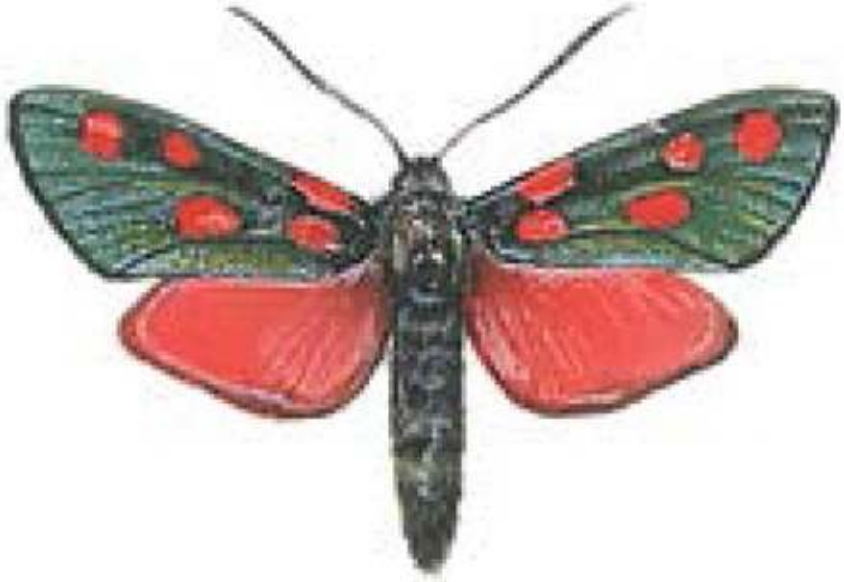
BLOOMSBURY

Concise Butterfly & Moth Guide

BLOOMSBURY

Concise Butterfly & Moth Guide



BLOOMSBURY
LONDON • NEW DELHI • NEW YORK • SYDNEY

There are 47 individual Wildlife Trusts covering the whole of the UK and the Isle of Man and Alderney. Together The Wildlife Trusts are the largest UK voluntary organization dedicated to protecting wildlife and wild places everywhere – at land and sea. They are supported by 791,000 members, 150,000 of whom belong to their junior branch, Wildlife Watch. Every year The Wildlife Trusts work with thousands of schools, and their nature reserves and visitor centres receive millions of visitors.

The Wildlife Trusts work in partnership with hundreds of landowners and businesses across the UK in towns, cities and the wider countryside. Building on their existing network of 2,250 nature reserves, The Wildlife Trusts' recovery plan for the UK's wildlife and fragmented habitats, known as A Living Landscape, is being achieved through restoring, recreating and reconnecting large areas of wildlife habitat. As well as protecting wildlife this is helping to safeguard the ecosystems that we depend on for services like clean air and water.

The Wildlife Trusts are also working to protect the UK's marine environment. They are involved with many marine conservation projects around the UK, often surveying and collecting vital data on the state of our seas. Every year they run National Marine Week in August – a two-week celebration of our seas with hundreds of events taking place around the UK.

All 47 Wildlife Trusts are members of the Royal Society of Wildlife Trusts (Registered charity number 207238). To find your local Wildlife Trust visit wildlifetrusts.org

Contents

Cinnabar Moth
Processionary Moths
Noctuid Moths

Introduction

Butterflies are the most obvious of insects and probably the most popular. They are seen during th day, mostly in the warmer months from spring through summer to autumn. Many moths are nocturna and are often seen when they enter the house or come to a lighted window. There are, however, som day-flying species that are so colourful people think they are butterflies.

Main Characteristics of Butterflies & Moths

Butterflies and moths belong to a huge order of insects, known as the Lepidoptera, which has ov 165,000 species worldwide, with 2,300 in the British Isles. Moths are much more numerous tha butterflies, and of the British species of Lepidoptera only about 70 are butterflies. Butterflies an moths are distinguished from other insects by being densely covered with tiny powdery scal ('Lepidoptera' is derived from the Greek 'scaly wings'). Sizes vary from species that are so tiny that magnifying glass is needed to see them, to some tropical species that are the size of small birds.

Body Structure

Butterflies and moths have bodies that are in three parts:

• The head carries the eyes, antennae and mouthparts.
• The thorax has three segments. The first segment carries the front legs, the second the forewings an the middle pair of legs, and the third the hindwings and the third pair of legs.
• The third segment of the body is the abdomen, which has no legs, but does have sexual and digestiv functions.

The Senses

Vision is through two large compound eyes and a pair of ***ocelli***, or simple eyes. The ***antennae*** a found between the eyes. They are complex sense organs that can pick up chemical and tacti messages. Butterflies have antennae that are more uniform than those of moths, which are very varie

Feeding

The vast majority of butterflies and moths feed on nectar and other liquids. They lack jaws, whi have evolved into tongues. The tongue or ***proboscis*** is long and slender enough to probe flower When not in use it is coiled up and cannot be seen. The larvae or caterpillars feed on plants, thoug some members of the Lycaenidae also feed on ant grubs.

The Role of Colour in the Wings

The wings of butterflies and moths may be very strikingly coloured and patterned, or quite dull wh they serve a protective role. The bright metallic colours, particularly purples and blues, are due to th structure of the ***scales***, and if they are damaged the colours fade.

The bright colours must play a role in communication between individuals. Males also hav specialized ***scent glands*** in the wings. The pheromones that they produce help to attract females over distance, and also help to differentiate between the sexes of species in which males and females loo alike.

The wings of some species may have roughly circular markings that look like eyes. It is thoug that these distract predatory birds from the body of the insect. It may survive if a bird pecks a chun

from the wing, whereas a peck to the body will almost inevitably be fatal.

A protective mechanism employed by moths is ***flash colouring***, where the forewings are we camouflaged, but the underwing is brightly coloured. When the moth is disturbed the bright yellow the large yellow underwing will confuse a bird, because the moment the moth comes to rest the yello disappears.

The upperside of a butterfly's wings may be brightly coloured, but the underside, which is the are visible when the insect is at rest, may be extremely well camouflaged, so that the resting animal loo like a dead leaf.

Temperature Control

Wings help to warm butterflies to the temperature that they need to fly. Their bodies need to reac about 30ºC before they can take off. The dark-coloured areas of the wings absorb the most heat, eve on cool days when there is some sunshine. To achieve this temperature butterflies sunbathe with the wings open. Nocturnal moths reach the required body temperature by shivering their wings.

