
Kronospan North East Warehouse
on behalf of Axis PED
Ecological Mitigation Report



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1 INTRODUCTION

1.1 Background

1.1.1 Avian Ecology Ltd. was commissioned by Axis PED on behalf of Kronospan Ltd. to produce an Ecological Mitigation Report in order to discharge Condition 7 attached to the planning permission for the Kronospan north east warehouse (ref. P/2021.0725). The development comprises a new warehouse at the north-eastern edge of the existing Kronospan site in Chirk, Wrexham, LL14 5NT, with associated landscaping (hereafter referred to as 'the Scheme').

1.1.2 Condition 7 states:

"No part of the development shall commence until a scheme of mitigation that provides the following has been submitted to and approved in writing by the Local Planning Authority:

i). full details of the measures specified in Table 5.1: Ecological Constraints and Opportunities of Avian Ecology Preliminary Ecological Appraisal V3 dated 06/05/2021; and

ii). full detail of habitat enhancement measures;

iii). a timescale for implementation of the scheme

The scheme as approved shall therefore be implemented in accordance with the timescale contained therein."

1.1.3 An Ecological and Landscape Management Plan (ELMP) (Axis PED, 2021¹) has been prepared to discharge Condition 9, which describes the maintenance regime for habitats created as part of the proposed landscaping for the Scheme.

1.2 Site Overview

1.2.1 The Site is located at the eastern side of the Kronospan manufacturing plant as shown in **Figure 1** and comprises a rectangular area of land alongside the B5070 road.

1.2.2 Within the surrounding landscape, habitats include agricultural fields, grasslands, hedgerows and woodland to the north and west. Residential housing is located to the south and east of the Kronospan manufacturing plant.

1.3 Existing Assessment

1.3.1 An Ecological Assessment of the Site was undertaken in March 2021 as reported within the Kronospan Warehouse Preliminary Ecological Appraisal (Avian Ecology, 2021²), with great crested newt eDNA surveys undertaken in June 2021 as reported within the Kronospan Great Crested Newt Presence or Absence (eDNA) Survey report (Avian Ecology, 2021). In addition, a Biodiversity Note (Avian Ecology, 2021) was also prepared and submitted alongside the application. Together, these documents outline the proposed mitigation and enhancement measures required to protect and enhance biodiversity at the site, and to achieve a biodiversity net gain.

¹ Avian Ecology (2021) *Kronospan Warehouse - Preliminary Ecological Appraisal*

² Axis (2022) *Proposed New Warehouse Kronospan, Chirk - Ecological and Landscape Masterplan*

1.4 Report Purpose

- 1.4.1 This report will provide additional detail on the mitigation measures outlined within the Preliminary Ecological Appraisal and Biodiversity Note, including specifications, locations, timings and requirements for any ongoing maintenance and monitoring. It is considered that the contents of this report are sufficient to discharge Condition 7.
- 1.4.2 This report should be read alongside the Preliminary Ecological Appraisal, Great crested Newt Presence or Absence (eDNA) Survey Report and Biodiversity Note.

2 ECOLOGICAL MITIGATION AND ENHANCEMENT MEASURES

2.1 Protected Sites and Habitats

Pollution prevention

- 2.1.1 Pollution prevention measures will be implemented to control site runoff for the duration of the construction period. These measures will comply with the Guidance for Pollution Prevention³ (GPP) which provide environmental regulatory guidance for Wales.
- 2.1.2 Adopting measures as detailed in the GPP, it is considered that there will be no ecological impacts to habitat outside of the application site, including any statutory or non-statutory designated sites.

Habitat Creation

- 2.1.3 In order to achieve a biodiversity net gain, approximately 0.28ha of mixed scrub will be planted on land surrounding the Site, as shown on drawing 2936-01-02 Landscape Design: Overview. Details relating to the establishment and ongoing management of these areas are outlined within the ELMP for the Scheme. The tree and shrub mix to be planted is shown on drawing 2936-01-03 Landscape Design: Insets.
- 2.1.4 Scrub planting would deliver approximately 11% biodiversity net gain, as measured through the Natural England Biodiversity Metric 3.0⁴.

Tree protection Measures

- 2.1.5 A number of trees are to be lost as part of the proposed development, as outlined within the Kronospan Arboricultural Impact Assessment (AIA) (Tree 21 Ltd., 2021⁵).
- 2.1.6 All recommendations within the AIA will be followed. Currently, tree protection barriers are not proposed as it is considered that the existing soil bund provides adequate protection from construction related activities.

