

REDUCING THE IMPACT OF EXISTING LIGHTING

The Bat Conservation Trust states that light should only be erected where it is needed, illuminated during the time period it will be used, and at levels that enhance visibility. Any bare bulbs and any light pointing upwards should be eliminated. The spread of light should be kept near to or below the horizontal. Narrow spectrum bulbs should be used to lower the range of species affected by lighting and light sources that emit ultra-violet light must be avoided. Reduce the height of lighting columns as light at a low level reduces ecological impact. For pedestrian lighting, low level lighting that is as directional as possible should be used and below 3 lux at ground level (preferably 1 lux).

Additional Solutions – When designing lighting, start at the feature (the river) and work backwards with 0 lux at the feature. This may mean using low transmittance glass on windows, sensors and vegetation screening. Controlled management systems (CSM) to switch off the lights when not being used.

Sports Facilities – Sports pitches are often considered the most suitable disposal for floodplain land as these areas cannot be developed for housing. This often means that floodlights will have a major impact on riverside habitats as well as the water body, where there are no users of that light. Shields can be retro-fitted to lights and full cut offs are displayed on this sports pitch light. However if bat surveys indicate these areas to be good foraging areas for bats then lighting is inappropriate.

Accent/uplighting/vanity lighting – Light affects the wildlife corridor, it illuminates water and tree canopies which bats (and other wildlife) use for foraging and commuting.

Lighting at Elmbridge spills more than 200 metres onto the River Thames and the vegetation lining Barge Walk (see photo overleaf). This is an example where tighter planning controls can help.

CASE STUDIES

Warren footpath in Twickenham – The Thames Landscape Strategy implemented a lighting system designed at 20 lux ambient light level (lower than the standard 55 lux) with LEDs at 30 watts (streetlights are normally about 70 watts). Dimming regimes were installed with each light dimmed to the lowest level until triggered by an approaching towpath user, temporarily increasing the illumination. The system works because it is dynamic in nature and spillage can be directed away from the features used by bats, i.e. the vegetation and water remain dark (see photo overleaf). This broad spectrum light however can still be seen by bats and will alter their behaviour.

Tegelen, Netherlands – The Dutch Road Agency has installed narrow spectrum lighting, along roads near to natural areas which may have less of an impact on bats this may not suit all human situations where colour definition is needed.

Kingston Riverside – After showing major retailers operating along the river at Kingston the impact of their lights, they were very keen to modernise their technology. Good communication and education is key to ensuring the message of appropriate lighting reaches other riparian residents along the river. By producing this leaflet for distribution to planning authorities and landowners, it is hoped that bats will be considered within new and renovation lighting proposals.



FURTHER INFORMATION

- www.cpre.org.uk
- www.batsandlighting.co.uk/
- www.lbp.org.uk/downloads/Publications/Management/lighting_and_bats.pdf
- www.bats.org.uk/pages/bats_and_lighting.html
- www.furesfen.co.uk/bats_and_lighting.pdf
- www.britastro.org/dark-skies/
- www.energysavingtrust.org.uk
- www.rcep.org.uk/reports/sr-2009-light/documents/RCEP_artificiallight.pdf
- www.cpre.org.uk/what-we-do/countryside/dark-skies/in-depth/item/1676-light-pollution-maps-where-you-live?
- www.need-less.org.uk/

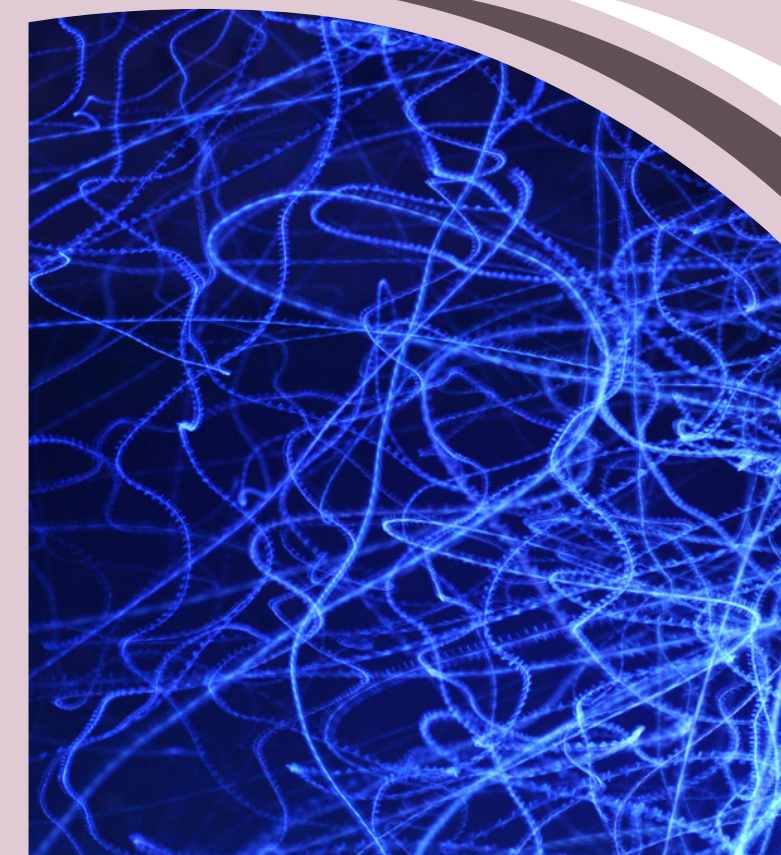
This leaflet has been produced by the Richmond Biodiversity Partnership and funded by Richmond Council printing funded by Surrey County Council Members Allocation. Text by A. Fure and P. Briggs. Photographs by A. Fure, J. Wedd, P. Waring and Daubenton's bat courtesy of Hugh Clark/ BCT

