest (Ducarme, 2018); Semuliki Valley (Ducarme, 2018); Mt Blue (Ducarme, 2018).
Uganda – Semuliki N.P. (Davenport & Howard, 1996).

omphale Stoll, 1790 *in* Stoll, [1787-90] (as sp. of *Papilio*). *Die Uitlandsche Kapellen voorkomende in de drie waerrelddeelen Asia, Africa en America* [Supplement]: 124 ([184 pp.]). Amsterdam. [West Africa]: "Amboine". [False locality.]

cissalma Suffert, 1904 (as ssp. of *Hypolimnas salmacis*). *Deutsche Entomologische Zeitschrift, Iris* **17**: 110 (108-123). 'Tschadsee"; Cameroon: "Camerun, Hinterland".

ochreata Joicey & Talbot, 1921 (as f. of *Hypolimnas salmacis*). *Bulletin of the Hill Museum, Witley* **1**: 56 (40-166). No locality given.

transiens Dufrane, 1953 (as ab. of *Hypolimnas salmacis salmacis*). *Bulletin et Annales de la Société Royale Entomologique de Belgique* **89**: 44 (41-57). Ivory Coast: "Man, Côte d'Ivoire".

interrupta Dufrane, 1953 (as ab. of *Hypolimnas salmacis salmacis*). *Bulletin et Annales de la Société Royale Entomologique de Belgique* **89**: 44 (41-57). [Democratic Republic of Congo]: "Gombe, Congo Belge".

Hypolimnas salmacis insularis Schultze, 1920

Hypolimnas salmacis var. *insularis* Schultze, 1920. *Ergebnisse der Zweiten Deutschen Zentral-Afrika-Expedition* **1** (14): 805 (639-829).
Hypolimnas salmacis insularis (Schultze, 1920). Spearman *et al*., 2000: 460.

Type locality: [Equatorial Guinea]: "Fernando Po: Basilé; San Carlos".
Distribution: Equatorial Guinea (island of Bioko).
Specific localities:
Equatorial Guinea – Basile (TL); San Carlos (Schultze, 1920); Caldera de Luba, Bioko (Martin, 2015).

ulysses Collins, 1987 (as ssp. of *Hypolimnas salmacis*). *Lambillionea* **87**: 94 (92-96). Equatorial Guinea: "Island of Bioko, (ex Fernando Po)". Synonymized with *insularis* Schultze, by Spearman, *et al*., 2000: 460.

patra Collins, 1987 (as f. of *Hypolimnas salmacis ulysses*). *Lambillionea* **87**: 94 (92-96). Equatorial Guinea: "Bioko".

helenae Canu, 1994 (as f. of *Hypolimnas salmacis ulysses*). *Lambillionea* **94** (3) (Tome I): 317 (311-320). Equatorial Guinea: Bioko.

penelope Canu, 1994 (as f. of *Hypolimnas salmacis ulysses*). *Lambillionea* **94** (3) (Tome I): 317 (311-320). Equatorial Guinea: Bioko.

Hypolimnas salmacis thomensis Aurivillius, 1910

Hypolimnas salmacis var. *thomensis* Aurivillius, 1910. *Annali del Museo Civico di Storia Naturale (di Genova) Giacoma Doria* (3) **4**: 510 (494-530).

Type locality: Sao Tome & Principe: "Ribeira Palma".
Distribution: Sao Tome & Principe (island of Sao Tome).
Specific localities:
Sao Tome – Ribeira Palma (TL).

Hypolimnas salmacis magnifica Rothschild, 1918

Hypolimnas salmacis magnifica Rothschild, 1918. *Novitates Zoologicae* **25**: 343 (338-345).

Hypolimnas salmacis magnifica. Male (Wingspan 84 mm). Left – upperside; right – underside.
Mabira Forest, Uganda. 14 June 2009. J. Dobson.
Images M.C. Williams ex Dobson Collection.

Type locality: [Uganda]: "Port Alice, Entebbe".
Distribution: Uganda, Kenya (west), Tanzania (north-west).

Thought to be extinct in western Kenya (Larsen, 1991c, 2005a) but recorded from Kakamega Forest recently (Namu *et al*., 2007).

Specific localities:
Uganda – Port Alice (TL); Entebbe (Rothschild, 1918).
Kenya – Nzoia (Aurivillius, 1921); Kakamega Forest (Stoneham, 1951-65; Namu *et al*., 2007).
Tanzania – Minziro Forest (Congdon & Collins, 1998); Kikuru Forest (Congdon & Collins, 1998); Munene Forest (single record) (Congdon & Collins, 1998).

Hypolimnas salmacis platydema Rothschild & Jordan, 1903

Hypolimnas salmacis platydema Rothschild & Jordan, 1903. *Novitates Zoologicae* **10**: 524 (491-542).

Type locality: [Ethiopia]: "Scheko".
Distribution: Sudan (south), Ethiopia (south).
Specific localities:
Ethiopia – Scheko (TL).

Hypolimnas aubergeri Hecq, 1987
Cote d'Ivoire Eggfly

Hypolimnas aubergeri Hecq, 1987. *Lambillionea* **87**: 26 (26-28).

Type locality: Ivory Coast: "RCI, Danane".
Diagnosis: Closest to *H. chapmani* (Safian & Takano, 2019).
Distribution: Guinea (Nimba Mountains), Sierra Leone, Liberia, Ivory Coast (east, central), Ghana?.
Specific localities:
Guinea – Seredou near Macenta (H. Warren-Gash, *vide* Larsen, 2005a); Ziama Forest (Safian *vide* Safian & Takano, 2019).
Sierra Leone – Loma Mountains (Takano *vide* Safian & Takano, 2019).
Liberia – Nimba Mountains (Safian *vide* Safian & Takano, 2019); Wologizi Mountains (Safian *vide* Safian & Takano, 2019).

Ivory Coast – Danane (TL; M. Auberger); Tiapleu (ABRI, *vide* Larsen, 2005a); Tiassale (ABRI, *vide* Larsen, 2005a); Nimbas (H. Warren-Gash, *vide* Larsen, 2005a); Mount Tonkoui (H. Warren-Gash, *vide* Larsen, 2005a).
Habitat: Pre-montane forest in the foothills of mountainous areas (Safian & Takano, 2019).
Habits: Both sexes are good mimics of the black and white females of *Acraea macaria* and *Acraea alcinoe* (Larsen, 2005a). Males are known to be attracted to urine bait (Safian & Takano, 2019). There is a record of a male being attracted to a mercury-vapour light (Safian & Takano, 2019).
Early stages: Nothing published.
Larval food: Nothing published.
Relevant literature:
Safian & Takano, 2019 [general biology notes].

**Hypolimnas chapmani* (Hewitson, 1873)
Chapman's Eggfly

Diadema chapmani Hewitson, 1873. *Entomologist's Monthly Magazine* **9**: 233 (232-233).

Type locality: Nigeria: "Calabar".
Distribution: Nigeria (east), Cameroon.
Records from Ivory Coast and Ghana (Carcasson, 1981) probably refer to the recently described *Hypolimnas aubergeri* Hecq, 1987 (Larsen, 2005a).
Specific localities:
Nigeria – Calabar (TL); Oban Hills (Larsen, 2005a); Ikom (Larsen, 2005a); Sapoba (H. Boersma, *vide* Larsen, 2005a).
Cameroon – N'Dian (Aurivillius, 1894).
Habitat: Primary forest.
Habits: This is a probable mimic of *Acraea umbra* (Larsen, 2005a). A very rare butterfly in Nigeria (Larsen, 2005a).
Early stages: Nothing published.
Larval food: Nothing published.

fasciata Aurivillius, 1894 (as ab. of *Hypolimnas chapmani*). *Entomologisk Tidskrift* **15**: 280 (273-314). Cameroon: "N'Dian".

**Hypolimnas macarthuri* Neidhoefer, 1972

Hypolimnas macarthuri Neidhoefer, 1972. *Occasional papers. Milwaukee Public Museum* (3): 3 (9 pp.).

Type locality: Central African Republic: "Bangui".
Distribution: Central African Republic.
Specific localities:
Central African Republic – Bangui (TL).
Early stages: Nothing published.
Larval food: Nothing published.