³ <https://www.netregs.org.uk/environmental-topics/guidance-for-pollution-prevention-gpp-documents/>

⁴ <http://publications.naturalengland.org.uk/publication/6049804846366720>

⁵ Tree 21 Ltd. (2021) *Arboricultural Impact Assessment Report Reference: 21030_1.0_AIA_ELYK_T21-MW*

2.2 Protected Species

Birds

- 2.2.1 In order to avoid impacts to nesting birds any vegetation removal should be undertaken outside of the bird breeding season (01 March to 31 August inclusive) if practicable. If works are necessary during the breeding season, suitable nesting habitat should be hand-searched by a suitably experienced ecologist prior to works commencing. Only when the ecologist is satisfied that no offence will occur under the legislation will works be permitted to proceed. Should an active nest be observed a suitable buffer zone will be enforced and remain in place until any chicks have fully fledged and the nest is no longer in use. The size of the buffer zone will be determined by the Ecologist on site.
- 2.2.2 It is also proposed to install a minimum of eight bird boxes on suitable trees on land within Kronospan land ownership. Bird boxes will include a variety of designs and will be placed at the direction of the Ecologist according to the target species for each box type.
- 2.2.3 Examples of suitable boxes are provided in **Appendix 2** and indicative locations are shown on **Figure 2**. Bird box specifications within this document are examples only and the actual type used will be dependent on the availability of boxes at the time of construction. Locations are indicative and exact locations will be determined on Site with the guidance of a suitably experienced ecologist.

Bats

- 2.2.4 One tree with moderate bat roosting potential is located within the Site and is due to be removed as part of the Scheme. Prior to construction of the Scheme this tree will be subject to a minimum of two bat presence/ likely absence surveys at the appropriate time of year in accordance with current best practice guidance⁶. Following surveys, the tree will be soft-felled under an ecologist's watching brief should no evidence of roosting bats be found, or if a roost is shown to be present a European protected species derogation licence will be obtained from Natural Resources Wales (NRW) prior to any works that may impact the tree. Any further works would then be undertaken in accordance with the licenced method statement.
- 2.2.5 The lighting design will be designed to be sensitive to bats in accordance with BCT guidance (2018) *Bats and Lighting in the UK: Bats and the Built Environment Series*⁷, avoiding illumination of adjacent habitats that may be utilised by foraging and commuting bats.
- 2.2.6 A minimum of eight bat roost boxes will be erected on suitable trees on land within Kronospan land ownership. Bat boxes will be placed at the direction of the ecologist, however should generally be sited at least 4m above ground level on a southern aspect. It is often preferable to install two or three roost boxes on the same tree at differing angles in order to provide a range of microclimates.
- 2.2.7 Examples of suitable boxes are provided in **Appendix 2** and indicative locations are shown on **Figure 2**. Bat box specifications within this document are examples only and the actual type used will be dependent on the availability of boxes at the time of construction. Locations are indicative and exact locations will be determined on Site with the guidance of a suitably experienced ecologist.

⁶ Collins, J. (2016) *Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edn)*. The Bat Conservation Trust, London.

⁷ Bat Conservation Trust. (2018). *Bats and Artificial Lighting in the UK: Bats and the Built Environment Series Guidance Note 08/18*

Badger (and other terrestrial mammals)

- 2.2.8 Badgers are a highly mobile species and can quickly establish new setts, or re-use setts previously thought to be inactive. Considering the highly mobile nature of badgers and the seasonality of their activity, it is recommended on a precautionary basis that a pre-construction badger survey should be completed by a suitable qualified ecologist prior to the commencement of construction to check for any newly constructed setts in and surrounding the Site.
- 2.2.9 In order to protect badger or other terrestrial mammals that may be utilising the Site any excavations will be backfilled, or if left open overnight will be covered or fitted with a means of escape at an angle shallow than 45°.

Amphibians and Reptiles

- 2.2.10 In order to protect any amphibians and/ or reptiles that may be utilising the Site, clearance works will be undertaken following Reasonable avoidance Measures (RAMS) with relation to these species. RAMS are provided in **Appendix 1**.
- 2.2.11 In addition, cut material from scrub clearance will be used to create habitat piles within the woodland belt adjacent to the Site as refuge for invertebrates, amphibians, reptiles and small mammals.

Other species

- 2.2.12 A minimum of two insect 'hotels' will be placed in the woodland adjacent to the Site to provide habitat enhancements for a range of invertebrate species.
- 2.2.13 Examples of suitable insect 'hotels' are provided in **Appendix 2** and indicative locations are shown on **Figure 2**. Locations are indicative and exact locations will be determined on Site with the guidance of a suitably experienced ecologist.
- 2.2.14 Cut material from scrub clearance will be used to create habitat piles within the woodland belt adjacent to the Site as refuge for invertebrates, amphibians, reptiles and small mammals.

