BIODIVERSITY ACTION PLAN 2020-30

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bluestone
national park resort

FOREWORD

"Bluestone National Park Resort (Bluestone) will seek to enrich the natural environment and create a net increase in the diversity of both habitats and species. Empathy with the natural world will be quite literally, at the heart of this holiday experience. Bluestone's ethos has to be the care of it's natural environment and it is this dependence that will drive the need to conserve and enhance the vitality of the surrounding countryside, as well as increasing the public understanding and enjoyment of it, both now and far into the future.

The positive economic impact of Bluestone is very significant to Pembrokeshire but not at the expense of the environment."

- ***William McNamara***
(Bluestone; A New Generation Holiday Village) 2008.

ENDORSEMENTS

Sophie Howe, Future Generations Commissioner:
" I have been very impressed with the way in which Bluestone are embracing sustainability and the Wellbeing of Future Generations Act, from reducing their general waste by over 40%, to enhancing biodiversity, and working with public services during the pandemic - there is lots for others to learn from them. I hope that they will now take their good work even further."

Ant Rogers, Biodiversity Implementation Officer, Pembrokeshire Nature Partnership:
"Bluestone are valued members of the Pembrokeshire Nature Partnership, working together to promote nature recovery in our County. The transformation at Bluestone from dairy farm to nature based resort has seen increases in biodiversity and the contribution the site makes to wider ecological networks. The work that has been done to develop habitats and enhance the natural assets has taken place with reference to local and national Nature Recovery Action Plans.

This most recent Biodiversity Action Plan for Bluestone is both comprehensive and aspirational. I am very happy to provide this foreword for the 2021 BAP, and look forward to working with the team at Bluestone over the coming years."

CONTENTS

1. CORPORATE RESPONSIBILITY OVERARCHING CONTEXT

Biodiversity Management sits within the Corporate Responsibility Department at Bluestone.

Corporate Responsibility at Bluestone

Corporate Responsibility is a department at Bluestone - established in January 2019. The aim of the department is to consolidate all issues around Sustainable Development, environment, social and ethical practices.

The remit of the department is to take Bluestone into a position of sector leadership, to be continually progressive, and to share best practice wherever possible. Operating a learning and sharing ethos, supporting greater understanding and the enhancement of Sustainable Development, engaging both sector and cross sector partners, and the wider community at large.

Introduction to Corporate Responsibility

Corporate Responsibility (CR) refers to a self regulatory, voluntary business model which positions a business as accountable, and committed to enhancing; the social, environmental and financial implications of its actions to all stakeholders*.

Our CR policy aims to ensure the business exceeds legislative duties where possible, and is open to sharing and learning from others in a continuous cycle of improvement.
*All stakeholders - staff, customers, supply chain, local community, national and international communities, and future generations.

Who we are and what we do

Bluestone National Park Resort – opened in 2008
We are a lodge based resort offering short breaks in the Pembrokeshire Coast National Park.

No. employees

740 (in Jan 2020)

