

Swallowtails of the World



Papilio natewa

SWALLOWTAIL
AND BIRDWING
Butterfly Trust

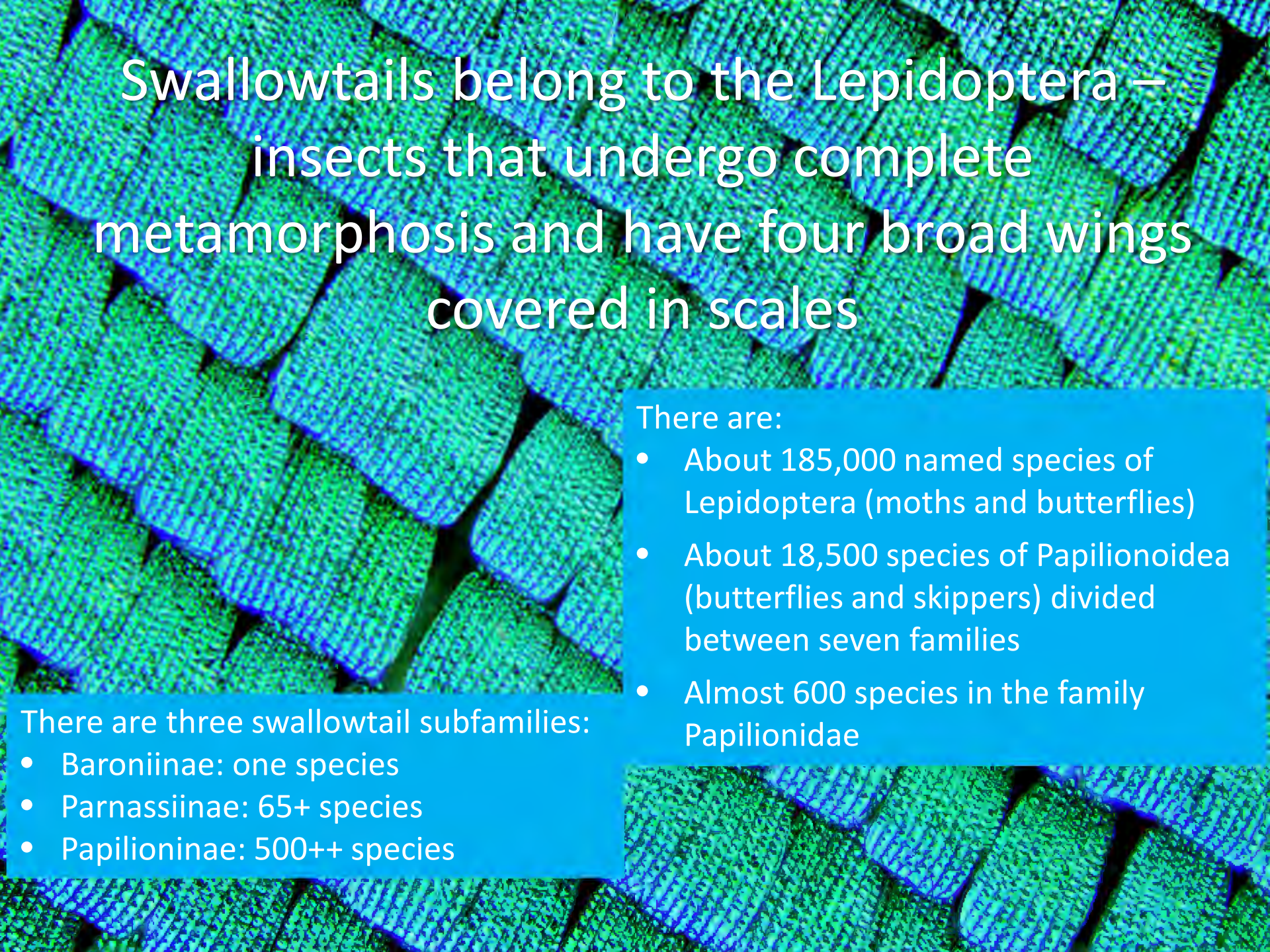


A pictorial review of the Papilionidae
by Richard I Vane-Wright & N. Mark Collins

Swallowtails are insects – invertebrate animals
with three pairs of jointed legs



Papilio (Princeps) demoleus



Swallowtails belong to the Lepidoptera –
insects that undergo complete
metamorphosis and have four broad wings
covered in scales

There are:

- About 185,000 named species of Lepidoptera (moths and butterflies)
- About 18,500 species of Papilionoidea (butterflies and skippers) divided between seven families
- Almost 600 species in the family Papilionidae

There are three swallowtail subfamilies:

- Baroniinae: one species
- Parnassiinae: 65+ species
- Papilioninae: 500++ species

Some characteristics of swallowtails

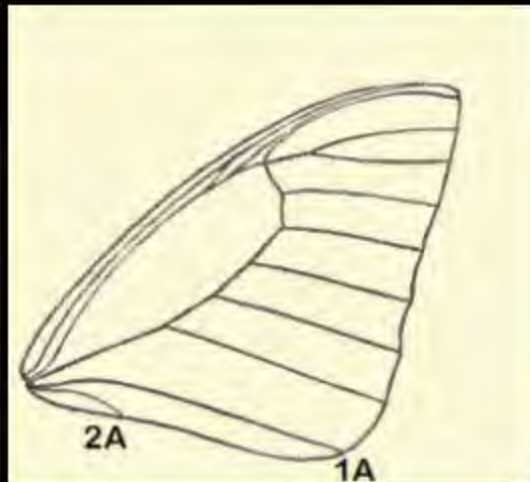


The osmeterium is the swallowtail caterpillar's defensive scent-gland – a unique structure found in all species for which the larvae are known