**Hypolimnas deceptor* (Trimen, 1873)#
Deceptive Diadem

Deceptive Diadem (*Hypolimnas deceptor*). Male, Anjajavy, Madagascar.
Image courtesy Raimund Schutte.

Diadema deceptor Trimen, 1873. *Transactions of the Entomological Society of London* **1873**: 105 (101-124).
Euralia deceptor (Trimen, 1873). Trimen & Bowker, 1887a.
Hypolimnas deceptor Trimen. Swanepoel, 1953a.
Hypolimnas deceptor (Trimen, 1873). Dickson & Kroon, 1978.
Hypolimnas deceptor (Trimen, 1873). Pringle *et al*., 1994: 115.

Hypolimnas deceptor deceptor. Male. Left – upperside; right – underside.
Beira, Mozambique. April 1995. M. Lunderstedt.
Images M.C. Williams ex Dobson Collection.

Hypolimnas deceptor deceptor. Female. Left – upperside; right – underside.
Gorongosa, Mozambique. April 1995. M. Lunderstedt.
Images M.C. Williams ex Dobson Collection.

Alternative common name: Deceptive Eggfly.
Type locality: [South Africa]: "Victoria County, Natal".
Distribution: Somalia, Uganda (Davenport, 1996), Kenya, Tanzania, Malawi, Mozambique, Zimbabwe, South Africa, Swaziland (Larsen, 1991c), Madagascar.
Habitat: Forest and dense coastal bush. In Tanzania it occurs from sea level to about 900 m (Kielland, 1990d). In Madagascar in forest (Lees *et al*., 2003).
Habits: Rare in the south of its continental range but commoner in the north. Usually flies low down, just above the ground, settling on low vegetation. When settled the wings are held two-thirds open, something which is not done by its model (Larsen, 1991c). Specimens often roost together in large groups in dark or shaded places (Gifford, 1965; Pringle *et al*., 1994). An excellent mimic of *Amauris ochlea* (Larsen, 1991c). R. Schutte (pers. comm. April 2010) noted that ssp. *deludens* from Madagascar is a common resident of dense forest, usually seen once disturbed from its roosting spot. It was also seen by torchlight at night roosting under leaves.
Flight period: All year (Pringle *et al*., 1994).
Early stages:

Trimen, 1910: 500 (*Trans. R. Ent. Soc. Lond.* 1910: 498-513).

Clark, *in* Van Son, 1979: 58 (Plate 46) [as *Hypolimnas deceptor deceptor*].

"The eggs are laid in small clusters. They are pale dull green, 0,7 mm in diameter by 0,6 mm high. The sides are fortified by 10 glass-like longitudinal ribs cross-braced by some 35 faint transverse ridges. The eggs hatch in four to five days. The young larva hatches by eating a hole in the top of the egg, but does not necessarily eat the shell. It is very pale dull olive-yellow with a pale dull yellow head, and is 2 mm long. The setae are black. It feeds on the surface of the leaf and grows to 3,5-4 mm in three to four days. In the second instar the setae are replaced by protuberances arranged in seven rows. The dorsal row consists of a single protuberance on the first wrinkle of each segment except the three first and the last two. There are two spines on segment 11 and a pair of spines alongside each other on segment 1. The subdorsal row consists of a single protuberance on the leading wrinkle of each segment except the first, where there is a single spine on a mole. The lateral row has a protuberance on all segments except the first and the last, and on the lateral ridge there is a protuberance on all segments except the first and the three last. The body is light brown with a yellow-brown head, and the protuberances are of the same colour as the rest of the larva. The instar lasts three to five days and the larvae grow to 6-7 mm. From this point the larvae form two groups, one taking five, the other six instars, the former giving rise to males and the latter to females. The sizes and duration of each instar are as follows:

INSTAR	MALES	FEMALES
1	2 to 4 mm in 3 days	2 to 3,5 mm in 3 days
2	4 to 7 mm in 3 days	3,5 to 6 mm in 3 days
3	7 to 13 mm in 3 days	6 to 11 mm in 3 days
4	13 to 22,5 mm in 3 days	11 to 16,5 mm in 3 days
5	22,5 to 44 mm in 8 days	16,5 to 31 mm in 5 days
6		31 to 50 mm in 7 days
Total days	19 days	22 days

The colour changes gradually to dark brown, then black, dark brown bases develop round each protuberance and then change to bright yellow. The protuberances are jet black in the third instar, but later the yellow colour of the base creeps up, and in the final instar the protuberances are a brownish-yellow, sometimes with a darkened tip. The spines change from black to brown. The head in the third instar is pale salmon with black horns, and except for a slight lightening of the salmon, the colour remains the same in subsequent instars. To pupate the larva spins a mat into which it fastens its hind claspers and hangs head down. Pupa: It is black with pale yellow markings. The pupae of males are 20 mm long, those of females 27 mm. The pupal stage is about 12 days."

Larval food:
Laportea (syn. *Fleurya*) species (Urticaceae) [Trimen, 1910: 500; Sevastopulo, 1975].
Laportea peduncularis (Wedd.) Chew (Urticaceae) [Dickson & Kroon, 1978: 76].

Hypolimnas deceptor deceptor (Trimen, 1873)#

Diadema deceptor Trimen, 1873. *Transactions of the Entomological Society of London* **1873**: 105 (101-124).
Euralia deceptor (Trimen, 1873). Trimen & Bowker, 1887a.
Hypolimnas deceptor Trimen. Swanepoel, 1953a.
Hypolimnas deceptor (Trimen, 1873). Dickson & Kroon, 1978.
Hypolimnas deceptor deceptor (Trimen, 1873). Pringle *et al*., 1994: 116.

Hypolimnas deceptor deceptor. Male. Left – upperside; right – underside.
Beira, Mozambique. April 1995. M. Lunderstedt.
Images M.C. Williams ex Dobson Collection.

Hypolimnas deceptor deceptor. Female. Left – upperside; right – underside.
Gorongosa, Mozambique. April 1995. M. Lunderstedt.
Images M.C. Williams ex Dobson Collection.

Type locality: [South Africa]: "Victoria County, Natal".
Distribution: Somalia (south), Uganda (Davenport, 1996), Kenya (coast), Tanzania (coast), Malawi, Mozambique, Zimbabwe (east), South Africa (Limpopo Province – single record, KwaZulu-Natal, Eastern Cape Province), Swaziland (Larsen, 1991c).

Recorded, apparently in error from western Kenya by Stoneham (1951-1965) (Larsen, 1991c).

Specific localities:

Kenya – Shiringoma district (Butler, 1898); Makaya district (Butler, 1898); Shimba Hills (Larsen, 1991c); Arabuko-Sokoke Forest (Larsen, 1991c).

Tanzania – Coastal areas from the Mozambique border to the Tanga Region (Kielland, 1990d); East Usambara (Kielland, 1990d); Morogoro (Kielland, 1990d); Nguru Mountains (Kielland, 1990d); Mikumi National Park (Kielland, 1990d); Uzungwa Rift (Kielland, 1990d); Rondo Plateau (Kielland, 1990d); Pemba Island (Kielland, 1990d); Mafia Island (Ackery *et al*., 1995); Semdoe

Forest Reserve (Doggart *et al*., 2001).
Malawi – Zomba Mountain (Gifford, 1965); Mt Mulanje (Congdon *et al*., 2010).
Mozambique – Dondo Forest (Pennington).
Zimbabwe – Mutare (Pringle *et al*., 1994); Vumba Mountains (Pringle *et al*., 1994).
Limpopo Province – Soutpansberg ((Swanepoel, 1953; single record).
KwaZulu-Natal – near Durban (Morant); Umkomaas (Pringle *et al*., 1994); Umhlanga Rocks (Pringle *et al*., 1994); Umdloti (Pringle *et al*., 1994); Lake Sibayi (Pringle *et al*., 1994); Kosi Bay Nature Reserve (Pringle *et al*., 1994).
Eastern Cape Province – Bashee River (Swanepoel, 1953); East London (Quickelberge).

kirbyi Butler, 1898 (as sp. of *Euralia*). *Proceedings of the Zoological Society of London* **1898**: 51 (49-58). [Kenya]: "Shiringoma and Makaya districts".

Hypolimnas deceptor deludens Grose-Smith, 1891

Hypolimnas deludens Grose-Smith, 1891. *Annals and Magazine of Natural History* (6) **7**: 125 (122-128).