No. guests per annum

2019 - 154,935

Accreditation / Affiliation

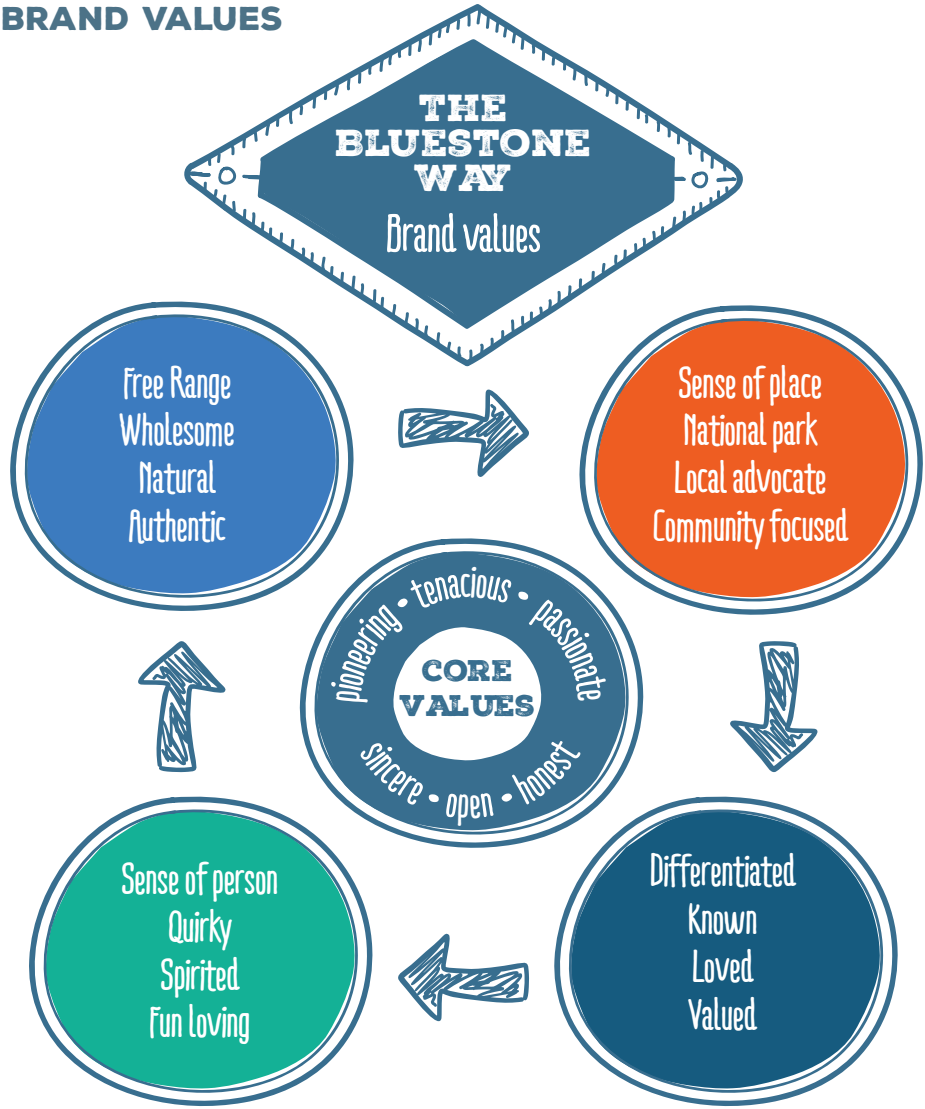
- Green Key - Accredited
- Business in the Community - Member
- Pembrokeshire Nature Partnership – Member
- WRAP Food Road Map - Member
- WRAP Guardians of Grub - Member

PURPOSE

'In a world where everyone is so busy and there is little time for families to be together, Bluestone provides an opportunity where you can STOP, just for a while, and recharge. Bluestone is a place where loved ones reconnect'.

'WE MAKE PEOPLE HAPPY'

BRAND VALUES



• Sincere • Open • Honest

• Pioneering • Tenacious • Passionate

• Free Range • Sense of Place

• Differentiated • Sense of Person

Mission

• to provide a spirited visitor experience

• inspiring memories in beautiful surrounding

• ensuring guests leave with their inner selves relaxed and refreshed

• make people HAPPY

Planet and People Centric

We are a planet and people centric organisation and operate through a model built on 4 pillars:

Planet - People - Product - Profit

Free Range

We aspire to our purpose and mission through our 'Free Range' ethos.

'Free-range' sums Bluestone up: with us, you get room to roam, good food, thoughtful care and excellent accommodation. It's why we're different and it's what we're proud of. We're in the Pembrokeshire Coast National Park, surrounded by incredible countryside, beaches, wildlife and heritage, so we've got a lot to live up to.

Our Corporate Responsibility Strategy- **Free Range Future** - ensures that we deliver our mission whilst taking our responsibility to sustainable development seriously.

Free Range Future: Corporate Responsibility Statement

In order to bring about the culture change and the momentum of the entire business towards Sustainable Development, we have created the Free Range Future movement within Bluestone. Free Range Future permeates all aspects of Bluestone, informing and guiding the business as it escalates towards an apex of responsibility.