Invasive Non-native Plant Species

- 2.2.15 A pre-construction survey will be undertaken immediately prior to development to check for the presence of any non-native invasive plant species that may have established since the baseline surveys. Should any invasive species be encountered and suitably biosecurity strategy will be implemented.

3 MONITORING AND MAINTAINANCE

3.1 Habitat creation

- 3.1.1 Habitat creation will be monitored for a minimum of five years to ensure establishment. A detailed monitoring and maintenance schedule and descriptions of management activities are provided in the ELMP.

4 TIMINGS

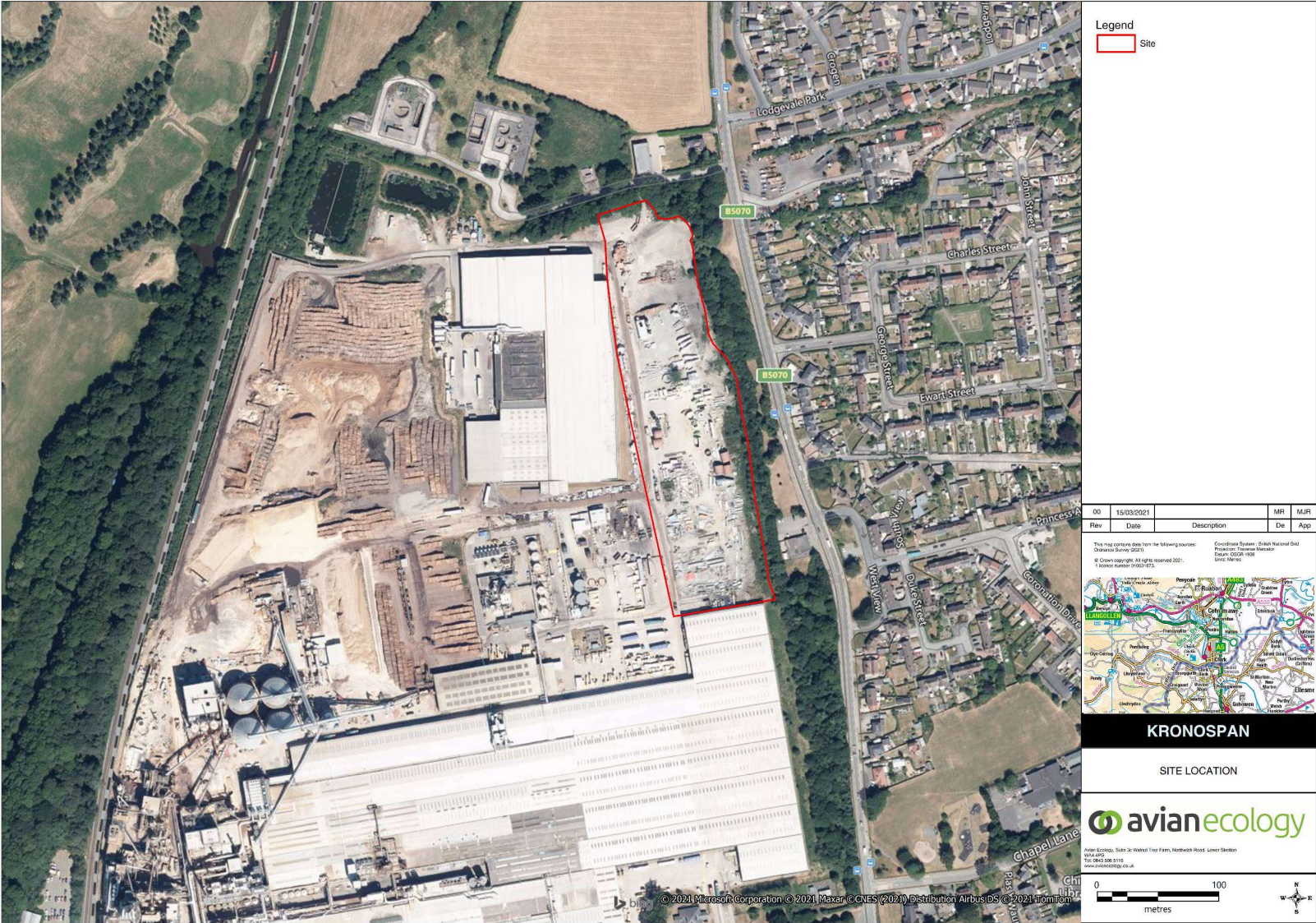
- 4.1.1 **Table 2.1** below provides timings for each activity outlined in section 2.