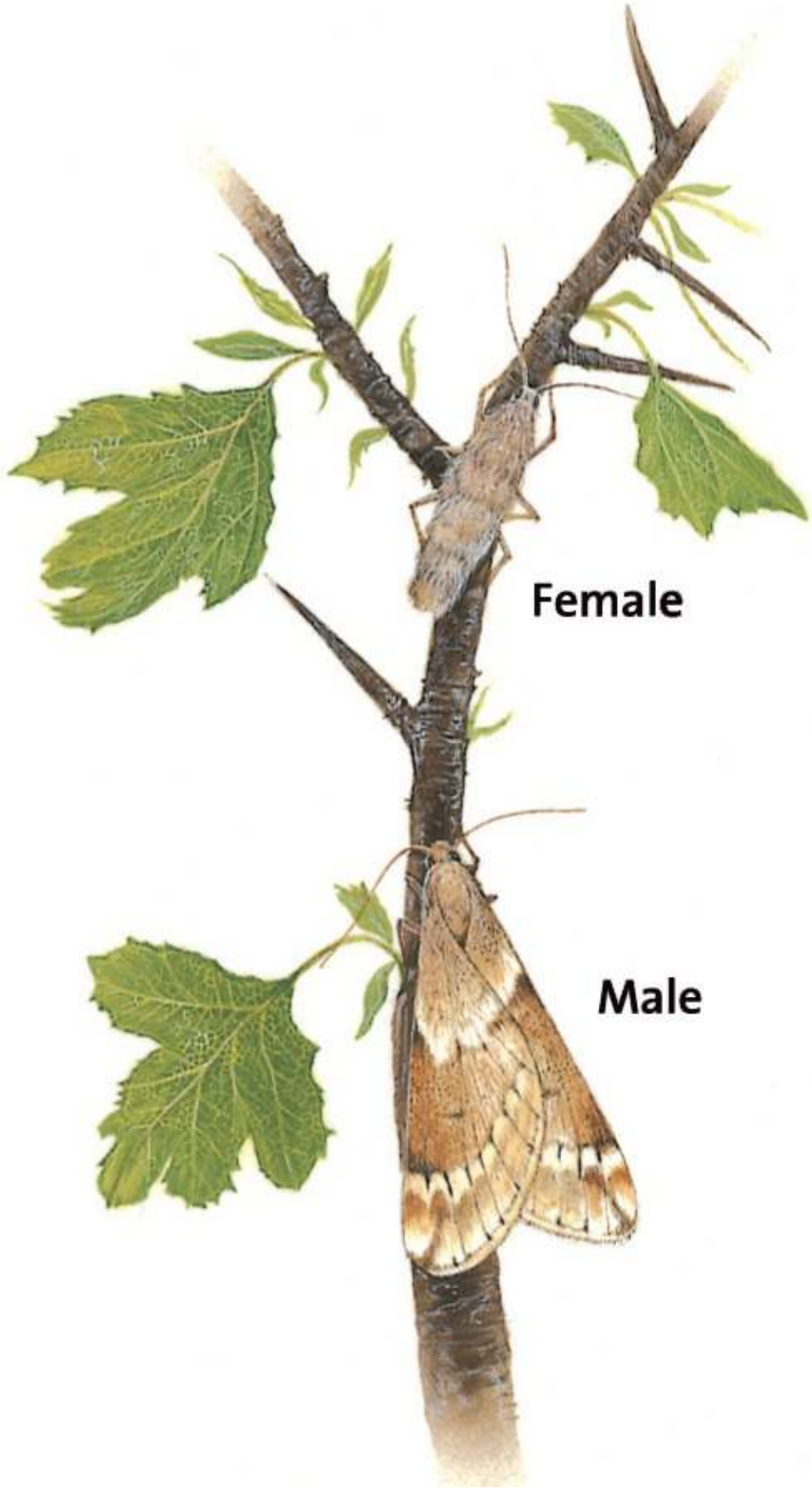
The Life Cycle

The life cycle of all insects includes a number of stages. These vary between species in terms of th timing, but each cycle is timed to provide the maximum opportunity for the larvae to feed. A butterflies and moths pass through four very different stages, during which they metamorpho completely.

• The first stage is an ***egg***. The female lays an egg, in most cases on the plant on which the caterpill will feed. The eggs are tiny and usually overlooked by the human eye.
• From the eggs hatch the ***larvae*** or ***caterpillars***. These look nothing like the adult insect. They a worm-like with biting jaws, and in addition to the three pairs of legs on the thorax have stumpy leg on the abdomen. Caterpillars moult four or five times during their life. Before the final moult th caterpillar, which has become large and fat, seeks a place of safety, often burrowing beneath the soi or protected within a silken cocoon that the larva spins, or hanging from its food plant. Th caterpillars of some species – the hawkmoths for example – are large and spectacular.
• The final moult is the metamorphosis between caterpillar and ***chrysalis*** or ***pupa***. The pupa has harder outer skin than the larva and barely moves at all. However, inside, its tissues liquefy and develops into the adult insect. The time for this to happen varies. In some species in warm weather may be as short as a week, while in many it may take two to three weeks and in some several month because it is in this stage that the species spends the winter. The longevity of butterflies and moth varies between species and broods. Many species produce one brood a year, but others may produc more. The first butterfly to appear in early spring in Britain is the Brimstone, which hibernates as a adult. Males emerge first and patrol their territories. The greenish-white females appear a couple weeks later.

Wingless Moths

The females of some moth species, such as the March Moth (*Alsophila aescularia*), do not have wing and are flightless. They can be seen crawling up tree trunks, on which they lay their eggs, at night in March–April; males can also be found on the wing at this time. March Moths are quite common in Britain, and their larvae feed on a range of deciduous trees, including oaks, hawthorns and fruit trees



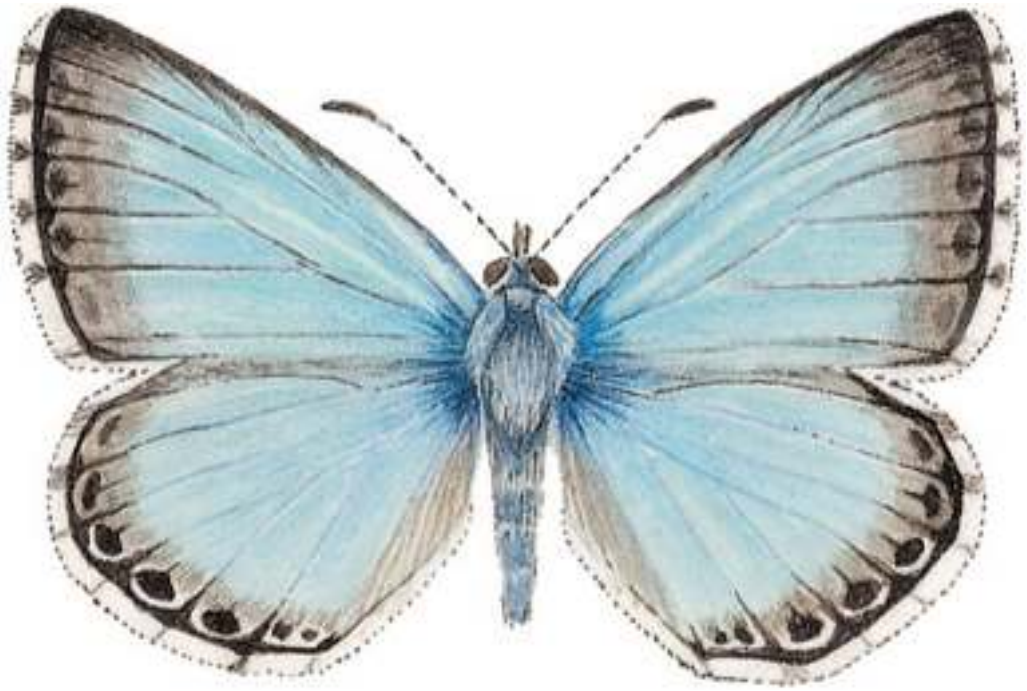
Eggs are laid in May and June, the larvae are seen in June and July, and the adults emerge in Augus
Sometimes among double-brooded species, some of the second brood will reach adulthood befo

winter and hibernate, while others will spend the winter as larvae or pupae.

Moths and butterflies are both seen seasonally. A common garden butterfly is the Peacoc especially if there is a bed of nettles on which the caterpillars might feed. The first Peacocks are se as the weather warms in March and they emerge from hibernation to breed. After May they seem disappear – this is because the adults have bred and the new generation is developing from eggs larvae to pupae, emerging as butterflies from July to September. On sunny autumn days they can b seen feeding on the nectar or juices of rotting windfall fruits, before hibernating throughout th winter. You might come across one in a corner of a garden shed or even in your home (if you do, d not disturb it or put it outside in freezing weather).

BUTTERFLIES

Butterflies can be distinguished from moths mainly by the different shape of their antennae, which a usually thin and slender, and club shaped at the ends. At rest butterflies tend to hold their wing vertically above the body, so that the underside is visible, while moths usually rest with their wing spread out or folded over the body, with the upperside visible.



Hesperiidae/Skippers

Regarded as the most primitive of butterflies, the skippers share the characteristics of both butterfli and moths. They are small and lively, with broad hairy bodies. Their eyes are widely separated ar there is a bristle at the base of each antenna that is not found in other butterflies. The orange-chestn skippers (subfamily Hesperiinae) sit in a characteristic pose with the forewings and hindwings held different angles. Skipper larvae live in a shelter made from silk among their foodplants.