The chrysalis is attached by a silk base-pad – the cremaster, and a silk girdle (except *Parnassius*)

Wing venation:
Forewing vein 2A is separate



The subfamily Baroniinae includes just a single species from Mexico – *Baronia brevicornis*



The Parnassiinae – only found in the northern hemisphere –
are usually divided among seven genera



Archon apollinus – one of two
species of the genus *Archon*



Hypermnestra helios – the only species in the genus



Fifty or more species belong to the genus *Parnassius* – this is *Parnassius evermanni*, placed by some specialists in subgenus *Driopa*, one of about six subgroups often recognised

Parnassius (Parnassius)
apollo – the famous Apollo
Butterfly, pictured here
from the Val d'Aosta, Italy





Bhutanitis lidderdalii – one of the four remarkable species belonging to this genus



Luehdorfia japonica— one of four species in the genus



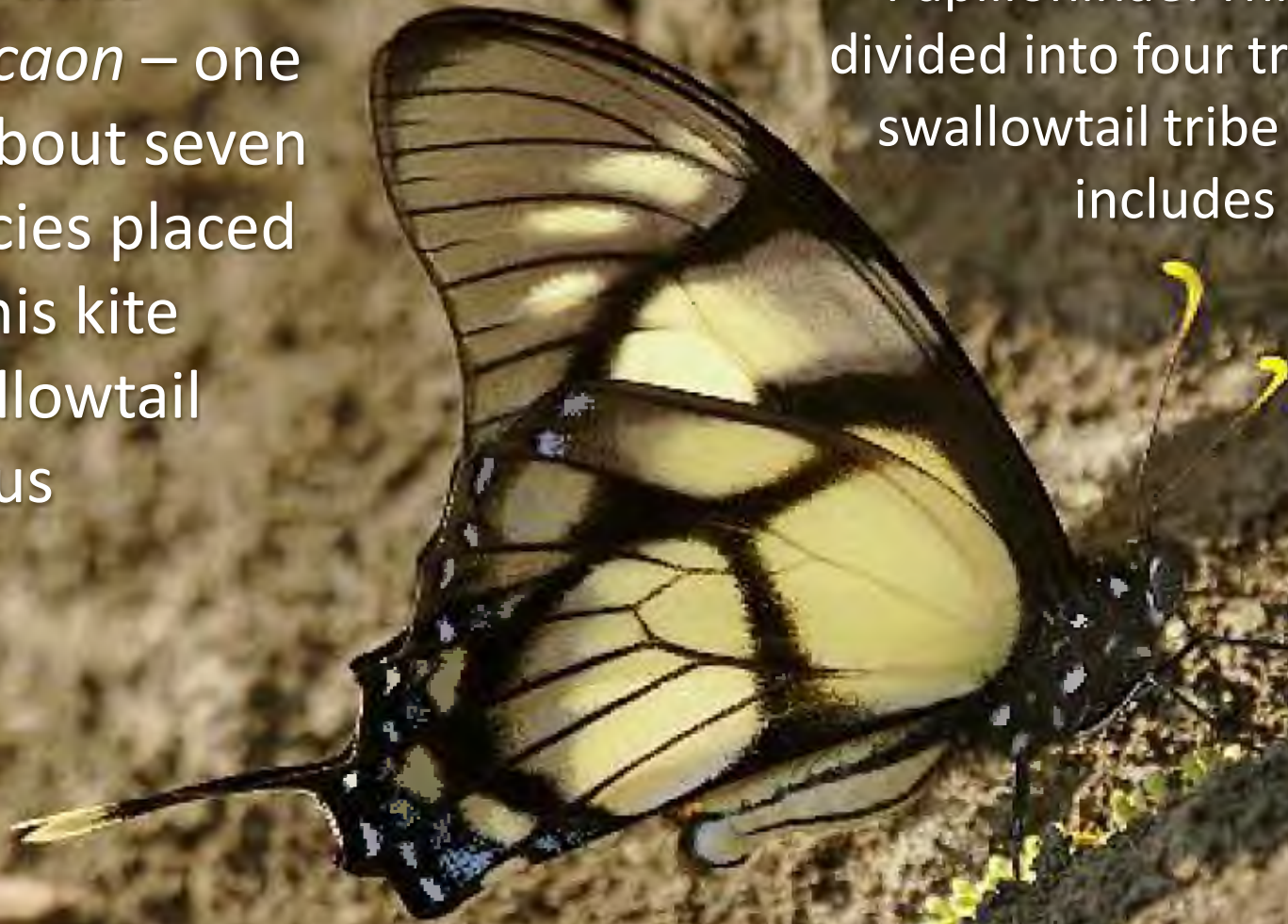
Sericinus montela – the only species of this graceful swallowtail genus



Zerynthia rumina – one of seven species in this colourful parnassiine genus

This is
Eurytides
dolicaon – one
of about seven
species placed
in this kite
swallowtail
genus

The majority of swallowtails belong
to the third major subgroup – the
Papilioninae. This subfamily is
divided into four tribes. The kite
swallowtail tribe (Leptocircini)
includes seven genera