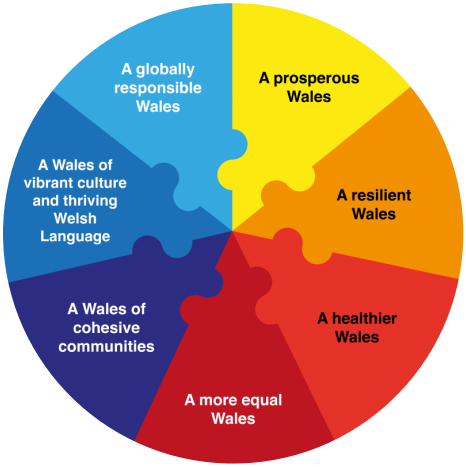
"Free Range Future is our way of not doing anything today which our children will have to pay for tomorrow".

Context: Sustainable Development at Bluestone

There are 17 Global Goals for Sustainable Development as set out by the United Nations.

Wales

The UN's statement on Sustainable Development: "Development that meets the needs of the present without compromising the ability of future generations to meet their own needs" underpins the Wellbeing and Future Generations (Wales) Act, see diagram.



Pembrokeshire

Locally, the Pembrokeshire Public Services Board has responded to the Wellbeing of Future Generations Act by creating the Wellbeing Plan for Pembrokeshire, with 2 overarching objectives.

Who we are: Helping our people, communities, and organisations so we can support ourselves and each other.

Where we live: to protect and enhance our natural assets whilst optimising economic prospects, accessibility and health for all.

In order for Bluestone to develop Free Range Future it must be informed by the global understanding and regional context of Sustainable Development. From this informed position Bluestone can develop Free Range Future into a meaningful, unique and pioneering programme.

"Free Range Future is our way of not doing anything today which our children will have to pay for tomorrow".

2. BIODIVERSITY ACTION PLAN 2020-30: AIM WALES

Our aim is to enhance Bluestone's biodiversity, maximizing the potential of our habitats and land management to support the Pembrokeshire Local Biodiversity Action Plan and the Pembrokeshire Nature Recovery Plan. As a member of the Pembrokeshire Nature Partnership we are committed to playing our part in delivering on our local objectives and supporting the wider Nature Recovery Plan for Wales.

10 years ago our site was of very low ecological value, over 60% was intensively managed as farmland and the remainder low diversity woodland was due to be felled. However Bluestone saw scope to enhance the biodiversity of the site and this biodiversity action plan details our actions to further conserve and enhance the natural beauty and wildlife.

We are passionate about sharing our knowledge, understanding and resources to help engage, educate and champion; the importance, fragility and joy of biodiversity. Increasingly, access to green spaces and an increased relationship with nature are being recognised as powerful tools in supporting wellbeing. The wellbeing of our staff, guests, and wider community are a key element in Bluestones brand values.
Enhancing biodiversity is seen as crucial in improving guest experience, and in attaining our company purpose; to make people smile.

Regional and Local context

Nature Recovery Action Plan: Wales
The Nature Recovery Action Plan sets out how Wales will address the Convention on Biological Diversity's Strategic Plan for Biodiversity and the associated Aichi biodiversity targets in Wales. The Nature Recovery Action Plan will identify actions that can be delivered in the short term and set a course to deliver longer term commitments beyond 2020. The actions in the Plan will be kept under regular review, ensuring they continue to meet objectives and achieve the ambition of nature recovery in Wales. A set of indicators will also be developed to measure the progress of the Nature Recovery Action Plan against objectives. To accompany the plan, a Nature Recovery Framework will set out the roles and responsibilities of the key players for delivery of action for biodiversity in Wales, and how they are linked together.

The Nature Recovery Action Plan links to and complements The Well-being of Future Generations (Wales) Act 2015 and the Environment Act (Wales) 2016.

Addressing the decline in species across Wales

Trends in selected conservation features:

Condition	UK	Wales	Pembrokeshire
Declining	40%	33%	30%
Stable	31%	43%	35%
Improving	29%	24%	22%
Data Efficient	--	--	13%

Modified from State of Nature Report (2016) and State of Wildlife in Pembrokeshire Report (2016)

In response to these trends, the Welsh Governments Nature Recovery Action Plan for Wales sets six key objectives in order to halt the decline in biodiversity.

The Pembrokeshire Nature Recovery Action Plan takes these objectives and sets them in the context of local priorities, inviting partners to work together in a set of broad action themes to meet the objectives. Specific actions will be recorded as they are identified and delivered.

