

THIS IMAGE
The BRE living
wall by
Cityroofs



Encouraging, maintaining and managing biodiversity and ecosystems is a key ingredient in new development. ROGER HUNT reports.

BUILDING biodiversity

Last year the General Assembly of the United Nations declared 2011 to 2020 to be the UN Decade on Biodiversity. Here in the UK, the Department for Environment, Food and Rural Affairs (Defra) has published a new White Paper on the natural environment – the first for over 20 years – along with the National Ecosystem Assessment and ‘Biodiversity 2020: A strategy for England’s wildlife and ecosystem services’. The government is also exploring biodiversity offsetting.

Housebuilders need to take note because encouraging, maintaining and managing biodiversity and ecosystems is increasingly acknowledged as a key ingredient in both new development and existing built environments. The issue is not only about trying to keep what we have but restoring and recreating habitat. This poses challenges and presents opportunities. What has to be remembered is that building biodiversity benefits both wildlife and people and contributes to creating sustainable places where people want to live, potentially making them more valuable.

This theme is endorsed by Nick Hartley, principal

consultant and managing director at Ebsford Environmental, a company specialising in environmental and ecological solutions. He believes more housebuilders need to understand the environmental value of their sites and think about the issues from day one.

“They should figure out a mitigation and biodiversity plan for a site before they even go for planning because it is going to look great when they make the application and it’s going to highlight problems and issues well before they get on site. If they make the call just before building is about to start it’s going to quadruple the cost of mitigation.”

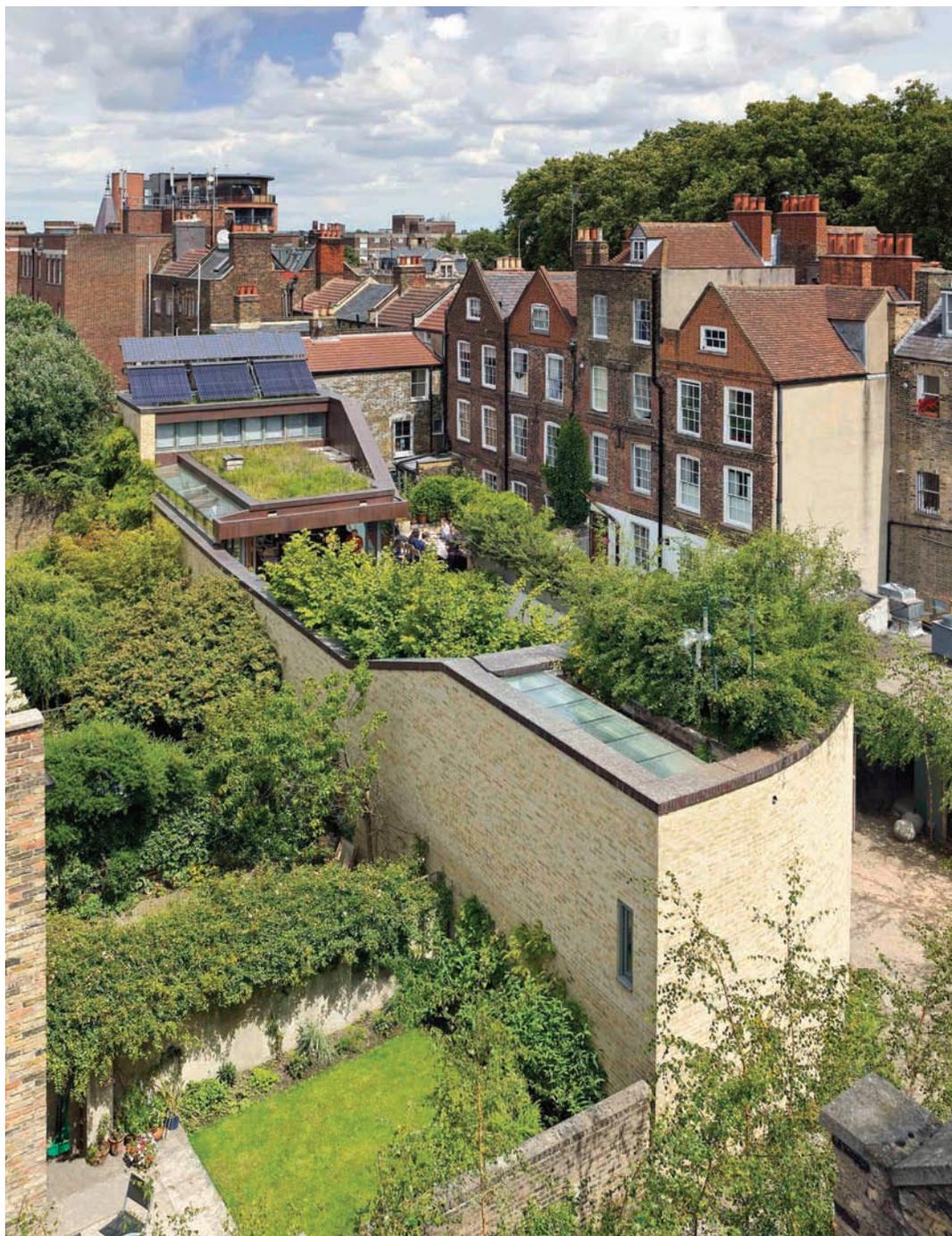
The benefits of incorporating biodiversity at the conceptual stage are also understood by Paul Hinkin, managing director of Black Architecture. One of the schemes Black Architecture is involved with is a mixed-use development of 146 residential apartments above a large retail store in Harrow, north-west London. The residential scheme is elevated onto a landscaped and bio-diverse private podium deck above the busy street so offers a secure family environment and views.

