Nature produces structural colours with a staggering diversity set of complex nanostructures, most often encountered in the wings of butterflies and beetles and the feathers of birds. The arrangement of materials in these structures reach an astonishing precision and is accurately reproduced within many individuals to a level that easily surpasses lab-based structures. By changing the dimensions of such nanostructures or the amount of order and disorder in these systems, these diverse nanostructures allow manipulation of incident electromagnetic radiation so to achieve colors that extend over the entire visible wavelength range and that are employed in courtship or to escape predation risk by camouflage. Here, I will present the optical properties of different biological photonics structures and discuss their biological function and the significance of these colors for technological applications.