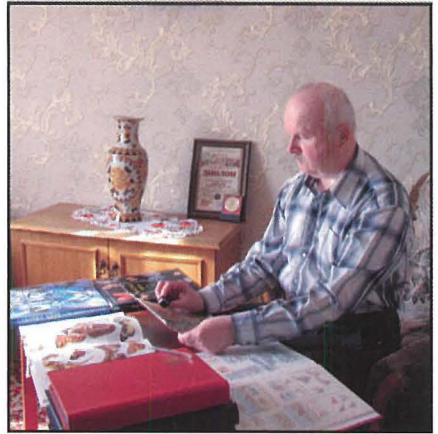


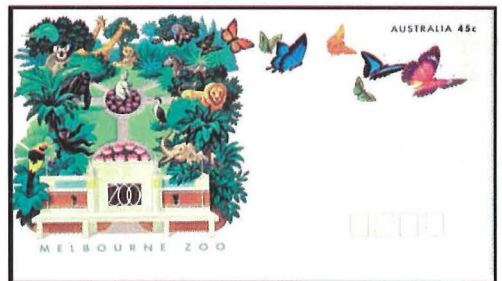
# FANTASTIC PALETTE OF NATURE ON THE WINGS OF BUTTERFLIES: SILVER, GOLD, RUBY, TURQUOISE, EMERALD, BLUE SAPPHIRE AND MANY OTHER COLORS

Vladimir Kachan, Belarus



In the course of the past 100 million years, nature has formed diverse colours, forms and structures that resemble one another and/or repeat themselves in animate and inanimate nature. Thus many butterfly wings have the same colour and design as minerals and crystals from all over the world - also shimmering and gleaming in the same way. Therefore, we can confidently say that butterflies are flying

jewels (**Figure 1 – Entire postal of Australia 1994 with flying colorful butterflies**). In butterflies, wing colour is determined almost without exception by the scales that imbricate each wing surface. They are already well recognized for their advanced photonic ultrastructural designs. Despite their very limited thickness, relatively minor



elaborations of the common architectural elements present in this generic scale will produce the many forms responsible for structurally generated colour in butterflies.

Butterfly *Argyrophorus argenteus* with wingspan about 40 mm and the unusual silvery color is found on the lower slopes of the Andes in Chile and Argentina



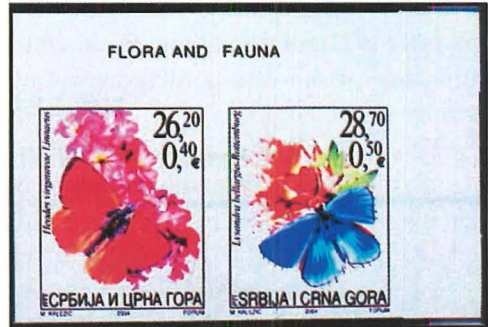
(**Figure 2 – Stamp of Grenada 2006 with butterfly *Argyrophorus argenteus***). Butterfly wings display structural colors, which are the result of light reflection from chitinous nanostructures that adorn the wing scales. Wings of the butterfly *Argyrophorus argenteus* creates silver color via submicron thick scales that scatter light and create a range of periodicities parallel

to the scale surface. It is this range that results in the scatter of a broad band of wavelengths and the production of its macroscopic silver hue through additive (folding) colour mixing. Scientifically, this *Argyrophorus argenteus* scale design offers the basis for ultra-thin synthetic broadband reflectors, across a range of wavelength bands not limited only to visible wavelengths.

A breathtakingly beautiful mountain butterfly *Heodes virgaureae*. The burning red-orange male upperside makes this one of the most strikingly coloured butterflies (**Figure 3 – Proof of Serbia and Montenegro 2004 with butterfly *Heodes virgaureae***). Male butterflies *Heodes virgaureae* are colored bright gold-red on the upper side of wing, while the females have broader orange wings with a dark design. Small-sized butterfly *Heodes virgaureae* with iridescent wings lives preferably on flower-rich, dry and damp meadows in Central Europe. It can be found as far east as Mongolia. The butterfly is found at elevations of 1,000 to 2,000 meters, although in Armenia it inhabits meadows up to 2,700 meters above sea level.

