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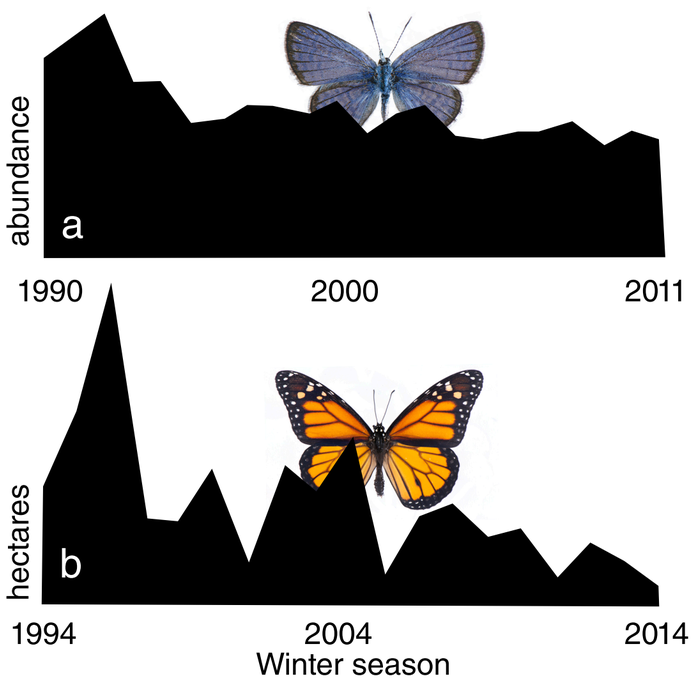
Butterflies at the edge

Human activity is rapidly changing the natural environments we share with wildlife. Butterflies are commonly used as 'indicator species' acting as a warning sign when an ecosystem is under stress. Recent research in butterflies show that climate change, habitat destruction, pesticide use and land management are already affecting butterfly populations, especially those with more specialized ecologies. While the overall picture is worrying, individual case studies show how protecting the environment particular species need can allow them to rebound quickly.

Butterflies in decline

Numerous studies in North America, Europe and the tropics have documented long term declines in butterfly abundance. In some cases abundance has declined by as much as 80% in the last 100 years.



Scientists monitor butterfly populations by counting numbers of individuals seen every year, such as the grassland butterflies in Europe (a), or (if there are to many) by measuring the area occupied by overwinting butterflies, such as migratory Monarchs in México (b). The observed declining trends might also be seen in other butterfly species.

26 million hectares =

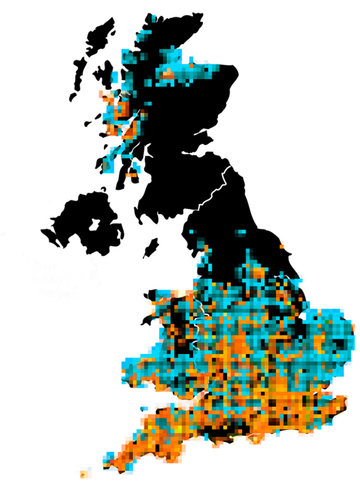
An area of forest the size of the UK is being lost every year around the world, the vast majority of it tropical rainforest, with direct effects on the climate emergency and wildlife.