Papilionidae/Swallowtails

This family of spectacular insects contains the largest butterflies in the world, including the apollo festoons, swallowtails and birdwings of Australasia and the Far East. In Britain the family represented by just one species, the Swallowtail, although the Scarce Swallowtail may occasional visit British shores. Swallowtail larvae are brightly coloured and have a forked organ – called th osmeterium – behind the head that emits a pungent smell if the larva is disturbed.

Pieridae/Whites & Yellows

Butterflies in this family have predominantly white or yellow wings with black markings. The include the garden whites, brimstones, orange tips and clouded yellows, and their colours usual derive from the pigments in their larval foodplants. Their larvae are long, slender and blunt at eith end, and often have a decorated lateral line.

Lycaenidae/Hairstreaks, Coppers & Blues

About a third of the world's butterflies belong to this family. All species are relatively small an active. They have small slug-like caterpillars, and many have an intimate relationship with ant whereby the ants attend the larvae, cleaning them, in return obtaining a sugary secretion from ther The ***hairstreaks*** have zigzag markings on the underside, and usually short tails. The ***coppers*** a characterized by their fiery copper colour, although a few are mostly dark brown and some a suffused with purple. Both sexes in the ***blues*** may be brown; in some the female only is brown.

Riodinidae/Metalmarks

This family is regarded as a subfamily of the Lycaenidae by some authorities. It contains som magnificent and diverse butterflies, the most spectacular of which occur in Central America. Th single European species – the Duke of Burgundy – is one of the least striking members of the family.

Nymphalidae/Emperors, Vanessids & Fritillaries

This large family contains some of the biggest and gaudiest butterflies in the world, in Europ including the Peacock, Red Admiral and Purple Emperor, as well as the somewhat less spectacula fritillaries. A characteristic of adults of these butterflies is that the first pair of legs is vestigial, an only the remaining two pairs of legs are functional.

Danaidae

This family is considered by some to be a subfamily of the Nymphalidae. Only one member, th spectacular North American Monarch, occurs as a migrant in Britain. It dwarfs every other specie found in Britain, and is one of the world's great migratory butterflies. Poisons from milkweeds, th foodplants of the striking black, yellow and white larva, protect it from predators.

Satyridae/Browns

The majority of butterflies in this family, which contains nearly a third of European butterflies, ar brown or yellowish-orange; the exception is the Marbled White, which is more like members of th Pieridae. Butterflies in this group include browns, graylings, ringlets, woods and walls. They a medium or small in size, with small eyespots at the outer margins of the wings. The larvae typical taper towards the tail, and are often striped from head to tail, with colouration that matches the grass on which they feed.

MOTHS

Moths tend to have hairier and stouter bodies than butterflies, and larger scales on the wings, whic makes them look more fluffy and dense. Most are nocturnal or diurnal, although there are exceptio to this generalization. Nocturnal moths are usually dull coloured with obscuring patterns that help camouflage them when they are at rest during the day.

Micropterigidae

This family of very small moths is believed to be the most primitive of the Lepidoptera. The adul usually fly during the day, and have functional mandibles (rare in the Lepidoptera), which they used feed on pollen.

Tortricidae/Leaf Rollers

Commonly known as tortrix moths, members of this family typically rest with the wings folded bac producing a somewhat rounded profile. There are more than 6,300 species worldwide.

Pyralidae/Pyralid Moths

Moths in this family generally rest with their wings in a triangular shape and put the first pair of lon legs in front, the two antennae at the top and pointed backwards. They are small in size and hav relatively long legs that extend beyond the hindwings when resting. There are more than 25,00 species of Pyralidae worldwide.

Pterophoridae/Plume Moths

The plume moths have unusually modified wings. The forewings usually consist of two curved spa with bedraggled bristles trailing behind, while the hindwings have three spars. At rest the wings ar extended laterally and narrowly rolled up, and the moths may resemble a piece of dried gras enabling them to avoid predators.

Hepialidae/Swift Moths

This family of more than 500 species worldwide is considered to be very primitive, with structur differences to other moths including very short antennae and the lack of a functional proboscis. The forewings and hindwings are similar in size, and are folded along the body when at rest.

Cossidae/Leopard & Goat Moths

These are generally large and sturdy moths that fold their wings along the body when at rest. The tend to be grey in colour, and may mimic twigs, bark or leaves. Most larvae are tree borers, and some species they take up to three years to mature. There are about 700 species worldwide.

Zygaenidae/Forester & Burnet Moths

The majority of the 1,000 or so species of Zygaenidae are tropical, but the family is also reasonab well represented in temperate regions. The Zygaenidae are typically day flying, with a slow ar fluttering flight. They often have prominent red or yellow spots, the bright colours acting as a warnir to predators that they are distasteful, containing hydrogen cyanide in all stages of their life cycle. Th is manufactured by the moths themselves, rather than being obtained from a foodplant as is common the case among many Lepidoptera.

Sesiidae/Clearwing Moths

In these moths the wings have hardly any of the scales usually present in moths and butterflie leaving them transparent. Their bodies are often striped with yellow, and they resemble wasps hornets, probably as a defence against predation. There are 1,370 species, most of them in the tropics

Lasiocampidae/Eggar Moths

Members of this family are large bodied with broad wings. They are either diurnal or nocturna Females are generally larger and slower than males, but the sexes are similar in other ways. Egg moths are typically brown or grey, and have hairy legs and bodies. There are more than 2,000 speci worldwide.

Saturniidae/Emperor Moths

This family includes large moths such as giant silkmoths, emperor moths and royal moths. It h members in the tropics with wingspans of up to 30cm, making them the largest insects on Earth toda All saturniids have large and heavy bodies with hair-like scales, lobed wings, small heads and reduc mouthparts. They are sometimes brightly coloured and may have transluscent eyespots on their wing Males generally have broader antennae than females. There are up to 1,300 species worldwide, on one of which, the Emperor Moth, occurs in Britain.

Endromidae

The Kentish Glory is the only representative of this family. It is an attractive day-flying species th lives in birch forests throughout Europe and is scarce in Britain.

Thyatiridae/Lutestring Moths

This family comprises some 200 species, with 10 occurring on the Continent and 9 in Britain. It named for the fine lines that cross the wings of some species. The wings of these moths are held ter wise, close to the body, when at rest. The thorax often has prominent tufts.

Geometridae/Geometer Moths

This is a very large moth family of at least 20,000 species, more than 300 of which appear in Brita alone. Many have slender abdomens and broad wings, which are usually held flat with the hindwing visible. The majority fly at night, and the antennae of the male are often feathered. The moths are we camouflaged, with wavy wing patterns, and tend to blend in with the background. Their family nam derives from geometer (‘earth-measurer’), referring to the method of locomotion of the larvae. larva will clasp its point of attachment with its front legs and draw up its hind end, employing ‘looping’ gait, creating the impression that it is measuring its journey.

Sphingidae/Hawkmoths

Comprising about 1,050 species, the hawkmoth family is best represented in the tropics. The moth
are moderate to large, and can employ rapid and sustained flight. Some, like the Hummingbi
Hawkmoth, hover in midair while feeding on flower nectar and may be mistaken for hummingbird
Most species are crepuscular or nocturnal, but some fly during the day. At rest the wings are generall
laid flat over the body and swept back into an arrowhead shape. Hawkmoths are relatively long-live
living for up to 30 days. The larvae of most species have a 'horn' at the rear end.

Notodontidae/Prominent & Kitten Moths

Species in this family are usually heavy bodied and long winged, and their wings are held folde
across the back when at rest. They are generally grey or brown, and many species have a tuft of hair
the trailing edge of the forewing, which protrudes upwards when at rest, hence their common name
'prominents'. The common names of some species, such as 'Puss Moth', refer to their hairiness. Th
family comprises more than 2,500 species, 27 of which have been recorded in Britain.