NRAP Wales Objective	NRAP Pembrokeshire Action Themes
Objective 1: Engage and support participation and understanding to embed biodiversity throughout the decision making at all levels.	1.1 Programme of education and awareness raising activities accessible to the public and including events, newsletters, social media and press releases. 1.2 Work with public bodies to embed biodiversity in decision making. 1.3 Work with the private sector to embed biodiversity in decision making. 1.4 Work with specialist interest groups to improve understanding of the conservation status and ecological role of specific features. 1.5 Work with communities and landowners to highlight conservation features in their area and encourage their consideration in site management.
Objective 2: Safeguard species and habitats of principal importance and improve their management.	2.1 Provide clear, publicly accessible information on the species and habitats of importance in Pembrokeshire. 2.2 Assist partners in identifying, developing and delivering actions to safeguard species and habitats of importance in Pembrokeshire.

NRAP Wales Objective	NRAP Pembrokeshire Action Themes
Objective 3: Increase the resilience of our natural environment by restoring degraded habitats and habitat creation.	3.1 Assist partners in identifying, developing and delivering actions to increase the resilience of our natural environment by restoring degraded habitats and habitat creation in Pembrokeshire.
Objective 4: Tackle key pressures on species and habitats.	4.1 Work with site owners and site managers to reduce the fragmentation of habitats, setting individual actions in the broader, landscape scale context through initiatives such as B-lines, the Long Forest and the Reconnecting Welsh Dragons project and others as they arise. 4.2 Increase resilience of species, habitats and ecosystems to the effects of climate change through improving the condition, extent and ecological connectivity of our nature-rich areas. 4.3 Encourage the use of natural solutions such as reed beds, buffer strips and contour hedge planting to reduce diffuse pollution and soil erosion. 4.4 Encourage the development and adoption of voluntary codes of conduct to manage the use of our environment within sustainable limits. 4.5 Encourage collaborative projects to tackle INNS at appropriate scales such as river catchments.
Objective 5: Improve our evidence, understanding and monitoring.	5.1 Work with West Wales Biodiversity information centre to provide high quality data on the distribution of habitats and species and develop tools to use these data in order to identify and target conservation opportunities. 5.2 Support volunteer survey by providing access to advice, training and equipment and signposting to citizen science initiatives.
Objective 6: Put in place a framework of governance and support for delivery.	6.1 Provide a strong local partnership to act as an interface between local delivery partners and Welsh Government/Natural Resources Wales.

3. BLUESTONE RESORT

Bluestone National Park Resort covers 500 acres (200 hectares) of Pembrokeshire countryside, comprising 213 acres (86 hectares) of woodland and landscaped areas including a lake. This landscape provides the setting for 344 lodges, a village centre with shops, restaurants, and spa, the Blue Lagoon water park, Adventure Centre, Newton Farmhouse as well as outdoor activity centres with associated roads, car parks, staff buildings and the Blackpool Mill complex.

The resort slopes down to the Cleddau Estuary (Eastern Cleddau) and Milford Haven Marine Sites of Special Scientific Interest and Special Area of Conservation. To the east just beyond our wood is Minwear wood Site of Special Scientific Interest. A short distance further is the Slebech stable yard, part of the Pembrokeshire Bat Special Area of Conservation.

4. HABITAT MANAGEMENT

The main habitat types in and around the Resort boundary include:

- **Diamond Wood Plantation 2012**
- **Plantation on Ancient Woodland Site and Ancient Semi-Natural Woodland**
- **Ancient monuments**
- **The Village Amenity Area**
- **Rough Grassland**
- **Hay Meadow**
- **Manmade Lake**
- **Footpaths, Hedges and Verges**
- **Black Pool Mill Amenity area**
- **Black Pool Mill SSSI**

Diamond Wood Plantation 2012

These woodlands are newly established broadleaf woodlands planted on pasture in 2012, covering 18 hectares. A wide range of species are present including oak, ash birch, rowan, sweet chestnut, willow, alder, field maple, crab apple, elder and wild cherry. The woods are establishing well. They won't require thinning until 2025. The woods are alive with insects and providing a valuable food source for both birds and bats. Rides between the trees will be mown regularly to allow guest access and to retain a foraging area for bats and barn owl.

It is important to ensure that the woodland does not end abruptly; as they develop the edges of the rides will be coppiced to maintain a diffused woodland edge, avoiding a hard mature tree grass boundary. The aim is for a fringe of shrubs tapering from ground level to the height of the first tree branches. This will provide habitat for pollinators and makes the woodland more welcoming.