Type locality: Madagascar: "North-west coast of Madagascar".
Distribution: Madagascar (central and south-west).
Specific localities:
Madagascar – Anjajavy Peninsula (R. Schutte, pers. comm. April 2010).

grandidieri Mabille, 1899 (as sp. of *Euralia*). *Bulletin du Muséum d'Histoire Naturelle. Paris* **5**: 374 (373-375). Madagascar.

**Hypolimnas anthedon* (Doubleday, 1845)#
Variable Diadem

Diadema anthedon Doubleday, 1845. *Annals and Magazine of Natural History* (1) **16**: 181 (176-182).
Diadema anthedon Boisduval. Trimen, 1862c.
Euralia wahlbergi (Wallengren, 1857). Trimen & Bowker, 1887a. [Now a subspecies of *anthedon*]
Euralia mima (Wallengren, 1857). Trimen & Bowker, 1887a. [Synonym of *anthedon*]
Hypolimnas dubia Palisot de Beauvais [sic]. Swanepoel, 1953a. [Synonym of *anthedon*]
Hypolimnas anthedon (Doubleday, 1845). Pringle *et al*., 1994: 116.

Varible diadem (*Hypolimnas anthedon*) form mima.
Image courtesy Raimund Schutte.

Hypolimnas anthedon anthedon. Male (Wingspan 77 mm). Left – upperside; right – underside.
Bobiri Forest, Ghana. 22 November 2011. J. Dobson.
Images M.C. Williams ex Dobson Collection.

Hypolimnas anthedon anthedon. Male (Wingspan 80 mm). Left – upperside; right – underside.
Bobiri Forest, Ghana. 22 November 2011. J. Dobson.
Images M.C. Williams ex Dobson Collection.

Hypolimnas anthedon anthedon. Female. Left – upperside; right – underside.
Libreville, Gabon. 12 June 2016. J. Dobson.
Images M.C. Williams ex Dobson collection.

Hypolimnas anthedon anthedon. Female (pale form). Left – upperside; right – underside.
Libreville, Gabon. 16 November 2017. J. Dobson.
Images M.C. Williams ex Dobson Collection.

Alternative common name: Variable Eggfly.
Type locality: "Africa Occidentale".
Distribution: Senegal, Gambia, Guinea-Bissau (Bacelar, 1949), Guinea, Sierra Leone, Liberia, Ivory Coast, Ghana, Togo, Benin, Nigeria, Cameroon, Equatorial Guinea, Sao Tome & Principe, Gabon, Congo, Central African Republic, Angola, Democratic Republic of Congo, Sudan, Ethiopia, Uganda, Rwanda, Burundi, Kenya, Tanzania, Malawi, Zambia, Mozambique, Zimbabwe, South Africa, Swaziland (Duke *et al*., 1999), Madagascar, Comoro Islands, Mauritius.
Habitat: Forest and heavy woodland, including Guinea savanna in West Africa (Larsen, 2005a). Tolerates habitat degradation well (Larsen, 2005a). In Tanzania the nominate subspecies occurs at altitudes from 800 to 1 700 m and subspecies *wahlbergi* from near sea level to 1 700 m (Kielland, 1990d). In forest margins in Madagascar (Lees *et al*., 2003).
Habits: The flight of this common butterfly is slow, like that of their distasteful models *Amauris niavius*, *Amauris tartarea*, *Amauris echeria*, *Amauris damocles* and *Amauris vashti* but it may be very rapid if they are rudely disturbed. Individuals congregate to roost for the night, in small aggregations, in the lower branches of umdoni trees (*Syzygium cordatum*) along the KwaZulu-Natal coast. Males defend territories from perches high up in trees (Pringle *et al*., 1994). Both sexes feed from fallen fruit and flowers, and males are occasionally seen mud-puddling or feeding from excrement (Larsen, 2005a). Bernardi (1959, 1974) mapped the relative distribution of the various morphs of models and mimics.
Flight period: All year but scarcer in winter (Pringle *et al*., 1994).
Early stages:

Trimen & Bowker, 1887, Vol. 1: 281 [as *Euralia mima* and *Euralia dubia*].

Trimen, 1910: 503.

Pinhey, 1949: 74.

Dickson, 1972: 36.

Clark, *in* Van Son, 1979: 60 (Plate 47) [as *Hypolimnas anthedon wahlbergi*].

"The eggs are laid in small clutches in bracts or on young leaves. They are 0,7 mm in diameter by 0,6 mm high. There are 10-12 longitudinal ribs braced by some 26 cross-ridges. Very pale dirty yellow when laid, they darken slightly, and before hatching, the larva can be seen inside. They hatch five to six days after being laid. One female laid 355 eggs in three days and still contained very many more. The young larva eats its way out near the top of the egg, and after a short rest eats the discarded shell. It measures 2 mm on hatching and is pale yellow with black spines and a brownish-yellow head. It feeds on the surface of the leaf at first, then on the edge, and grows to 4-4,5 mm in three days. In the second instar the larva develops black protuberances arranged in seven rows. The dorsal

row has a single spine on the first wrinkle of each segment except the three first and the three last segments, but on segment 11 there are two. The second (subdorsal) row consists of a single protuberance on the leading wrinkle of each segment except the first where there is a small spine instead. The third (lateral) row has a single protuberance on the leading wrinkle of each segment except the first and the two last. On the lateral ridge there is a protuberance on each segment except the two last. Each proleg has a modified pair of protuberances, and the claspers have one each. The colour is nut-brown, paler on the prolegs and ventral portions, and the protuberances are black with brown bases, generally a shade lighter than the main colour. The head is brown with two spiny projections. The instar lasts four days, and the larvae grow to 7-8 mm. Larvae of the third instar are olive-brown shading to olive-yellow ventrally; the extremities are lighter, later deepening in colour. The protuberances are black with black spines. There is a thin yellow stripe between the base of the dorsal and subdorsal protuberances. The head and horns are black. The instar lasts three days, the larvae growing to 13-14 mm. The fourth instar larvae are darker, verging on black, later changing to black, the protuberances are relatively thinner, black with a dull yellow tip and black spines. The yellow stripe between the dorsal and subdorsal spines has extended to the lateral ridge; the head is black. The instar lasts four to five days and the larvae grow to 22-27 mm. In the fifth instar the larvae are black with a pale salmon head, yellow protuberances and spines, and yellow bands connecting the bases of the protuberances. The prolegs are salmon. The instar lasts seven days and the larvae grow to 47-50 mm. The larvae throughout show two distinct size-groups, the larger producing females and the smaller, males. The pupa is suspended downwards, secured to a silken mat by cremastral hooks. It is 25-27 mm long, the larger size being that of a female. The pupal stage lasts 16 days."

Hypolimnas anthedon wahlbegi eggs. Image courtesy Steve Woodhall.

Larval food:
Berkheya spekeana Oliv. (Asteraceae) [Sevastopulo, 1975].
Laportea (syn. *Fleurya*) species (Urticaceae) [Trimen, 1910: 503].
Laportea peduncularis (Wedd.) Chew (syn. *Fleurya capensis* Wedd., syn. *Fleurya mitis* (Wedd.) N.E. Br. (Urticaceae) [Platt, 1921: 102].
Scepocarpus hypselodendron (Hochst. ex A.Rich.) Wedd. (Urticaceae) [Van Someren, 1974: 322; as *Urera hypselodendron*].
Scepocarpus trinervis (Hochst.) Friis & Immelman (Urticaceae) [Pringle *et al.*, 1994: 116; as *Urera cameroonensis*].
Urtica species (Urticaceae) [Fountaine, unpublished, *vide* Vane-Wright *et al*., 1977].
Relevant literature:
Bernardi, 1959; 1974.

Hypolimnas anthedon anthedon (Doubleday, 1845)

Diadema anthedon Doubleday, 1845. *Annals and Magazine of Natural History* (1) **16**: 181 (176-182).

Hypolimnas anthedon anthedon. Male (Wingspan 77 mm). Left – upperside; right – underside.
Bobiri Forest, Ghana. 22 November 2011. J. Dobson.
Images M.C. Williams ex Dobson Collection.

Hypolimnas anthedon anthedon. Male (Wingspan 80 mm). Left – upperside; right – underside.
Bobiri Forest, Ghana. 22 November 2011. J. Dobson.
Images M.C. Williams ex Dobson Collection.