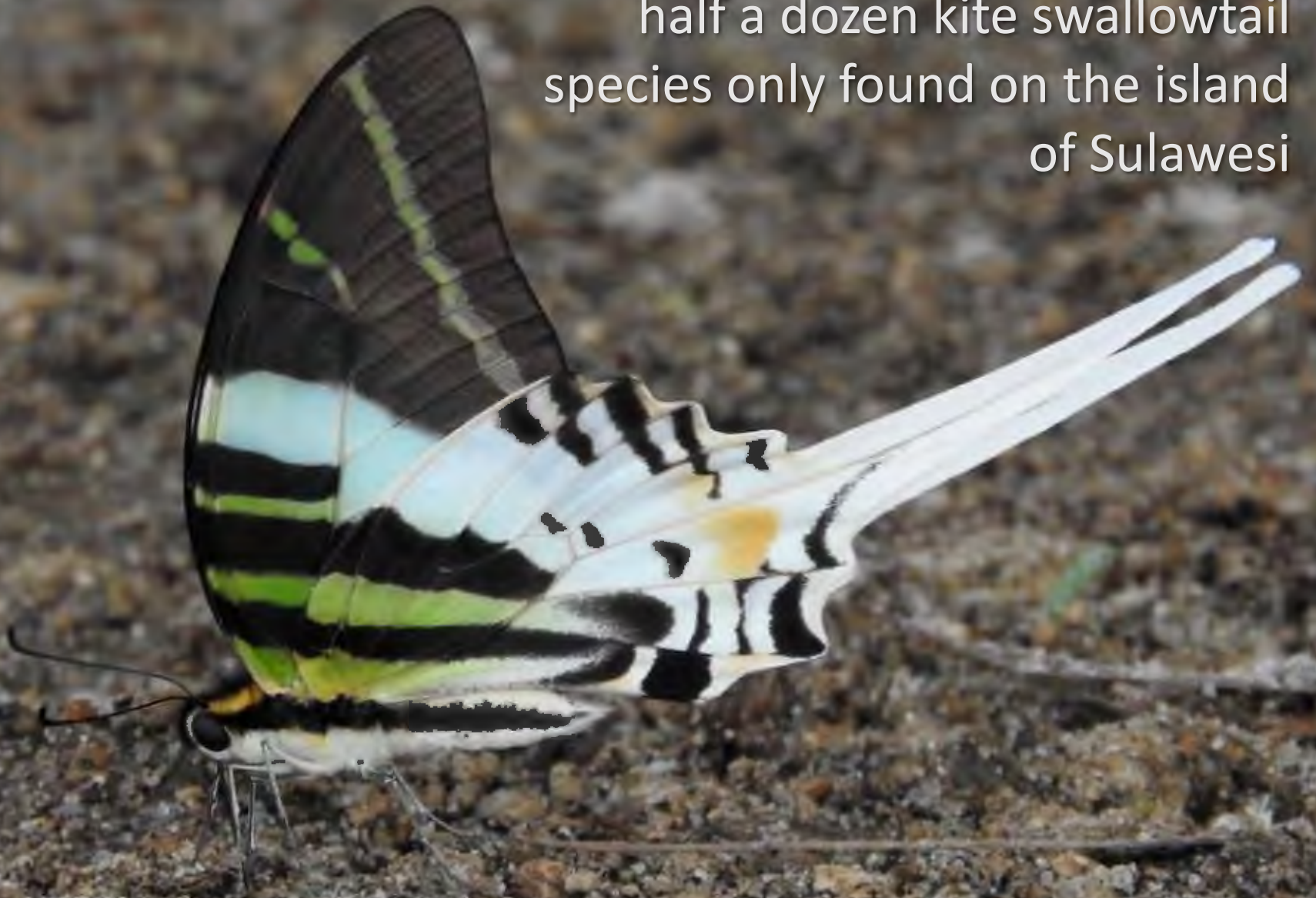


Graphium leonidas, an African species that lacks tails, is thought to have a mimetic relationship with blue-tiger milkweed butterflies (inset)



With over 100 species, *Graphium* is the largest and most diverse genus among the kite swallowtails

Graphium androcles – one of
half a dozen kite swallowtail
species only found on the island
of Sulawesi



A pair of Indian
spectacle swordtails,
Graphium mandarinus,
mud-puddling

Recent research
has revealed two
additional species
belonging to this
species group that
were previously
unknown



Iphiclides podalirius
– one of three kite
swallowtail species
belonging to this
old-world
temperate region
genus



Green dragontails,
Lamproptera meges,
mud-puddling

A third member of this
little group of 'kites' was
only recently discovered in
China, adding to the two
species long known





This *Mimoides xynias* was
photographed in Peru

Mimoides is a Central
and South American
genus of kite
swallowtails with
about 12 species

Protesilaus gaulcolaus was
named by the famous
Amazon explorer and
entomologist, Henry
Walter Bates