" The large numbers of native planted trees are beginning to mature and are already having a major positive impact on the formerly intensively farmed landscape" (Bluestone- 10 years on)

Semi-Natural Woodland

Our trees were probably part of a royal welsh forest before becoming part of the estates of Norman Marcher lords. In terms of habitat 60% of Bluestone's woods are regarded as Plantation on Ancient woodland site with 18% regarded as Ancient Semi- Natural Woodland. We have a separate woodland management plan dealing with tree management.

Additional management will be to restrict bramble growth along path edges and to encourage spread of existing Bluebells and other wild flowers. Extensive areas of bramble will remain and provide connective cover through the wood and stream near Camp Smokey. We have some fine large veteran trees in this area as well as the wooded edge towards the Mill and boundary of Bluestone which are important features, hosting complex microhabitats. When young, trees offer habitation and food to amazing communities of birds, insects, lichen and fungi. When ancient, their trunks also provide the hollow cover and shelter needed by species such as bats, wood boring beetles, tawny owls and woodpeckers. One mature tree can be home to as many as 500 different species.

Although the oaks on the steep valley sides were replaced by conifers, on the wet valley floor the original broadleaf woodland has survived. A mix of Ash, Willow and Alder form the canopy and sanicle, sweet woodruff and saxifrage, the ground layer.

On the rocky outcrops we have Spindle and Hay Scented Buckler fern.

Ancient monuments

The woods around Castell Coch are ancient semi natural. The full richness of these woods has not been mapped, some wildflowers catalogued seen in the area are shown below.


Snowdrops


Bluebell


Wood Sorrel


Dog Violet


Wood Anemone


Bracken

By following the track upwards from Pen Glyn brook, you reach the Ringwork, which is estimated to originate in the Iron Age, around 3,000 years ago.

Castell Coch to the East of the park is a medieval fortified manor house probably dating to the 13th or 14th centuries. The moat, although mostly filled up now, is still >15 feet deep in places and varies in width from 45 to 50 feet. The moat is now at its most spectacular in the spring, when it is thickly carpeted with snowdrops and bluebells (see images above).

There is currently very poor access into the woodland areas, especially around Castell Coch, and future management will look to clear some areas around the ancient monuments and look to enhance access and the ability to roam.

The Village High Amenity Area

The area around our village, lodges and activity centres is an attractive area maintained for amenity, with cut grass, trees and ornamental planting (See schedule at end).

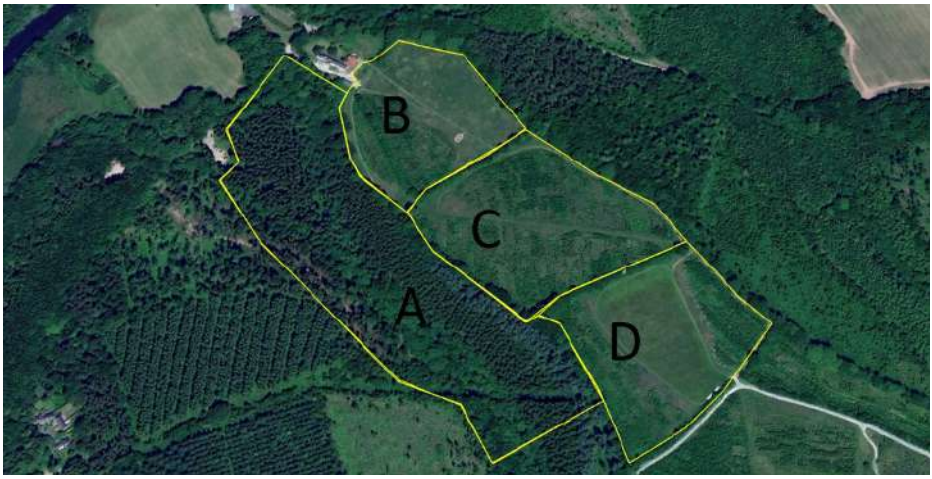
The large scale tree planting scheme carried out following the construction of lodges has provided shelter and food for many birds and small mammals, this has allowed for some fantastic wildlife watching opportunities for guests from the comfort of their lodges.