Lymantriidae/Tussock Moths

Moths in this family of about 2,700 species worldwide are usually muted brown and grey in colou
with some species being white, and tend to be very hairy. Their wings are generally held tent-wis
when at rest, with the legs prominently displayed. Some females are flightless, and some have reduce
wings. The larvae are hairy and frequently have tufts of hair that breaks off easily, forming a means
defence throughout their life cycle.

Arctiidae/Footman Moths, Tiger Moths, Ermines & Allies

This family comprises about 11,000 species worldwide, with 32 having been recorded in Britain.
includes brightly coloured tiger moths, as well as rather duller footmen, and lichen and wasp moth
Many species have hairy caterpillars, or 'woolly bears'. Many also retain distasteful or tox
chemicals that the larvae or adults acquire from foodplants, and advertise their defences with brig
colouration, scents or ultrasonic vibrations. Tiger moths hold their wings tent-wise when they are
rest, but most footmen lay them flat, with a considerable amount of overlap.

Thaumetopoeidae/Processionary Moths

The larvae of this small family of moths move in columns when searching for food, resembling
procession, hence the common name of the family. The adults are stout and furry, have feathere
antennae and hold their wings close to their body at rest. Only two of about a hundred speci
worldwide have been recorded in Britain. These are the Pine Processionary and the oak Processionar
the larvae of both of which may cause skin irritation in humans and can cause extensive defoliation
trees. Neither species is currently resident on mainland Britain, except as individuals, but they a
expanding their range northwards, probably due to global warming. The oak Processionary is reside
on Jersey, where it was first recorded in 1984. Populations in southern Europe are controlled b
natural predators that do not exist in northern Europe.

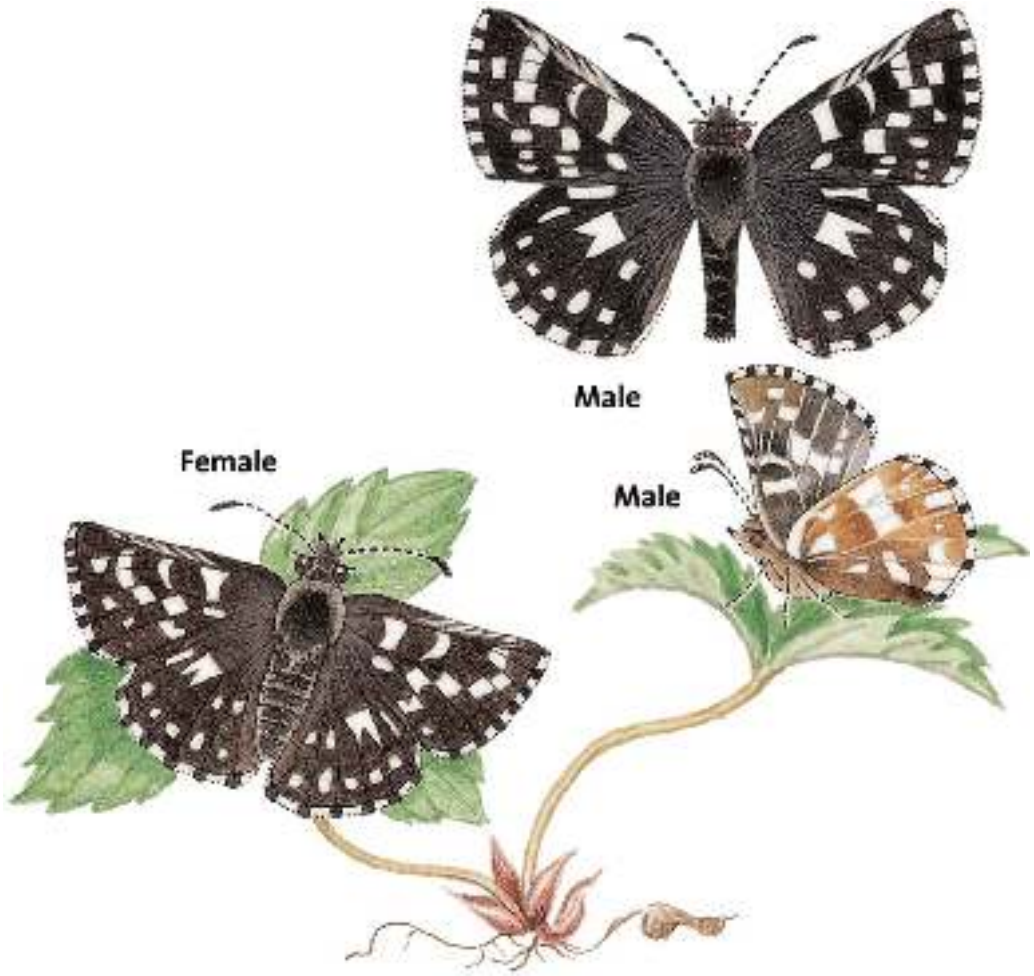
Noctuidae/Noctuid Moths

This is the largest of the moth families, with just over 400 species on the British list and about 21,00
species worldwide. Most British noctuids are medium-sized brown moths with a stout build an
forewings considerably longer than they are deep, and most fly mainly at night. When at rest, th
majority of noctuids hold their wings tent-wise over their body, with the trailing edges of th
forewings brought together or slightly overlapping.

The 152 species in this book include all butterfly species and many of the most common moth currently found in Britain (including rarities like the Scarce Swallowtail and Monarch), and give a at-a-glance introduction to the butterflies and moths you are likely to see in the field. Measuremen provided indicate the average size of a forewing; ranges are given for species that are particular variable in size.

Grizzled Skipper

Pyrgus malvae



SIZE AND DESCRIPTION

Forewing 12mm. Smaller than most skippers and with more white markings on a brown backgroun Sexes are similar, although male has more angular wings than female. Larva is green suffused wi pale brown on the back, which is striped with darker olive-brown.

HABITAT AND DISTRIBUTION

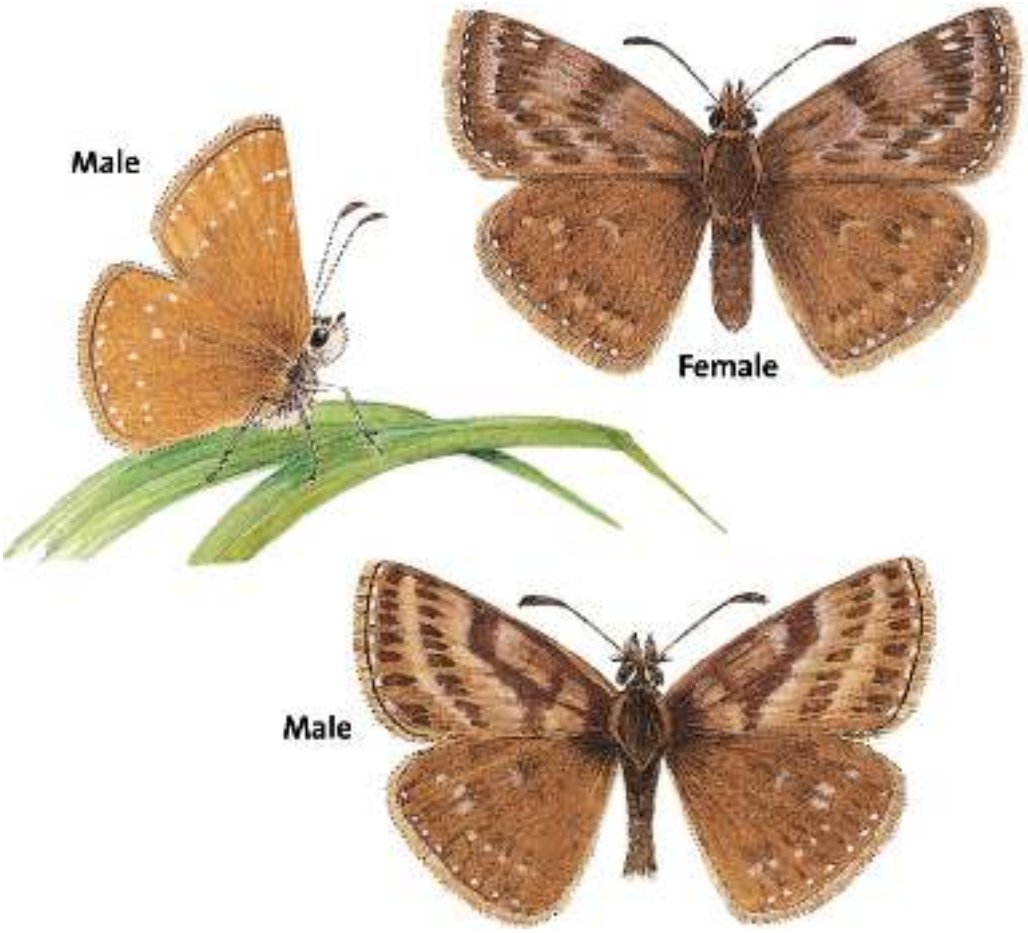
Open country, on grassy banks and at edges of woodland, from the lowlands to 1,800m. Europe exce northern Britain and northern Scandinavia.

