

THE MILKWEED BUTTERFLIES OF EAST AFRICA
(LEPIDOPTERA, DANAIDAE)

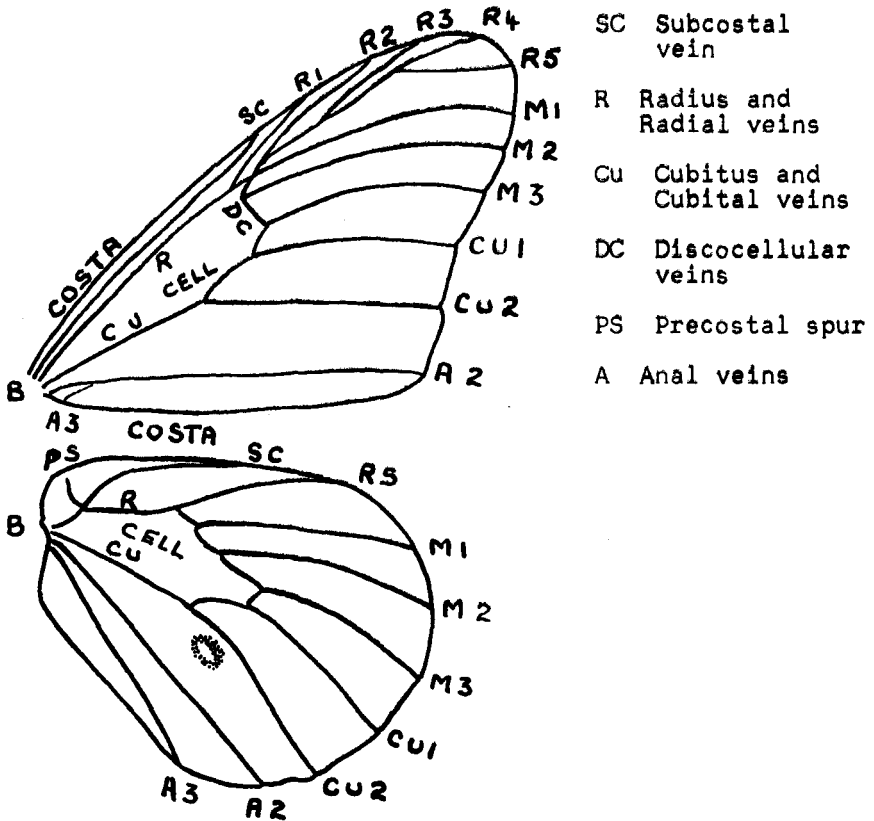
by

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ABBREVIATIONS

Abbreviations used in this paper are as follows:

- | | | | | | |
|----|---|----------|-----|---|-----------|
| fw | = | forewing | uns | = | underside |
| hw | = | hindwing | ups | = | upperside |



- SC Subcostal vein
- R Radius and Radial veins
- Cu Cubitus and Cubital veins
- DC Discocellular veins
- PS Precoastal spur
- A Anal veins

Venation of genus Danaus

Family DANAIIDAE

Medium to large butterflies of pantropical distribution and particularly well developed in the Oriental region. The genitalia of the males are often provided with retractile scent brushes and scent brands are present on the hindwing of the males of most African species.

The Danaidae may be separated from other families by the branched condition of vein A2 at the base of the forewing. All members of the family are distasteful to vertebrate predators and are used as models by many mimetic species of other groups.

The Larvae are smooth, cylindrical and decorated with long fleshy filaments on the dorsum and frequently feed on plants of the family Asclepiadaceae. The pupae are rounded and obtuse, usually decorated with metallic silver and attached by the anal end. Twenty-six species of this group are known to occur in the Ethiopian Region.

Key to the genera of East African DANAINAE

- Vein R2 of fw arises from or beyond upper end
of cell Danaus
- R2 of fw arises from well before upper end of cell Amauris

Genus DANAUS Klug. 1802

Large, brightly coloured butterflies, particularly numerous in the Oriental tropics. There is a prominent pouch between Cu2 and A2 of the hindwing in the males.