The lodges themselves have become a favoured nesting site for the large number of swallows and house martins that return year on year and the external log cladding provides a perfect bat roosting site. Mown lawn areas and ornamental borders have shown a wide variety fungi with some notable records sent to the local recorder. We are currently investigating ways to improve our cutting regime in an effort to encourage waxcaps.

In addition to the ornamental planting and cut grass areas in the village we have also sewn several areas of wildflower meadow seed to encourage pollinators, these borders also include interpretation boards to inform and educate visitors and guests. These areas are traditionally managed by allowing seed to set before cutting in late summer.

Wildflower mixes have been increasingly used in place of grass seed on landscaping involved in new developments such as the Serendome and staff parking areas.

BLACKPOOL NATURE RESERVE



A Coed Adar **B Maes Natur** **C Coed Bach** **D Maes Y Blodau**

COED ADAR

An area of mainly hazel and ash woodland with some oak, alder, poplar and a few large conifers which have encroached from the surrounding plantation. It contains a mix of dry and damp areas and has a range of ground flora including bluebell, wood anemone, flag iris and meadowsweet. The woodland is home to badgers and foxes and the stream is regularly used by otters (an artificial otter holt was installed on Pen Glyn brook in 2019 with the help of PCNP volunteer rangers), common frogs have been known to spawn in seasonal scrapes and it is a good place to spot the beautiful demoiselle damselfly. Coed Adar is located at the southern end of Pen-Glyn brook near to Blackpool Farm. This area along with much of the surrounding woodland would have been coppiced to supply a range of timber products probably including fuel for the iron forges that operated on the Cleddau at Blackpool between the 17th and 19th centuries.

Dense hazel and ash overshadowed by encroaching conifers allowing little light to reach the woodland floor.

Objective

Re-introduce coppicing on a small scale in the form of large glade creation for the benefit of wildlife.

Create ponds in wetter areas to support amphibians and insects.

Allow light to reach the woodland floor to increase ground flora. Allowing grasses and flowers to grow provides food for invertebrates which in turn will provide food for birds and bats.

Create a varied age structure within the woodland to allow for greater habitat range and bio-diversity.

Erect nest boxes to encourage breeding birds (started in 2019 in conjunction with the children at Portfield school).

Approach

Cut non adjacent blocks of hazel on a 7 year rotation to create large temporary glades, extracting some timber for use on the resort (plant supports for the polytunnels and logs for the outlets) and using the remainder to create habitat piles to encourage invertebrates.

Remove some of the larger shade casting conifer trees to increase light levels.

Long term

Continue to coppice on an annual rotation.

Produce straight hazel poles to be used around the park as plant supports and decorative items.

Introduce a nest box monitoring scheme.

Blue tit using a nest box built by children from Portfield school.

MAES NATUR

Maes Natur is roughly five acres of improved pasture adjacent to Blackpool farm that has been left to develop into rough grassland, it is edged on three sides by blackthorn coppice and contains a small orchard.

Rough grassland is a thick tussocky mixture of grasses that grow tall during summer and are allowed to collapse in autumn without cutting, fresh grass will grow up through this layer as it dies back to form a

thick litter layer. This litter layer is the perfect habitat for many small rodents such as wood mice, shrews and field voles which are the main food sources for our resident barn owls and other birds of prey. Rough grassland is also an important habitat for a wide range of invertebrates with several grassland butterflies including common blue, small skipper, small copper, orange tip, ringlet and meadow brown all present.

In 2019 and 2020 Maes Natur was used as a release site for rescue hedgehogs following treatment and rehabilitation at the Pembrokeshire Hogspital.

This area is also home to common toad and common lizard (a BAP priority species).

Maes Natur

Objectives

To maintain areas of rough grassland to support invertebrates and small mammals.

Maintain suitable foraging habitat for barn owls, other raptors and insectivorous birds.

Improve habitat for reptiles and amphibians.

Create suitable habitat for Brown hairstreak a nationally rare butterfly that has been recorded nearby.

Barn owls with owlets at Blackpool Farm.

Approach

Maintain litter layer by cutting areas of rough grass to no shorter than 100mm when needed to prevent development of scrub and bramble (no more than 1/4 of Maes Natur to be cut in any one year).