FOOD AND HABITS

Flies April–August, in 1–2 broods. Larvae feed on Rock-rose, Wild Strawberry, Bramble an cinquefoils.

Dingy Skipper

Erynnis tages



SIZE AND DESCRIPTION

Forewing 14mm. Upperside is brown with tiny white spots near the margin of the forewing ar hindwing. Underside is paler. Female is similar to male. Larva is green with a dark green line down i back, and a black head.

HABITAT AND DISTRIBUTION

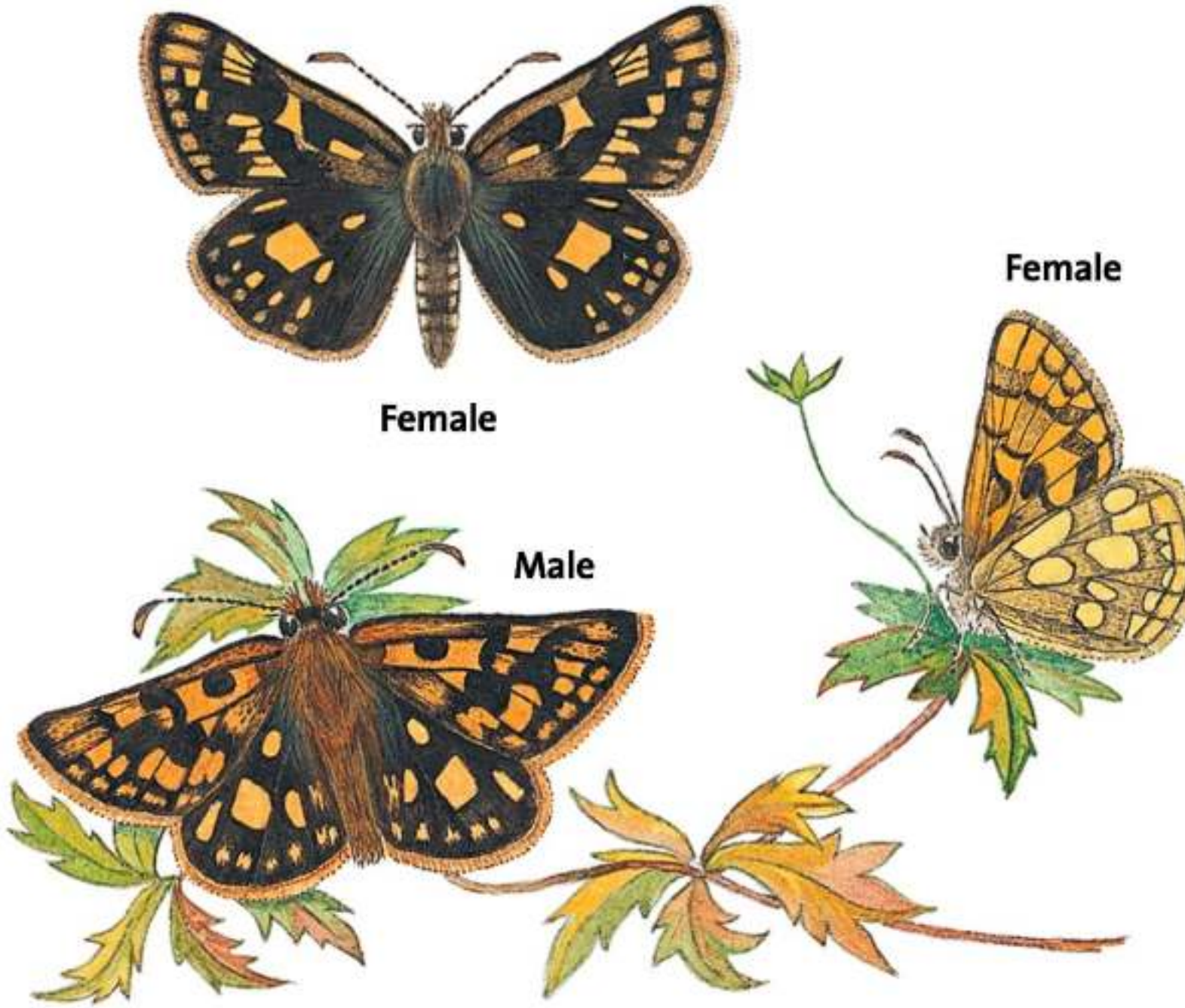
Usually banks of wild flowers on lime soils at up to 1,800m. Southern and central Europe, includir England, Wales and southern Scandinavia.

FOOD AND HABITS

Flies May–June, in 1–2 broods. Larvae feed on Bird’s-foot Trefoil, Scorpion Vetch and other vetches

Chequered Skipper

Caterocephalus palaemon



SIZE AND DESCRIPTION

Forewing 14mm. Upperside is dark brown with yellow patches. Underside is brownish with yello scales and pale yellow spots on the hindwing. Female has more rounded wings and larger, more ope markings than male. Larva is green with dark green and white lines, and a large green head.

HABITAT AND DISTRIBUTION

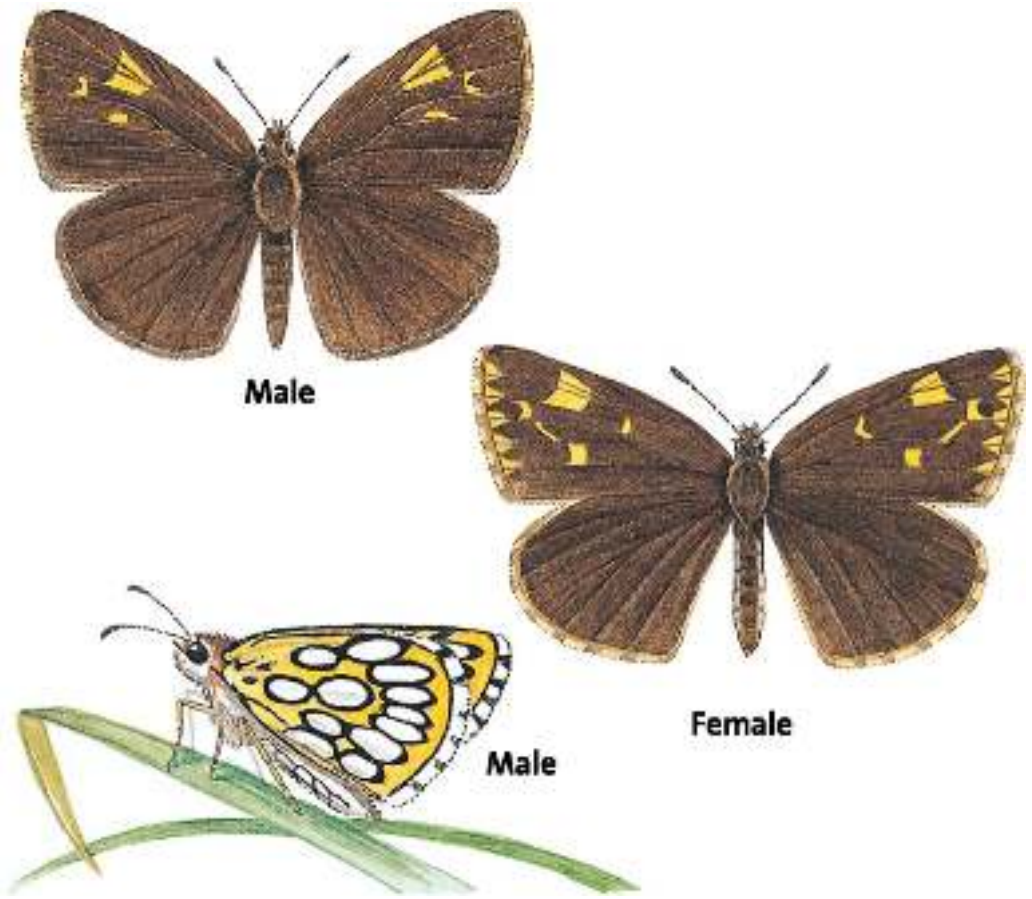
Light woodland, rides and clearings from sea level to more than 1,000m in Alps. Most of Franc western Scotland, central Europe and northern Scandinavia.