Deforestation

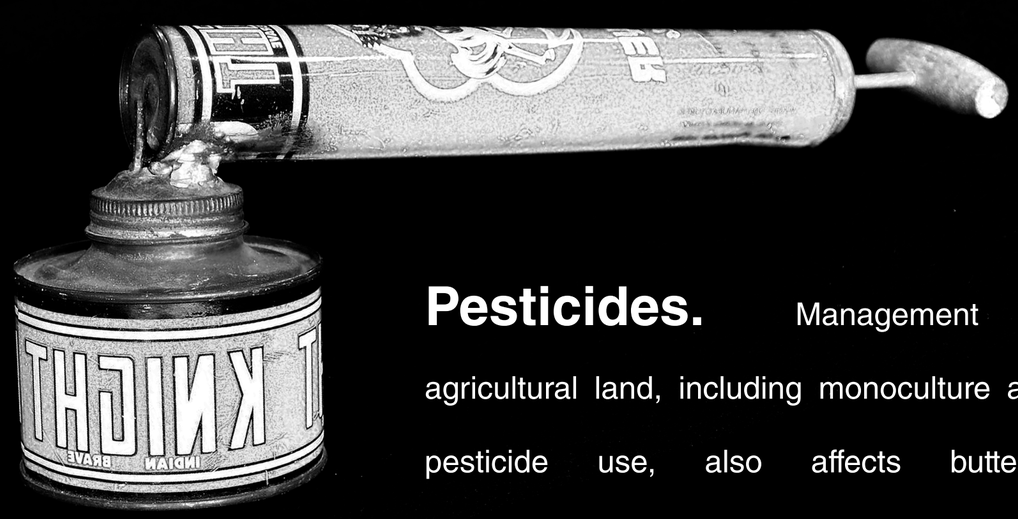
Deforestation in species rich areas, such as the tropics, can result in the local extinction of a large proportion of species. For example, deforestation in Singapore has resulted in over 30% of butterfly species becoming locally extinct. Selective logging can also affect micro-habitat diversity, decreasing the number of species a forest can support.

Climate change

Increases in global temperature are already causing range shifts in many species of butterflies. For example, in the UK the geographic range of 25% of species has significantly shifted north, at up to 10km/year. Even widespread butterflies like the Monarch are suffering due to a decline in the abundance of their host plant.

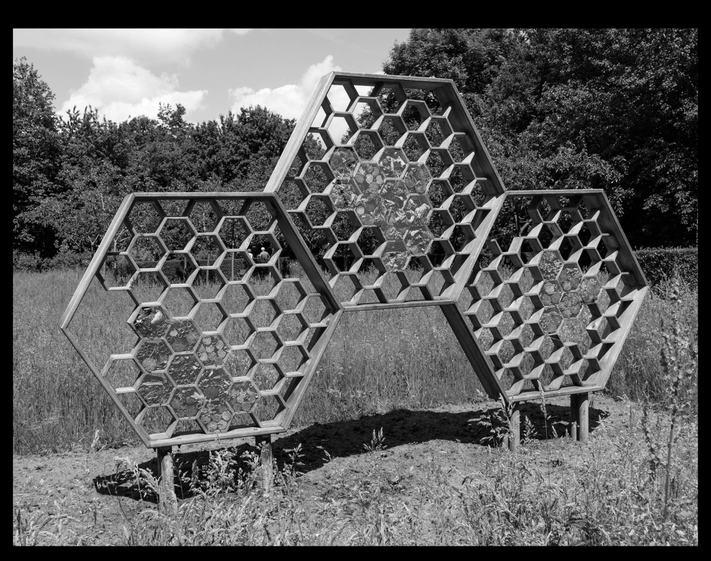


The range of the Speckled Wood Butterfly (*Pararge aegeria*) in the UK has shifted towards north over the years. Colored squares represent the area where this species was present in 1940-1969 period (orange) vs. the 1970-1997 period (blue).



Pesticides. Management of agricultural land, including monoculture and pesticide use, also affects butterfly abundance. For example, several studies in Europe and North America suggest that high pesticide use is associated with declines in butterfly abundance. Experimental tests have shown that common insecticides decrease caterpillar survival, while the use of many herbicides is damaging for butterflies that depend on plants we see as 'weeds'.

Hope. Human intervention to protect habitats needed by threatened species can prevent local extinction. For example, restoration and protection of relatively small areas of natural habitat has stabilized numbers of several species in the UK, including the Large Blue and Duke of Burgundy. You can help by creating insect- friendly gardens, and by taking steps to prevent further degradation of natural habitats, joining the fight against climate change.



Insect hotel, Netherlands.