Butterflies in the family *Lycaenidae* also are known as ‘the blues’ and are a small, metallic blue butterflies. Butterfly the Adonis Blue with scientific name *Lysandra bellargus* is found throughout most of the warmer parts of Europe. Beyond Europe it also occurs in Turkey, and eastward to the Black Sea. The wingspan is about 3 cm. Only the males have the beautiful overall electric blue colouration (**Figure 3 - Proof of Serbia and Montenegro 2004 with butterfly *Lysandra bellargus***). In a photograph it is impossible to convey the brilliance of the blue, which glints in the sunshine and changes hue according to the angle of view. Females by comparison are dark chocolate brown, with a dusting of deep blue scales across the basal and median areas of the wings.

With wingspans that can reach 20 cm, morphos are among the largest and most dazzling iridescent Central and South American butterflies. The apparent bright blue color of butterfly wings makes it breathtaking to see. Its wings are not actually colored blue. Rather, the scales on its wing tops reflect the blue light and make the wing tops appear vivid blue. The butterfly *Morpho cypris* (**Figure 4 - Artist drawing of Lebanon 1965 with butterfly *Morpho cypris***) from Central America outshine even the other morphids in their incomparable gloss and is a true gem, unequalled in its brilliance



throughout the whole of nature. According to the fall of the light the blue of this incomparable insect shows a more violet or more greenish gloss and the delicate white band a yellowish tone or more of a tinge of rose colour. The blue is of such ethereal purity and such intensive lustre that all the other colours appear faded or dull in comparison.

The Golden Birdwing with scientific name *Troides aeacus* is large and spectacular butterfly is found throughout the southeastern region of Asia. The male has black fore wings with white-bordered veins and bright yellow hind wings; the underside is similar to the upperside. The female is larger, with dark-brown wings and with a different, more intricate yellow pattern on the hind wings. With a wingspan of 16 cm, the Golden Birdwing is a large butterfly and a very beautiful one too, with a red head and thorax. This beauty is a sight to behold (**Figure 5 - Original hand-painted artwork with fascinating Golden Birdwing butterfly used for the design of the 1998 UN-New York 32c stamp issue**). The Golden Birdwings are huge, spectacular butterflies, as a result of which they are very popular with collectors. The dramatic contrast of golden yellow hind-wings and glossy black forewings



gives this species a striking appearance, and serves as a protection mechanism by warning potential predators that it is distasteful. The adult feeds on nectar-bearing flowers and is an important pollinator. One of their stranger features is that they have thermoreceptors on the veins of their wings and their antennae. Thermoreceptors are sensitive to sudden increases in temperature and prevent the butterflies from overheating when basking in the sun.

Real living diamonds can be seen fluttering in the rainforests of Southeast Asia. The Orange Birdwing or *Ornithoptera croesus lydius* is a large butterfly that can only be found in the Maluku Islands of Indonesia. This rare birdwing lives in the forests of the swampy lowlands. It is the only orange member of the group and its magnificent color cannot be found anywhere else in the butterfly kingdom (**Figure 6 - Stamp of Papua New Guinea 2011 with butterfly Ornithoptera croesus lydius**). The rich orange color on the males has made this a much sought after species. The wingspan of this butterfly was ranging from 16 cm for males to 19 cm for females. This butterfly was comes originally in Solomon Islands and in insignificant numbers on some islands of Papua New Guinea. This is one of most rare butterflies.



The Green Birdwing or *Ornithoptera priamus* is a widespread species of

birdwing butterfly found in Papua New Guinea, Indonesia, Solomon Islands and north-east Australia (Figure 7 – Stamp of Papua New Guinea 2011 with butterfly *Ornithoptera priamus*). This is a very spectacular butterfly. The wingspan is about 14 – 19 cm. The upper side of the male’s forewings are mainly black with emerald green around the leading and trailing edges and a narrow green stripe in the centre of the black area; the hindwings are emerald green with black dots. The wing scales of a green birdwing butterfly help regulate body heat by using a honeycomb structure to enhance black pigments found in the wings.