FOOD AND HABITS

Flies May–June. Larvae feed on grasses.

Large Chequered Skipper

Heteropterus morpheus



SIZE AND DESCRIPTION

Forewing 12mm. Dark brown with yellow markings. Sexes are similar, but female has mo pronounced markings on the forewing than male, and chequered fringes. Larva is pale green.

HABITAT AND DISTRIBUTION

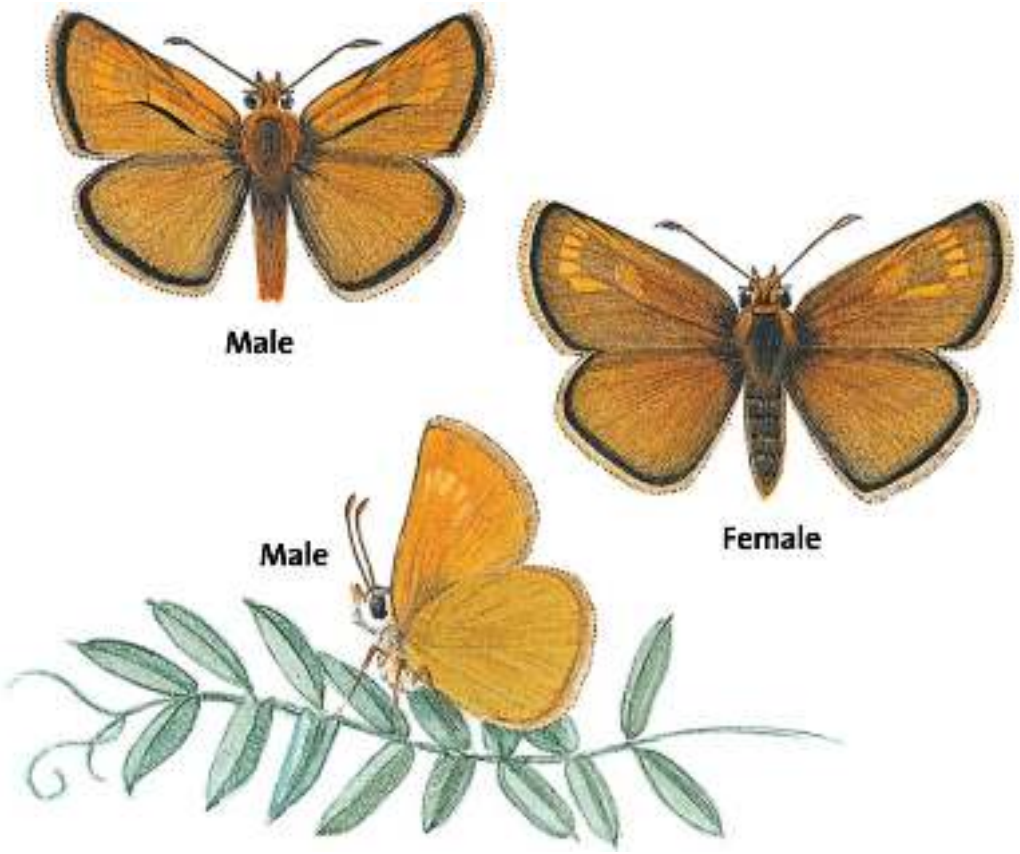
Damp grasslands and woodland clearings. Mainly eastern Europe, but also northern Spain and weste France. In Britain, believed to have been accidentally introduced to Jersey during the Second Wor War, but not seen on the island since 1996.

FOOD AND HABITS

Flies June–July. Larvae feed on grasses and reeds.

Lulworth Skipper

Thymelicus action



SIZE AND DESCRIPTION

Forewing 12mm. Sexes are dissimilar and variable. Female is larger than male, with a ring of pa orange spots on the forewing. Male has a prominent black streak on forewing. Underside is du orange in both sexes. Larva is green with a pale-bordered dark green line at the centre of the back, an pale greenish-yellow lines on either side.

HABITAT AND DISTRIBUTION

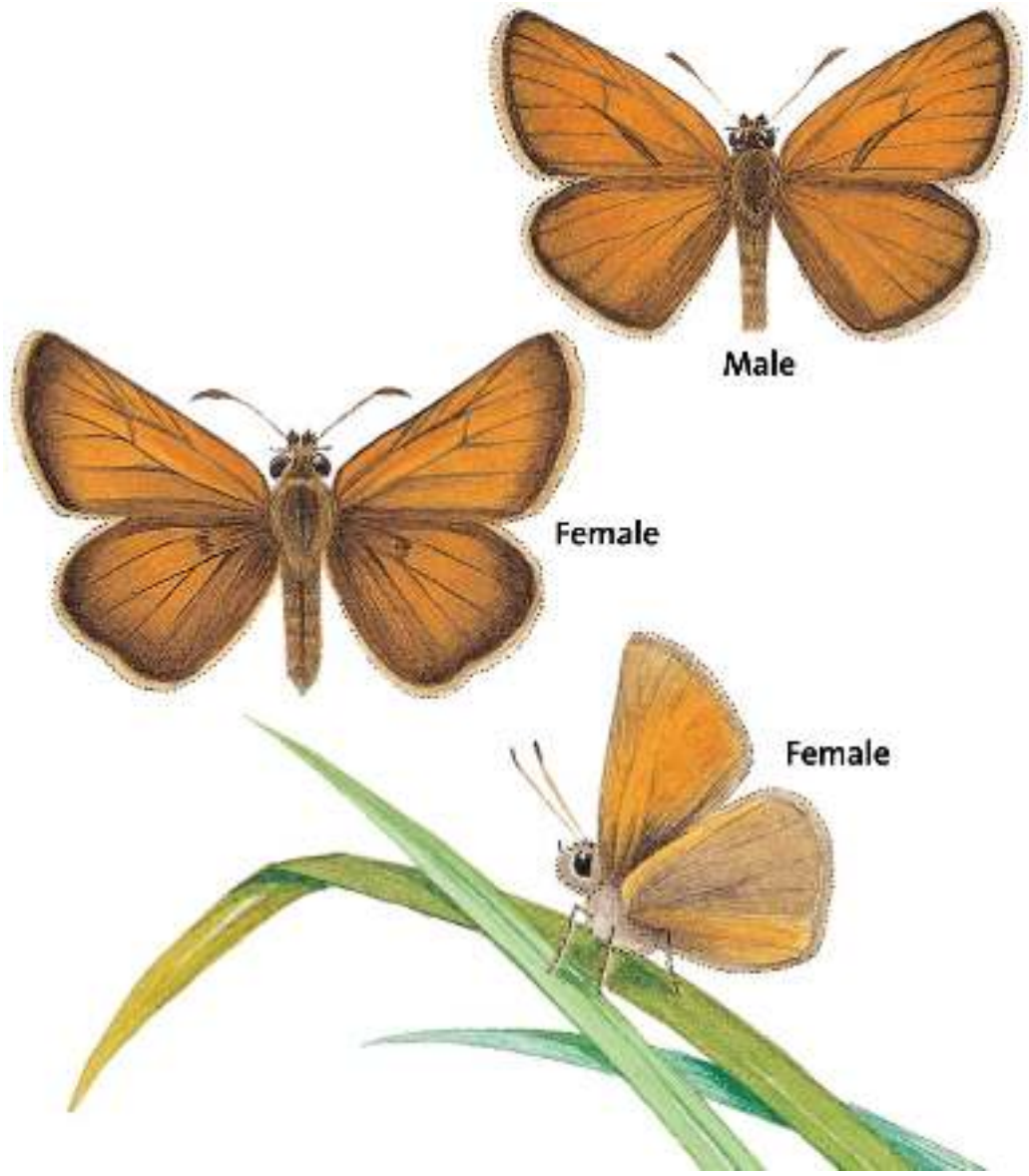
Slopes of long grass, cliff tops and mountainsides. Most of Europe apart from north-east an Scandinavia; in Britain mainly along Dorset coast.