Richmond Biodiversity Partnership,
c/o SWLEN, South West London
Environment Network, 3 Phoenix Wharf,
Eel Pie Island, Twickenham, TW1 3DY.
www.swlen.org.uk
hello@swlen.org.uk



LONDON BOROUGH OF RICHMOND ON THAMES

Rivers & Light Pollution





RIVERS AND LIGHT POLLUTION

Designation – Most rivers in the London region are designated as wildlife corridors. The Thames as a Site of Metropolitan Importance for Nature Conservation (SMINC) has the highest designation. Yet throughout the night it receives wasted and unwanted light pollution from residential and commercial properties.

Richmond and Kingston are both very important boroughs for bats in London, with ten of the 18 UK species known to be present. Bats are an important but threatened part of our environment. The large areas of green space in these boroughs contain features such as mature woodland and water bodies that provide excellent roosting and foraging habitat for bats and other wildlife. However, as elsewhere in London and the rest of the UK, these important habitats are at risk of degradation and fragmentation due to the constant pressure of development, with increased lighting being a particular problem for bat populations. This is a major issue along the river Thames, which is used for foraging and commuting by a wide range of bat species, but due to ever increasing lighting this important dark corridor is becoming more and more fragmented. This poses a major threat to the survival of bats.

ECOLOGICAL IMPACTS OF LIGHTING ON WILDLIFE

Bat movement – Bats such as the Daubenton's bat use river corridors to move to their foraging areas and roost sites. Light pollution causes fragmentation of the corridors and inhibits movement. Bat retinas are specifically adapted for low light conditions.

Light at a roost – Bats often roost together during the day in buildings. Ensure a bat survey is undertaken on buildings with a high potential for bats before erecting external lights, or you might affect an existing bat roost. This will include any building near water. Illumination near to a roost can have a bad effect on bats. It can affect the size of young and the ability to survive hibernation. Bat boxes should not be installed close to any form of light source.

Insect prey – Insects form the basis of bat prey. They are also important for all bird species in order to feed their young. Insects can be attracted to light. Lamps with a high ultraviolet (UV) content can "hoover" up to 75% of the insects from a habitat. This is called the vacuum effect. Around one third of these insects will die.

Urban gradient – The extent of urbanised land is increasing, which could have a negative impact on habitat quality and wildlife corridors. Studies show that activity of pipistrelles (our most common bat species) is reduced in areas where the proportion of built surface exceeds 60%. Protecting and establishing tree networks and river corridors may improve the resilience of some bat populations to urbanisation.

There must be no NEW lighting along London's rivers. If we don't switch

lights off we may be rendering parts of London's rivers no longer suitable as wildlife corridors. Guidance is available for existing lighting only and should be applied on a case by case basis. It is particularly important to avoid lighting areas where light-shy species are present, such as *Myotis* and long-eared bats.

GUIDANCE ON THE ECOLOGICAL IMPACTS OF LIGHT POLLUTION

The Royal Commission on Environmental Pollution, led by Sir J. Lawton (2009), reported on the nuisance caused by badly designed lighting and the effects of artificial light on nature and ecosystems. The commission concluded that there was a need for government to recognise that artificial light in the wrong place at the wrong time is a pollutant, which can harm the natural environment.

Guidelines issued by the Metropolitan Police and British Waterways state, 'encouraging access to the waterway after dark may increase levels of criminal activity that would not otherwise occur. Lighting should be used to draw pedestrians away from urban watercourses at night'.