Table 2.1: Timings of Ecology mitigation and Enhancement Works

Description	Purpose	Timing
Pre-commencement		
Bat survey to be undertaken on moderate potential tree to be removed	To ensure no damage to bat roosts	Prior to works Surveys can be undertaken between May to September
Pre-construction badger survey	To protect badgers	Less than 30 days before start of works
Pre-construction check for invasive non-native species	To prevent spread of invasive species	Less than 30 days before start of works
Lighting design to be sensitive to bats	To protect bats	Design measure
Construction Phase		
Follow guidance for pollution prevention	To protect off-site habitats and designated sites	Throughout works
Tree protection measures	To protect trees	Throughout works
Vegetation clearance works outside of nesting bird season OR Vegetation clearance works within nesting bird season to be supervised by an ecologist	To protect nesting birds	Nesting bird season is 1 st March to 31 st August inclusive
Vegetation clearance works undertaken following RAMS	To protect amphibians and reptiles	Throughout works
Trees with bat roost potential to be soft felled under ecological supervision	To protect bats	During vegetation clearance
Cut scrub material to be placed into habitat piles	To provide enhancements for amphibians, reptiles, small mammals and invertebrates	During vegetation clearance
Excavations to be backfilled, covered or fitted with a means of escape	To protect badgers and other terrestrial mammals	Throughout works
Following Construction		

Description	Purpose	Timing
Habitat creation	To achieve a biodiversity net gain	First planting season following completion of construction activities.
Eight bird boxes to be installed	To compensate for loss of nesting habitat and provide enhancements for birds	Immediately following works
Eight bat roost boxes to be installed	To compensate for loss of suitable bat roosting habitat and provide enhancements for bats	Immediately following works

FIGURE 1: SITE LOCATION PLAN



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APPENDIX 1

Reasonable Avoidance Measures (RAMS) Method Statement for Amphibians and Reptiles

The following Method Statement outlines suitable measures to be implemented during construction works associated with the proposed warehouse location (the Site), to avoid the potential for disturbance, injury or killing of amphibians or common and widespread reptile species. These RAMs relate to all vegetation clearance activities within the Site.

Measures to ensure the favourable conservation status of the species during the proposed development must reflect legislation and guidance application at the time and the construction phase will be undertaken following RAMS under the supervision of an Ecological Clerk of Works (ECOW) as required to provide advice.

Should a great crested newt be found, certain works may require to be undertaken under a European Protected Species Mitigation (EPSM) licence from Natural Resources Wales which would be supported by a detailed Method Statement.

Method Statement Objectives

In order to facilitate the proposed works, a detailed working Reasonable Avoidance Measures (RAMs) Method Statement will be adopted to limit disturbance to avoid significant impacts on amphibians and reptiles potentially present.

Any development related activities on the Site, such as vegetation clearance or excavations in areas of suitable habitat may potentially affect amphibian and/ or reptile species. As a result, safeguards must be implemented to protect these species and the Method Statement below outlines measures to be implemented to ensure these objectives are achieved. If these measures are followed, then no impacts are likely to occur.

Method Statement

This Method Statement should be followed for the construction works and associated minor short term destructive habitat clearance works within the Site in order to ensure legal compliance and to ensure the objectives are achieved.

The following measures will be adopted throughout the construction period of the proposed development:

- Site operatives will be informed by 'tool-box' talk of the potential for protected species to occur on-site, what to look out for and what to do in the event that animal is found.
- Vegetation clearance works should only commence after a careful visual inspection by a suitably experienced and where necessary licensed ecologist or Ecological Clerk of Works (ECOW) has determined that no animals are present. Potential refugia should be hand searched by the ecologist prior to removal. Vegetation should be reduced (by hand strimmer) to a height of c.150mm prior to ground works commencing to aid visual searches and encourage individuals to temporarily move away from the working areas.
- The proposed timing of the works should avoid the amphibian and reptile hibernation period (November to February inclusive) in order to prevent disturbance to hibernating animals.
- Trenches and excavations should include an escape route for animals that might enter the trench, especially if left open overnight. Ramps should be no greater than 45 degrees in angle and can include wooden planks or ramped earth. Ideally, any excavations open for a prolonged period should be covered.

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- All excavations left open overnight or longer should be checked for animals prior to the continuation of works or infilling.
- Any excavated material stored overnight should be searched prior to being used as infill.
- Any brash cut down from the Site should be placed in piles within a set aside and undisturbed habitat area, to create additional hibernacula for both amphibian and reptile species.