Key to the East African Species of the genus Danaus

1. Ground colour orange brown with white and black markings 2
2. Apical area of fw black, subapical white bar present D. chrysippus f. chrysippus
- 2a. Apical area of fw orange brown bordered with black; no subapical white bar.... D. chrysippus f. dorippus
3. Ground colour black; numerous pale spots..... 4
4. No orange brown or dark red brown areas; markings pale bluish white D. limniace petiverana
- 4a. Basal area of fw orange brown; markings creamy white D. formosa formosa
- 4b. Basal area of fw dark red brown; markings creamy white D. formosa mercedonia

Danaus chrysippus Linnaeus (Syst. Nat. Ed. 10 p.471, 1758)

A very common species; the nominate race occurs throughout the Ethiopian region, in India, and in the Eastern Mediterranean. It is seldom seen in forest, but is otherwise ubiquitous in East Africa. There are distinct races in the East Indies and in Australia. The typical form chrysippus L. is orange brown with a black tip and a white subapical bar on the fw and a black margin to the hw; the form alcippus Cramer is similar, but has a large white area in the centre of the hw; the form dorippus Klug lacks the black apex and white bar of the fw, and the form albinus Lang is similar to dorippus, but has a white area in the hw. Chrysippus is the dominant form in Southern Africa and in the Orient, alcippus in West Africa and dorippus in East Africa; albinus occurs sparingly with dorippus.

Subgenus TIRUMALA Moore 1880Danaus (Tirumala) limniace Cramer (Pap. Exot. I : 92, 1775)

Subspecies petiverana Doubleday & Hewitson (Gen. Diurn. Lep. I : 93, 1847)

DESCRIPTION A large black butterfly with numerous bluish white markings.

RANGE petiverana is the African race, the nominate race being Oriental. It is common over most of the Ethiopian region but does not occur in South Africa and Madagascar. In East Africa it is very generally distributed and particularly common in Marsabit and in the coastal forests, where it appears to replace the following species. Partial to wooded country, but not necessarily forest.

Subgenus MELINDA Moore 1883Danaus (Melinda) formosa Godman (Proc. Zool. Soc. 1880, p.3)

A fairly common forest species ranging from West Africa to Kenya, Tanganyika and Ethiopia. The two East African races have been regarded as distinct species by some authors, but must be considered conspecific, as their genitalia are practically identical and their range does not overlap, except in a small area.

Subspecies formosa Godman

DESCRIPTION Basal half of fw orange brown, distal half black with white spots; hw black with large white area at the base and numerous white spots.

RANGE High forest in N.E. Tanganyika and in Kenya from Teita to Kakamega.

RECORDS Kenya: Nairobi, Thomson's Falls, Wandanyi, Sagana River. (Nyeri), Meru, Teita, Tiriki, Chyulu Hills, Kakamega, Kitale.

Tanganyika: Amani (Usambara), Tengeru (Arusha).

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Subspecies mercedonia Karsch (Ent. Nachr. 20 p.228, 1894)

DESCRIPTION White markings fewer and smaller than previous sub-species; orange area of fw smaller and much darker.
 RANGE Kenya west of the Rift Valley to Uganda, E. Congo and N.W. Tanganyika.
 RECORDS Uganda: Jinja, Mubende, Kalinzu Forest (Ankole). Kibale Forest (Toro), Bwamba, Ndurumu River (Ankole), Kampala, Entebbe, Mbale.
Kenya: Kakamega, Kapsabet, Malawa Forest, Kitale.
Tanganyika: No records, but certain to occur in the extreme North West.
 NOTE The two races overlap in the Nandi-Elgon area of W. Kenya, where occasional hybrids have been recorded.

Genus AMAUROS Hubner 1816

A group of about 20 species confined to the Ethiopian region. The males have a mealy patch on both sides of A2 of the hw, but no pouch. In the subgenus Panamauros Bryk, RS and MI of the hw are contiguous at the base.

Key to the East African species of Amauros

- 1. RS and MI of hw contiguous at base 9
- Base of MI equidistant from RS and M2 2
- 2. All markings white on black ground colour 3
- Discal area of hw yellowish 6
- 3. Very broad subapical bar; margin of hw unspotted.... A. niavius
- 3a. Subapical bar narrow or broken; hw margin spotted with white 4
- 4. White basal area of hw below reaches SC 5
- 4a. White basal area of hw below does not reach SC A.hecate
- 5. White discal band of fw broken; mealy spot on hw of male small A. tartarea
- 5a. Discal band of fw usually entire; mealy spot large A. ochlea
- 6. White spot on second segment of palpi below 7
- 6a. White stripe on second segment of palpi below 8
- 7. Yellowish area of hw below well defined from Cu2 to inner margin A. echeria

- 7a. Yellowish area of hw below not well defined from Cu2 to inner margin A. oscarus
- 8. Dark basal area of hw below invades basal third of cell A. albimaculata
- 8a. Dark basal area of hw below barely enters base of cell A. inferna
- 9. All markings ochreous yellow A. ansorgei ellioti
- 9a. Markings of fw white A. ansorgei (all other races)

Amauris niavius Linnaeus (Syst. Nat. Ed. 10 p.470, 1758)

RANGE Common in forests throughout Africa, but not in Madagascar. Usually not found above 5,000 ft.