The Blue Birdwing or *Ornithoptera urvillianus* to occur in eastern Papua New Guinea and in the Solomon Islands (Figure 8 – Stamp of Papua New Guinea 2011 with butterfly *Ornithoptera urvillianus*). This stunning blue birdwing butterfly have wingspan 16 – 20 cm. The showy coloration of this butterfly attracts collectors very much. The Blue

Birdwing is considered endangered, and threatened by their beauty.

*Ornithoptera aesacus* is a rare species of birdwing butterfly, endemic to the Island of Obira, Indonesia (Figure 9 – Stamp of Indonesia 2007 with butterfly *Ornithoptera aesacus*). The male *Ornithoptera aesacus* has a brilliant turquoise-blue sheen of the wings, sometimes turning into the color of the “sea wave”, combined with black “inserts” on the forewings. Butterfly inhabits tropical rainforest. Due to extensive logging on the Island the conservation of the species is a concern, and has been classified as ‘Vulnerable’ by the International Union for Conservation of Nature. Twenty years ago it was the rarest birdwing species in the world. It remains threatened, but is



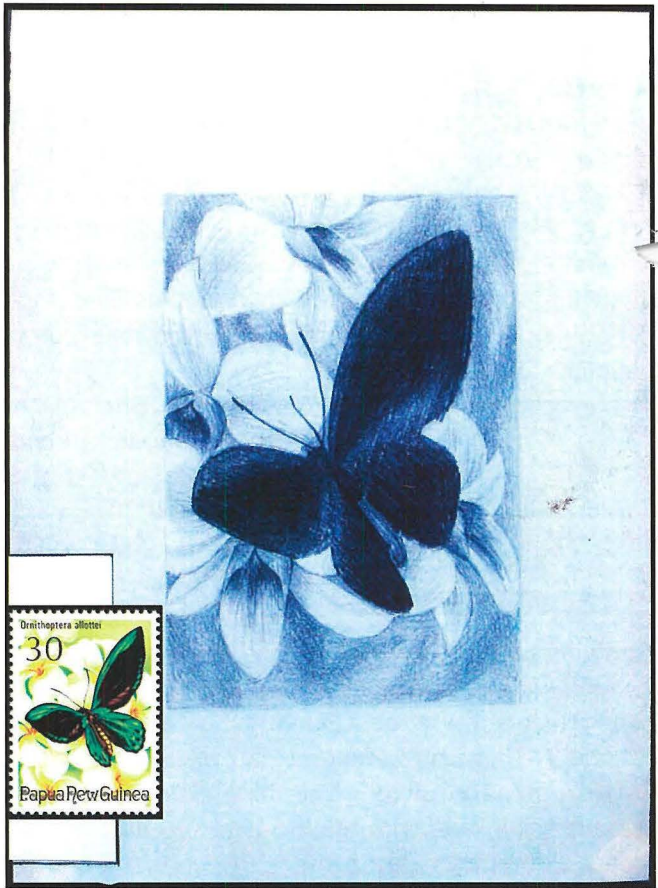
commercially bred.



The Goliath Birdwing or *Ornithoptera goliath*, is one of the largest species of butterflies in the world. It is the second largest butterfly in the world with wingspan up to 28 centimetres (for female). The males have the brightly colored yellows, golds and greens dominating their wings (Figure 10 -Stamp of Indonesia

**1993 with butterfly *Ornithoptera goliath***), while the females have a lot of brown, with cream or yellowish areas and some brighter yellow markings. They live in New Guinea and some smaller nearby islands of Indonesia.

Fantastically iridescent green on the black velvet wings of the male butterfly *Ornithoptera allotei* make it fabulously beautiful (**Figure 11 – Artist’s drawing and normal stamp of Papua New Guinea 1975 with rare butterfly *Ornithoptera allotei***). Butterfly is known from Bougainville Island of Papua New Guinea and Malaita Island of Solomon Islands. The wingspan of the males is approximately 15 cm. The *Ornithoptera allotei* is considered to be one of the rarest and most coveted butterflies on the planet. This lifeform is endangered and could quickly become extinct.