FOOD AND HABITS

Flies May–July. Larvae feed on grasses.

Small Skipper

Thymelicus flavus



SIZE AND DESCRIPTION

Forewing 14mm. Bright orange wings. Body is stout and rather moth-like. Tends to hold its wings fl when at rest. Has a swift darting flight.

HABITAT AND DISTRIBUTION

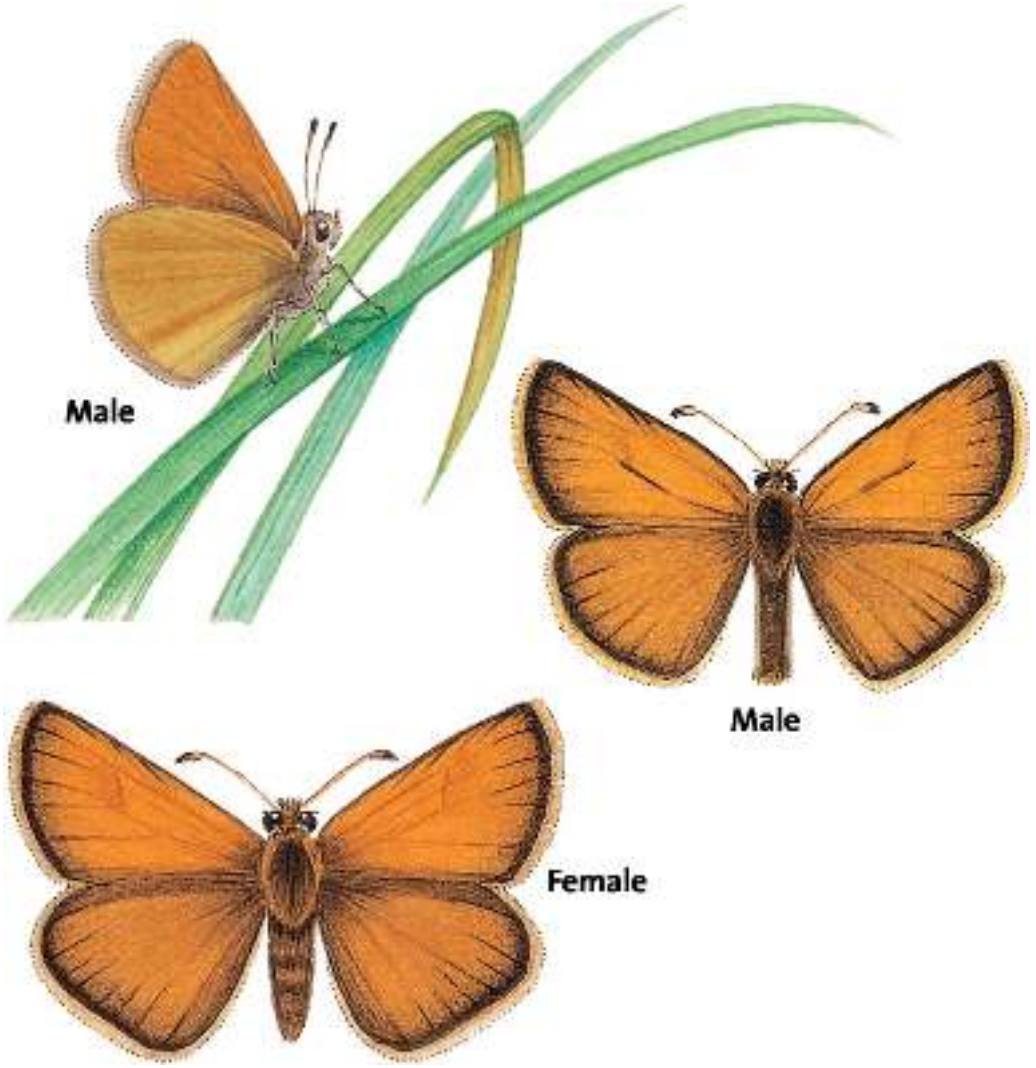
Grassy places. England, Wales and mainland Europe south from Denmark.

FOOD AND HABITS

Flies May–August. Small green larvae feed briefly on grasses, but go into hibernation shortly aft hatching.

Essex Skipper

Thymelicus lineola



SIZE AND DESCRIPTION

Forewing 12mm. Very similar to Small Skipper (***T. flavus***), except for the black spots on th undersides of the antennae, and generally smaller. Male can be distinguished from female by the se brand on his forewings.

HABITAT AND DISTRIBUTION

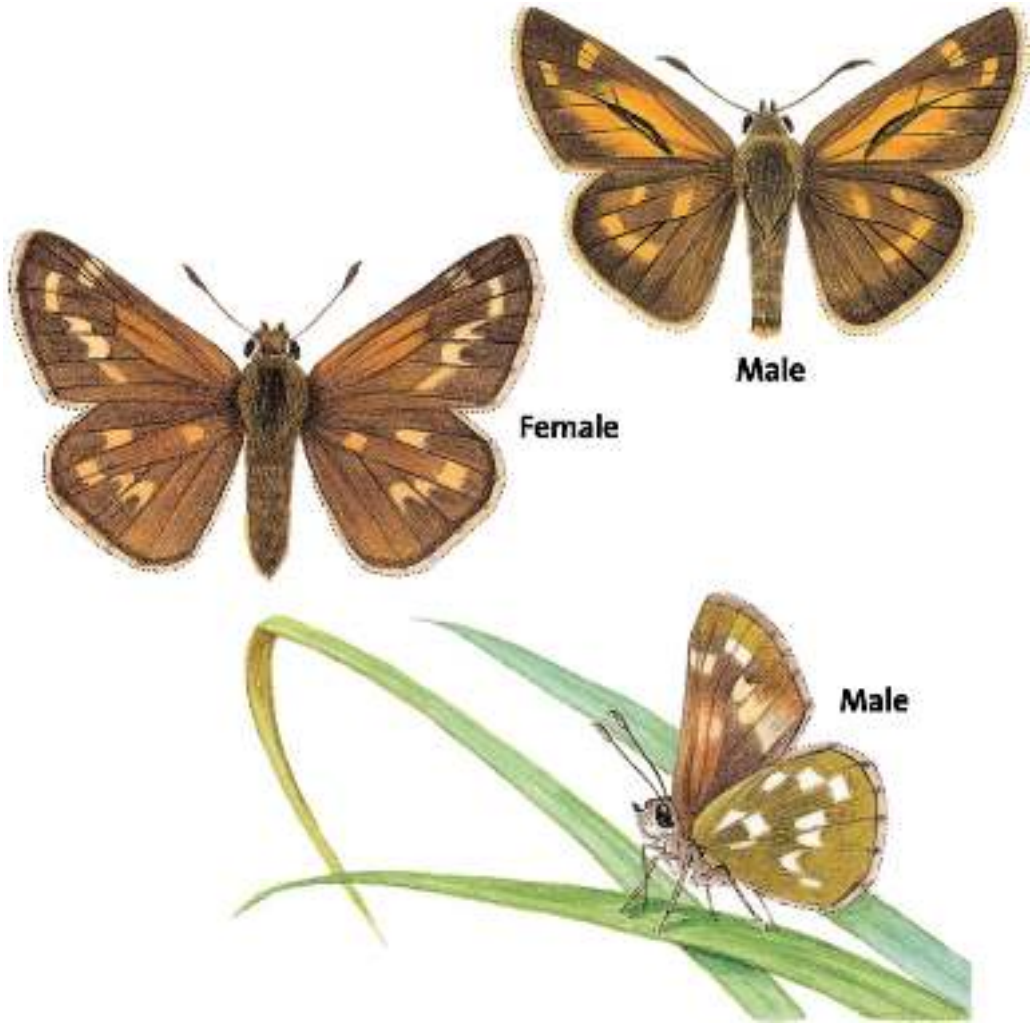
Grassy places. Throughout Europe except northern Britain and northern Scandinavia.