Subspecies niavius Linnaeus

DESCRIPTION Large, black and white.

RANGE Africa West of the Rift Valley, excluding Ethiopia.

RECORDS Tanganyika: Ukerewe Island (Lake Victoria), Kigoma.

Kenya: Kakamega, Kitale, Kaimosi.

Uganda: Kalinzu (Ankole), Kayonza (Kigezi), Entebbe, Kampala, Bwamba, Katera, Budongo, W. Elgon, Mabira, Bugoma forest, Mawakota, Chagwe.

Subspecies dominicanus Trimen (Trans.Ent.Soc.Lond. 1879)

DESCRIPTION All white markings more extensive than in typical race.

RANGE Kenya East of the Rift Valley to Nyasaland, Rhodesia and South Africa.

RECORDS Kenya: Msambweni, Diani, Vanga, Kilifi, Mombasa, Kibwezi, Teita Hills, Chyulu Hills, Mutha Hill, Marsabit, Wandanyi, Kwale, Nairobi, Mt. Kulal.

Tanganyika: Tengeru (Arusha), Amani (Usambaras), Moshi, Morogoro.

Uganda: Recorded by V.G.L. van Someren at Bufumbo, W. Elgon.

Subspecies aethiops Rothschild & Jordan (Nov. Zool. 10, p.503, 1903)

DESCRIPTION Very similar to the typical race; subapical bar shorter and narrower.

RANGE Ethiopia to S.E. Sudan and N. Uganda.

RECORDS Taken in Karamoja, N.E. Uganda by V.G.L. van Someren.

Amauris tartarea Mabille (Bull. Soc. Zool. Fr. I p. 199, 1876)

RANGE Common in forests up to 6,000 ft.; occurs throughout most of Africa but not in Ethiopia, South Africa or Madagascar.

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Subspecies tartarea Mabille

- DESCRIPTION A large black and white species; may be distinguished from A. ochlea by the broken median band of the fw and from A. hecate by the greater development of the white markings of the hw.
- RANGE Sierra Leone to Angola and Kenya West of the Rift Valley.
- RECORDS Kenya: West Nandi, Kakamega, Malawa forest, Kaimosi, Tiriki, Suna (Kisii).
Uganda: All forests up to 5,000 ft.
Tanganyika: Ukerewe Island. Certain to occur elsewhere in the North-West of the territory.

Subspecies damoclidus Staudinger (Iris 8, p. 367, 1896)

- DESCRIPTION Central white area of hw much larger than in typical race.
- RANGE Eastern Tanganyika to North Nyasa.
- RECORDS Tanganyika: Moshi, Turiani (Morogoro), Himo.

Amauris ochlea Boisduval (Voy. Deleg. 2, p.589, 1847)

- RANGE Lowland and coastal forests of Eastern Africa, from Natal to Somalia.

Subspecies ochlea Boisduval

- DESCRIPTION Smaller than the preceding species; median white band of fw entire in most races, central white area of hw large and well defined.
- RANGE Kenya East of the Rift Valley to Natal; replaced by other races further North.
- RECORDS Kenya: Mombasa, Kwale, Rabai, Marsabit, Kibwezi, Voi, Sekoke Forest, Tana river, Teita, Meru, Mt. Kulal.
- NOTE Specimens from Meru and Kulal have a very dark uns. and approach ssp. darius Rothschild & Jordan, 1903 from S. Ethiopia.
Tanganyika: Amani, Mtwara, Segoma.

Subspecies bumilleri Lanz (Iris 8, p. 380, 1896)

- DESCRIPTION Differs from other races in having the median band of the fw broken.
- RANGE Between Lakes Tanganyika and Nyasa according to Aurivillius, and in Western Tanganyika according to Talbot. Baka River, between N. Langenburg and Mwaya (S.A. Neave).