“It’s a full blown garden some 14 metres in the air

so the residents are lifted away from the noise and particulate pollution of the city,” explains Hinkin. “We’re working in close collaboration with the landscape architect and the landscaping contractor and part of the discussion is the small scale, low level opportunities. Things like leaving pieces of untreated timber in rough form that can be inhabited by insects, looking at places where bugs and creepy crawlies can shelter and set up their colonies and also thinking about different shrub plantings to provide food sources for birds.”

Living roofs and walls offer important opportunities to encourage biodiversity in urban areas within the building footprint and a variety of techniques can be used. “All types of living roofs encourage biodiversity, including ‘intensive’ roof-gardens for use by occupants as well as the popular sedum-planted, typical ‘extensive’ green roofs,” explains Matthew Hoddinott, commercial director of Cityroofs.

“Dedicated biodiversity or ‘brown’ roofs probably offer the greatest scope for encouraging local flora and fauna. Designed to encourage natural colonisation, they can be seeded with an appropriate wild flower seed mix or simply covered with various



aggregates or other material – sometimes from the site itself – to create natural habitats and conditions,” says Hoddinott.

Justin Bere, of Bere Architects, points out that the UV protection provided by incorporating green roofs into a development will extend the life of a flat roof covering and means lower maintenance. “Although this may require a modest increase in investment, it will save money in the long run. Furthermore, a green roof, left in a natural, undisturbed, wild state, may well provide a more diverse habitat for nesting birds and other wildlife than the land lost to the building originally provided. A good example of the value of this increase in habitat is the recovery of the black redstart. A ground nesting bird which was nearing extinction in London, it is now making a comeback, due largely to the London Biodiversity Partnership’s campaign begun in 1997 to encourage a particular type of green roof to help increase the number of undisturbed nesting sites available.”

Along with roofs, Matthew Hoddinott emphasises the advantages of living walls. “These can be planted with a diversity of plants, as our 12 metre high demonstration wall at the BRE Innovation Park shows.



OPPOSITE PAGE

LEFT Bere Architects used native wild flower and tree species on the roofs to establish a bio-diverse wildlife habitat on an efficient home
TOP RIGHT Ebsford Environmental use native plants to offer high diversity and low maintenance
BOTTOM RIGHT At Barking Riverside, a joint venture between the Homes and Communities Agency (HCA) and Bellway Homes a colony of water voles has been relocated

THIS PAGE

TOP Ebsford Environmental installation coir and plants to create river bank biodiversity
MIDDLE Green roofs by Bere Architects
BOTTOM Flag-Soprema Optigreen pitched roof system used with roof windows and rainwater harvesting



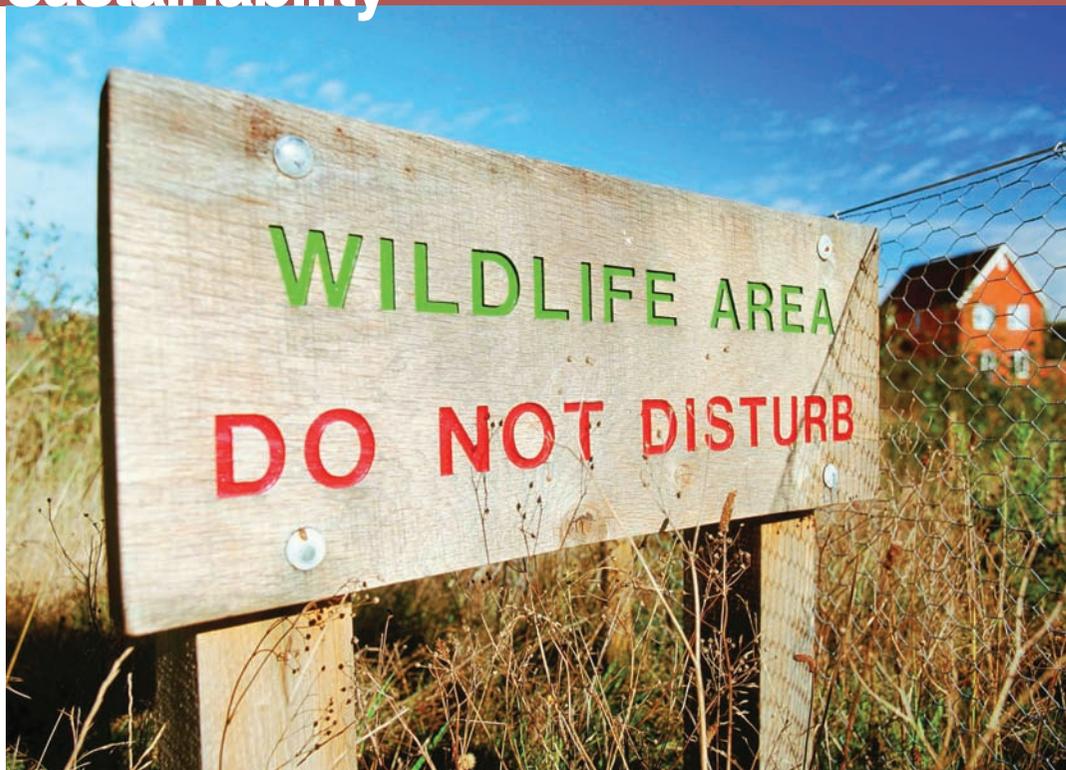
Here we have grown a range of edible plants including watercress, lettuce varieties and leafy brassicas, as well as grasses and clovers.”