Hypolimnas anthedon anthedon. Female. Left – upperside; right – underside.
Libreville, Gabon. 12 June 2016. J. Dobson.
Images M.C. Williams ex Dobson collection.

Hypolimnas anthedon anthedon. Female (pale form). Left – upperside; right – underside.
Libreville, Gabon. 16 November 2017. J. Dobson.
Images M.C. Williams ex Dobson Collection.

Type locality: "Africa Occidentale".
Distribution: Senegal (south), Gambia, Guinea-Bissau (Bacelar, 1949), Guinea, Sierra Leone, Liberia, Ivory Coast, Ghana, Togo, Benin (south, central), Nigeria (south and Cross River loop), Cameroon, Equatorial Guinea (Bioko), Sao Tome & Principe, Gabon, Congo, Central African Republic, Angola, Democratic Republic of Congo, Sudan (south), Uganda, Rwanda, Burundi, Kenya (west), Tanzania (north-west), Zambia (north and north-west).
Specific localities:
Senegal – Dakar (Larsen, 2005a; strays).
Gambia – Fajara, Abuko, Pirang, Bijilo, Sanyang, northbank near Janjanbureh, Basse (Jon Baker, pers. comm., May 2020).
Guinea – Ziama (Safian *et al*., 2020).
Liberia – Wologizi (Safian *et al*., 2020); Wonegizi (Safian *et al*., 2020).
Ghana – Bobiri Butterfly Sanctuary (Larsen *et al*., 2007); Boabeng-Fiema Monkey Sanctuary (Larsen *et al*. 2009).
Benin – Houeyogbe Forest (Coache & Rainon, 2016); see Coache *et al*., 2017.
Nigeria – Kaduna (Larsen, 2005a); Oban Hills (Larsen, 2005a).
Cameroon – Itoki (Aurivillius, 1894); Kitta (Aurivillius, 1894); N'Dian (Aurivillius, 1894); Bonge (Aurivillius, 1894); Barombi Station (Staudinger, 1896); Johann-Albrechtshöhe (Bartel, 1905); Korup (Larsen, 2005a).
Equatorial Guinea – Banterberri, Fernando Po (Rothschild, 1918); Caldera de Luba, Bioko (Martin, 2015).
Gabon – Probably throughout (Vande weghe, 2010).
Congo – Kuilu (Staudinger, 1896).
Central African Republic – Dzanga (Noss, 1998); Bangui (male and female illustrated above).
Democratic Republic of Congo – Kamituga (Dufrane, 1945); Ituri Forest (Ducarme, 2018); Semuliki Valley (Ducarme, 2018); Central Forest Block (Ducarme, 2018); Mt Mitumba (Ducarme, 2018); Mt Blue (Ducarme, 2018).
Uganda – Semuliki N.P. (Davenport & Howard, 1996).
Rwanda – Cyamudongo Forest (Uwizelimana *et al*., 2021).
Tanzania – Mpanda and Kigoma to Uganda. Intermediates to subspecies *wahlbergi* occur in Tukuyu south of Mbeya (Kielland, 1990d); Katavi National Park (Fitzherbert *et al*., 2006).
Zambia – Mwinilunga (Heath *et al*., 2002); Mpongwe (Heath *et al*., 2002); Miengwe (Heath *et al*., 2002); Ndola (Heath *et al*., 2002); Luapula River (Heath *et al*., 2002); Kalungwishi River (Heath *et al*., 2002); Nkamba Bay (Heath *et al*., 2002).

dubius Palisot de Beauvois, 1805 *in* Palisot de Beauvois, [1805-21] (as sp. of *Papilio*). *Insectes receueillis en Afrique et en Amérique* 238 (276 pp.). Paris. No locality given. Invalid; junior primary homonym of

Papilio dubius Stoll, 1781 [Hesperiidae], and *Papilio dubius* Fuessly, 1783 [Satyrinae].

damoclina Trimen, 1869 (as sp. of *Diadema*). *Transactions of the Linnean Society of London* **26**: 505 (497-552). Angola.

cerberus Aurivillius, 1894 (as ab. of *Hypolimnas dubia*). *Entomologisk Tidskrift* **15**: 281 (273-314). Cameroon: "Itoki, Kitta, N'Dian, Bonge". Holotype in the Swedish Natural History Museum (images available at www2.nrm.se/en/lep_nrm/d).

daemona Staudinger, 1896 (as sp. of *Hypolimnas*). *Deutsche Entomologische Zeitschrift, Iris* **9**: 211 (193-240). Cameroon: "Barombi-Station, im nördlichen Hinterlande von Kamerun".

daemonides Staudinger, 1896 (as var? of *Hypolimnas daemona*). *Deutsche Entomologische Zeitschrift, Iris* **9**: 212 (193-240). Congo: "Kuilu (französisches, westliches Congo-Gebiet)".

latepicta Bartel, 1905 (as ab. of *Hypolimnas dubius*). *Novitates Zoologicae* **12**: 135 (129-152). Cameroon: "N.-Kamerun, Johann-Albrechtshöhe".

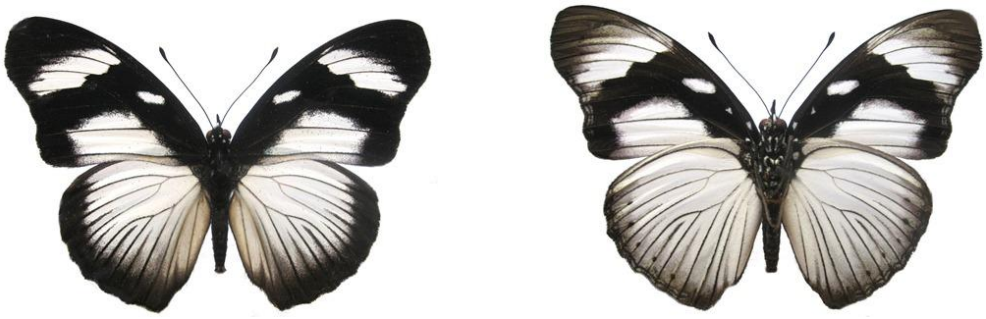
poensis Rothschild, 1918 (as ssp. of *Hypolimnas dubius*). *Novitates Zoologicae* **25**: 344 (338-345). [Equatorial Guinea]: "Banterberri, Fernando Po".

pseudodamoclina Dufrane, 1945 (as f. of *Hypolimnas dubia dubia*). *Bulletin et Annales de la Société Royale Entomologique de Belgique* **81**: 101 (90-143). [Democratic Republic of Congo]: "Kamituga".

mariae Dufrane, 1945 (as ab. of *Hypolimnas dubia dubia*). *Bulletin et Annales de la Société Royale Entomologique de Belgique* **81**: 101 (90-143). [Democratic Republic of Congo]: "Kamituga".

Hypolimnas anthedon wahlbergi (Wallengren, 1857)#

Diadema wahlbergi Wallengren, 1857. *Öfversigt af Kongl. Vetenskaps-Akademiens Förhandlingar. Stockholm* annis 1838-1845. Collecta (n.s.) **2** (4): 27 (55 pp.).
Hypolimnas dubius wahlbergi (Wallengren, 1857). Dickson & Kroon, 1978.
Hypolimnas anthedon wahlbergi (Wallengren, 1857). Pringle *et al*., 1994: 116.



Hypolimnas anthedon wahlbergi f. *wahlbergi*. Male (Wingspan 78 mm). Left – upperside; right – underside.
Malelane, Mpumalanga, South Africa. 20 May 2007. J. Dobson.
Images M.C. Williams ex Dobson Collection.

Hypolimnas anthedon wahlbergi f. *wahlbergi*. Female (Wingspan 85 mm). Left – upperside; right – underside.
Umdoni Park, KwaZulu-Natal, South Africa. 27 April 2005. J. Dobson.
Images M.C. Williams ex Dobson Collection.

Hypolimnas anthedon wahlbergi f. *mima*. Male (Wingspan 77 mm). Left – upperside; right – underside.
Umdoni Park, KwaZulu-Natal, South Africa. 27 April 2005. J. Dobson.
Images M.C. Williams ex Dobson Collection.