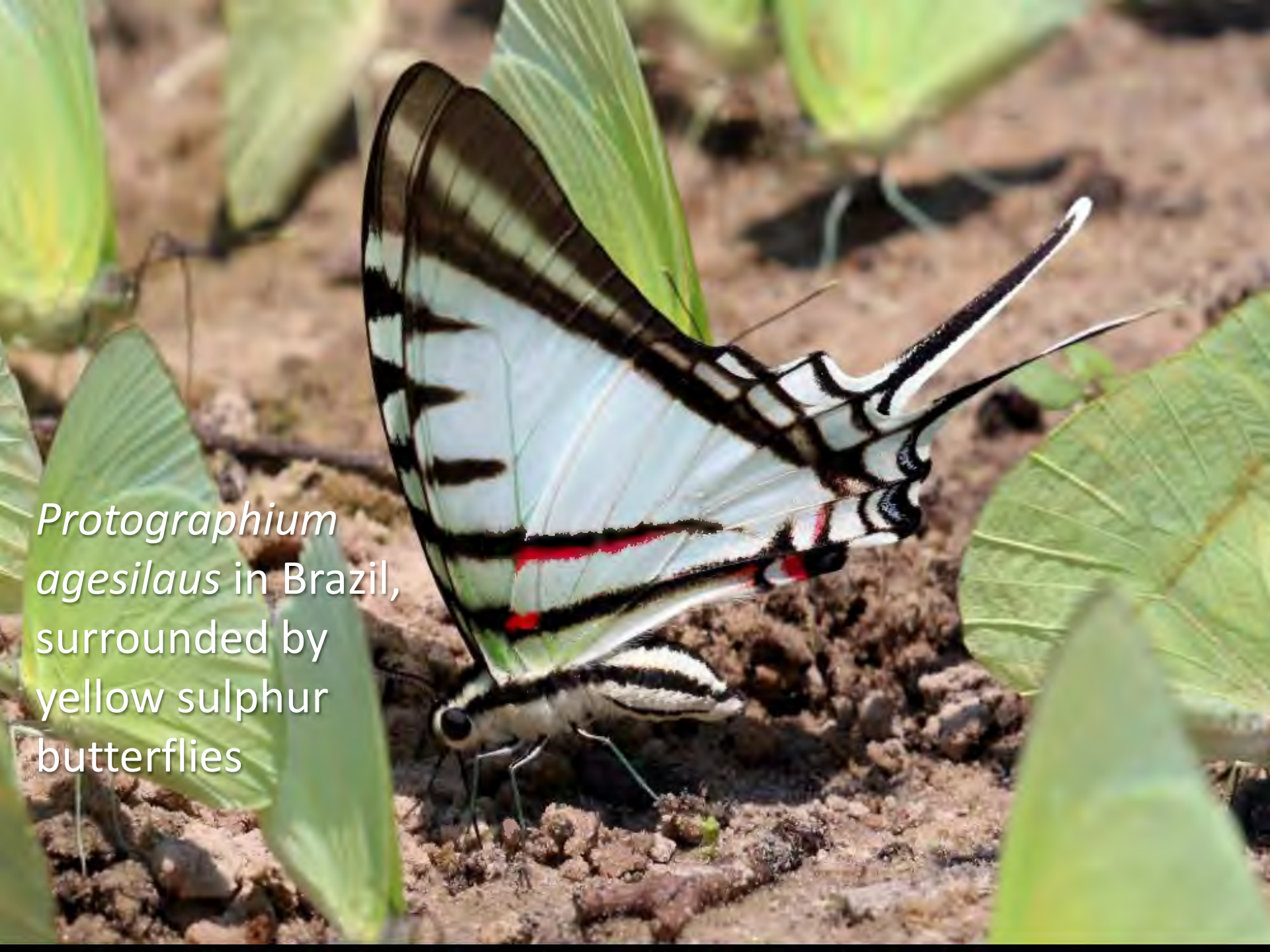
Protesilaus is another
genus of South American
kite swallowtails with
about 12 species



Protographium is the last
of the kite swallowtail
genera in this review – 13
rather diverse species
occur in the Americas, with
just 1 more in Australia

The Australian species,
Protographium leosthenes






*Protographium
agesilaus* in Brazil,
surrounded by
yellow sulphur
butterflies



Teinopalpus imperialis, one of just two members of the
tribe Teinopalpini



The tribe Troidini
(pipe-vine
swallowtails)
comprises 12
genera

Shown here is the Philippine
Atrophaneura semperi, one of about
12 species in the genus

Battus is another
pipevine swallowtail
genus of about 12
species

Battus philenor, from
North America



The 14 species of *Byasa* pipevine swallowtails include the striking *Byasa polyeuctes* from the Sino-Himalayan region





From Australia, the sexes of *Cressida cressida*, the only member of this curious pipevine swallowtail genus, differ in wing shape and colour

Euryades corethrus is one of just two species in this small genus of pipevine swallowtails; both species occur in S America



Losaria neptunus, one of just four species of this Oriental Region pipevine swallowtail genus – the ‘clubtails’