Should a great crested newt be found at any point during construction, works within suitable habitat and/or potentially disturbing works must cease immediately and the ECoW contacted to advise on the appropriate actions, including applying for a licence, if required. Other amphibians or reptiles found during the visual inspection will be placed away from the development works in the wider area comprising of terrestrial habitats which will not be impacted by the proposed works and has excellent connectivity with surrounding terrestrial habitats.

APPENDIX 2

Examples of Suitable Bat Roost Boxes (other suitable boxes are available))		
Large Twin Crevice		Primarily for use by roosting bats but may also be used by small birds as a safe roost site. Two curved internal voids narrowing down to tight crevices at the top. Suitable for a range of bat species, mating roosts and spring and autumn roosts where the thermal mass is a benefit. Top loop for more comfortable carrying and quick initial attachment to the tree and two 'through the box' nail holes for secure attachment of this heavy box.
Kent Type Twin Crevice		Two parallel crevices for roosting bats with internal connection to move between the two. Light internal finish for helping to spot bats, droppings and rub marks. Top loop for quick and easy initial attachment to the tree, plus two 'through the box' nail points for maximum security.
Bat chamber		Primarily for use by roosting bats including as an autumn mating roost, particularly for pipistrelle species. Also likely be used by small birds as a safe roost site. 16mm hole for endoscope inspection in the base facilitating inspection, potentially avoiding working at height with the right equipment. Light internal finish facilitates detection of droppings or rub marks. Top loop makes initial attachment to the tree easier – with two further attachment points for 6" nails for security.
Siting	The bat boxes can be sited in trees and are best positioned at a height of between 3 to 6 metres. Bat boxes should ideally be sited in open sunny positions facing different directions to provide a variety of micro-habitats.	
Timing	Bat boxes can be installed at any time of year following the cessation of construction works.	

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Examples of Suitable Bat Roost Boxes (other suitable boxes are available)	
Other Notes	Note that once bats have inhabited a roost site they may only be checked by licensed bat workers.
References	https://www.barkboxes.co.uk/product/large-twin-crevice/ https://www.barkboxes.co.uk/product/kent-type-twin-crevice/ https://www.barkboxes.co.uk/product/bat-chamber/

Suitable Bird Box Types (other suitable boxes are available)		
Great tit / tree sparrow nest box		Nest box and roost site with 28mm entrance suitable for great tit <i>Parus major</i> or tree sparrow <i>Passer montanus</i> . Likely to be used by roosting birds, one of these was adopted by a blue tit whilst still in production, and with potential for use by roosting bats.
Starling box		A large box for nesting starling <i>Sturnus vulgaris</i> . This meets the British Trust for Ornithology (BTO) recommendations. 'Branch stub' entrance provides shelter and protection from predators. Top loop provides more comfortable carrying and a quick initial attachment point to the tree; whilst 'through the box' nail points provide security for this large box.
Branch stub		Replicating a rotting branch stub with void. More likely to be used by nesting and roosting birds than roosting bats.

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Suitable Bird Box Types (other suitable boxes are available)

Open fronted nest box		For birds such as robin <i>Erithacus rubecula</i> and pied wagtail <i>Motacilla alba yarrellii</i> . Open fronted but with a generous canopy to screen from aerial predators. Place in good cover not in the open.
Siting	The nest boxes should be sited in trees and are best positioned at a height of between 2 to 4 metres. Boxes should be angled so that they face away from the prevailing wind or in a semi sheltered environment. Positioning within or close to hedgerows will increase chances of occupation.	
Timing	Bird boxes will be erected outside of the breeding bird season, to eliminate the possibility of disturbing birds currently utilising the trees for nesting.	
Other Notes	Note that bird boxes should not be opened between the months of March to September to avoid disturbing nesting birds.	
References	https://www.barkboxes.co.uk/product/great-tit-tree-sparrow/ https://www.barkboxes.co.uk/product/starling-box/ https://www.barkboxes.co.uk/product/branch-stub/ https://www.barkboxes.co.uk/product/open-fronted-nest-box/	

Suitable Insect 'Hotel' Types (other suitable boxes are available)

Clay and Reed Insect Nest		
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Suitable Insect 'Hotel' Types (other suitable boxes are available)		
WoodStone Insect Block		
Insect Maisonette		
Siting	Insect 'hotels' should be sited approximately 1.5m above ground level on a south facing aspect somewhere that will receive sun for at least part of the day.	
Timing	Insect 'hotels' can be erected at any time of year.	
Other Notes		
References	https://www.nhbs.com/schwegler-clay-and-reed-insect-nest https://www.nhbs.com/woodstone-insect-block https://www.birdfood.co.uk/insect-hotel-capri	