Hypolimnas anthedon wahlbergi f. *mima*. Female (Wingspan 86 mm). Left – upperside; right – underside.
Marieps Kop, Mpumalanga, South Africa. 19 March 2006. J. Dobson.
Images M.C. Williams ex Dobson Collection.

Type locality: [South Africa]: "Caffraria". Holotype in the Swedish Natural History Museum (images available at www2.nrm.se/en/lep_nrm/w).
Diagnosis: The pale markings are better developed than in the nominate subspecies (Kielland, 1990d).

Distribution: Democratic Republic of Congo (east), Ethiopia, Kenya (east of the Rift Valley), Tanzania (east), Malawi, Zambia, Mozambique, Zimbabwe, South Africa (Limpopo Province, Mpumalanga, KwaZulu-Natal, Eastern Cape Province), Swaziland (Duke *et al*., 1999).
Specific localities:
Kenya – Meru (Larsen, 1991c); Nairobi (Larsen, 1991c); Arabuko-Sokoke (Larsen, 1991c); Rabai (Larsen, 1991c); Kasigau (Larsen, 1991c); Kibwezi (Larsen, 1991c).
Tanzania – Eastern parts, inland to the Northern Highlands in the north and Tukuyu in the south (Kielland, 1990d); Mafia Island (Ackery *et al*., 1995); Semdoe Forest Reserve (Doggart *et al*., 2001).
Malawi – Mt Mulanje (Congdon *et al*., 2010); Zomba Mountains (Congdon *et al*., 2010).
Zambia – Luangwa Valley (Heath *et al*., 2002); Mbala (Heath *et al*., 2002).
Mozambique – Amatongas (Pringle *et al*., 1994); Mt Inago (Congdon *et al*., 2010); Mt Namuli (Congdon *et al*., 2010); Mt Mabu (Congdon *et al*., 2010); Maputo Special Reserve (Miles & Mulvaney, 2022).
Zimbabwe – Chimanimani Mountains (Pringle *et al*., 1994); Vumba Mountains (Pringle *et al*., 1994); Kariba Valley (Pringle *et al*., 1994); Dichwe Farm, east of Chinhoyi (Pringle *et al*., 1994); Bikita (Pringle *et al*., 1994).
Limpopo Province – Lekgalameetse Nature Reserve ("Malta Forest") (Swanepoel, 1953); Tubex (Swanepoel, 1953); Ramatoelaskloof (Swanepoel, 1953).
Mpumalanga – Barberton (Swanepoel, 1953); Marieps Kop (Swanepoel, 1953); Sabie (Williams); Buffelskloof Nature Reserve (Williams).
KwaZulu-Natal – Umkomaas (Swanepoel, 1953); Durban (Swanepoel, 1953); Eshowe (Swanepoel, 1953); St Lucia Bay (Swanepoel, 1953); Kosi Bay Nature Reserve (Pringle & Kyle, 2002).
Eastern Cape Province – East London (Pringle *et al*., 1994).

mima Trimen, 1869 (as sp. of *Diadema*). *Transactions of the Linnean Society of London* **26**: 506 (497-552). [South Africa]: "Natal".

marginalis Butler, 1875 (as var. of *Euralia anthedon*). *Annals and Magazine of Natural History* (4) **16**: 395 (394-420). [South Africa].

angustilimbata Weymer, 1892 (as sp. of *Hypolimnas*). *Stettiner Entomologische Zeitung* **53**: 87 (79-125). "Ostafrika".

millari Aurivillius, 1913 *in* Seitz, 1908-25 (as f. of *Hypolimnas mima*). *Die Gross-Schmetterlinge der Erde*, Stuttgart (2) **13** *Die Afrikanischen Tagfalter*: 216 (614 pp.). No locality given.

Hypolimnas anthedon drucei (Butler, 1874)

Panopea drucei Butler, 1874. *Transactions of the Entomological Society of London* **1874**: 426 (423-436).

Type locality: Madagascar.
Distribution: Madagascar, Comoro Islands, Mauritius.
Specific localities:
Comoros – Island of Johanna (Butler, 1879); Mayotte (Rothschild, 1918).
Mauritius – Extrmely rare or extinct on this island (Davis & Barnes, 1991); 2 specimens in British Museum, no locality, Nov. & Dec. 1953 (J.T. Rawlins); 1 specimen, La Mi Voie, Black River, Sep. 1915 (Vinson, 1938). A specimen was found in Black River Gorges by J. Dobson on 4 January 2007 (Lawrence, 2016). Pyrcz (2017) recorded it from Grande Rivière Noire and Ward *et al*. (2018) found it quite frequent along the access road to the Black River Gorges.

bewsheri Butler, 1879 (as sp. of *Panopea*). *Annals and Magazine of Natural History* (5) **3**: 187 (186-192). Comoro Islands: "Island of Johanna".

diffusa Butler, 1880 (as sp. of *Panopea*). *Annals and Magazine of Natural History* (5) **5**: 336 (333-344, 384-395). Madagascar.

madagascariensis Mabille, 1881 (as sp. of *Hypolimnas*). *Bulletin de la Société Entomologique de Belgique* **25**: 55 (55-63). Madagascar.

lutescens Mabille, 1887 *in* Grandidier, [1885-7] (as sp. of *Hypolimnas*). *Histoire, Physique, Naturelle et Politique de Madagascar* 162, pl. 18 (**18** [1887]: 364 pp.; **19** [1885]: 55pls.). Madagascar: "du nord de Madagascar".

limbata Crowley, 1890 (as sp. of *Hypolimnas*). *Transactions of the Entomological Society of London* **1890**: 552 (551-556). Madagascar.

mayottensis Rothschild, 1918 (as ssp. of *Hypolimnas dubius*). *Novitates Zoologicae* **25**: 344 (338-345). Comoro Islands: "Mayotte, Comoro Islands".

antelmei Le Cerf, 1928 (as ssp. of *Hypolimnas dubia*). *Encyclopédie Entomologique* (B. 3. Lepidoptera) **3**: 123 (117-126). Mauritius: "Pont blank, la mi-Voie, à entrée des gorges de la Rivière Noire, île Maurice".

**Hypolimnas misippus* (Linnaeus, 1764)#

Common Diadem

Common Diadem (*Hypolimnas misippus*). Male upper- and underside.
Images courtesy Steve Woodhall.

Common Diadem (*Hypolimnas misippus*). Left – female upperside. Centre – female feeding on sap exuding from a tree. Right – female form *inaria*.
Images courtesy Steve Woodhall (left and right) and Raimund Schutte (centre).

Papilio misippus Linnaeus, 1764. *Museum Ludovicae Ulricae Reginae* 264 (720 pp.). Holmiae.
Diadema misippus (Linnaeus, 1764). Trimen & Bowker, 1887a.
Hypolimnas misippus Linnaeus. Swanepoel, 1953a.
Hypolimnas misippus (Linnaeus, 1764). Dickson & Kroon, 1978.
Hypolimnas misippus (Linnaeus, 1764). Pringle *et al*., 1994: 115.

Hypolimnas misippus. Male (Wingspan 63 mm). Left – upperside; right – underside.
Rustenburg Nature Reserve, North West Province, South Africa. 12 April 1998. M. Williams.
Images M.C. Williams ex Williams Collection.

Hypolimnas misippus. Female (Wingspan 75 mm). Left – upperside; right – underside.
Onderstepoort, Gauteng, South Africa. 6 March 1971. M. Williams.
Images M.C. Williams ex Williams Collection.

Hypolimnas misippus. Female f. *alcippoides* (Wingspan 74 mm). Left – upperside; right – underside.
Cullinan, Gauteng, South Africa. 24 February 2008. J. Dobson.
Images M.C. Williams ex Dobson Collection.

Hypolimnas misippus. Female f. *inaria* (Wingspan 77 mm). Left – upperside; right – underside.
Jachtsfontein, Gauteng, South Africa. 29 March 2009. J. Dobson.
Images M.C. Williams ex Dobson Collection.

Hypolimnas misippus. Female. (Wingspan 76 mm) Left – upperside; right – underside.
KwaMhlanga, Mpumalanga, South Africa. 2 April 2011. M. Williams.
Images M.C. Williams ex Dobson Collection.