The Crimson Rose, *Pachliopta hector*,
is found in Sri Lanka and India

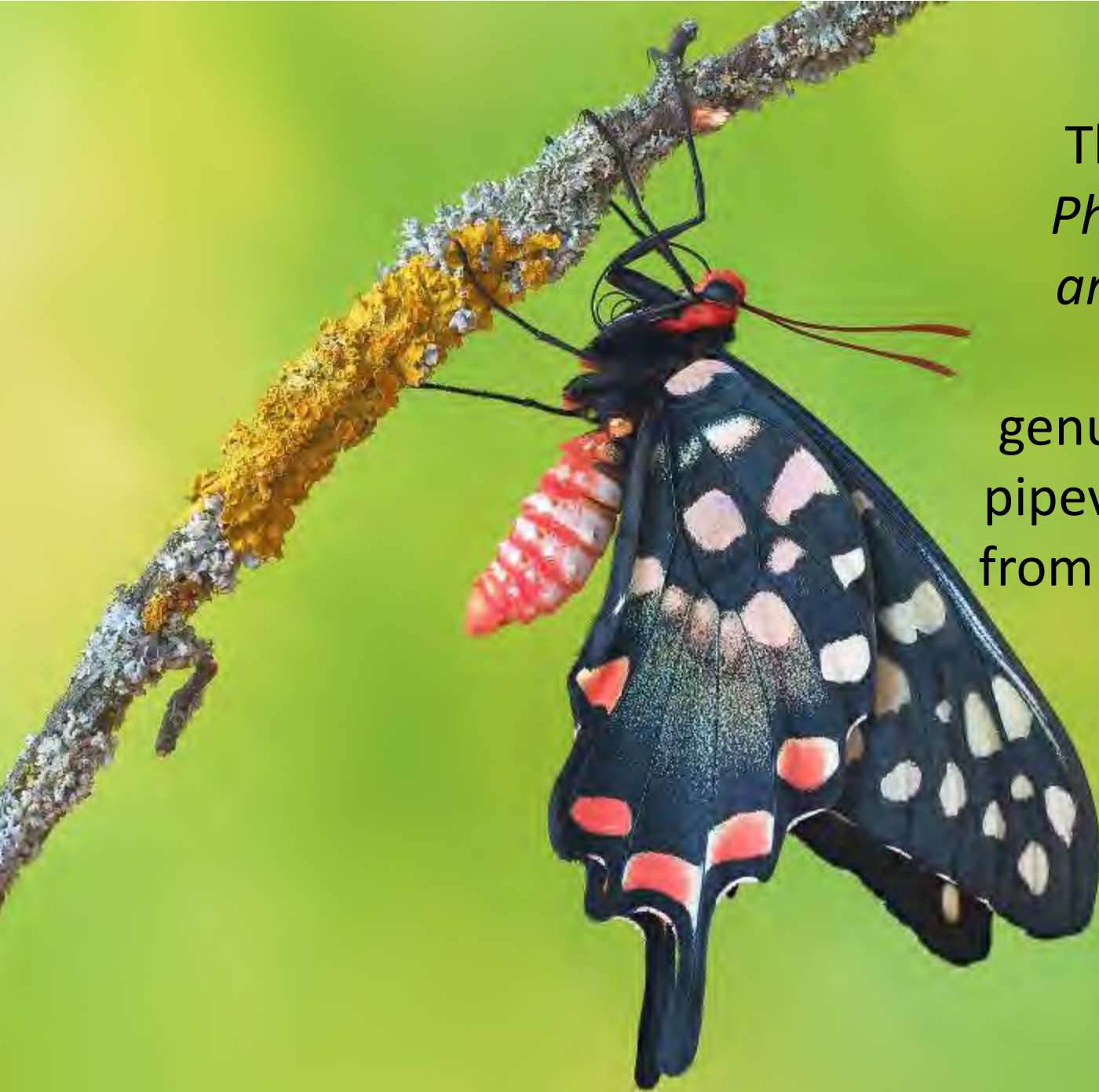


There are 16 species in this
Indo-Australian genus of
pipevine swallowtails

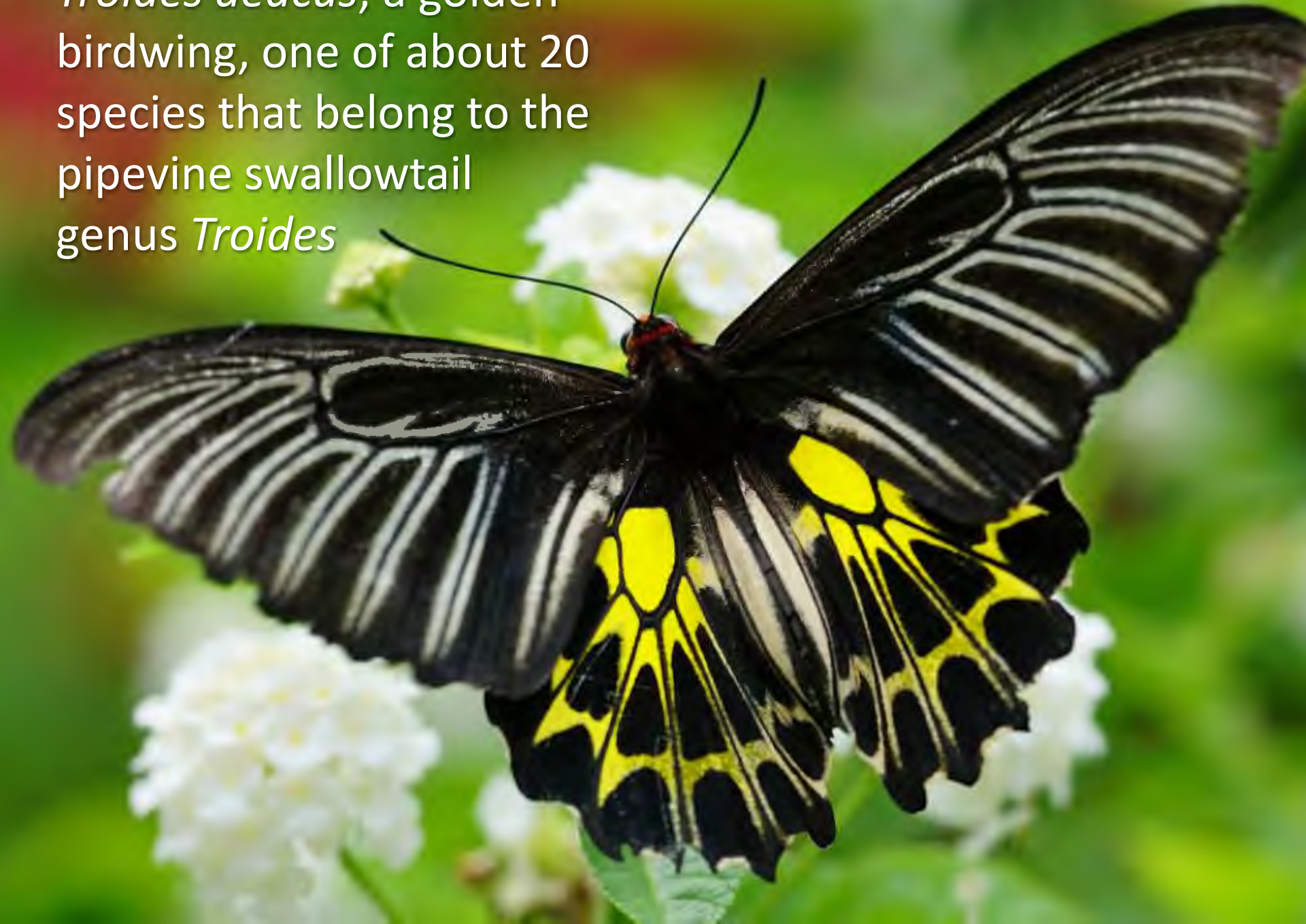


There are well over 30 species in the American pipevine swallowtail genus *Parides*; this is *Parides montezuma* from Mexico and Central America

The Madagascan
Pharmacophagus
antenor, the only
member of the
genus, and the only
pipevine swallowtail