Another example of the huge range of systems available is Flag-Soprema’s Optigreen Wall Garden façade greening system. The company claims this insulates, weatherproofs and retains rainwater while also absorbing and reflecting sound. It can be used with rainwater harvesting or attenuation systems and, once established, helps cool and moisten the air, capture and filter fine particles and absorb CO2. It ultimately improves the microclimate and provides habitat for insects and birds.

Among the housebuilders that have seen the value of encouraging biodiversity is Countryside Properties. It is taking forward the lessons learnt at its developments at Greenwich Millennium Village and Great Notley Garden Village, in Braintree, Essex, to new communities such as Great Kneighton in South Cambridge.

At Great Notley, the Essex Wildlife Trust undertook a survey to record and interpret how wildlife and habitat rehabilitate after the creation of a large new development. The findings showed that there has been a major recovery in both habitat and wildlife and the survey highlighted the fact that biodiversity can be enhanced by good design.

“At Great Notley we put in a country park and ►



LEFT Wildlife is protected at a Bellway Homes' development **BELOW** A natterer's bat roosting in a crevice in brickwork **BOTTOM LEFT** Ebsford Environmental work with volunteers to prepare coir and plants for river bank biodiversity **BOTTOM RIGHT** A flood alleviation scheme benefiting reptiles and plant life



Picture credit: Jan Collins

some big lakes and there was a lot of green space within the overall development with village greens and the like," explains Guy Lambert, Countryside Properties' corporate communications manager. "It adds value and gives the feeling that people have come to a place that will be good to live in. With larger schemes the environment is a very important part of trying to create communities and it doesn't have to cost the earth."

At Ebsford Environmental, Nick Hartley agrees, arguing that bio-diverse solutions can be very cost efficient. "A much cheaper option than laying and having to mow turf is to create a wildflower meadow. You then give it to the local nature or conservation group, they'll manage it for you in perpetuity."

Protected species are another key concern in the biodiversity equation. All 17 native species of bat are protected by the Wildlife and Countryside Act and the conservation regulations so the Code for Sustainable Homes promotes their conservation by awarding extra credits under its ecology criteria.

Jan Collins, principal bat ecologist at the multidisciplinary environmental consultancy RSK and author of *Bats and Refurbishment*, an IHS BRE Press guide, believes many owners are keen on having wildlife around their homes.

"Bats and birds just need a crevice where they can roost or nest but quite often there's a conflict and the need to seal houses up," explains Collins. "The problem with new houses is that they don't have enough nooks and crannies. An understanding of how to provide wildlife habitat is the important thing and it's often quite simple. For example, if there are hanging tiles on a house you can wedge up a tile or two and the bats can then roost behind the tiles. Swifts are another species suffering from the loss of buildings with high crevices that they can nest on so installing swift boxes can be a positive move."

Responding to the demand for alternative roosting sites for bat colonies, brick manufacturer Wienerberger and environmental consultancy EcoSurv have developed a box specifically for the pipistrelle bat, although it is easily adapted for the needs of other UK bat species.

Many other species also need help. At Barking Riverside, a joint venture between the Homes and Communities Agency (HCA) and Bellway Homes



Picture credit: Ebsford Environmental

which will see the regeneration of a brownfield site into a community of 26,000 people, a colony of water voles has been relocated. In addition, Bellway has worked with the London Wildlife Trust and local community to build the world's biggest bee house to provide thousands of valuable nesting sites for solitary bees. Making up 90 per cent of our bee population, they look for small tunnels or holes to make their individual nest cells.

Acknowledging the need to disseminate knowledge on these issues, RIBA Publishing has produced the excellent *Biodiversity for Low and Zero Carbon Buildings: A Technical Guide for New Build* by Dr Carol Williams. This offers detailed information about different species, legislation and bespoke roost and nesting solutions so, as we move through the decade, it is likely to be an essential read for housebuilders and their consultants. **Sh**

CONTACTS

Bere Architects www.bere.co.uk

Black Architecture www.black-architecture.com

Cityroofs www.cityroofs.com

Ebsford Environmental www.ebsford.co.uk

Flag-Soprema www.flag-soprema.co.uk

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