Alternative common names: Diadem; False Tiger; Danaid Eggfly; Diadem Eggfly (Lawrence, 2014).
Type locality: [Indonesia, Java]: "America". [False locality: *see* Corbet, 1949.] Lectotype designated by Honey & Scoble, 2001: 350.
Diagnosis: The sexes are strongly dimorphic. The male, with its large violet-ringed white spots, cannot be mistaken for any other species but females are excellent mimics of the distasteful *Danaus chrysippus*, even mimicking the various forms of the latter. Females of *Hypolimnas misippus* have only a single large black spot on the costa of the hindwing upperside, whereas there are three (females) or four (males) spots in *Danaus chrysippus*.
Distribution: Sub-Saharan Africa, including Senegal, Gambia, Guinea-Bissau (Aurivillius, 1910), Guinea, Mali, Sierra Leone, Liberia, Ivory Coast, Burkina Faso, Ghana, Togo, Benin (throughout), Nigeria, Niger, Chad, Cameroon, Equatorial Guinea (Bioko), Gabon, Congo, Central African Republic, Angola, Democratic Republic of Congo, Sudan, Uganda, Rwanda, Burundi, Ethiopia, Somalia, Kenya, Tanzania, Malawi, Zambia, Mozambique, Zimbabwe, Botswana, Namibia, South Africa (Limpopo Province, Mpumalanga, North West Province, Gauteng, Free State Province, KwaZulu-Natal, Eastern Cape Province, Western Cape Province, Northern Cape Province), Swaziland (Duke *et al*., 1999), Lesotho. Also in Arabia (Yemen (including Socotra), Saudi Arabia, Oman, United Arab Emirates), Madagascar, Comoro Islands, Mauritius, Rodrigues, Reunion, Seychelles, Cape Verde Islands.

Extralimitally in most of the Oriental Region and present also in the Australian Region. Also recorded from recent colonizations of the Canary Islands, USA (Florida), West Indies, French Guiana, and north-eastern Brazil. It also migrates into the eastern Mediterranean – Egypt, Lebanon (occasionally), Turkey (rarely) (Larsen, 2005a).
Specific localities:

Cape Verde Islands – Brava (Tennent & Russell, 2019); Fogo (Tennent & Russell, 2019); Santiago (Tennent & Russell, 2019); Maio (Tennent & Russell, 2019); Boa Vista (Tennent & Russell, 2019); Sao Nicolau (Tennent & Russell, 2019); Raso (Tennent & Russell, 2019); Sao Vicente (Tennent & Russell, 2019); Santo Antao (Tennent & Russell, 2019).

Gambia – Fajara, Bijilo, Abuko, Pirang, Sanyang, Farasutu, Kartong, Madiana, Bintang Bolong, Keneba, Sukuta, Janjanbureh Island, Basse (Jon Baker, pers. comm., May 2020).

Guinea – Ziama (Safian *et al*., 2020).

Liberia – Wologizi (Safian *et al*., 2020); Wonegizi (Safian *et al*., 2020).

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); Lokoli (Tchibozo *et al*., 2008); Houeyogbe Forest (Coache & Rainon, 2016); see Coache *et al*., 2017.

Equatorial Guinea – Caldera de Luba, Bioko (Martin, 2015).

Gabon – Nyonie (Vande weghe, 2010); Pongara (Vande weghe, 2010); Libreville (Vande weghe, 2010); Gamba (Vande weghe, 2010); Iguela (Vande weghe, 2010); Bitam (Vande weghe, 2010); Lope N.P. (Vande weghe, 2010); Ipassa (Vande weghe, 2010); Makokou (Vande weghe, 2010); Mayibout (Vande weghe, 2010); Franceville (Vande weghe, 2010); Ekouyi (Vande weghe, 2010); camp PPG (Vande weghe, 2010).

Central African Republic – Dzanga (Noss, 1998).

Democratic Republic of Congo – Ituri Forest (Ducarme, 2018); Semuliki Valley (Ducarme, 2018); Mt Mitumba (Ducarme, 2018).

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

Angola – Estacao Zootechnica, Huila [14°55'14.7"S 13°15'41.1"E] (Willis, 2009); Christo Rei, Lubango, Huila [14°56'23.1"S 13°30'42.6"E] (Willis, 2009).

Tanzania – Throughout (Kielland, 1990d); Katavi National Park (Fitzherbert *et al*., 2006).

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

Mozambique – Mt Mabu (Congdon *et al*., 2010); Mt Mecula [-12.0772 37.6297] (Congdon & Bayliss, 2013); Maputo Special Reserve (Miles & Mulvaney, 2022).

Botswana – Widespread (Larsen, 1991l).

Limpopo Province – Throughout (Swanepoel, 1953); Doorndraai Dam Nature Reserve (Warren, 1990); Percy Fyfe Nature Reserve (Warren, 1990); Lekgalameetse Nature Reserve ("Malta Forest"); Highlands Wilderness (Bode & Bode, unpublished checklist); Soetdoring Farm [-24.561 28.233] (A. Mayer, pers comm. 2015); Bateleur Nature Reserve (Williams & Dobson, unpub., 2015).

Mpumalanga – Throughout (Swanepoel, 1953); Mariepskop area (Henning, 1994c); Sterkspruit Nature Reserve (Williams); Buffelskloof Nature Reserve (Williams).

North West Province – Throughout (Swanepoel, 1953); Kgaswane Mountain Reserve (Williams; female form *inaria* illustrated above); Utopia Resort (C. Dobson, 2006); Borakalalo Nature Reserve (J. Dobson, unpublished, 2009).

Gauteng – Throughout (Swanepoel, 1953); Witwatersrand Botanical Gardens (J. Dobson, unpublished checklist, 2001).

Free State Province – Throughout (Swanepoel, 1953).

KwaZulu-Natal – Throughout (Swanepoel, 1953); Kokstad (Swanepoel, 1953); Kosi Bay Nature Reserve (Pringle & Kyle, 2002); Tembe Nature Reserve (Pringle & Kyle, 2002); Ndumo Nature Reserve (Pringle & Kyle, 2002); Yellowwoods (male illustrated above); Balgowan (female illustrated above).

Eastern Cape Province – Grahamstown (Trimen & Bowker, 1887); King William's Town (Swanepoel, 1953); Bashee River (Swanepoel, 1953); Cookhouse (Swanepoel, 1953).

Western Cape Province – Swellendam (Swanepoel, 1953); Oudtshoorn (Swanepoel, 1953); Knysna district (Swanepoel, 1953). Dispersing individuals are occasionally encountered as far west as the Cape Peninsula (Dickson and Robertson).

Northern Cape Province – Colesberg (Swanepoel, 1953); De Aar (Swanepoel, 1953).

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

Lesotho – Maseru (Trimen & Bowker, 1887).

Madagascar – Anjajavy Peninsula (R. Schutte, pers. comm. April 2010).

Mauritius – Widespread but scarce in some years (Davis & Barnes, 1991). Chamarel (Lawrence, 2016); Grand Gaube (Lawrence, 2016).

Seychelles – Mahe (Lawrence, 2014); St. Anne (Lawrence, 2014); North Island (Lawrence, 2014); Praslin (Lawrence, 2014); Aride (Lawrence, 2014); La Digue (Lawrence, 2014); Silhouette (Lawrence, 2014); Mairianne (Lawrence, 2014); Cousin (Lawrence, 2014); Cousine (Lawrence, 2014); Curieuse (Lawrence, 2014); Denis (Lawrence, 2014); Bird (Lawrence, 2014); Coetivy (Lawrence, 2014); Desroches (Lawrence, 2014); Alphonse (Lawrence, 2014); Aldabra (Lawrence, 2014); Assumption (Lawrence, 2014); Astove (Lawrence, 2014); Cosmoledo (Lawrence, 2014).

Habitat: Savanna and grassland, including degraded habitats, such as agricultural lands. In Tanzania from sea-level to over 2 300 m (Kielland, 1990d). In Madagascar in transformed grassland and anthropogenic environments (Lees *et al*., 2003).

