Feather Fascination!

with local Birdwatcher, Jim Butler

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BIRD COLOURING

We are somewhat colour blind compared to birds! Birds can see a vast palette of colours including the ultraviolet that far exceeds the range of human vision. Their eyes have an additional cone type tuned to the ultra-violet spectrum. As a group, birds are among the most colourful of animals which is one obvious reason we find them so appealing.

Their wonderful colours evolved in relation to the colours their eyes see. Their rich palette implies they have excellent colour vision. Intriguingly, the rainbow of colours that birds display represents a fraction of the possible spectrum their eyes can detect. Over millions of years colours went from dull to bright as birds gradually acquired the ability to create newer colours. Initially bird colouring was probably the browns and greens of the forests but subsequently they have evolved a magnificent range of colours which continues to expand. Bird colours are more diverse than flower colours.

Bird colours are formed in two very different ways: either from pigments in the feathers or from the microscopic structure of the feathers. The pigment colours come from mixing three different compounds: melanins (browns), carotenoids (reds), and porphyrines (greens). Pigment colours cannot match all structural colours.

Structural colours dominate the colours of the Rainbow Bee-eater. Sunlight is refracted by the microscopic structure of the feathers and splits into the rich component colours. At the best viewing angle the refracted light becomes visible in a glowing, shimmering iridescent display.

Structural colours almost disappear as the bird moves out of the sunlight. This effect is no accident. Evolution has designed these colours so that when the birds are illuminated by the sun they appear utterly brilliant, but in the shade their plumage has a drab quality, rendering the bird surprisingly well camouflaged

Happy Colourful Birding!

~ Jim

Image: Rainbow Bee-eater at the perfect angle, by Mike Ford ©