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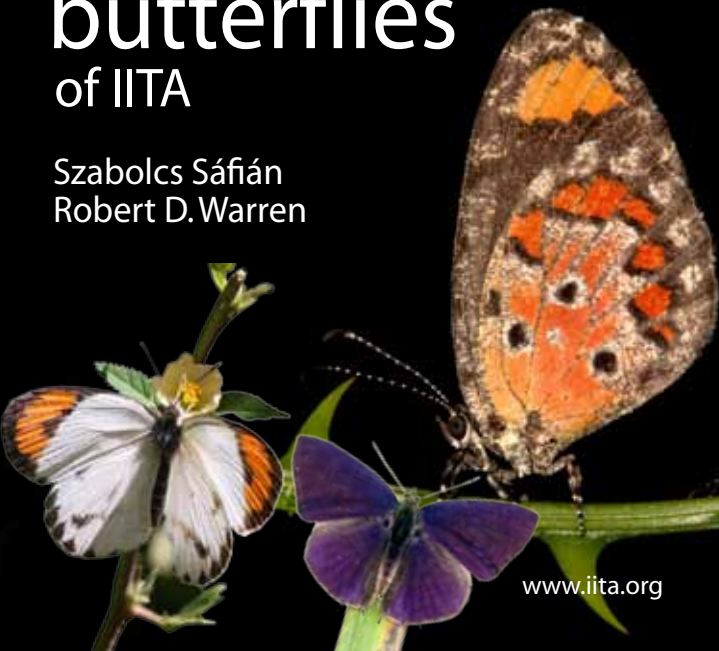
Research to Nourish Africa



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Common butterflies of IITA

Szabolcs Sáfaián
Robert D. Warren



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of IITA

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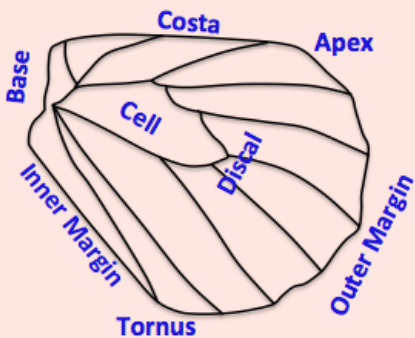
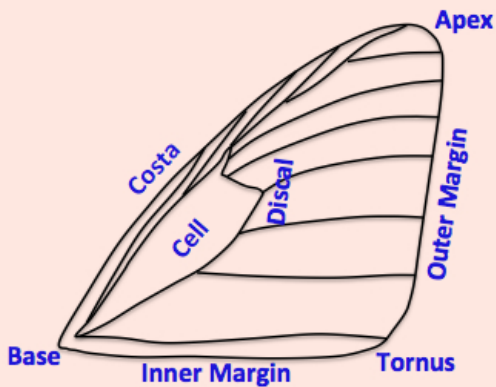
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Finally, we offer IITA and the Leventis Foundation our best hopes for success in using the resources available to them in the cause of conserving the remaining jewels of Nigeria's natural heritage.

Diagram of Butterfly Wings








Introduction

West Africa has about 1400 species of butterfly, and over 1000 of them occur in Nigeria. The majority of these species are associated with various types of forest habitat. However, many prefer untouched rainforests, and these are therefore increasingly restricted to the few remnants of protected forest such as Okomu National Park, Cross River National Park, and some forest reserves. Nevertheless, the IITA forest in Ibadan is a good example of how even a small and disturbed forest patch can maintain significant butterfly diversity. During the last few years the authors of this guidebook have recorded over 230 species of butterfly from the IITA forest and campus, leading to an estimated total of almost 300 species. This diversity is associated with a wide range of plants and habitats within the 1000-ha campus, which include farmland, gardens, orchards, bush, and wetland areas as well as forest.

The aim of this guidebook is to encourage appreciation and enjoyment of Nigerian butterflies, and to promote conservation of the habitats that are vital to their life cycles and long-term survival.

How to use this guidebook

This guidebook will enable the reader to identify 50 of the most common butterflies that occur in the IITA campus and in Nigeria as a whole. The butterflies are arranged in systematic order, and each scientific family is marked with a distinct color on the upper edge of the pages.

<i>Papilionidae</i> (Swallowtails and Swordtails)	green	
<i>Pieridae</i> (Whites and Sulfurs)	yellow	
<i>Lycaenidae</i> (Hairstreaks, Blues, and Coppers)	blue	
<i>Nymphalidae</i> (Brushfoots)	red	
<i>Hesperiidae</i> (Skippers)	brown	



The species' descriptions begin with the **scientific name**, followed by the **family name** (in brackets), and the **common name**. The **Description** provides information about the appearance of the species, including size, ground color and other colors on the wings, and any special identification features. Under **Similar species**, potential mistakes in identification are avoided by

emphasizing major differences in appearance, ecology, and/or behavior, as behavioral differences may sometimes be more diagnostic than appearance. **Habitat** gives information about where the species normally occurs, and **Distribution** describes its geographical range. **Status** refers to the general abundance of the species, while **Ecology** contains information about seasonality, larval food plants (if known), and typical behavior. The **Occurrence in IITA** does not pinpoint an exact locality where the butterfly has been found, but indicates areas where it could most easily be observed. The **Index** gives both scientific and English common names, and there is also a **Glossary**, along with a drawing of the wing structure of a butterfly to explain technical terms used in the book. Inside the back cover is a map of the IITA campus to help you find the various butterfly habitats.

Butterflies (and moths) have a most distinctive life-cycle called holo-metamorphosis. Adult butterflies lay tiny eggs, which the female pastes onto leaves, flowers or even tree-bark, but the eggs do not hatch as butterflies. Instead they hatch as tiny caterpillars or larvae. The majority of caterpillars eat the leaves or flowers of a selected host plant, and grow to many times their original size, shedding their skin to accommodate growth. Some caterpillars (usually of moths) have hairs that sting, so

these are best avoided if you are lucky to see one. The shedding of the last skin is performed at a carefully chosen site as it results in the pupa or chrysalis, which is incapable of movement and therefore more vulnerable. The transformation of the pupa to the adult form that can fly is termed eclosion. Once fully developed, the adult butterfly cracks the shell of the chrysalis, inflates its wings, dries them in the sun and takes its first flight. The egg, larva, pupa, and adult stages are all unique to a species, and occasionally the distinction between species is easier to tell at the earlier stages than at the adult stage. The difference between butterflies and moths comes down to several variables but, for simplicity, having straight antennae with a slightly thickened, clubbed tip, and preferring to fly during the day is usually enough to distinguish a butterfly from a moth.

Butterfly habitats in the IITA campus

Secondary forest and bush

Over a hundred years ago, Ibadan was a small town, surrounded by extensive semi-deciduous rainforest, with high plant diversity. Unfortunately, during its rich but turbulent history, western Nigeria has lost over 95% of its original forest cover, and only a few larger forest areas remain (e.g. Omo Forest Reserve), together with fragments of secondary and riverine forests, such as at IITA and Osogbo. Even when IITA was established in 1965, the area was still forested. Most of this has now disappeared due to the growth of Ibadan and pressure on land use. Forest inside the campus was largely cleared for development of the built environment and agricultural research, but over 350 ha remain and are protected as a reserve.





Presently, the IITA forest is in various stages of regeneration, but the multi-layered, high canopy rainforest structure can be seen only in a few small patches. The general picture is more of a single layer, middle-age secondary forest with scattered older trees, and open areas with bush that developed on abandoned sites of farms and

villages. Occasional cocoa and mango trees are encountered along the trails where there were once settlements, and large areas near watercourses are unfortunately dominated by invasive giant Asian bamboo which was planted by villagers for its many uses. The IITA Forest Project protects the forest, restores degraded areas, and reforests other sites, notably on both sides of the main lake.

About 80% of Nigeria's butterfly species are associated with forest habitats, and a small but fully intact forest area in West Africa can host over 600 species. This is because either their caterpillars feed on forest trees, shrubs, or climbers, or adults live solely in the forest interior, some feeding on fallen fermenting fruit, and others simply resting on vegetation or basking where sunbeams penetrate the forest canopy. Though severely degraded, the IITA forest still hosts a high diversity of butterflies.

Many forest species are fond of flowers and are often seen feeding on nectar along forest trails. During the drier months, some forest butterflies congregate near watercourses inside the forest, where they take in sodium and other dissolved minerals from wet soil—an activity known as “mud-puddling”. Swallowtails are among the largest and most amazing forest butterflies. It is always a delight to see the Western Emperor Swallowtail (*Papilio menestheus*), or the Flying Handkerchief (*Papilio dardanus*)

ducking and weaving through the tangled undergrowth, their colors flashing as they reach a sunny spot. Various species of Vagrants (*Nepheronia*) can be seen only as white flashes (bluish in *N. thalassina*) in the forest, as their powerful flight makes them difficult to follow with the eyes. Many of the blues (*Lycaenidae*) are also forest-dwelling. The Common Harlequin (*Mimeresia libentina*) and other *Lipteninae* are seen mostly around trees inhabited by *Crematogaster* ants (see also below), but sometimes they fly slowly through the forest. Among fruit-feeding butterflies are the shade-loving *Bicyclus*, strong-flying *Charaxes*, and large colorful Foresters (*Bebearia* and *Euphaedra*). While *Acraea* like to “dance” in small sunny clearings in the forest, some of the skippers (Hesperiidae) rest in the darkest undergrowth and become active only at dusk.

Parkland, including the golf course and residential area

These habitats are largely man-made and serve as a transition between the forest and open grassland. This is especially true of the golf course where large indigenous trees in the original forest were left as features or to separate the fairways. Many true forest butterflies occur here, including the fruit-feeding



Foresters (*Euphaedra* species). Some old trees host nests of arboreal *Crematogaster* ants and are therefore often referred to as “ant-trees”. In and around them can be found various species of highly-localized, myrmecophilous (ant-liking) *Lipteninae* blues whose caterpillars develop with the ants.