Habits: The flight of the males is powerful and fast while the females adopt the leisurely flight of their models (Larsen, 1991c). Both sexes visit flowers. Males are strongly territorial, establishing and defending these on both hill-tops and on the flats. Mass migrations are rarely observed but individuals have great powers of dispersal (Larsen, 2005a). Dispersals probably follow on large irruptions caused by favourable breeding conditions. Stoneham (1951-1965) noted that "in February, 1917 there was a big migration of many thousands of this species six hundred miles off Mosamedes (Angola) in the South Atlantic Ocean. Many came aboard the troopship 'Omrah'…". The female mimics various taxa of the *Danaus chrysippus* species complex. In West Africa the model has white hindwings but, inexplicably, females of *misippus* in this region have orange hindwings (Larsen, 1991c; Larsen, 2005a). This led Pierre (1980) to question the mimetic relationship between the two species. It has been suggested that there is a breakdown in mimicry in West Africa because of the low toxin content of the model in West Africa (Larsen, 1991c; Larsen, 2005a).

Flight period: All year in frost-free areas and summer in cooler climes (Pringle *et al*., 1994).

Early stages:

Moore, 1881: plate 29, fig. 1c [Ceylon] (Moore, F. *The Lepidoptera of Ceylon*, Vol. 1, London, Reeve).

Trimen & Bowker, 1887, Vol. 1: 276 and 279 [as *Diadema Misippus* (Linnaeus); Grahamstown].

"**Larva**. Fuscous-brown on back; sides dull-greenish, with two longitudinal dull-red streaks (of which the upper one is the broader); all the legs red. Head dull-red, with two rather long, divergent, spinose, black horns. Body beset throughout with blackish branched spines, tinged with pale-red at their bases." " **Pupa**. (Plate 1 fig. 5). Brownish yellow-ochreous, varied with very dark-brown; abdominal segments rather closely ringed with fine fuscous parallel lines; back of thorax irregularly patched with very dark-brown; wing-covers all dark-brown except for some ochreous spotting near extremity. The above description of the larva is from a drawing sent to me by Mrs. Barber in the year 1867; that of the pupa is from a specimen I obtained at Maritzburg, Natal, in April of that year, and from two others (which produced respectively a ♂ and a ♀ of the *Inaria* form) sent to me in March 1870 by Colonel Bowker from Maseru, Basutoland. One of the latter is represented in my figure. Judging from the figures given in Moore's *Lepidoptera of Ceylon*, the Cingalese larva is of much duller colouring, the back and upper sides being given as ochreous-brown, the lower sides very dark-brown; the head and pro-legs dull ochre-yellowish, and the spines of the body almost the same colour but paler. The Cingalese pupa is also darker and more uniform in colouring; but the South African one is variable in this respect, a figure of Mrs. Barber's representing it as of a pale greyish-brown without dark variegation."

Leigh, 1904: 689 (*Trans. R. Ent. Soc. Lond.* 1904: 677-694).

Clark, *in* Van Son, 1979: 56 (Plate 45) [as *Hypolimnas misippus*].

"The eggs are laid singly in bracts of young shoots, very pale watery green, darkening slightly, and just before hatching they are olive with a black top. They are 0,7 mm in diameter by 0,6 mm high. There are 12-14 thin white longitudinal ribs corrugated to conform with 26 very faint cross-braces which are only apparent near the top. The egg stage lasts six days. The young larva eats its way out near the top, but does not necessarily eat the discarded shell. It is pale olive with a black head and black setae. There is a small black shield on the first and final segments. The young larva lies well concealed and feeds on the surface of young leaves. It is 2 mm long on hatching and grows to 4-4,5 mm in six days. In the second instar the larva is chocolate with a black head. The head has two spiny projections and the body has seven rows of spiny black protuberances. The dorsal row has no protuberances on the first three segments and the last two, but has two on the eleventh. The subdorsal row misses the first segment; here

the protuberance is replaced by a single spine on an enlarged base. The instar lasts four days and the larvae grow to 6-7 mm. From this stage the larvae split into two groups, one taking five, the other six instars. The growth proceeds as follows:

INSTAR	FIVE INSTARS	SIX INSTARS
1	2 to 4,5 mm in 6 days	2 to 4 mm in 4 days
2	4,5 to 7 mm in 4 days	4 to 6 mm in 4 days
3	7 to 13 mm in 4 days	6 to 10,5 mm in 4 days
4	13 to 27 mm in 6 days	10,5 to 16 mm in 4 days
5	27 to 49-50 mm in 10 days	16 to 21,5 mm in 4 days
6		21,5 to 48 mm in 10 days
Total	30 days	30 days

The colour of the larvae darkens with each instar and a subspiracular line develops. At first this is dirty white, but lightens and develops a salmon ring round the base of the protuberance, and in the final instar develops into a series of five salmon prongs radiating from the base of the protuberance. The claws and prolegs are salmon and the body is black with numerous small salmon setae. The head, at first black, gradually lightens and finally is dull salmon with a brown cross in front. The horns are almost yellow. The pupa is almost black with yellow markings, that of the male is 22, and of the female 25 mm long. It is suspended by cremastral hooks. The pupal period is from 25-50 days."

Carcasson, 1981 [larva and pupa].

Congdon *et al*., 2017 [final instar larva].

Egg, final instar larva and pupa of *Hypolimans misippus*.
Images courtesy Allison Sharp (left) and Steve Woodhall (centre and right).

Larval food:
Abelmoschus species (Malvaceae) [Sevastopulo, 1973].
Abutilon species (Malvaceae) [Sevastopulo, 1973].
Acanthus species (Acanthaceae) [Mensah & Kudom, 2011 (Ghana)].
Ageratum houstonianum Mill. (Asteraceae) (exotic) [Bampton, *in* Pringle *et al.*, 1994: 115].
Amaranthus caudatus L. (Amaranthaceae) [Shirozu, 1960].
Asystasia species (Acanthaceae) [Sevastopulo, 1973].
Asystasia gangetica (L.) T.Anderson (syn. *coromandeliana* Nees) (Acanthaceae) [Platt, 1921: 102; Mensah & Kudom, 2011 (Ghana)].
Asystasia mysurensis (Roth) T.Anderson (Acanthaceae) [Woodhall, *vide* Botha & Botha, 2006; as *Asystasia schimperi*].
Axonopus compressus (Sw.) P. Beauv. (Poaceae) [Mensah & Kudom, 2011 (Ghana)]. Highly unlikely (MCW).
Blepharis edulis (Forssk.) Pers. (Acanthaceae) [Congdon *et al*., 2017; Ruaha Gorge, Tanzania].
Blepharis maderaspatensis (L.) B.Heyne ex Roth (Acanthaceae) [Smith, 1976].
Elaeis guineensis Jacq. (Arecaceae) [Lepesme, 1947; requires confirmation].
Ficus species? (Moraceae) [Iwase, 1954; Taiwan].
Hibiscus species (Malvaceae) [Wynter-Blyth, 1957; India].

Ipomea species (Convolvulaceae) [Sevastopulo, 1973].
Justicia species (Acanthaceae) [Sevastopulo, 1973].
Justicia protracta (Nees) T. Anderson subsp. *rhodesiana* (S. Moore) Immelman (Acanthaceae) [Sharp. 2016: 42; Limpopo, South Africa].
Portulaca foliosa Ker Gawl. (Portulacaceae) [Platt, 1921: 102].
Portulaca grandiflora Hook. (Portulacaceae) [Vuattoux & Blandin, 1979; Ivory Coast].
Portulaca oleracea L. (Portulacaceae) [M. E. Barber, *in* Trimen & Bowker, 1887, Vol. 1: 279; Grahamstown; Iwase, 1964; Mensah & Kudom, 2011 (Ghana)].
Portulaca quadrifida L. (Portulacaceae) [M. E. Barber, *in* Trimen & Bowker, 1887, Vol. 1: 279; Grahamstown; Van Someren, 1974: 322; Vuattoux & Blandin, 1979 (Ivory Coast); Mensah & Kudom, 2011 (Ghana)].
Pseudanthemum species (Acanthaceae) [Sevastopulo, 1973].
Pseudanthemum variabile (Acanthaceae) [Common & Waterhouse, 1972].
Ruellia prostrata Poir. (Acanthaceae) [Smith, 1976].
Ruellia cordata Thunb. (Acanthaceae) [Smith, 1976].
Talinum species (Portulacaceae) [Van Someren, 1974: 322].
Talinum triangulare (Jacq.) Willd. (Portulacaceae) [Vuattoux & Blandin, 1979; Ivory Coast].