from the Afrotropics



Troides aeacus, a golden
birdwing, one of about 20
species that belong to the
pipevine swallowtail
genus *Troides*





Trogonoptera brookiana, one of two species which make up the smallest birdwing genus

Ornithoptera, the third genus of birdwings, includes about 12 species found from the Spice Islands eastwards through New Guinea to the Solomons



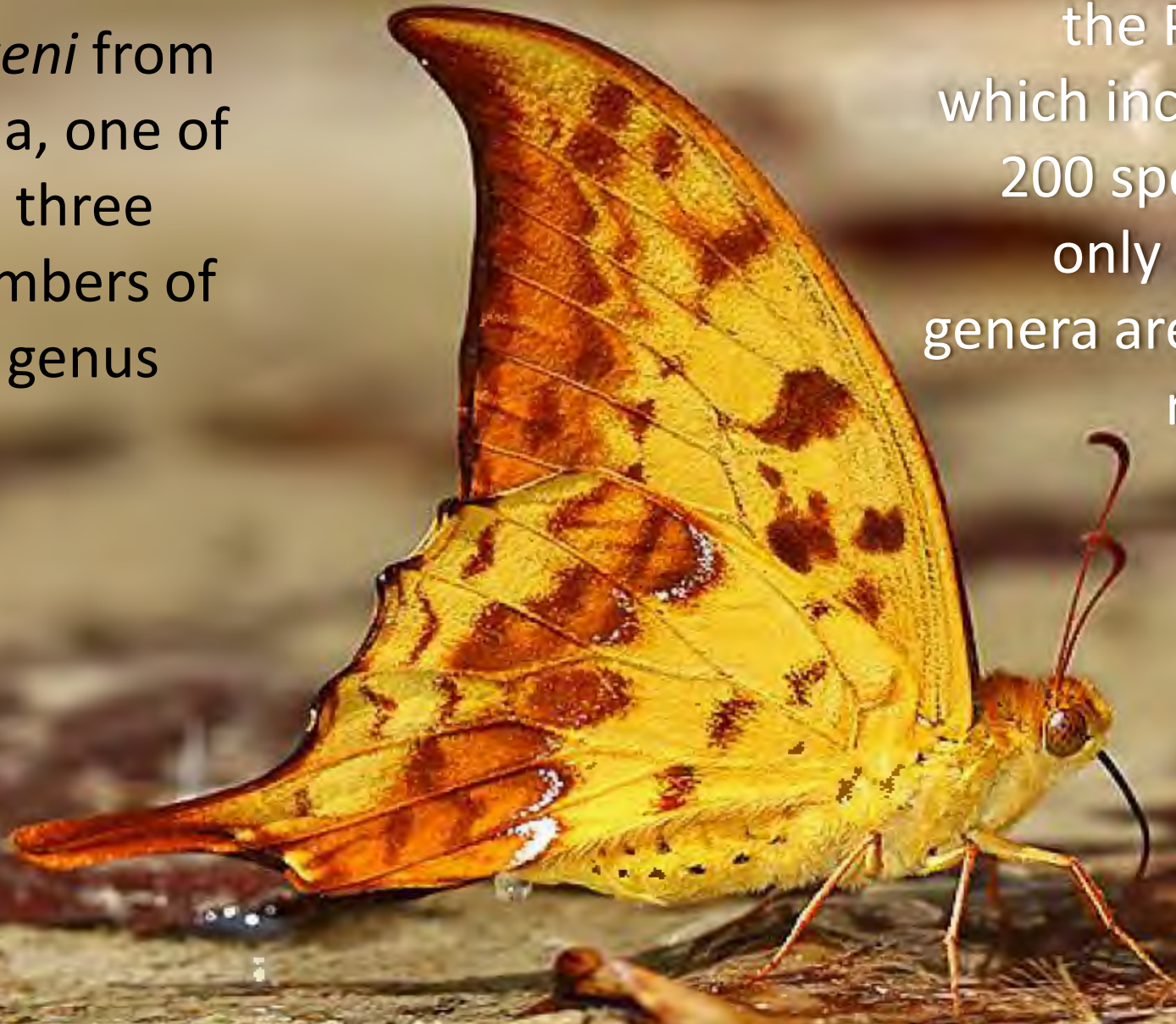
Ornithoptera richmondia hails from the east coast of Australia