The residential area is rather different, being planted mainly with non-indigenous trees and shrubs. However, many of these ornamental plants are regularly visited by butterflies when in full bloom. Some gardens are full of flowers which attract various *Acraea* species; in the morning hours skippers (*Hesperiidae*) appear, while late afternoon swallowtails (*Papilio* species) often come to drink nectar. The neatly manicured lawns of the parkland are usually occupied only by ubiquitous species, such as the Dark Blue Pansy (*Junonia oenone*) or the Variable Eggfly (*Hypolimnias anhedon*).

Grassland and swamp

Grasslands cover relatively large areas of the campus, especially in fallow farmland where, due to intensive agricultural use, the original humus-rich forest soil has eroded to an extent that woody vegetation has been largely eliminated. Grassland is also present along roads and near the lake. This habitat is known as “derived savanna”, being an impoverished version of the Guinea savanna grassland as it lacks the typical woody vegetation associated with this habitat. Most of the specialist savanna butterflies are therefore absent, as they require the presence of their food plants, such as savanna trees and shrubs. In spite of this, many common savanna butterflies breed here, or migrate southwards during the dry season and temporarily colonize the area. Among regular visitors is the Common Savannah Bush Brown (*Bicyclus safitza*), which flies in the late afternoon in tall grass, while the Cream-bordered Charaxes (*Charaxes epijasius*) can occasionally be seen circling or flying strongly across open areas. Both species may be attracted by mango or other fruits put out for bait. Other savanna species prefer to drink nectar from small plants growing along the roads. These include the African Emigrant (*Catopsilia florella*) and the Grass Yellows (*Eurema* spp.)

Swamp habitat occurs between the upper dam and the perimeter fence, and in fallow rice paddies. These habitats host only a few butterfly species, as caterpillars usually avoid wet

conditions. However, they include the uncommon *Encedana Acraea* (*Acraea encedana*) and the Marsh Swift (*Borbo micans*), which are associated with wetlands in IITA and usually found only very near to their habitats.

History

Butterfly research around Ibadan has a short but interesting history. It was actually at Moor Park, Ibadan, where Charles Ogilvie Farquharson, a mycologist employed by the Agricultural Department of Southern Nigeria from 1911 to his untimely death in 1918, first documented the ant-associated development of the beautiful and elusive *Isabella* (*Teratoneura isabellae*) and various other *Epitola* blues during his leisure time. Few other butterfly records were collected in the area until the young Torben B. Larsen, one of the worlds' leading experts on African butterflies, began his adventurous career in western Nigeria when on holiday from the University of Copenhagen. He collected in Omo Forest and also in Gambari Forest Reserve, where he had the exceptional experience of observing over 280 butterfly species in a single day—a record that has not since been exceeded by any lepidopterist in Africa. Sadly, Gambari Forest has been cleared and most butterflies Larsen observed there have disappeared with the destruction of the rainforest.

Present research program

Robert Warren made butterfly observations at IITA-Ibadan between 2002 and 2006, compiling a list of 149 species. Szabolcs Sáfian joined the research when the IITA Forest Project began in 2010. Oskar Brattström also visited at that time. To date, 237 species have been recorded from various habitats in the campus, and the estimated total number of species is projected to be closer to 300. In addition to these records, longer term monitoring of reforestation areas has also begun, with the aim of studying colonization of young forest by butterflies.

1. *Papilio dardanus* (Papilionidae)

Mocker Swallowtail, Flying Handkerchief

Description: In this large butterfly the males are creamy white with a broad black margin on the forewing, and with black spotting and a slightly clubbed tail on the hindwing. Females are polymorphic; in the IITA forest the black and white *hippocoon* form occurs, with a large white patch on the forewing and a white central area on the hindwing. This form mimics the distasteful Friar (*Amauris niavius*).

Similar species: The male Mocker Swallowtail is unmistakable. The female closely resembles the Friar (*Amauris niavius*), but the latter is much smaller in wingspan and has a weaker, somewhat gliding flight.

Habitat: All forest types in Africa, including degraded secondary growth, and also in parks and gardens, as females lay eggs on orange trees (*Citrus* spp.) and related plants.

Distribution: Widely distributed in forests in sub-Saharan Africa, from Senegal to Ethiopia and South Africa.

Status: A common, dispersive species.

Ecology: In Nigeria it breeds throughout the year. The caterpillars feed on *Citrus* species and other members of the Rutaceae family. Imagos often fly in the dense undergrowth of forest. Females are mostly active in the afternoon.

Occurrence in IITA: Mostly in the forest; occasionally on the golf course and in residential areas.



Papilio dardanus copula underside

2. *Papilio nireus* (Papilionidae)

Narrow-banded Green Swallowtail

Description: A large butterfly with a black or dark brown ground color (especially in the female) and a narrow metallic green band across the central area of both wings. It also has green spotting in the marginal area of the forewing, and a single or double green spot in the forewing apex. The underside is black with creamy-brown spotting in the margin of the hindwing.

Similar species: Both the Medium-banded Green Swallowtail (*Papilio sosia*) and the Broad-banded Green Swallowtail (*Papilio chrapkowskoides nurettini*) are similar in appearance, but their green band is much broader than on *P. nireus* and in most cases they have spotting on the forewing that is missing from *P. nireus*. Although only *P. nireus* has been recorded from IITA forest, the occurrence of the other two is possible.

Habitat: This is a forest species but it can survive severe habitat degradation, also occurring in parks and gardens as its main host plants are *Citrus* species and other plants in the same family, Rutaceae.

Distribution: Widespread in forest areas throughout sub-Saharan Africa.

Status: A common, dispersive species.

Ecology: In Nigeria it breeds throughout the year. The caterpillars feed on *Citrus* species and other Rutaceae. The imagos visit flowers for nectar. Males come to “mud-puddle” during the dry season.

Occurrence in IITA: It occurs mainly in the forest and occasionally in residential areas.



Papilio nireus copula underside

3. *Papilio demodocus* (Papilionidae) Citrus Swallowtail

Description: A large butterfly, which has extensive yellow spotting, including a more or less continuous yellow band, on a blackish-brown ground-color on the upperside. There are two prominent eyespots with red shadowing on the hindwing, and a row of smaller yellow spots in the marginal area of both wings. The underside is similar with more yellow coloration. The two sexes are almost identical, apart from size and a slightly paler color in the female. Older specimens may become discolored.

Similar species: The Western Emperor Swallowtail (*Papilio menestheus*), which also occurs in IITA forest, is similar in appearance but is generally larger and has tails on the hindwing.

Habitat: Various habitat types, including degraded forest, savanna, farmland and parkland, wherever its host plants, citrus trees, occur.

Distribution: One of the most widespread species in the Afrotropical Region, from South Africa to Mauritania in the west and southern Yemen in the northeast.

Status: A common, dispersive, occasionally migratory species.

Ecology: In Nigeria it breeds throughout the year. The caterpillars feed on *Citrus* species. Females lay eggs singly on young shoots and leaves. The imagoes are fond of nectar and are often seen feeding on garden flowers and naturalized *Lantana* bushes. Males also come to “mud-puddle” during the dry season.

Occurrence in IITA: Often seen in the parkland, residential areas, the golf course, and the forest.



Papilio demodocus male underside

4. *Papilio menestheus* (Papilionidae) Western Emperor Swallowtail

Description: A very large butterfly with a black or very dark brown ground color and a creamy yellow band across the wings. The hindwing has prominent clubbed tails in both sexes, and two blue-red-ringed eyespots. There are also yellow spots in the marginal area. The underside is very similar.

Similar species: The Citrus Swallowtail (*Papilio demodocus*) and rarer Common White-banded Swallowtail (*Papilio cyproeofila*) are rather similar in general appearance but usually smaller in size (especially males) and are without tails.

Habitat: A forest that butterfly can survive habitat degradation but seldom occurs in parklands, gardens, or other open areas.

Distribution: Forest areas from southern Senegal to eastern Cameroon, and also on the island of Bioko.

Status: Fairly common but localized.

Ecology: Imagos fly throughout the day in sunny weather, often visiting flowers at forest edges and clearings. Males are occasionally seen “mud-puddling” during the dry season. The caterpillars develop on various plants of the Rutaceae family.

Occurrence in IITA: Only in the forest.



Papilio menestheus male underside

5. *Graphium polícenes* (Papilionidae) Common Striped Swordtail

Description: A medium to large butterfly, which has broad, light greenish-blue central bands, smaller blue bars, a row of marginal spots on both wings within a black frame, and a very long tail and single red spot on the hindwing. The underside is similar, except for a continuous red band which crosses the hindwing. The greenish-blue bars on the forewing are straight.

Similar species: The Large Striped Swordtail (*Graphium antheus*) is generally larger, the bluish bars on the forewing are wavy, and the red stripe on the hindwing underside is broken into two short sections.

Habitat: Mainly in forests, including riverine forests, and secondary growth, semi-open woodlands, and scrub.

Distribution: Forest areas throughout sub-Saharan Africa.

Status: Common, dispersive, and occasionally migratory.

Ecology: In Nigeria it breeds throughout the year. Imagos fly on sunny days, both sexes often visiting flowers, while males sometimes congregate on mud during the dry season. The caterpillars develop on various plants in the Annonaceae and Apocynaceae families.

Occurrence in IITA: Mostly in the forest, though males are occasionally seen on muddy roads or “mud-puddling” near the lake.



Graphium polices underside

6. *Catopsilia florella* (Pieridae) African Emigrant

Description: A medium to large butterfly; the male is white, with a very light greenish (occasionally yellowish) tone, and the female is bright yellow with some brown at the forewing apex. The forewing is triangular with a pointy apex and dark center spot which is usually larger on the female. Females also have a spot on the hindwing.

