**Light pollution SOS (save our species) – help biodiversity with the flick of a switch.**

**Did you know that over 40% of our insect species are now facing extinction and one-third of insect species are now classed as endangered?**

A number of recent studies have been tracking this “[insect apocalypse](https://www.sciencedirect.com/science/article/pii/S0006320719313497?dgcid=raven_sd_aip_email)” which includes insects like dung beetles, butterflies, moths, wasps, sawflies, bees and ants and aquatic insects like dragonflies and mayflies. They are becoming extinct eight times faster than mammals, birds and reptiles and if this decline continues, could vanish within a century.

Think back to the summer - how many butterflies did you see? When did you last see a moth or a cranefly (daddy longlegs)? Numbers of butterflies and moths in the UK have decreased alarmingly since the 1970s and this is an early warning for other wildlife losses; they are key biodiversity indicators as they react very quickly to changes in their environment, so their falling numbers tell us that nature is in trouble.

<https://butterfly-conservation.org/news-and-blog/results-of-this-years-big-butterfly-count-revealed>

**Why does this matter?**

Insects are hugely important to our ecosystem, making up the majority of creatures that live on land, and providing food for birds, bats and small mammals; they pollinate around 75% of the crops in the world; they replenish soils and keep pest numbers in check. With many species of birds, reptiles and fish depending on insects as their main food source, it's likely that these will also decline due to a reduction in insect numbers. In contrast, other species, such as houseflies and cockroaches, are likely to boom. A decrease in insect pollinators will mean that crops are harder to grow and food staples will become less available, resulting in a hike in prices and an increased risk of starvation in poorer countries.

Whilst the biggest causes of the decline in insect populations are industrial farming and use of pesticides, another major driver which is often over-looked is **light pollution.** However, this is one thing we can all do something about.

**So why is light pollution such a problem?**

It’s not just insects that are negatively affected by light pollution.

Excess artificial light at night, especially at dusk or dawn, upsets animals’ natural sleep/wake cycles, with daytime species becoming active at night and missing out on rest and sleep. Animals which are normally active at night, such as owls, moths, bats, badgers, hedgehogs, mice or frogs, will either avoid light or be excessively attracted to it, which prevents them from performing crucial activities such as hunting and mating. For many this impacts on growth, feeding and development too.

Light at night also makes it easier for some species to see and hunt others, especially the ones attracted to lights. Prey which uses the dark to hide is more vulnerable to predators if their habitat is lit up so will try to avoid the light, not hunt and miss out on food. Finally, excess light interferes with bird migration, causing them to go wildly off course.

Exposure to short-wavelength light, which creates blue and violet colours is particularly harmful as this suppresses melatonin production, disrupting sleep and interfering with the normal sleep/wake cycles of both animals and humans. Unfortunately, most LEDs used now for both indoor and outdoor lighting (as well as computer screens, TVs, and other electronic displays) create too much blue light. An increasing amount of research suggests that artificial light at night can negatively affect human health too, increasing risks for obesity, depression, sleep disorders, diabetes, breast cancer and more.

**But what about security?**

Athough bright lights may make us feel safe at night, they can create hard shadows, making it easier for potential attackers or intruders to hide. It may make us *feel* safer but, perhaps surprisingly, there is no clear scientific evidence that increased outdoor lighting deters crime (<https://www.darksky.org/light-pollution/lighting-crime-and-safety/>).

If you are concerned about security and use outdoor lights for this purpose, a motion-sensor light is a much more effective deterrent than one you leave on all night. Shorten the time they come on for to 30 – 40 seconds as this is sufficient to blind any intruders and still alerts you, whereas having lights on for longer enables them to see. Further movements will trigger the light again making it more difficult to stay unseen.

**So what can I do to reduce light pollution?**

There are many ways we can all reduce our light pollution impact:

***Indoor lights:***

* Turn indoor lights off so you use fewer lights (or use dimmer switches) especially if you have no blinds or curtains.
* Close curtains/blinds (this will keep in warmth too) and choose light block curtains which stop light getting in as well as out
* If you can afford it, invest in smart controls and LED technology so you can remotely manage your lights, set timers or dimmers, activate motion sensor lighting, and even control the colour of the light emitted.

***Outdoor lights***

* Turn all outside lights off (especially if used only for decoration). Aim for natural darkness as default and only add light for a specific purpose – your eyesight adapts to darkness fairly quickly
* If you cannot do without decorative lighting (eg for lighting up gardens), choose glow stones which do not have the same effect as lights

***If you cannot turn outdoor lights off, try the following:***

* Choose light bulbs which are lower lumens (less bright) than lower watt bulbs (which are just lower energy. LEDs are are much brighter than ordinary incandescent bulbs that use the same number of watts.
* Choose low glare lights
* Angle lights downwards or use light shields (partial shield that stops the direction of your outdoor light in one or more directions). Direct light in a specific direction rather than upwards, which disperses light more widely
* Use only filtered or “warm” light sources for outdoor lighting rather than light with a high blue, violet or ultra-violet content – this also less impact on skyglow because the light doesn’t travel so far as well as a lower impact on wildlife)
* If you can, choose darker coloured paint or non-reflective materials for outdoor features instead of shiny or light-coloured surfaces which reflect light and add to light pollution.

And finally…..

* Spread the word – many people are completely unaware of the damage they are doing by leaving outdoor lights on, so persuade friends and family to switch off too
* Lobby your local council to introduce better planning controls for lighting (to reduce glare, encourage motion-sensors etc)

<https://wildlife.org/light-pollution-a-major-driver-of-world-insect-declines/>

<https://www.caldersecurity.co.uk/does-leaving-the-light-on-deter-burglars/>

<https://www.manchester.gov.uk/info/200030/crime_antisocial_behaviour_and_nuisance/2394/crime_prevention/3>

<https://jech.bmj.com/content/jech/69/11/1118.full.pdf>

<https://www.cprenorfolk.org.uk/what-we-care-about/dark-skies-and-dark-landscapes/reduce-light-pollution/>