Amauris hecate Butler (Proc. Zool. Soc. Lond. 1866, p.44)

- RANGE Forests from Sierra Leone to Uganda and W. Kenya. It is represented in Ethiopia by ssp. stictica Roths. & Jordan. (Nov. Zool. 10, p. 504, 1903)

Subspecies hecate Butler

- DESCRIPTION Fairly large; black and white, with white markings of hw much reduced.
- RECORDS Kenya: Kakamega, Tiriki, Kitale, Kaimosi.
Uganda: All forests up to 5,000 ft.
- NOTE A. dira Neave, in which the white spot in the fw cell is very much reduced or absent, is treated here as an aberration of A. hecate.

Amauris inferna Butler (Proc. Zool. Soc. Lond. 1871, p. 79)

RANGE Forests in West Africa, the Congo and Uganda.

Subspecies inferna Butler

RANGE Cameroons, Gaboon.

Subspecies grogani E. Sharpe (Ann. Mag. Nat. Hist. (7) 8, p.278, 1901)

- DESCRIPTION Fw black with white spots; hw black with a reduced yellowish discal area gradually merging with dark ground colour; dark basal area of hw reduced.
- RANGE Very little is known about the distribution of this race.
- RECORDS Has been taken in the Kayonza forest, Kigezi, Uganda, by T.H.E Jackson and V.G.L. van Someren. Also in Kalinzu, (Ankole).

Subspecies uganda Talbot (Trans.R. Ent. Soc. Lond. 90: 319-336,1940)

- DESCRIPTION Very similar to above; pale markings not so restricted.
- RANGE Uganda.
- RECORDS Katera (Masaka), Kampala, Bwamba, Mawakota, Jinja.

Amauris echeria Stoll (Suppl. Cram. p.135, 1790).

RANGE Forest and heavy woodland in the Cameroons, Congo, Ethiopia, East Africa, Rhodesia and South Africa.

Subspecies echeria Stoll

RANGE South Africa.

Subspecies septentrionis Poulton (Proc. Ent. Soc. Lond. 1924, p.26)

- DESCRIPTION Ground colour dark smoky brown; all pale markings ochreous; hw discal area very broad.
- RANGE Marsabit, Mt. Kulal and the Uso Nyiro, in the Northern Province of Kenya.

Subspecies serica Talbot (Trans.R.Ent.Soc.Lond. 90: 319 - 336,1940)

- DESCRIPTION Very large; all spots of fw and marginal spots of hw pure white and large; ground colour velvety black.
- RANGE N. Nyasa to S. Tanganyika.

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RECORDS Tanganyika: Mhonda, Itumba, Mt. Rungwe (Mbeya),
Ufipa, Turiani.

Subspecies kikuyu Talbot (op. cit., 1940)

DESCRIPTION A large race with very dark uns and pure white spots.

RANGE Kenya Highlands East of the Rift Valley.

RECORDS Thika, Meru, Uplands, Mt. Kenya, Nyeri, Njombeni,
Aberdares, Nanyuki.

Subspecies meruensis Talbot (op. cit., 1940)

DESCRIPTION Very similar to above, but median band of hw narrower,
spots mixed with pale ochreous.

RANGE North-Eastern Tanganyika.

RECORDS Kondo, Namanga, Gonja, Lake Duluti, Tengeru,
Ngare-Nairobi, Arusha, Moshi, Lake Manyara, Ngaruka,
Kitanga, Ngorongoro.

Subspecies jacksoni E. Sharpe (Proc.Zool.Soc.Lond. 1891, p.633)

DESCRIPTION Intermediate between kikuyu Talbot and contracta
Talbot.

RANGE Kenya Highlands, West of the Rift Valley.

RECORDS Kenya: Lumbwa, Kericho, Sotik, Suna (Kisii).

Subspecies chyuluensis van Someren (J.E.Afr.Ug.Nat.Hist.Soc. 14,
1939)

DESCRIPTION As above, but white spots of hw larger and more
numerous.

RANGE Chyulu Hills, Teita Hills and Emali range, in S.E.
Kenya.

Subspecies contracta Talbot (op. cit., 1940)

DESCRIPTION Smaller, with pale markings less developed than
above, uns rather paler than previous races.

RANGE W. Kenya and E. Uganda.

RECORDS Kenya: Mt. Elgon, Kitale, Kabernet, Kakamega,
Cherangani, Sotik, Kisii, Kaimosi,
Tiriki.
Uganda: Mbale, Tororo, Mabira, Jinja.