FOOD AND HABITS

Flies May–August. Larvae feed on grasses.

Silver-spotted Skipper

Hesperia comma



SIZE AND DESCRIPTION

Forewing 15mm. Similar to Large Skipper (***Ochlodes venatus***), but the underside is spotted with whi on a green background, the upperside is darker and less orange, and the pale yellow spotting is mo prominent. Larva is dull olive-green with a black collar behind the head, which is large, and bla marked with brown.

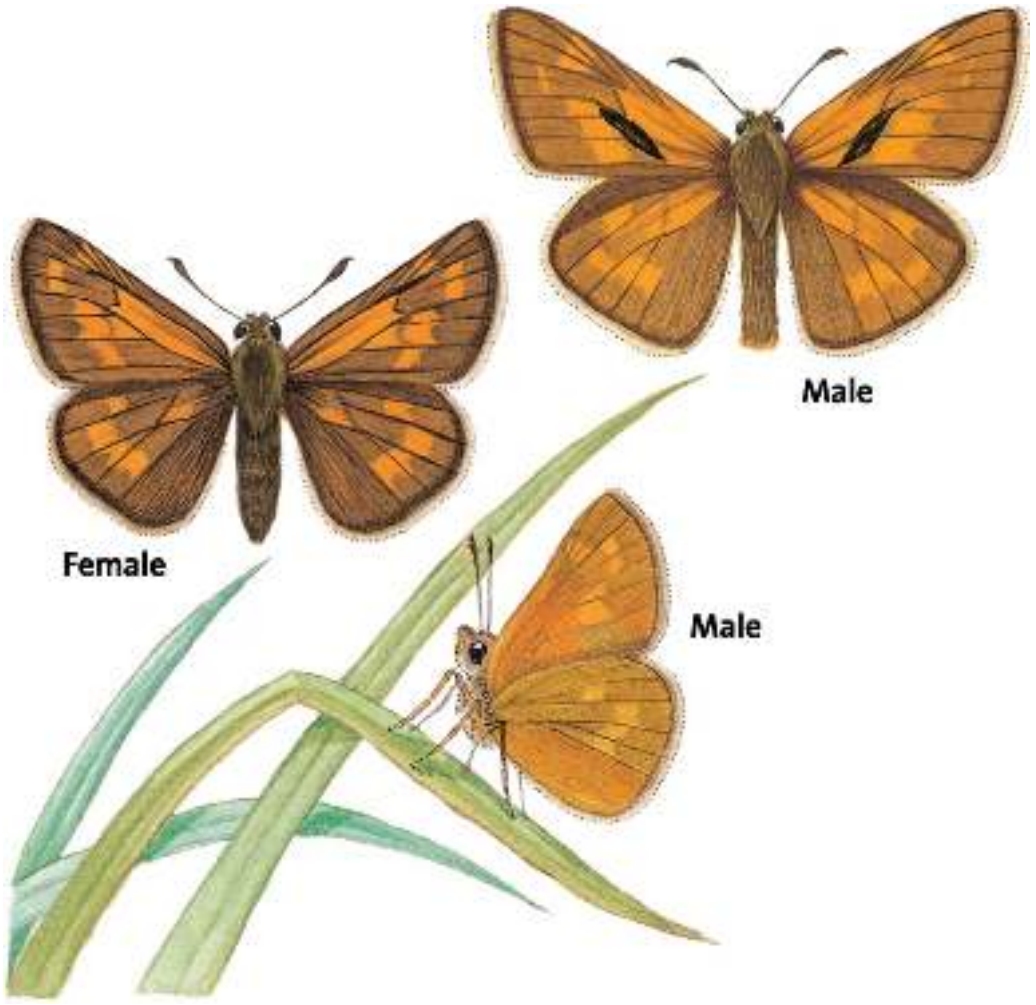
HABITAT AND DISTRIBUTION

Grassy banks, meadows and cliffs. All of Europe apart from northern Britain and northe Scandinavia.

FOOD AND HABITS

Flies July–August. Larvae feed on grasses.

Large Skipper
Ochlodes venatus



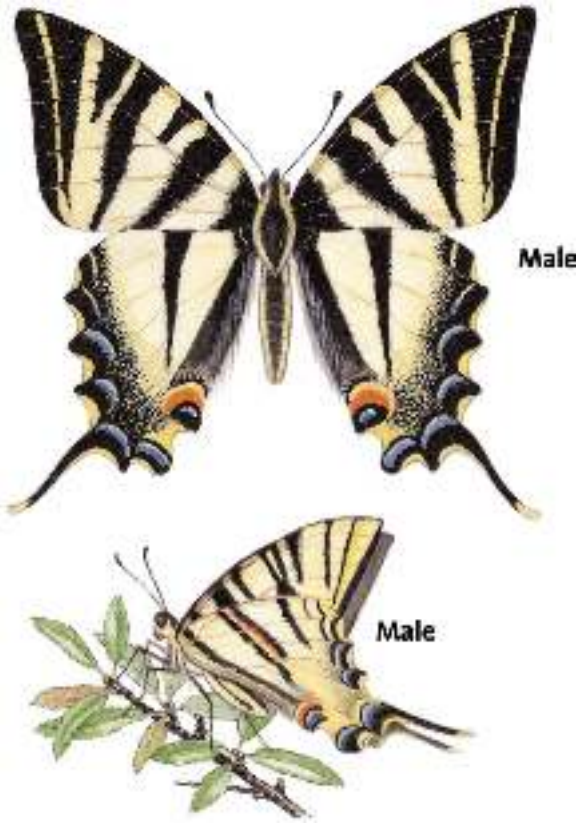
SIZE AND DESCRIPTION
Forewing 16mm. Upperside is orange-brown with dark veins and dark margins. Underside is pal
with similar markings. Larva is blue-green with a dark line along its back and a yellow line down t
sides.

HABITAT AND DISTRIBUTION
Meadows, grassy banks and woodland edges, at up to 1,800m. Throughout Europe including Brita
(absent in Ireland), to southern Scandinavia.

FOOD AND HABITS
Flies June–August. Only one brood in Britain and other northern areas, 1–3 elsewhere. Larvae feed
grasses such as Cock’s-Foot. Overwinters as a larva.

Scarce Swallowtail

Iphiclides podalirius



SIZE AND DESCRIPTION

Forewing 40mm in male. Female is a little larger. Sexes are similar – very pale creamy yellow wi black markings, and six stripes on the upper forewing. Larva looks like a green slug with faint yello stripes.

HABITAT AND DISTRIBUTION

Often in fruit orchards at up to 1,800m. Southern and eastern Europe. Vagrants occur in Britain ver rarely.

FOOD AND HABITS

Flies March–September. Two broods a year. Larvae feed on Blackthorn and fruit trees.