Similar species: Although there are a few whitish species known with similar size, the male African Emigrant is readily recognizable from the lack of any black margin or spotting on the wings, apart from a small black central spot. There is no similar species to the yellow female either.

Habitat: Very varied, from semi-desert to forest, including villages and urban areas.

Distribution: Throughout sub-Saharan Africa.

Status: A very common, dispersive, regular migrant.

Ecology: In Nigeria it breeds throughout the year, but is usually more common in the dry season. Imagos fly actively all day, often visiting flowers. Males can often be seen “mud-puddling” with other Pierid butterfly species during the dry season. It is a regular migrant; occasionally millions of butterflies assemble in migration. Caterpillars feed on various plants of the pea family (Fabaceae).

Occurrence in IITA: Easily seen in all parts of the campus, from parkland and residential areas, through grassland, farmland and fallow, to the golf course and forest.



Catopsilia florella male underside

7. *Eurema hecabe solifera* (Pieridae) Common Grass Yellow

Description: A small butterfly though some females may be medium-sized. The male is bright lemon yellow with a large black apical marking on the forewing, which becomes a marginal band along the outer margin. The inner edge of the black area is scalloped. The female is a paler yellow and usually larger than the male; the black area is also more extensive on the forewing. On the hindwing upperside there is a black line along the margin.

Similar species: *E. senegalensis* (Forest Grass Yellow), is similar but slightly larger, and usually there is only a row of black spots at the end of the veins along the hindwing upperside. This is also the case in *E. floricola leonis* (Madagascar Grass Yellow). *E. brigitta* (Small Grass Yellow) males have a broad black band, a more orange ground color and a narrower forewing. *E. desjardinsi regularis* (Desjardin's Grass Yellow) has an angled, not rounded, hindwing outer margin.

Habitat: From semi-desert in the Sahel, through different types of savanna, to wet forest, and also in urban areas.

Distribution: All African countries south of the Sahara, including Madagascar. Other subspecies of *E. hecabe* occur in Asia.

Status: Very common and dispersive.

Ecology: In Nigeria it breeds throughout the year. Imagos fly actively all day, visiting flowers along forest edges, often on those of introduced *Mimosa* species. Males can be seen "mud-puddling" in assemblages of other *Eurema* species during the dry season. The caterpillars feed on various plants of the pea family (Leguminosae).

Occurrence in IITA: All areas.



Eurema hecabe solifera copula underside

8. *Nepheronia thalassina* (Pieridae) Blue Vagrant

Description: In this medium-sized butterfly, males have a distinctive bluish-white color, which is clearly visible during flight, even from a distance. The forewing has a black apex and a black outer margin. The female is slightly larger and has two color forms; the commoner one is white or creamy white, while the other one has a yellow forewing. It also has a broader black apex and outer marginal band, the latter strongly scalloped on its inner edge. The hindwing has a row of triangular black spots at the end of the veins.

Similar species: The male is unmistakable but the female could be mistaken for a female of *N. argia* (the Large Vagrant) which, though similar, always has a deeper orange basal spot on the forewing.

Habitat: Wooded savanna, rainforest, including secondary and riverine forests. As a migratory species, specimens may also appear in other habitats.

Distribution: Widely distributed in sub-Saharan Africa from Senegal to Sudan and South Africa.

Status: A very common, dispersive species, and occasional migrant.

Ecology: In Nigeria it breeds throughout the year. Imagos fly all day, often visiting flowers along forest edges or in gardens. Mass migrations of the species have been recorded on a few occasions. The caterpillars feed on plants of the Celastraceae family.

Occurrence in IITA: Mainly in the forest and golf course, but also flowery gardens in residential areas.



Nephronia thalassina male upperside

9. *Colotis euippe* (Pieridae)

Round-winged Orange Tip

Description: A small butterfly, the male is white with a bright orange apical patch on the forewing, bordered with black. The veins inside the orange are black. The hindwing has a row of triangular black spots at the end of the veins. The female is white, powdered with black scales in the basal area of both wings, a large black apical spot on the forewing, and again a black border of triangular spots on the hindwing, sometimes forming a band. There is irregular black spotting on both wings. Both sexes have a small black central spot.

Similar species: There are several similar species in the genus but only two occur in southern Nigeria. The males of *C. antevippe* (Large Orange Tip) have a larger orange area on the forewing, bordered only with a fine black line along the margin. The female has pale orange in the forewing apical area and a larger black center spot. *C. evagore antigone* (Tiny Orange Tip) is significantly smaller in size and always has a black line inside the orange apical spot.

Habitat: Grasslands, grassy road verges, the golf course, open areas in the forest, and sometimes farmland.

Distribution: Widely distributed from Senegal to the Horn of Africa and to the Cape.

Status: Most common during the dry season.

Ecology: In Nigeria it breeds throughout the year, more frequently in the south during the dry season, as migration from the north is regular. Imagos fly at high speed all day, sometimes stopping to take nectar from flowers. The caterpillars feed on various plants in the Capparaceae family.

Occurrence in IITA: Regularly on the golf course, and occasionally in more open areas.



Colotis euipe male upperside

10. *Belenois calypso* (Pieridae) Calypso Caper White

Description: A medium-sized butterfly; the forewing upperside of the male is white, with a black apex (with some white scaling along the veins), and a black center spot (also visible on the underside). The hindwing is creamy yellow, with a row of triangular black spots at the end of the veins. The upperside of the female is creamy white. The black apex is broader and stretches downwards along the outer margin (also visible on the underside). The male's center spot is replaced by a broad streak or band from the costa to the end of the cell. The hindwing underside is bright yellow, with black triangular spots at the end of the veins and an additional row of black oval spots towards the central area. There is a prominent black spot at the end of the cell. On the forewing underside there is yellow spotting at the apex.

Similar species: Other *Belenois* species are rather similar, but none has yellow on the underside of the forewing apex, and only the much smaller *B. gidica* (Pointed Caper White) and *B. subeida frobeniusi* (Northern Caper White) have a smaller black spot at the end of the cell on the forewing underside.

Habitat: All kinds of woodland and forest areas, including riverine forest, secondary growth, and urban parkland.

Distribution: Widespread, occurring throughout the forest and savanna zone in West and Central Africa.

Status: Very common, dispersive, and occasionally migrant.

Ecology: In Nigeria it breeds throughout the year, and has also been recorded as an occasional migrant. Imagos fly all day, often visiting flowers. Males congregate at "mud-puddles" during the dry season. The caterpillars feed on various plants of the Capparaceae family.

Occurrence in IITA: Common in the forest, golf course and parkland.



Belenois calypso male underside

11. *Leptosia alcesta* (Pieridae) African Spirit

Description: A small, weak-flying white butterfly with rounded wings and a greenish-black pattern on the hindwing underside. The forewing apex of both sexes is blackish. There is also a black spot on the forewing upperside, which is also visible from the underside.

Similar species: Six rather similar species occur in Nigeria but apart from *L. nupta* (Immaculate Spirit), which is even smaller than the African Spirit and has no black spot on the upperside; all are significantly larger. In IITA only two of these have been recorded. The Dainty Spirit (*L. medusa*) has a more extensive black apex, and the black spot on the forewing upperside is visible only as a dark shade on the underside. The Opaque Spirit (*L. wigginsi*) has a well-defined narrow black marginal line on the hindwing.

Habitat: Forests, including severely degraded forest, secondary forest, parkland, and bush.

Distribution: Widespread, occurring throughout forest and savanna zones in West and Central Africa.

Status: Very common.

Ecology: In Nigeria it breeds throughout the year and can be seen flying weakly along forest glades and trails. Both sexes often visit flowers.

Occurrence in IITA: Common in the forest but less common on the golf course and in parkland.



Leptosia alcesta male underside

12. *Mylothris chloris* (Pieridae) Common Dotted Border

Description: A medium-sized butterfly; the upperside is white and creamy white with a large black apical patch on the forewing and a broad black margin. The black color is more extensive on the female. The underside of both sexes is white with much yellow coloring in the basal and sub-basal area of both wings, a large black apex on the forewing and an even broader black hindwing margin.

Similar species: In western Nigeria only the female African Albatross (*Appias epaphia*) is slightly similar, but it is much smaller and the dark margin is brownish, rather than black, while the yellow color on the underside is much less extensive. There is also a blackish-brownish band on the forewing upperside in the base and the cell, which is missing from *M. chloris*.

Habitat: Forest, disturbed habitats, and savanna, wherever mistletoe-infested trees occur.

Distribution: Widespread in equatorial Africa.

Status: Common.

Ecology: In Nigeria it breeds throughout the year. The caterpillars feed on various mistletoe species (Loranthaceae) species, but the butterfly can fly long distances from its breeding site. Both sexes occasionally visit flowers.

Occurrence in IITA: Throughout the IITA campus but more visible in parkland, the golf course, and residential areas.



Mylothris chloris male underside

13. *Mimeresia libentina* (Lycaenidae) Common Harlequin

Description: A small butterfly in which the male forewing is densely black with a large irregular orange patch on the inner margin. The upperside of the female is largely orange with a broad black margin, and a black spot in the cell on each wing that touches the black margin. The hindwing underside of both sexes is bright orange-red with small black and silvery spots and streaks, and there is orange also in the forewing apex.

Similar species: Variable Harlequin (*Pseuderesia eleaza*) is rather similar in appearance but the male forewing has a much smaller reddish spot and females have a broader black margin with small orange spots in the forewing apex.

Habitat: All types of forest, including severely degraded secondary growth and parkland, but absent from the savanna, farmland and other open areas.

Distribution: Widely distributed throughout the equatorial forest zone in Africa.

Status: Occasionally common, especially in wetter months.