The female Queen Alexandra's
Birdwing, *Ornithoptera alexandrae*,
is the largest butterfly in the world

*Meandrusa
payeni* from
India, one of
just three
members of
the genus

The fourth tribe is
the Papilionini,
which includes over
200 species – but
only 2 principal
genera are generally
recognised



Papilio, with as many as 200 species, is the largest swallowtail genus – but various divisions are recognised

Papilio paradoxa from Vietnam, one of a group of about ten species often regarded as belonging to a separate genus or subgenus, *Chilasa*





Papilio maraho from Taiwan, one of two species often placed in *Agehana* – a group recently transferred to *Pterourus*



Papilio homerus –
one of a group of
20 or so
Papilionini from
the Americas
often placed in
the subgenus or
genus *Pterourus* –
a group to which
the 2 *Agehana*
from eastern Asia
have recently
been added

Papilio krishna – one of
the ‘gloss papilios’

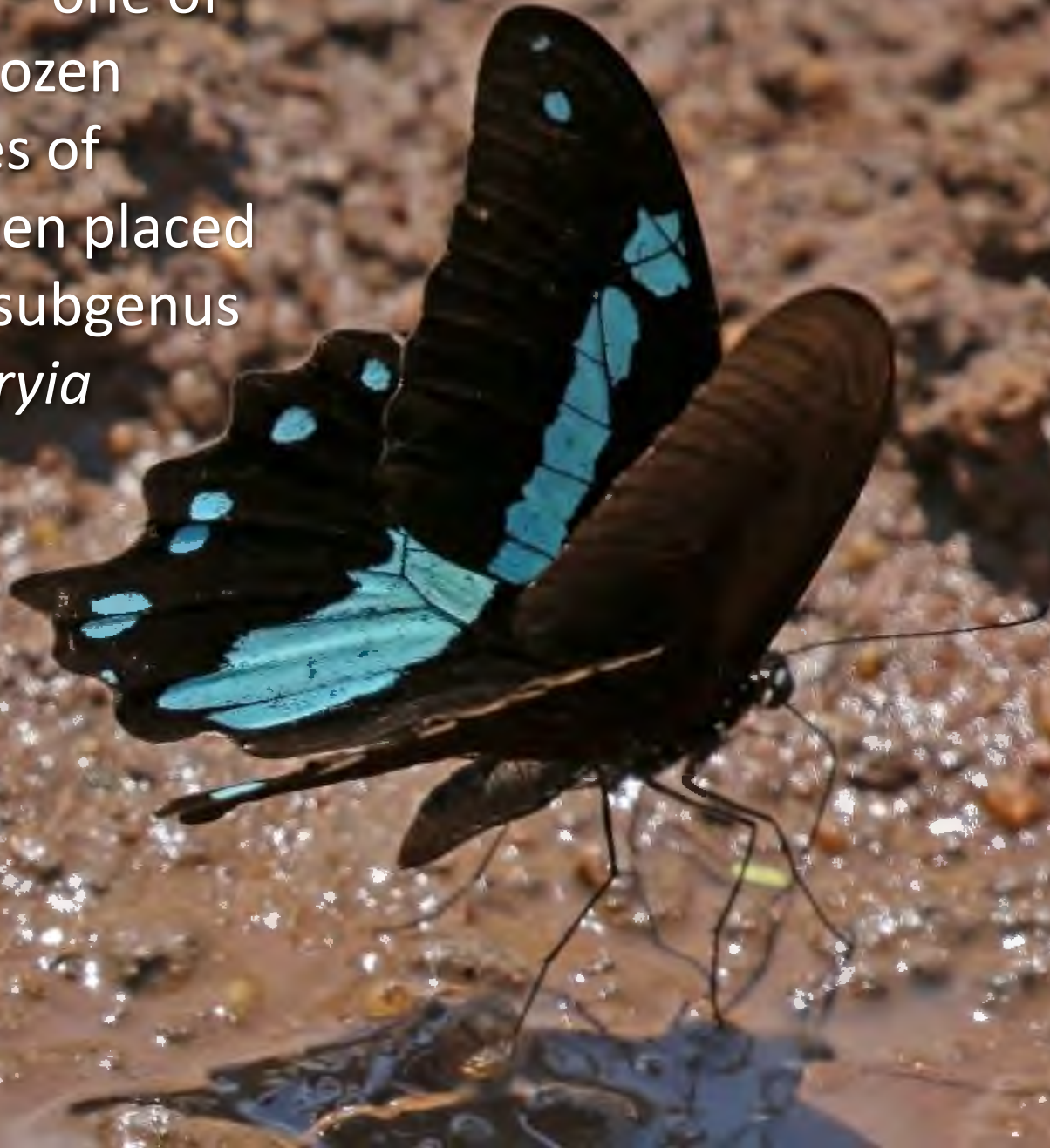
This group of about
24 Indo-Australian
species is often
placed in the
subgenus or genus
Achillides






Papilio anactus, a very distinctive swallowtail from Australia
sometimes placed its own separate subgenus, *Eleppone*

Papilio nireus – one of
about three dozen
African species of
Papilionini often placed
in a separate subgenus
or genus, *Druryia*