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The Southern Tailed Birdwing or *Ornithoptera meridionalis* is the smallest species of the genus *Ornithoptera*. Butterflies is known from a handful of localities in southeast Papua New Guinea (**Figure 12 – Stamp of Papua New Guinea 2002 with butterfly *Ornithoptera meridionalis***). The wingspan is about 12 – 14 cm. Males are remarkable in that they

have an extremely small amount of wing area relative to its rather bulky body. In particular, the hindwings are very reduced and tetragonal in shape, tapering into a single pair of filamentous tails that are easily broken. The males has green and golden areas on the wings. The females are dark-brown and have some white and

yellow spots. They are significant-larger than the males. It is very remarkable and beautiful species.

The Chimaera Birdwing or *Ornithoptera chimaera* butterfly found in mountain areas of New Guinea, 1200 - 1800 meters above sea level (**Figure 13 - Stamp of Papua New Guinea 1975 with butterfly *Ornithoptera chimaera***). The wingspan is about 18 cm in females and about 15 cm in males. The wings of the male have a delightful pattern of green and yellow, lined with black. His body displays a pattern of black and bright green. Though larger, the wings of the female stay much less colorful than the male. Her wings predominantly show tan or brown shades, with white spots while her body shows a combination of black and brown. This striking butterfly are most commonly encountered flying over ridges several metres above the ground or feeding at the flowers of tall forest trees. This butterfly is strictly protected.



The Richmond birdwing or *Ornithoptera richmondia* is one of Australia's largest butterflies, with a wingspan of up to 16cm in females and 13cm in males (**Figure 14 - Souvenir sheet of Micronesia 2014 with butterfly *Ornithoptera richmondia***). Males and females differ in appearance. Females have dark brown or black wings with extensive white, cream or, in the hindwing, yellowish markings. The upper forewing of males is black with a distinctive iridescent green leading edge, while the upper hindwing is predominantly iridescent green with black spots.



The underside of the male's forewing is black with extensive green or blue-green markings, whereas the hindwing is largely blue, green and yellow with obvious black spots. The Richmond birdwing butterfly mainly lives in subtropical rainforest where its larval host plants grow. Adult Richmond birdwings are very strong fliers usually active in the early morning and near dusk, when they can be easily observed.

The Cairns Birdwing butterfly or *Ornithoptera euphorion* is the largest of all Australian endemic butterflies and found along northeastern Australia from Mackay to Cooktown (**Figure 15 - Stamp of Australia 2016 with tab and butterfly *Ornithoptera euphorion***). The wingspan can be up to 18 cm in females, and 13

cm in males. The male birdwing is green, gold and black and is very colourful, compared to the female which is black and white, with some yellow. Its favoured habitat is rainforest of the Queensland wet tropics region, including riverine forest, and particularly near the coast.

A very beautiful Rothschild's birdwing or *Ornithoptera rothschildi* is a large birdwing butterfly, endemic to the Arfak Mountains in Western New Guinea

(**Figure 16 – Imperforated stamp of Vietnam 1991 with butterfly *Ornithoptera rothschildi***).



The wingspan of the males

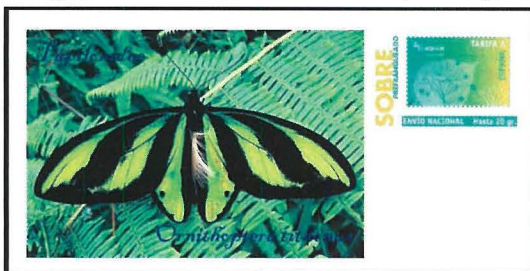
is approximately 13 cm. The forewings of the males are surrounded with black scales and in the central area with blackish, yellowish-green and yellow scales. The hindwings have black scales on the edge. The central