Subspecies terrena Talbot (op. cit., 1940)

DESCRIPTION Similar to above, but generally larger.

RANGE W. Uganda, N.E. Congo.

RECORDS Uganda: Mafuga Forest (Kigezi), Kalinzu Forest
(Ankole) Kanaba, Bwamba, Namwambe
Valley (Ruwenzori), Kayonza (Kigezi).

Subspecies monqallensis Carpenter 1928.

DESCRIPTION Similar to septentrionis Poulton, but fw markings
white, hw basal area a little darker, submarginal
spots well developed.

RANGE South Sudan.

RECORDS Uganda: Madi Opei (Karamoja.)

Amauris albimaculata Butler (Ann.Mag.Nat.Hist. (4) 16, p.394, 1875)

RANGE Tends to frequent higher altitudes than the previous species. Forests from Natal to Kenya and the S. Sudan in the North and to the E. Congo in the West, with an isolated race in the Cameroons.

Subspecies albimaculata Butler

DESCRIPTION Very similar to echeria, but somewhat smaller; fw spots always white; white stripe on uns of palp, not a white spot, as in echeria.

RANGE Natal and Mozambique to S. Tanganyika:

RECORDS Tanganyika: Mhonda.

Subspecies interposita Talbot (op. cit., 1940)

DESCRIPTION As above, but discal spots in fw larger.

RANGE N. Tanganyika to the Kenya Highlands and E. Uganda.

RECORDS Kenya: Nairobi, Limuru, Subukia, Thomson's Falls, Uplands, Nyeri, Bahati Forest (Nakuru), Kitale, Kabernet, Lumbwa, Laikipia, Mt. Kenya, Meru, Elgeyo, E. Aberdares, Kakamega, Sotik.

Uganda: Mbale.

Tanganyika: Lyamungu, Mt. Meru, W. Kilimanjaro.

NOTE Specimens from Namanga (Kenya-Tanganyika Border) appear to belong to a distinct race. Some specimens from Kabernet approach the following race.

Subspecies hanningtoni Butler (Proc.Zool.Soc.Lond., 1888, p.183)

DESCRIPTION Hw very pale, nearly white.

RANGE Coastal areas of Kenya and N. Tanganyika.

RECORDS Kenya: Chyulu hills, Teita hills, Voi, Kibwezi.

Tanganyika: Amani (Usambara), Usango District.

Subspecies magnumaculata Rebel (Ann.Naturh.Hofmus.Wien. 28: 219-265, 1914)

DESCRIPTION All pale areas very large.

RANGE E. Congo and Uganda.

RECORDS Uganda: Katera (Masaka), Jinja, Entebbe, Kagera River, Kalinzu (Ankole), Kibale Forest (Toro), Bwamba, Kayonza, (Kigezi).

NOTE There is a ♂ in the Coryndon Museum collection from near Kigoma, Tanganyika. It has a white hw and may represent an undescribed race.

Amauris oscarus Thureau (Berlin Ent. Zeitschr. 48 p. 301, 1903)

RANGE Forests from W. Kenya and Uganda to the Cameroons in the West and Angola and Nyasaland in the South.

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Subspecies oscarus Thurau

DESCRIPTION Similar to the preceding species, but pale markings less extensive; white spot, not stripe on uncs of palpi.
RANGE W. Kenya, Uganda, E. Congo.
RECORDS Kenya: Kakamega, Tiriki.
Uganda: Entebbe, Kampala, Jinja, Kagera river, Kalinzu (Ankole), Kamengo, Nabugabo, Ndurubu river, Kayonza (Kigezi), Bwamba (Toro).

Subspecies alba Neustetter (Iris 30: 95-108, 1916)

DESCRIPTION As above, but hw white.
RANGE "Ost Afrika", probably Tanganyika.

Subgenus PANAMAURIS Bryk, 1937

Amauris (Panamauris) ansorgei E. Sharpe (Ann.Mag.Nat.Hist.(6) 18, p.158, 1896)

RANGE An uncommon species of high forest; Nairobi area to Kivu in the West and to Katanga and Nyasaland in the South.

Subspecies ansorgei E. Sharpe

DESCRIPTION Black with deep buff hw and white spots on fw and margin of hw.
RANGE Kenya West of the Rift Valley and Eastern Uganda.
RECORDS Kenya: Sotik, Lumbwa, Nandi, Eldama Ravine, Kitale, Mt. Elgon.