Ecology: In Nigeria it breeds throughout the year. Males are often seen circling around tree-trunks of ant-infested trees where the female lays eggs on the bark. Both sexes often sit on young creeping *Acacia* stems or the shoots of plants belonging to the arrowroot family, Marantaceae, where they feed on extra-floral nectar. Caterpillars feed on lichen and algae which grow on the tree bark.

Occurrence in IITA: Mostly in the forest, occasionally around "ant-trees" on the golf course.



Mimeresia libentina male underside

14. *Aphnaeus orcas* (Lycaenidae)

Common Silver Spot

Description: A smallish butterfly; the male is brilliant shiny blue on the upperside with black bars on the forewing and a black area on the costa of the hindwing. Both sexes have two fine tails on the hindwing. The female is uniform brown with a darker brown spot at the end of the forewing cell. The underside of both sexes is patterned with silvery bars between golden brown bands across both wings but in females this is usually lighter and often with creamy brown bands.

Similar species: The Rare Silver Spot (*Aphnaeus argyrocyclus*) is very similar in appearance but has the forewing sub-marginal silver band broken into two spots, while it forms a single band on *A. orcas*.

Habitat: All types of forest, including severely degraded secondary growth and parkland, but absent from the savanna, farmland and other open areas.

Distribution: Widely distributed throughout the equatorial forest zone of Africa.

Status: Occasionally common but rarely seen at ground level.

Ecology: In Nigeria it breeds throughout the year. The caterpillar is highly polyphagous on woody plants of different families, including Sapindaceae, Euphorbiaceae, and Oleaceae. It is regularly visited by ants. Imagos usually fly high in the canopy but both sexes occasionally come down to sit on bushes in clearings or roadsides in forest areas. Males enjoy high vantage points on the tops of hills and trees; they come to favorite spots during the hottest hours to display. In the dry season these butterflies are attracted to moist, mineral-rich soil.

Occurrence in IITA: Only in the forest. Both sexes can occasionally be seen basking on low vegetation along trails.



Aphnaeus orcas male upperside



Aphnaeus orcas female upperside

15. *Hypolycaena philippus* (Lycaenidae) Common Hairstreak

Description: A small butterfly which in the male is purplish-blue on top, while the female is grayish-brown with a whitish area on the hindwing tornus. Both sexes, as typical for *Hypolycaena*, have three black spots on the hindwing at the tornus—the inner one edged by orange, visible also on the underside—and two tails that originate from the veins between the spots. The underside is whitish-gray with orange-brown streaks across both wings, plus a short streak at the end of the cell on each wing, and a brown dot on the hindwing near to the body.

Similar species: All Fairy Hairstreaks (*Hypolycaena*) are similar in appearance, but no other Nigerian species has the brown dot on the hindwing underside.

Habitat: Savanna, transition zone between savanna and forest, and occasionally in drier forest clearings and grassy roadsides.

Distribution: Widely distributed throughout the savanna zone in Africa.

Status: Quite common.

Ecology: In southern Nigeria it breeds during the dry season, though in the north it probably breeds continuously. Males often display on shrubs or taller grasses from where they make occasional patrol flights at high speed. Females lay eggs on various plants of the pea family, Leguminosae.

Occurrence in IITA: Often observed displaying on hedgerows at I-House. It may also occur in residential areas and grasslands.



Hypolycaena philippus male upperside

16. *Hypolycaena antifaunus* (Lycaenidae) Large Fairy Hairstreak

Description: A smallish butterfly; the basal half of the upperside is a beautiful deep blue with whitish-blue hairs on the hindwing, and the outer half is black. There are white spots at the hindwing tornus, and also one very long and one shorter tail. The underside is white, with a prominent orange streak which lines up across both wings.

Similar species: All Fairy Hairstreaks (*Hypolycaena*) are similar in appearance, but for *H. antifaunus* the orange streaks on the forewing and hindwing are in alignment. On several other *Hypolycaena* the orange streaks are displaced. So far, only *H. antifaunus* has been recorded from IITA amongst these lookalikes.

Habitat: All types of forest including severely degraded secondary growth and parkland, but absent from the savanna, farmland and other open areas.

Distribution: Widely distributed throughout the equatorial forest zone in Africa.

Status: Fairly common.

Ecology: In Nigeria it breeds throughout the year. Both sexes can be observed resting on vegetation in sunny patches low in the forest interior or along trails. Males may also appear on muddy soil.

Occurrence in IITA: Only in the forest.



Hypolycaena antifaunus male underside

17. *Anthene larydas* (Lycaenidae) Common Ciliate Blue

Description: A rather small butterfly; the male is deep indigo blue on the upperside, and the female is brown with two or three black tornal spots on the hindwing, a row of whitish-gray marginal crescents and some whitish-gray sub-marginal spots on the hindwing. Sometimes there is also light blue scaling at the base of both wings. The underside is dark gray or brownish-gray with a network of whitish stripes which extends to the basal area on both wings. The female is generally lighter with a similar pattern.

Similar species: Indigo Ciliate Blue (*Anthene rubricinctus*) and Lesser Indigo Ciliate Blue (*A. ligures*) are both very similar in size and appearance—especially in the male upperside—although the latter has a warmer hazel-brown underside. *A. larydas* has stronger whitish striation and has patterning also in the basal area of the forewing, while the other two species do not.

Habitat: All types of forest including severely degraded secondary growth and parkland.

Distribution: Widely distributed throughout the equatorial forest zone in Africa.

Status: Very common.

Ecology: In Nigeria it breeds throughout the year. Males are very often encountered near water but also on leaves along trails inside the forest. Females are more often seen flying around young shoots of various shrubs in the pea family (Leguminosae), on which the caterpillars feed.

Occurrence in IITA: Mainly in the forest, but males can also be seen near water on the golf course during the driest months of the year.



Anthene larydas male underside



Anthene larydas male upperside

18. *Cacyreus lingeus* (Lycaenidae) Common Bush Blue

Description: A small butterfly; the male is pale sky blue on top, while the female is an even lighter blue with a broad blackish margin on the forewing and two white spots (one in the tornus, the other halfway to the apex). There is also a broad streak at the end of the cell, and the wing is white between this spot and the black margin. The hindwing margin is a slightly paler blackish-gray, the center of the wing is light blue and there is a well-defined blue-ringed black spot in the tornus. The ground-color of the hindwing is brownish-gray or gray, with various darker and lighter or white spots on the hindwing. The forewing underside has a darker sub-marginal band, bordered with fine white lines. There is also a series of short white parallel lines between the sub-marginal band and the base. The cilia on both wings are chequered black and white.

Similar species: The Alternative Bush Blue (*Cacyreus virilis*) is very similar, but has been recorded only once in Nigeria (in Plateau State). The male of the Bright Bush Blue (*Cacyreus audeoudi*) is a more shiny blue on the upper side, while the female upperside has a more extensive white color.

Habitat: Mostly secondary forest and forest edges but usually absent from the savanna, farmland, and other open areas.

Distribution: Widely distributed throughout the equatorial forest zone in Africa and patchily also in southern Africa.

Status: Common.

Ecology: In Nigeria it breeds throughout the year. Males sometimes come to water during the dry season, while both sexes visit flowers. The caterpillars feed on various plants of the mint family (Lamiaceae).

Occurrence in IITA: Mostly in the forest, along trails and in clearings, and also sometimes on the golf course and in bushy areas of parkland.



Cacyreus lingeus male underside



Cacyreus lingeus male upperside

19. *Leptotes pirithous* (Lycaenidae) Common Zebra Blue, Lang's Short-tailed Blue

Description: A rather small butterfly; the male is pale sky blue above, while the female has a broad black margin and white spotting on a sky-blue ground color on both wings, and a row of black spots along the hindwing margin. The underside is a variable tone of gray or tan-gray with whitish zebra-like patterning and reticulation, and two tornal black-eyed, turquoise, and orange-ringed eyespots. There is a fine hair-tail between the two eyespots.

Similar species: All *Leptotes* are very similar in appearance; they can only be identified with certainty by dissection of the male genitalia or DNA barcoding. However, species similar to *L. pirithous* are more confined to arid savanna habitats and their occurrence in the IITA-Ibadan campus is therefore unlikely.

Habitat: Savanna woodlands and grasslands, but as a regular migrant it could appear almost anywhere except deep in the forest.

Distribution: Widely distributed throughout Africa, tropical areas in Asia, and also in Mediterranean regions. As a migrant, it can even be found occasionally in temperate zones.

Status: Common.

Ecology: In Nigeria it breeds throughout the year. It is probably commoner in the dry season when migrating specimens might meet locally hatched butterflies. Both sexes regularly visit flowers, and males are also observed near water during the drier months. The caterpillars feed on various plants of the pea family (Leguminosae).

Occurrence in IITA: Anywhere in the campus.



Leptotes pirithous copula underside



Leptotes pirithous female upperside

20. *Libythea labdaca* (Nymphalidae) African Beak, African Nettle Tree Butterfly

Description: A medium-sized butterfly; both sexes are dull brown on the upperside with cloudy whitish-grayish spotting. The underside is similar. The African Beak is however most easily recognized from its unique narrow and angled wing shape (especially in the forewing apex) and the presence of thick long projections (“palpi”) that look like a snout, or beak. Its erratic fast flight is also a diagnostic clue, especially when masses are in migration and can be flushed from wet ground.

Similar species: No other species with a similar wing shape occurs in Africa.

Habitat: This butterfly usually breeds in forest and wooded savanna but, as a regular migrant, it can appear in all types of habitat.

Distribution: Widely distributed throughout Africa.

Status: Occasionally common, especially during migrations at the beginning of the rainy season.

Ecology: In Nigeria it breeds throughout the year. Mass migrations are usually at the beginning of the rainy season. Male butterflies are often seen near water; females seem to stay higher in the canopy of trees. The caterpillars feed only on *Celtis* trees (Ulmaceae), which are common in the IITA forest.