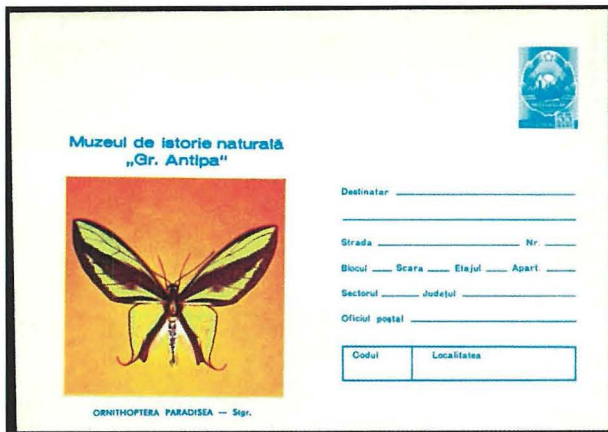
patch is yellow with black tips abutting with smaller spots which are coloured lime green. The abdomen is golden. The females can reach a wingspan up to 15 centimetres. The forewings are dark brown to blackish brown with creamy white to greyish spots. The hindwings rimmed with black scales and have a central patch of golden with black tips. Rothschild's Birdwing has the most restricted distribution of all birdwings. Its habitat are flowering meadows in an altitude of 2,000–2,700 metres above sea level.

*Ornithoptera tithonus*, the Tithonus birdwing, is a species of birdwing butterfly found on New Guinea and other neighbouring islands (**Figure 17 - Entire postal of Spain 2013 with butterfly *Ornithoptera tithonus***). The wingspan of males is up to 14.5 cm

and of females - up to 19 cm. *Ornithoptera tithonus* is one of the most spectacular of the birdwings, with it's huge beautiful green wings, and large dramatic black bands that cascade across it's forewings. For the female butterflies, their wings have got black, white and yellow colours. This species breeds in primary rainforest in valleys of the Arfak mountains in Irian Jaya.

Among the most beautiful butterflies in the world the Paradise Birdwing or *Ornithoptera paradisea* from New Guinea stands out with its impressive appearance (**Figure 18 - Entire postal of Romania 1974 with butterfly *Ornithoptera***

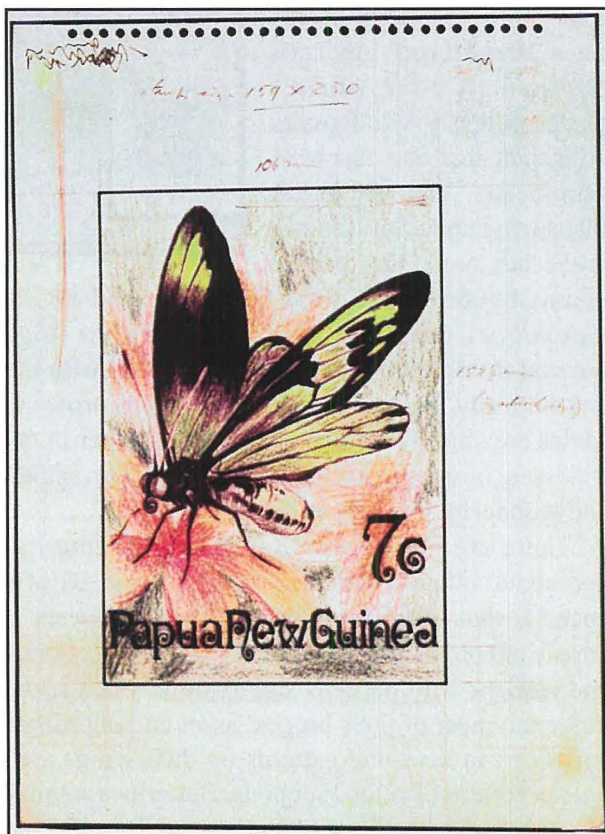




paradisea). The Paradise Birdwing is a large butterfly with a wingspan ranging from 14 cm to 19 cm. Males have black forewings. The costal edge is black and there are two large, yellow gold and green bands. The hindwings have tails of uncertain selective origin. The significantly larger female covers the upper range of the wingspan. The

basic colour is dark-brown. The habitat is lowland or montane primary forest. Adult males fly high around trees rarely descending to the ground. The Paradise Birdwing is a particularly attractive butterfly and for the present, it remain protected in Papua New Guinea.