Notes: In the Seychelles the species appears suddenly, with numbers increasing rapidly (Bourquin *et al.*, 2000; Lawrence, 2004b). They are on the wing between December and March (Lawrence, 2005). Peaks in abundance are mirrored by peaks in rainfall, with rainfall peaking a few days before the butterflies peak (Lawrence, 2000b).

Relevant literature:
Gordon & Smith, 2014 [Pupal diapause].
Mensah & Kudom, 2011 [Nutritional ecology in Ghana].
Gordon *et al*., 2010 [Natural selection for mimicry].

inaria Cramer, 1779 *in* Cramer, [1779-80] (as sp. of *Papilio*). *Die Uitlandsche Kapellen voorkomende in de drie waerrelddeelen Asia, Africa en America* **3**: 36 (176 pp.). Amsteldam & Utrecht. Indonesia: "dans l'Isle d'Amboine and pareillement à Java".

alcippoides Butler, 1883 (as sp. of *Hypolimnas*). *Annals and Magazine of Natural History* (5) **12**: 102 (101-107). "Victoria Nyanza".

dorippoides Aurivillius, 1899 *in* Aurivillius, 1898-9 (as ab. of *Hypolimnas misippus*). *Kungliga Svenska Vetenskapakademiens Handlingar* **31** (5): 148 (1-561). "Die ganze aethiopische Region nebst allen Inseln". Holotype in the Swedish Natural History Museum (images available at www2.nrm.se/en/lep_nrm/m).

immima Bernardi, 1959 (as f. of *Hypolimnas misippus*). *Bulletin de l'Institut Française d'Afrique Noire* (A) **21**: 1023 (1021-1032). Mauritius: "île Maurice".

****Hypolimnas bolina*** (Linnaeus, 1758)
Great Eggfly

Papilio bolina Linnaeus, 1758. *Systema Naturae* **1**, Regnum Animale, 10th edition: 479 (824 pp.). Holmiae.

Hypolimnas bolina jacintha. Male. Left – upperside; right – underside.
Ranamofana, Madagascar. 10 April 2018. J. Lawrence.
Images M.C. Williams ex Lawrence Collection.

Hypolimnas bolina jacintha. Female. Left – upperside; right – underside.
Andasibe, Madagascar. 5-7 April 2018. J. Dobson.
Images M.C. Williams ex Dobson Collection.

Type locality: "India" [recte Java, *see* Corbet, 1949]. Lectotype designated by Honey & Scoble, 2001: 305.
Distribution: Widespread in the Indo-Australian tropics and the Pacific. The nominate subspecies is extralimital. Recorded in the Afrotropical Region (as subspecies *jacintha*) from Ethiopia (Larsen, 1996c), Yemen (including Socotra) (Ogilvie-Grant, 1903), Mauritius (Williams, 2007), Madagascar (Paulian, 1956), Kenya, Djibouti, Oman (Larsen & Pedgley, 1985) and Seychelles (Betts, 2009).
Habitat: In Madagascar it is found in forest margins and anthropogenic environments (Lees *et al*., 2003).
Early stages: ?
Larval food:
Abutilon species (Malvaceae) [Hopkins, 1927; Samoa].
Alternanthera denticulata (Amaranthaceae) [Sevastopulo, 1973; India].
Alternanthera sessilis (L.) DC. (Amaranthaceae) [Shirozu, 1960; Taiwan].
Asystasia gangetica (L.) T.Anderson (Acanthaceae) [Clarke & Sheppard, 1975; in captivity?].
Asystasia scandens (Lindau) Hook. (Acanthaceae) [Sevastopulo, 1973; India].
Dipteracanthus species (Acanthaceae) [Common & Waterhouse, 1972; Australia].
Eclipta prostata (L.) L. (Asteraceae) [Holloway & Peters, 1976; as *Eclipta alba*; New Caledonia].
Elatostema cuneatum (Urticaceae) [Shirozu, 1960; Taiwan].
Ficus microcarpa L.f. (Moraceae) [Shirozu, 1960; *Ficus retusa*; Taiwan].

Ficus repens Rottboel. (Moraceae) [Shirozu, 1960; Taiwan].
Ipomoea adulis (Convolvulaceae) [Iwase, 1964].
Ipomoea batatus (L.) Lam. (Convolvulaceae) [Holloway & Peters, 1976; New Caledonia].
Ipomoea species (Convolvulaceae) [Gressitt, 1954; Micronesia].
Laportea interrupta (L.) Chew (Urticaceae) [Shirozu, 1960; Taiwan].
Pipturus propinquus (Urticaceae) [Hopkins, 1927; Samoa].
Polygonum prostratum (Polygonaciae) [Common & Waterhouse, 1972; Australia].
Portulaca oleracea L. (Portulacaceae) [Corbet & Pendlebury, 1956; Malaysia].
Portulaca species (Portulacaceae) [Common & Waterhouse, 1972; Australia].
Pseuderanthemum variable (Acanthaceae) [Sevastopulo, 1973; India].
Richardia brasiliensis Gomes (Rubiaceae) [Common & Waterhouse, 1972; Australia].
Richardia species (Rubiaceae) [Sevastopulo, 1973; India].
Ruellia species (Acanthaceae) [Sevastopulo, 1973; India].
Sida fallax (Malvaceae) [Poulton, 1924; Fiji].
Sida rhombifolia L. (Malvaceae) [Hopkins, 1927; Samoa; oviposition only].
Sida rhombifolia L. subsp. *rhombifolia* (Malvaceae) [Shirozu, 1960; as *Sida retusa*; Taiwan].
Synedrella nodiflora Gaertn. (Asteraceae) [Common & Waterhouse, 1972; Australia].
Synedrella species (Asteraceae) [Sevastopulo, 1973; India].
Triumfetta pentandra A.Rich. (Tiliaceae) [Rajagopalan, 2005; India].
Urtica dioica L. (Urticaceae) [Clarke & Sheppard, 1975; in captivity].
Urtica urens L. (Urticaceae) [Clarke & Sheppard, 1975; in captivity].
Vigna umbellata (Thunb.) Ohwi & H.Ohashi (Fabaceae) [Robinson, 1975; as *Phaseolus calcaratus*; Fiji].

Relevant literature:

Betts, 2009 [Recorded from Seychelles].
Duplouy, 2010 [Spread of *Wolbachia*].
Hornett *et al*, 2009 [Shifting sex ratio across its range].
Omura & Honda, 2009 [Responsiveness to food-derived volatiles].
Charlat *et al*., 2009 [Evolutionary history of *Wolbachia* in *Hypolimnas bolina*].
Jaenike, 2007 [Resistance mechanisms to male-killing *Wolbachia*].
Charlat *et al*., 2007 [Disruption in the timing of *Wolbachia* induced male-killing].
Kemp, 2007 [Effect of iridescence of males on females].
Kemp & Macedonia, 2006 [Structural ultraviolet ornamentation].
Kemp, 2005 [Comparison of territorial success with *Melanitis leda*].

Hypolimnas bolina jacintha (Drury, 1773)

Nymphalis jacintha Drury, 1773. *Illustrations of Natural History* **2**: index et 36 (90 pp.). London.

Hypolimnas bolina jacintha. Male. Left – upperside; right – underside.

Ranamofana, Madagascar. 10 April 2018. J. Lawrence.
Images M.C. Williams ex Lawrence Collection.

Hypolimnas bolina jacintha. Female. Left – upperside; right – underside.
Andasibe, Madagascar. 5-7 April 2018. J. Dobson.
Images M.C. Williams ex Dobson Collection.

Type locality: [India]: "Bombay".
Distribution: Largely extralimital. Recorded in the Afrotropical Region from Ethiopia (Larsen, 1996c), Yemen (Socotra – breeding populations) (Ogilvie-Grant, 1903), Madagascar (breeding populations) (Paulian, 1956), Mauritius (Williams, 2007), Kenya, Djibouti, Oman (see Larsen & Pedgley, 1985). Recently recorded on Alphonse Island, Seychelles (Betts, 2009).

Eroneously recorded from South Africa by Trimen, 1862c (as *Diadema bolina* Linnaeus) (MCW).

Specific localities:
Mauritius – There are only two authenticated records from the island (Manders, 1908).
Kenya – Taveta (1 specimen; Collins, 1984).
Seychelles – Alphonse (Betts, 2009); Mahe (Lawrence, 2011); ?Marianne (Hill *et al*., 2002).