Occurrence in IITA: Anywhere in the campus.



Libythea labdaca male underside

21. *Danaus chrysippus* (Nymphalidae) Plain Tiger, African Monarch

Description: This medium-large butterfly has slightly elongated forewings. The name “Tiger” refers to orange and black coloring on the forewing, but otherwise is misleading as there are no stripes. Instead the apex is black while the rest of the forewing is mainly orange, with a rusty-colored gradation in between. There is a string of small white spots in a band below the apex. The hindwing is mainly white with a few irregular small black patches and a thin black fringe. Males and females look the same.

Similar species: Only the female of Variable Eggfly (*Hypolimnas misippus*) could be confused with the Plain Tiger, but the latter always has no white on the upperside hindwing in West Africa.

Habitat: Open areas of all kinds.

Distribution: Throughout Africa and beyond.

Status: Very common.

Ecology: This species is distasteful to predators, and in common with several other distasteful species, has a rubbery body that may allow it to recover from an attack. While this butterfly can be a strong flyer—indeed it is reported to be migratory, even crossing the Sahara—it is usually seen drifting on breezes a meter or so off the ground. Such behavior, together with warning coloration, indicates that it has natural defences in the form of a toxin, accumulated from milkweed plants (Apocynaceae), which are the only food plants of its caterpillar.

Occurrence in IITA: Everywhere except inside the forest.



Danaus chrysippus male upperside

22. *Amauris niavius* (Nymphalidae)

Friar

Description: A moderately large butterfly with black and white elongate and rounded forewings. On the upperside, two patches of white on the forewing and one at the base of the hindwing contrast strongly with a black background. In flight and when settled it is easy to see the bright white patch that mostly covers the entire underside of the hindwing. Males and females look the same.

Similar species: Two quite common large black and white butterflies could easily be mistaken for the Friar. Both *Hypolimnias anthedon* and the female of *Papilio dardanus* have evolved as mimics of the Friar in order to gain protection from predators who have learnt to leave this distasteful butterfly alone. While one of the multiple forms of *Hypolimnias anthedon* even has the white hindwing undersides, these mimics never have the smooth roundness of the wings that characterize the Friar, while *Papilio dardanus* is a much larger butterfly.

Habitat: Rainforest, riverine forest, and dense savanna woodland.

Distribution: Found throughout humid forests of Africa.

Status: Common.

Ecology: In Nigeria it breeds throughout the year. The imagos generally fly 1 to 3 m above the ground in a slow manner. They take in alkaloids from various plants, thus making them selvestoxic to predators.

Occurrence in IITA: It occurs mainly in the forest but prefers open spaces to fly, so is most likely seen at the edge of the forest and along trails.



Amauris niavius male underside

23. *Melanitis leda* (Nymphalidae) Common Evening Brown

Description: A medium to large butterfly with toothed wing edges. The upperside is dull brown with two white spots near the apex of the forewing which are rimmed by black and further surrounded by orangey-brown. The underside is a dull camouflage pattern of dark brown, with a row of eyespots in the wet-season form.

Similar species: *Melanitis libya* has no orangey-brown on the upperside, but it has the same wing shape, so at a distance they cannot be told apart. At close quarters it is possible to see that the two white spots near the apex of the forewing are positioned diagonally on *M. libya* but vertically on *M. leda*.

Habitat: All habitats from forest to dry savanna.

Distribution: Tropical Africa, and also in Asia and Australia.

Status: Very common.

Ecology: In Nigeria it breeds throughout the year. Seasonal variability of the hindwing underside pattern indicates different protective strategies. During the day the imagos rest in the dark forest interior or other shady places. They become more active at dusk, when they are sometimes attracted to artificial light. Both sexes feed on fermented fruit or sap.

Occurrence in IITA: Everywhere in the campus but most likely along forest trails, often settling among dead leaves on the forest floor.



Melanitis leda underside

24. *Bicyclus dorothea* (Nymphalidae) Light Bush Brown

Description: A small to medium butterfly, blackish-brown on the upperside with a pale gray area in the center of both wings. In females the entire underside is pale gray speckled with darker scales, with one small apical eyespot and a much larger one some distance below. The hindwing of both sexes has a full row of eyespots in both sexes; two adjacent spots in the middle are noticeably larger than the rest.

Similar species: The Gray Bush Brown (*Bicyclus taenias*) is similar in size and appearance but only the outer half of its hindwing underside is gray, the basal area is darker brown, and the two larger eyespots are not adjacent.

Habitat: Forest edges and clearings in forested areas, but never in primary forest.

Distribution: Throughout the equatorial forest zone.

Status: Very common.

Ecology: In Nigeria it breeds throughout the year. It can often be seen flying slowly along forest edges, clearings, and trails. Both sexes are attracted to fermenting fruits. The caterpillars feed on various grasses (Poaceae).

Occurrence in IITA: Mostly in the forest, and also along forest patches on the golf course.



Bicyclus dorothea male underside

25. *Bicyclus safitza* (Nymphalidae) Common Savannah Bush Brown

Description: A medium-sized butterfly which is predominantly the dull brown color of most *Bicyclus*. On the upperside, the forewing has an indistinct lighter patch or shading towards the apex. The underside is very distinct; the half nearest the body being a uniform chocolate brown, with a sharp boundary to the outer half which is a lighter chocolate brown, and which usually has one large eyespot on the forewing and a number of tiny eyespots.

Similar species: The Funereal Bush Brown (*Bicyclus funebris*) is similar in size, color and patterning, but has no outstandingly large eyespot on the forewing underside and is also considerably larger.

Habitat: Originally an inhabitant of wooded Guinea savanna, it is a good colonizer and is now also found in cleared forest areas and secondary grasslands.

Distribution: Widely distributed in all parts of Africa.

Status: Common.

Ecology: In Nigeria it breeds throughout the year. Imagos are rarely seen flying spontaneously, as they become active late in the afternoon and often stay inside tall grass. Both sexes are attracted to fermenting fruit. Like many other *Bicyclus*, this species shows strong seasonal variation. The caterpillars feed on various grasses (Poaceae).

Occurrence in IITA: Mostly in grassland on fallow agricultural plots and road verges on the east bank of the lake, although during the dry season some will enter the forest seeking fallen fruit.



Bicyclus safitza female underside

26. *Charaxes boueti* (Nymphalidae) Bamboo Charaxes

Description: A large butterfly; the upperside of both sexes is orange (paler in the female) contrasted with a black stripe near the outer margin of both wings, and black spots around the forewing cell and beyond. The underside is creamy yellow with short orange streaks on the forewing and two straight whitish stripes in the center of the hindwing. The area between the stripes is darker gray, and there is gray also in the sub-marginal area. Like many other *Charaxes*, the hindwing has two short tails.

Similar species: Both males and females might be mistaken for *C. cynthia*, but the latter has a larger amount of black on the upperside and only one white stripe on the hindwing underside.

Habitat: Originally in wetter forests and swamps, but now wherever there are bamboos.

Distribution: Widespread in equatorial Africa.

Status: Locally common.

Ecology: In Nigeria it breeds throughout the year. The original food plant for the caterpillar was indigenous bamboo species, but it has adapted to introduced Asian varieties. This adaptation appears to have caused an expansion in numbers of the species. Both sexes are fond of fermenting fruit and sap, while males are also attracted to mud, dung, or animal carcasses.

Occurrence in IITA: Most easily observed near large bamboo stands in the IITA forest but also seen flying between stands.



Charaxes boueti male underside

27. *Charaxes tiridates* (Nymphalidae) Common Blue Charaxes

Description: A large butterfly; the upperside of the male is a deep metallic blue with two rows of small lighter blue spots in the outer half of the forewing, and towards the margin on the hindwings. The female is larger than the male and is light olive, with a broad white stripe across the forewing that edges a black triangular apex. A single row of light whitish-blue patches (like those of the male) fringes the upperside of the hindwing. Both sexes have a dull brown underside, with irregular black lines. Both sexes have short but obvious tails on the hindwing.

Similar species: Both the Two-Spot Blue Charaxes (*Charaxes bipunctatus*) and the Lesser Blue Charaxes (*C. numenes*) could easily be confused with *C. tiridates*, though the lines on the hindwing underside of *C. numenes* are more regular, forming two lines across the hindwing. The tails on the hindwing of *C. bipunctatus* are much smaller, looking more like marginal teeth.

Habitat: Forest, riverine forest, degraded forest, and dense Guinea savanna.

Distribution: Throughout tropical rainforests of Africa.

Status: Common.

Ecology: In Nigeria it breeds throughout the year. Like other Charaxes it has a very powerful flight and stays mostly in the canopy level of forests. Both sexes are fond of fermenting fruit, while males are also attracted to rotting and foul substances. The caterpillars feed on various forest shrubs and trees.

Occurrence in IITA: Mainly in the forest, usually along trails when they are feeding on carrion or fallen fruit.



Charaxes tiridates female underside

28. *Charaxes etesipe* (Nymphalidae) Blue-spotted Charaxes

Description: A large butterfly, immediately known from its underside, which is instantly recognizable. The patterning is a colorful combination of small polygons that are white (in the forewing cell and along the hindwing costa), black (in the sub-marginal area of both wings and at the upper tail), reddish (mainly in and around the cell), gray (in the apex of the forewing and towards the edge of the hindwing), and cream (at the tails). The male's upperside is dark blue with white spotting on the forewing, and a sub-marginal blue band and a row of marginal white spots on the hindwing. The female has a broad white or creamy band across both wings, which breaks up into spots in the discal and apical area of the forewing.

Similar species: No confusion with other *Charaxes* is possible if the underside can be clearly seen.

Habitat: Forest, also secondary forest, and occasionally in dense Guinea savanna.

Distribution: Widely distributed throughout the equatorial forest zone in Africa.

Status: Common.