The Queen Victoria's Birdwing or *Ornithoptera victoriae* with wingspan 15 – 18 cm found in the Solomon Islands and Papua New Guinea (Bougainville Island only) (**Figure 19 - Original artwork for 1975 Papua New Guinea male *Ornithoptera victoriae*, what became the 10t stamp**). Queen Victoria's Birdwing is one of the loveliest butterflies on the planet. Its size, its colouring and the shape of its wings all make it an exceptional insect. Males are valued by collectors for their dazzling coloration, females for their immense size. Males displays different shades of brilliant green and gold.





The females are coloured inconspicuously brown and are slow fliers that mostly stay inside the forest. *Ornithoptera victoriana* is a true miracle of nature.

The butterfly's silhouette is sharply outlined against the morning sky. It flies high up into the air, beating its wings slowly, more like a bird than a butterfly. Its long, narrow wings are reminiscent of a swallow's, as they shimmer in the sunlight like iridescent sequins. The insect makes a wide circle and lands on a bright red hibiscus blossom. It's the world's largest butterfly with females wingspan that can reach 31 centimeters. The Managalas Plateau in Papua New Guinea is the last remaining habitat



of any significant size of the Queen Alexandra's Birdwing butterfly (*Ornithoptera alexandrae*), one of the world's rarest insects (**Figure 20 - Artist's drawing and normal stamp 1975 of Papua New Guinea with male *Ornithoptera alexandrae***). Aesthetically, females are distinguished by brown wings marked with cream spots. Males are slightly smaller and much brighter in color. Their wings splashed with iridescent turquoise and blue. The Queen Alexandra's Birdwing is the most majestic and wonderful butterfly in the world.

There are more than 18,000 named butterfly species on the planet today, and about 140,000 different moth species. All of them evolved from a common ancestor that lived more than 225 million years ago. From that one ancestor, a parade of colours and shapes have burst forth, populating forests, savannahs, fields and gardens with patterns and textures. Each species has developed a strategy to make the most of their biggest asset and defining feature: their scaly wings. The variations in hues and patterns on their wings are not just for show but perform crucial communication functions. Butterflies are much prized not only for their size, but also for their brilliant colouring and beautiful shape. Butterflies are amongst the

most captivating and attractive flying creatures on the planet. As a manifestation of its beauty and elegance, there are hundreds of thousands of butterflies collectors from around the world.

I hope that my article about fascinating butterflies will be of interest to readers of the magazine and will be help for philatelists in creating bright philatelic collections about wonderful nature. The author is ready to help for philatelists in creating of philatelic exhibits on butterflies and moths. His address: Vladimir Kachan, street Kulibina 9-49, Minsk-52, BY-220052, Republic of Belarus, E-mail: vladimirkachan@mail.ru

# Payment of Yearly Membership Fees

## 1. Notes for Local Members by John A. Cardona

This year there are no adverse comments to make since all the subscriptions which were due in 2022 have been received and duly deposited at the Bank.

It will be recalled that the Central Bank of Malta issued Directive 19 which disallowed the issue of cheques below or equal to 20 Euros. That created a problem for us since our current fees are 10 Euros per annum.

The Society suggested that members pay in advance the fees for years 2023 and 2024 and that the extra payments be credited to the accounts of the members concerned. Several members availed themselves of that suggestion which could be picked up from the individual receipts rendered to each member.

If any member would wish to check how his account stands, please contact us on 2189 2141 and the information will be given there and then.

## 2. Future payments

In future, payments of subscription fees are to be deposited directly in our bank account using the following details:-

2.1 Bank of Valletta Ltd.

2.2 Account name: The Malta Philatelic Society.

2.3 IBAN (if required) MT85 VALL 2201 3000 0000 4002 6085 661.