Subspecies altumi van Someren (J.E.Afr.Nat.Hist.Soc. 21: 44, 1926)

DESCRIPTION Similar to typical race, but hw generally paler.
RANGE Mt. Meru, Kilimanjaro and Kenya Highlands East of the Rift Valley.
RECORDS Kenya: Nairobi, Limuru, Uplands, Mt. Kenya, Kikuyu, Escarpment, Aberdares, Katamayo Forest.

Subspecies junia Le Cerf (Bull.Mus.Nation.Hist.Nat.Paris 26, p.40, 1920)

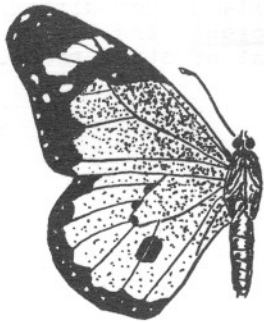
DESCRIPTION Similar to typical race, but a little smaller and lacks the small marginal white spots in both wings.
RANGE Nyasaland to Central Tanganyika.
RECORDS Tanganyika: Itumba, Usango, Morogoro, Takugu, Nuto, Dodoma, Poroto Mts., Mt. Rungwe (Mbeya), Njombe.

Subspecies elliotti Butler (Ann.Mag.Nat.Hist. (6) 16, p.122, 1895)

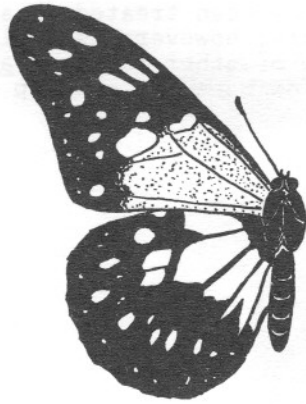
DESCRIPTION All pale markings bright ochreous yellow.
RANGE Eastern Congo and Western Uganda.
RECORDS Uganda: Toro, Namwambe Valley (Ruwenzori),
Kibale (Kigezi).

NOTE elliotti has been treated as a distinct species by some authors; however its genitalia do not differ from those of other races of ansorgei and its distribution does not overlap that of other races.

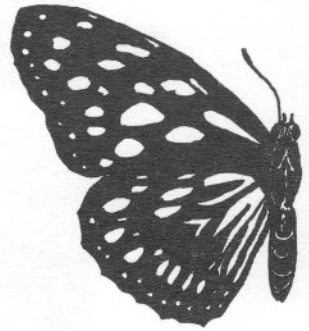
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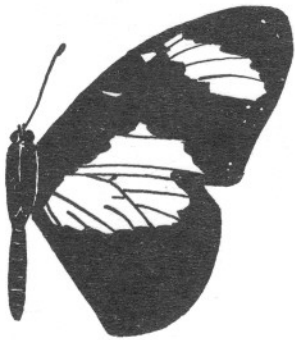
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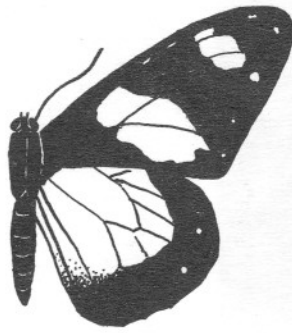
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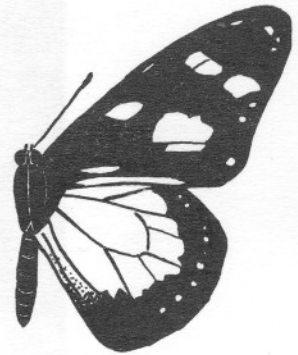
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1. *Danaus chrysippus* f. *chrysippus* 2. *D. formosa formosa*
3. *Danaus limniace petiverana* 4. *Amauris niavius niavius*
5. *Amauris ochlea ochlea* 6. *Amauris tartarea damoclidus*



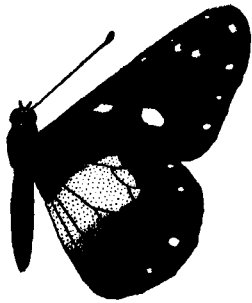
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11



12

7. *Amauris hecate hecate*

8. *Amauris inferna uganda*

9. *Amauris oscarus oscarus*

10. *A. albimaculata interposita*

11. *Amauris echeria terrena*

12. *Amauris ansorgei altumi*

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