Ecology: In Nigeria it breeds throughout the year. When alarmed it flies to the trunk of a tree to settle with wings closed. In this position, the chequered underside becomes a camouflage against the bark of the tree, and may protect against predators.

Occurrence in ILTA: The best chance of seeing this species, and other *Charaxes*, is when it is feeding on the ground. Leaving rotten fruit or meat at a viewing spot is a good strategy.



Charaxes etesipe male underside



Charaxes etesipe male upperside

29. *Hypolimnias anthedon* (Nymphalidae) Variable Eggfly

Description: A medium to large butterfly with a number of different forms. One has a black background, white patches at the base of each wing, and a white band across the forewing. There is a gray-blue tinge around the edge of the white on the forewing. The outer margin of the forewing is strongly concave. Another form has a similar wing shape, but the white patterning has more spots than patches, and there is a fringe of four or five small spots on each wing.

Similar species: The Friar (*Amauris niavius*) has very similar patterning to the first form, but there is no gray-blue tinge and the forewing is rounded. The Scarce Monk (*Amauris hecate*) and the Small Monk (*Amauris damocles*) have the same patterning as the second form. However the edge of the wing is smooth, while that of *H. anthedon* is scalloped.

Habitat: A forest butterfly, but adaptable.

Distribution: Throughout tropical rainforests of Africa.

Status: Very common.

Ecology: In Nigeria it breeds throughout the year. *H. anthedon* is a mimic both of *A. niavius* and of *A. hecate*. It has evolved this way to gain protection from predators that have learnt to avoid these toxic species. Remarkably, elsewhere in its geographical range *H. anthedon* mimics a further two distasteful species.

Occurrence in IITA: Forest, forest edges, and occasionally in open areas between trees.



Hypolimnas anthedon male underside

30. *Hypolimnys salmacis* (Nymphalidae) Blue Diadem

Description: A very large and strikingly beautiful butterfly with vivid coloring. The ground color is black with white patches and spots on both wings, and a blue-violet patch, which is slightly reflective in bright sunshine, in the outer half of both sets of wings. The female is similar but duller.

Similar species: The Scarce Blue Diadem (*Hypolimnys monteironis*) is similar but very rare in Nigeria and not found in western Nigeria.

Habitat: Secondary and disturbed rainforest.

Distribution: Throughout tropical rainforests of Africa.

Status: Very common

Ecology: In Nigeria it breeds all year round. It likes to bask in sunny spots both within the forest and around the edges, settling high up—often more than 5 m off the ground—with its wings open flat, then swooping down in a rather clumsy flight before quickly finding a new resting place.

Occurrence in IITA: Anywhere in the forest where there is an opportunity for a clear flight and a patch of sun. The “old road” through the forest is the best place to see this species.



Hypolimnas salmacis female underside

31. *Salamis cacta* (Nymphalidae) Lilac Beauty

Description: A most distinctive butterfly with contrasting colors that are not often seen together in nature. It is medium-sized, though on the smaller side, and has a toothed wing-shape. On the forewing there is a large black apical patch bordered on the inside by a light orange-brown patch and succeeded by pink-purple with a slight metallic sheen over the rest of the forewing and most of the hindwing. The underside is a dull camouflage pattern imitating a dead leaf, complete with central vein.

Similar species: None.

Habitat: A forest butterfly, but very adaptable.

Distribution: Found throughout tropical rainforests of Africa.

Status: Common.

Ecology: In Nigeria it breeds throughout the year. Although it may bask in sunshine, more often it flies short distances and then settles very quickly, closing its wings to take advantage of their excellent camouflage pattern.

Occurrence in IITA: Most often at the edge of the forest, especially in places dominated by leafy shrubs.



Salamis cacta female underside

32. *Protogoniomorpha parhassus* (Nymphalidae) Forest Mother-of-Pearl

Description: A very large butterfly that from a distance might appear to be white. When basking in the sun with wings three-quarters open, it is more clearly mother-of-pearl—even silvery purple—on the upper side at certain angles. The female does not have this opalescent sheen, and is more a creamy-yellow color. Both sexes have some black-brown markings around the fringes and sharp angles at the corners of each wing.

Similar species: *Protogoniomorpha anacardii* (Savannah Mother of Pearl) is almost identical, although smaller and the mother-of-pearl sheen is weaker. However, the latter has not been recorded at IITA to date.

Habitat: Primary, secondary, and degraded rainforests.

Distribution: Throughout tropical rainforests of Africa.

Status: Very common.

Ecology: In Nigeria it breeds throughout the year. It is an apparently tame butterfly, often settling and remaining in position if you move closer for observation. In dull or wet conditions it roosts under large leaves, usually with the head pointing towards the ground and wings tightly closed.

Occurrence in IITA: Most likely along the “old road” through the center of the forest. Walking down this road on an overcast day, you may disturb any settled around shoulder height under overhanging branches. Along forest trails you may see them settled or circling around each other in sunny spots.



Protogoniomorpha parhassus male underside

33. *Junonia oenone* (Nymphalidae)

Dark Blue Pansy

Description: A medium-sized butterfly; the ground color of the male is black on the upper side and slightly paler in the female. Both sexes have prominent white patches on the forewing apex and a large circular blue-purple patch on the hindwing. Females usually have red-ringed blue eyespots on both wings, which are smaller on the forewing. These spots might be present, though always reduced, in the males. The hindwing underside is pale creamy brown, as is the apex of the forewing. The white spots of the upperside are also visible on the underside, and there are also orange streaks in the cell.

Similar species: *Junonia orithya* is similar in shape, but is smaller and the blue area is greener, extended along the hindwing margin, and present also in the forewing tornus.

Habitat: Originally in savanna areas but now in various open habitats, including clearings in forest, agricultural land, parks, and other green spaces in towns.

Distribution: Throughout tropical Africa.

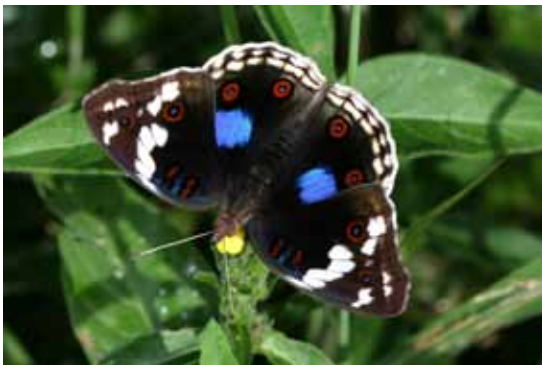
Status: Very common.

Ecology: In Nigeria it breeds throughout the year. It is often found on roads and road verges or feeding on flowers. The caterpillars feed on various species in the Acanthaceae family.

Occurrence in IITA: Everywhere except closed canopy forest.



Junonia oenone copula underside



Junonia oenone female upperside

34. *Junonia sophia* (Nymphalidae) Little Commodore

Description: This small butterfly has very distinctive markings. The veins are highlighted, resulting in a strong radial grid pattern. At the base of the forewing there is a bright chestnut patch that can clearly be seen at some distance and makes this species instantly recognizable. This patch is followed by an ochreous band across both wings, and then a muddy brown band on the outer margin of both wings. The underside has the same markings but much paler.

Similar species: The combination of chestnut, ochre, and muddy brown appears in a number of other species, but none is similar in wing shape or size.

Habitat: This species is very fond of sunlight, so it is mostly found in degraded forests, at the edge of forest patches, and some distance beyond.

Distribution: Throughout the tropical rainforest zone of Africa and into adjoining areas.

Status: Extremely common.

Ecology: Annual leafy weeds in degraded forest areas attract several *Junonia* species; they can often be seen together in quite large numbers on such plants during the heat of the day. This species is so fond of basking in the sun that it is more often seen stationary than in flight. Even when flying, it soon settles again.

Occurrence in IITA: Everywhere except the most open grassland.



Junonia sophia female upperside

35. *Catuna crithea* (Nymphalidae) Common Pathfinder

Description: A medium-sized butterfly with elongate forewings and a rounded apex. The ground color of the upperside is brown with a number of small light brown, occasionally yellowish- or whitish-brown patches and circles. There are three small oval spots below the forewing cell. The yellow basal area on the hindwing upperside is mostly hidden and is only prominent in flight. The underside is pale tan with some brown patterning.

Similar species: The Large Pathfinder (*Catuna angustatum*) has two of the three oval spots below the forewing cell fused into a band, and a separated spot; this is also the case in a further two *Catuna* species which do not occur in the campus. The females of several species in the *Bebearia* genus have the same basic colouring.

Habitat: Found in forests, secondary growth, and occasionally in neglected cocoa and cola farms.

Distribution: Widely distributed across the equatorial forest zone.

Status: Very common.

Ecology: In Nigeria it breeds throughout the year. It flies just above the ground, with a few beats and a gliding motion, often settling on bare ground, low vegetation, or fallen fruit, moving off the forest trail only when much disturbed, and often following the same path for hundreds of meters, hence its common name. The caterpillars feed on leaves of various forest shrubs and trees.

Occurrence in IITA: Only in the forest, where it can easily be seen along trails.



Catuna crithea male upperside

36. *Hamanumida daedalus* (Nymphalidae) Guineafowl

Description: A medium-sized butterfly; the upperside is an even light gray with three bands of fine white dots, resembling the patterning on Guineafowl plumage, hence the name. The underside is rich ocher, making a striking contrast to the upperside, and a good camouflage when sitting with closed wings.

Similar species: None.

Habitat: Savanna.

Distribution: Throughout Africa.

Status: Common.

Ecology: In Nigeria it breeds throughout the year. Tolerant of blazing sunshine, this butterfly is a familiar sight in northern Nigeria. It is easily observed, either sitting with wings fully open, or flying rapidly along near the ground before settling again. The dark ocherous underside matches the lateritic soil of its preferred habitat. On a number of occasions it has been recorded in degraded areas within the rainforest zone, leading to the conclusion that it is expanding its range as a result of deforestation.