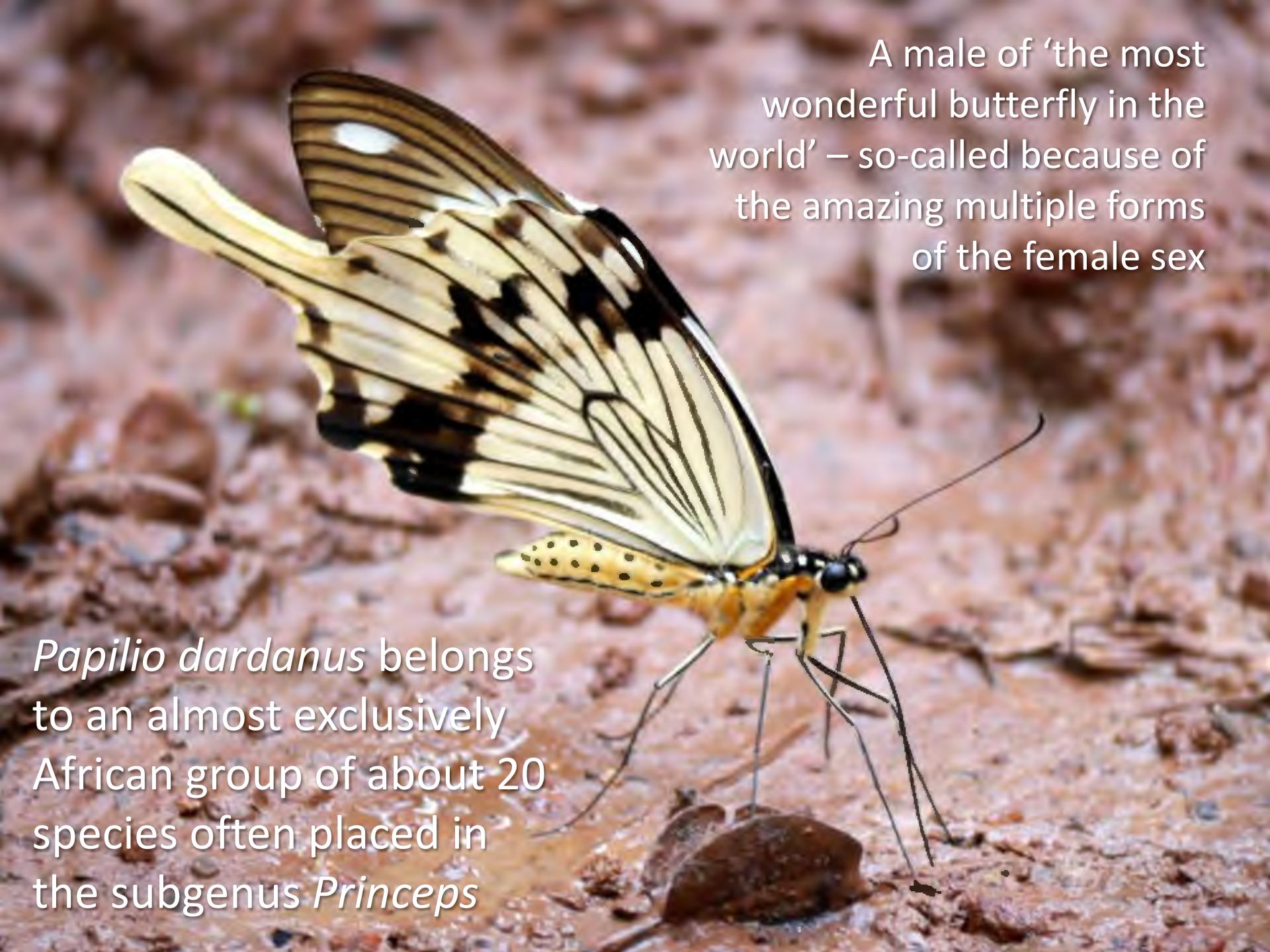




Papilio thoas, one of about 30 Papilionini from the Americas often placed in the subgenus or genus *Heraclides*

A Papilio iswara butterfly is shown in profile, perched on a wet, mossy rock. The butterfly's wings are primarily black with prominent white markings. The forewings feature a series of white diagonal lines. The hindwings have a large white patch and a row of orange spots near the bottom edge. The background is a blurred, wet, brownish surface.

Papilio iswara, one of a large group of almost 60 Indo-Pacific Papilionini often placed in the subgenus *Menelaides*

A male Papilio dardanus butterfly is shown in profile, facing right. Its wings are primarily yellow with prominent black veins and markings. The forewings have a black border and a white spot near the apex. The hindwings are also yellow with black markings and a long, thin tail-like extension. The butterfly's body is yellow with black spots, and its long, thin antennae are extended forward. It is standing on a reddish-brown, textured surface, possibly soil or dry leaves.

A male of 'the most wonderful butterfly in the world' – so-called because of the amazing multiple forms of the female sex

Papilio dardanus belongs to an almost exclusively African group of about 20 species often placed in the subgenus *Princeps*

Three different female *Papilio dardanus* – and a mating pair





Papilio xuthus is a widespread east Asian species, sometimes placed with one other swallowtail in the subgenus *Sinoprinceps*

The *machaon* group comprises eight swallowtail species found in the northern hemisphere, including North Africa



Papilio machaon is 'the' swallowtail – type species of the genus and family

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The classification is based largely on
Häuser C, de Jong R, Lamas G, Robbins RK, Smith CR, Vane-Wright RI. 2005.
Papilionidae – revised GloBIS/GART species checklist (2nd draft).
<http://www.insects-online.de/frames/papilio.htm>



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