Occurrence in IITA: Anywhere outside the forest and occasionally along laterite roads in and around the forest area.



Hamanumida daedalus male upperside

37. *Aterica galene* (Nymphalidae) Forest Glade Nymph

Description: A medium-sized butterfly; the background color on the upperside in both sexes is black and the spotting is whitish. On the forewing towards the apex, two rows of white oval spots cross the wing; these are creamier in the male. A cream patch fills the basal half of the hindwing of the male. In the female this same patterning is a clean white, with brown in the outer half, but there are females in which the hindwing basal area is orange. The female is notably larger than the male and with a more rectangular wing shape. The underside is pale brownish-gray.

Similar species: None.

Habitat: A forest species, but surviving severe habitat degradation and also found in secondary growth, shaded cocoa, and cola farms.

Distribution: Widely distributed across the equatorial forest zone.

Status: Common.

Ecology: In Nigeria it breeds throughout the year. Very similar in habits to other forest floor butterflies, such as *Catuna crithea*, it favors bare paths and flies close to the ground seeking fallen fruit. The male has a fast, twittering wing beat, while the female's is more measured.

Occurrence in IITA: Only in the forest.



Aterica galene female upperside



Aterica galene male upperside and female underside

38. *Bebearia sophus* (Nymphalidae) Sophus Forester

Description: A medium-sized butterfly, males and females share a common wing shape and both have a “dead leaf” camouflage pattern on the underside that makes them easy to pair together. The male is most easily identified from its underside, where the central vein of the “leaf” is strongly contrasted with the background. The female upperside has one of the most common ground patterns of forest butterflies, a green-blue background with a yellow diagonal stripe towards the apex of the forewing. A pointed forewing apex is the clue to its identity.

Similar species: The female is easily mistaken for a female *Bebearia laetitia* (Laetitia’s Forester), but the underside of the latter is much more strongly patterned, with white patches on the forewing. In addition, *B. laetitia* does not seem to be present in the IITA campus.

Habitat: All types of forest, including degraded secondary growth.

Distribution: Throughout the sub-Saharan tropical rainforest zone.

Status: Common.

Ecology: In Nigeria it breeds throughout the year. This robust forest floor butterfly enjoys trails and fallen fruit. It flies a meter or two off the ground, and when disturbed may either remain on the trail or fly briefly to the side.

Occurrence in IITA: Mainly in the forest, but occasionally in gardens or shady areas on the golf course.



Bebearia sophus copula underside



Bebearia sophus male upperside

39. *Euphaedra medon* (Nymphalidae) Widespread Forester

Description: The female is a medium-sized butterfly; the male is smaller. Both sexes have a yellow rectangular band towards the apex of the forewing. Many species in the genus *Euphaedra* share this feature, but a triangular notch on the inner edge is unique to this species. The ground pattern of both sexes is also the same but the coloring is very different, males being predominantly a dull blue-green, while females are black with a blue band across the wings, overlaid by a violet sheen. On the underside of both males and females there are three small but distinct black spots in the cell of both wings.

Similar species: No other *Euphaedra* is as small as the male. Several *Bebearia* females are rather similar to the female, but instead of violet the color is closer to blue or purple and is less conspicuous.

Habitat: Predominantly in forest but wherever there are trees, and sometimes in gardens.

Distribution: Throughout the equatorial rainforest zone.

Status: Very common.

Ecology: In Nigeria it breeds throughout the year. In common with all *Euphaedra*, this species congregates around fallen fruit on the forest floor. In its search for food it will also enter more open areas; females in particular may also bask in the sunshine at the forest edge.

Occurrence in IITA: In and around the forest and the golf course.



Euphaedra medon female upperside



Euphaedra medon male underside

40. *Euphaedra themis* (Nymphalidae) Themis Forester

Description: While sharing the same color patterns, males are compact and medium-sized and females are large with a more elongated forewing. On the upperside the coloring is a reflective green-blue with a rich yellow rectangular patch towards the apex of the forewing, and velvety black borders. There is a small red patch at the base of the forewing. The underside is mustard yellow edged by black squares, with red patches at the base of both wings.

Similar species: Butterflies in the genus *Euphaedra* are extremely difficult to identify, and most species can be mistaken for several others. At IITA-Ibadan there are four other species with a green-blue upperside and a yellow sub-apical band. However, *Euphaedra themis* is unique in having a bright red spot at the base of the forewing upperside.

Habitat: Forest floor.

Distribution: West African tropical rainforest.

Status: Common.

Ecology: In Nigeria it breeds throughout the year. This butterfly flies inches off the ground looking for fallen fruit. When food is located, it will remain for days to suck the juices or rest on a nearby shrub. A good source of fruit will, in time, accumulate a congregation; the experience of walking into a cloud of large butterflies in the forest is due to disturbing this process.

Occurrence in IITA: Very common in the forest and also occasionally on the golf course.



Euphaedra themis female upperside



Euphaedra themis male underside

41. *Acraea alciope* (Nymphalidae)

Alciope Acraea

Description: A medium-sized butterfly with elongate forewings; the markings of the male are dominated by a light ochre color and a thick dark fringe around it. There are several forms of the female, but the coloring is always opaque and some combination of orange-brown, dark gray, and white that obscures the veins more so than in other *Acraea* of a similar size.

Similar species: The Large Alciope Acraea (*Acraea aurivillii*) is identical to this species. Only examination of the genitalia under a microscope will allow differentiation.

Habitat: Forest, particularly in degraded areas.

Distribution: Throughout the equatorial rainforest zone.

Status: Very common.

Ecology: In Nigeria it breeds throughout the year. Males can be observed at the same location on successive days and when disturbed will not fly away, but instead they head across their “home territory” at different angles. Females fly lower with the more typical slow, straight-line trajectory of most *Acraea*.

Occurrence in IITA: Commonly seen on trails and along the “old road” through the forest. It often settles on branches 2 to 3 meters off the ground, and a succession of individuals—usually males—may be disturbed on any walk along these routes.



Acraea alciope male upperside



Acraea alciope male underside

42. *Acraea serena* (Nymphalidae)

Dancing Acraea

Description: A small butterfly with elongate forewings; the male is bright orange above with a narrow black border all round which is punctuated by orange spots on the hindwing. On the underside the orange coloring is much lighter, and the hindwing has a spattering of black dots covering the basal half. The female coloring is quite variable, but generally comprises a range of muddy to light brown and gray colors, with a distinct white apical patch. The black border is patterned the same as in the male.

Similar species: The female is distinctive but the male might be mistaken for *Acraea bonasia* (*Bonasia Acraea*) which is also small and orange, and has elongate forewings. However, the black bordering in the latter is thick and unbroken.

Habitat: Grasslands up to the edge of forests.

Distribution: Throughout Africa except in closed canopy forests.

Status: Very common.

Ecology: In Nigeria it breeds throughout the year. Usually seen in groups, they “dance” close to the ground in bright sunshine, or settle on grass stems, sometimes in clusters.

Occurrence in IITA: The best place to see this butterfly is among wild flowers on the edges of the road leading down to the reservoir. However, it could be seen in any other open area.



Acraea serena copula underside

43. *Coeliades chalybe* (Hesperiidae) Blue Policeman

Description: A medium-sized butterfly; the ground color of both sexes is a deep iridescent blue on the underside, with a distinctive white stripe on the hindwing, which might occasionally be broken but always reaches the costa. The upperside is dark blue with lighter long hairs at the base of both wings.

Similar species: The Dark Blue Policeman (*Coeliades bixana*) is very similar but its ground color is generally darker than that of *C. chalybe*, especially on the underside. Also the white streak is variable in shape and size, and often does not reach the costa.

Habitat: Primary rainforest to secondary growth, and also, but rarely, in riverine forest in the savanna zone.

Distribution: Widely distributed in the African equatorial forest zone.

Status: Quite common.

Ecology: In Nigeria it breeds throughout the year. Specimens are usually encountered in dark undergrowth where they fly frantically in large circles when disturbed, but eventually settle under a leaf. They are also occasionally seen on flowers.

Occurrence in IITA: Only in the forest, usually in the darker undergrowth along trails.



Coeliades chalybe underside

44. *Celaenorrhinus galenus* (Hesperiidae) Common Orange Sprite

Description: A smallish butterfly; the ground color of both sexes is dark brown with extensive orange patterning in a roughly chequer board pattern. Females are generally lighter.

Similar species: There are several similar, orange-patterned *Celaenorrhinus* in West Africa, but they are very unlikely to occur in the IITA campus.

Habitat: Forests of various types, from primary rainforest to secondary growth and, very occasionally, in riverine forest in the savanna zone.

Distribution: Widely distributed between Senegal and Western Nigeria.

Status: Common.

Ecology: In Nigeria it breeds throughout the year. Imagos are most easily seen flying to and fro at high speed along forest trails in the morning. They also visit flowers and usually rest upside down under leaves. The caterpillars feed on species of the Acanthaceae family.

Occurrence in IITA: Only in the forest.



Celaenorrhinus galenus male upperside

45. *Tagiades flesus* (Hesperiidae) Clouded Flat

Description: A small to medium-sized butterfly; the female is much larger than the male, though both sexes are similar in shape and color. The forewing upperside is dark brown with gray scaling in the center and with clearly visible translucent spots. The hindwing is significantly lighter in color, and the hindwing underside is white, though this is usually only visible in flight as this species always rests with wings flat. The forewing has a rather broken shape in the resting position, which is unique to this species.

Similar species: The Common Elfin (*Sarangesa thecla*) is quite similar in patterning on the upperside, but is smaller, lacks the gray scaling on the forewing central area, and the hindwing is evenly dark. The translucent spots on the forewing are also much smaller.

Habitat: Forest of various types, from primary rainforest to secondary growth and riverine forest in the savanna zone.

Distribution: Widely distributed in the African equatorial forest zone.

Status: Very common.

Ecology: In Nigeria it breeds throughout the year. Imagos are often seen basking on low vegetation at forest edges or along trails. When resting, they usually sit on the underside of large leaves. Males also “hilltop” or display at sunny spots.

Occurrence in ILTA: Mainly in the forest, occasionally on the golf course and in the residential area.



Tagiades flesus female upperside

46. *Sarangesa thecla* (Hesperiidae) Common Elfin

Description: A small butterfly; both sexes are similar with a dark grayish-brown upperside and small translucent spots on the forewing. The hindwing underside is whitish, with dark spotting which is visible only in flight, as they always keep their wings flat when sitting or feeding on flowers.

Similar species: The Clouded Flat (*Tagiades fesus*) is somewhat similar in wing shape and pattern on the upperside, but considerably larger, and its hindwing is always lighter than the forewing. Bouvier's Elfin (*Sarangesa bouvieri*) has a pale yellow hindwing margin and its hindwing underside is also yellow.

Habitat: Forest of various types, though usually outside primary forest and more often in degraded secondary forest or bush.

Distribution: Widely distributed in the African equatorial forest zone.

Status: Common.

Ecology: In Nigeria it breeds throughout the year. Imagos are often seen basking on low vegetation at forest edges or along trails; they also frequently visit flowers. Males patrol along trails and sunny clearings at high speed.

Occurrence in IITA: Mainly in the forest along trails and at forest edges.



Sarangesa thecla male upperside

47. *Sarangesa bouvieri* (Hesperiidae) Bouvier's Elfin

Description: A small butterfly; both sexes are similar with a dark brown upperside, darker brown, rather indistinct shading in the forewing apex, sub-apical area and center, and very small translucent spots on the forewing. The hindwing underside is pale yellow, with dark spotting which is visible only in flight, as they keep their wings flat when settled or feeding on flowers. The yellow color is also present along the hindwing margin on the upperside.

Similar species: The Common Elfin (*Sarangesa thecla*) is similar in size and appearance but its hindwing underside is white. The male of *Eagris tetrastigma* (Black Flat) has a brighter yellow hindwing underside, and a broader yellow band on the hindwing upperside. Other *Eagris* species with a yellow underside are unlikely to be found in the IITA campus.

Habitat: Forest of various types, usually outside primary forest and more often in degraded secondary forest or bush.

Distribution: Widely distributed in the African equatorial forest zone.

Status: Common.

Ecology: In Nigeria it breeds throughout the year. Imagos are often seen basking on low vegetation at forest edges or along trails; and they also frequently visit flowers. Males patrol along trails and sunny clearings at high speed.

Occurrence in IITA: Mainly in the forest, usually along trails and at forest edges.



Sarangesa bouvieri male upperside

48. *Pardaleodes edipus* (Hesperiidae) Common Pathfinder Skipper

Description: A very small butterfly; the upperside is orange with extensive black patterning in both sexes. The male has a broad black margin on both wings, a sub-apical rectangular black spot on the forewing, a club-shaped black streak in the cell and a larger basal band, which ends in a rectangular spot in the discal area. The hindwing has a large black cell-spot, which is connected to the black costa. On the female the black pattern is even more extensive. The underside is orange, speckled with small black spots. The forewing has a larger black area along the inner margin which is not visible in its natural resting position.

Similar species: The Savannah Pathfinder Skipper (*Pardaleodes incerta*) is very similar in size and appearance but the basal band on the male forewing upperside ends in an oval spot in the discal area. The orange on the female upperside is reduced to spotting and the basal streak and band are missing completely.

Habitat: Mainly in forest clearings and along forest edges.

Distribution: Throughout the African equatorial forest zone, but not extending to Uganda and Tanzania.

Status: Very common.

Ecology: In Nigeria it breeds throughout the year.

Occurrence in IITA: Mainly in the forest and golf course, occasionally in denser vegetation in residential areas.



Pardaleodes edipus male upperside



Pardaleodes edipus female upperside

49. *Pteroteinon laufella* (Hesperiidae) Blue Red-eye

Description: A medium-sized butterfly; the female is sometimes much larger than the male. Both sexes have very narrow and elongated forewings, with a metallic iridescence on a black ground color on the upperside; it is more greenish for the male and more bluish for the female. The underside of both sexes is metallic golden-green with a darker area on the forewing, a red head, and large red eyes. The stout body is black with a reddish-orange tip on the underside of the abdomen.

Similar species: The African Giant Skipper (*Pyrrhocalcia iphis*) is similar in appearance but is significantly larger, the wings are broader and the green underside is deeper in color. The male upperside is blackish-green, while the even larger female has a metallic green sheen on the upperside. The eyes are not red.

Habitat: Forest of various types, including degraded secondary forest.

Distribution: Widely distributed in the African equatorial forest zone.

Status: Quite common.

Ecology: In Nigeria it breeds throughout the year. Imagos are crepuscular; during the day they normally rest in the darker forest interior, sitting rather low on bushes. Both sexes are attracted to flowers, especially funnel-shaped flowers of species in the bindweed family (Convolvulaceae), in which they sometimes remain resting after their activity at dawn. Sometimes they are also attracted to artificial light.

Occurrence in IITA: Mainly in the forest, in dense undergrowth in darker areas, or on flowers at dawn.



Pteroteinon laufella male underside

50. *Pelopidas mathias* (Hesperiidae) Lesser Millet Skipper

Description: A small butterfly with a very narrow and acute forewing and dark brown upperside, as is typical for skippers in various genera, especially in *Pelopidas* and *Borbo*. Both sexes have white spotting on the forewing upperside, and the hindwing is uniformly brown. The male has a linear sex-brand in the center of the forewing. The underside is darker gray, with a row of tiny discal white spots and a single one in the cell.

Similar species: The Millet Skipper (*Pelopidas thrax*) is larger, with olive-colored scales and hairs on the upperside; the male's sex-brand is white. Many *Borbo* species are also similar in appearance but they do not have more than four white spots on the hindwing underside and none has a white spot in the cell.

Habitat: Most habitats but mainly grasslands and forest edges.

Distribution: Pan-African, widely distributed from Senegal to Madagascar.

Status: Very common.

Ecology: In Nigeria it breeds throughout the year. Imagos fly very fast. Males often perch on tall grasses from where they oversee their territories, fighting other males and attacking other flying insects. The caterpillars develop on a wide range of grasses (Poaceae).

Occurrence in IITA: Mainly in grassy forest edges, secondary grasslands, and on lawns in residential areas.



Pelopidas mathias copula underside

Glossary

alkaloid: a nitrogen-based, toxic compound in a plant which protects the plant against damage by herbivores. In some butterfly species, the larvae are unaffected and accumulate these toxins so that they are distasteful to predators.

apex: the tip of the wing.

apical: a feature or pattern at the tip of the wing.

cell: the small oval-shaped base from which the vein patterning on both wings of a butterfly fan out

costa: one of the three edges of a wing. If you imagine the butterfly's head as pointing North, then the northernmost edge is the costa, the outermost edge is the outer margin—or simply the margin, and the third edge is the inner margin.

crepuscular: active at dusk and dawn.

cilia: fine hairs along the outer margin of the wings.

disc (adjective: **discal**): the dominant, central area of the wing.

dispersive: spread over a wide area.

extra-floral nectar: a sweet liquid produced by a plant in parts other than flowers (leaves, stems, spines etc.) to attract insects—mainly ants—whose presence provides protection for the plant.

form: in certain species one of the sexes (less commonly both), appears in a number of patterns that are different from each other and yet are highly repeatable. The different patterns are known as forms.

imago: adult butterfly.

inner margin: see **costa**.

iridescence: metallic colored light reflection from the butterfly wing.

larva (plural: **larvae**): the immature form of a butterfly, commonly known as a caterpillar.

marginal: a feature or pattern near or along the outer margin of the wing (see **costa**).

mud-puddling: behavior in male butterflies which visit wet soil to take in dissolved minerals, especially sodium.

myrmecophily (adjective: **myrmecophilous**): ant-associated. Various butterflies in the Lycaenidae family live in association with ants. This behavior benefits them in certain ways, mainly as protection against predators.

outer margin: see **costa**.

palpi: a pair of short projections from the head that look like lips or a beak, but are sensory organs. Sometimes they are so distinctive that they can be used to determine the species.

pheromone: a chemical substance produced by an imago which affects the behavior of other butterflies of the same species (often to attract a mate).

polymorphic: having more than one **form**.

polyphagous: feeding from more than one kind of plant.

riverine forest: forest areas immediately adjacent to rivers in an otherwise unforested region.

sex-brand: a specialized feature used for dispersing pheromones in some males, which appears to be a marking in the wings (a streak or a patch).

sub-apical: a feature or pattern near, but not exactly at the tip of the wing.

sub-marginal: a feature or pattern near, but not exactly at the edge of the wing.

tornus (adjective **tornal**): the corner of the wing, where the inner and outer margins meet. See **costa**.

wet-season form: a **form** that is predominant during the wet season (approximately May through October in Ibadan), most likely because the patterning offers a selective advantage in wet conditions.

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Further Reading

Larsen, T.B. 2005a. Butterflies of West Africa. Apollo Books, Svendborg, Denmark. 595 pp + 135 color plates.

This is the definitive guide book for the butterflies of Nigeria, and even though it is the bible for specialists, it is also very accessible to the amateur in its style of writing. For anyone who wants to take the subject to the next stage, there is no alternative.

Boorman, J. 1970. West African butterflies and moths. Longman Group UK Ltd. 79 pp + 16 color plates.

Out of print, but occasionally available in Lagos and Ibadan bookshops and via the Internet. This slim volume has the advantage of opening up the world of moths in Nigeria as well.