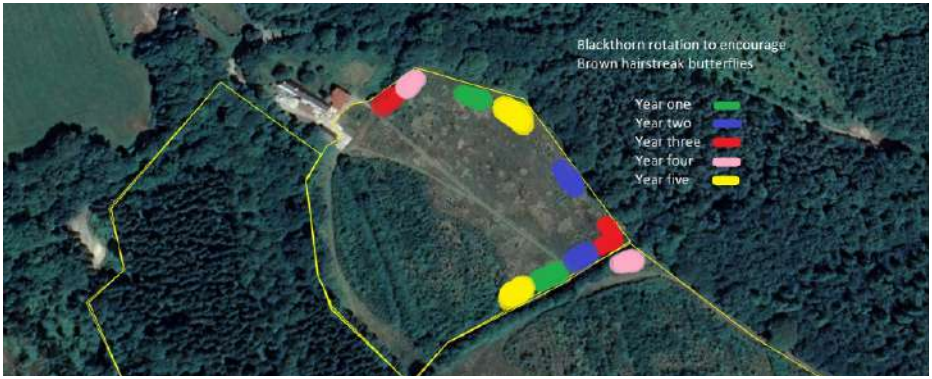
Install ponds, hibernacula and log and rock piles to encourage amphibians and reptiles.

Coppice blackthorn in field margin on five year rotation (see plan) to prevent encroachment and ensure suitable egg laying habitat for Brown hairstreak. Initial cutting of older Blackthorn to be carried out in winter and subsequent cuts to be carried out in first week of August, following bird nesting season and before Brown hairstreak egg laying season.

Long term

Continue grass topping when required. Continue with Blackthorn coppice rotation.

Survey regularly to assess success of management regime.



Coppice rotation schedule starting 2019 (top). Coppiced blackthorn (bottom).

COED BACH

Coed Bach is newly established native broadleaf woodland which was planted in 2012 to celebrate the Queen's Diamond jubilee. There are a wide range of species present including oak, ash, birch, rowan, sweet chestnut, willow, alder and a variety of smaller tree and shrub species.

Objectives

To develop healthy native broadleaf woodland

Increase access for bluestone guests to enjoy this attractive and tranquil area of the park.

It is also intended to encourage greater biodiversity by improving the range of habitats available within the woodland.

Approach

Create new paths for guest access with space for picnic spots.

Scalloped edges to be cut alongside paths on a five to eight year rotation to create warm sheltered areas with a varied, zoned edge structure and increased structural diversity. The resulting sheltered herb rich grassy areas will encourage butterflies and other insects.

Create glades within the wood to increase light and encourage ground flora to develop (this area was previously pasture land so some native woodland seed mix may need to be applied to supplement the existing seed bank). Any logs and brash arising from glade creation can be left in piles to encourage invertebrates. As the trees were planted into ridges some levelling may need to be done in these areas to avoid trips and falls.

Long term

Continue to manage for guest access and wildlife.
It is envisaged that the woodland will need thinning sometime around 2025 with subsequent light thinning on a 10 year cycle.

MAES Y BLODAU

The hay meadow is 3.5 acres of improved pasture that has more recently been used as a golf driving range. Regular mowing was stopped in spring 2017 and a hay crop taken in late summer 2017 and annually thereafter. Following the 2018 hay cut the meadow was harrowed and a wildflower seed mix from local farms was sown. Since stopping mowing we have seen an encouraging variety of wildflowers including cuckooflower, yellow rattle, eyebright, ribwort plantain, cat's ear and southern marsh orchid.

Objectives

To turn species poor improved pasture into a wildflower rich hay meadow, a rare and important habitat for a wide range of invertebrates, birds and small mammals.

Provide a valuable food source for seed and invertebrate eating birds.

Provide possible nesting sites for ground nesting birds such as skylarks.

Thick legged flower beetle on buttercup.

Approach

Cut hay crop in mid July after wildflowers have set seed (harvesting arranged by Autumn Leaves and crop used as winter feed for livestock).

Harrow after cutting and sow yellow rattle to reduce grass vigour (this was done in 2018).

A few weeks after hay cut start grazing with sheep if possible (aftermath grazing). The benefits of aftermath grazing are that livestock will breakup any matted vegetation and mosses and push flower seeds into the soil aiding germination it will also reduce grass growth before winter thus allowing more light to reach the ground, again helping with seed germination.

Cut or graze in early spring to reduce grass.

Long term

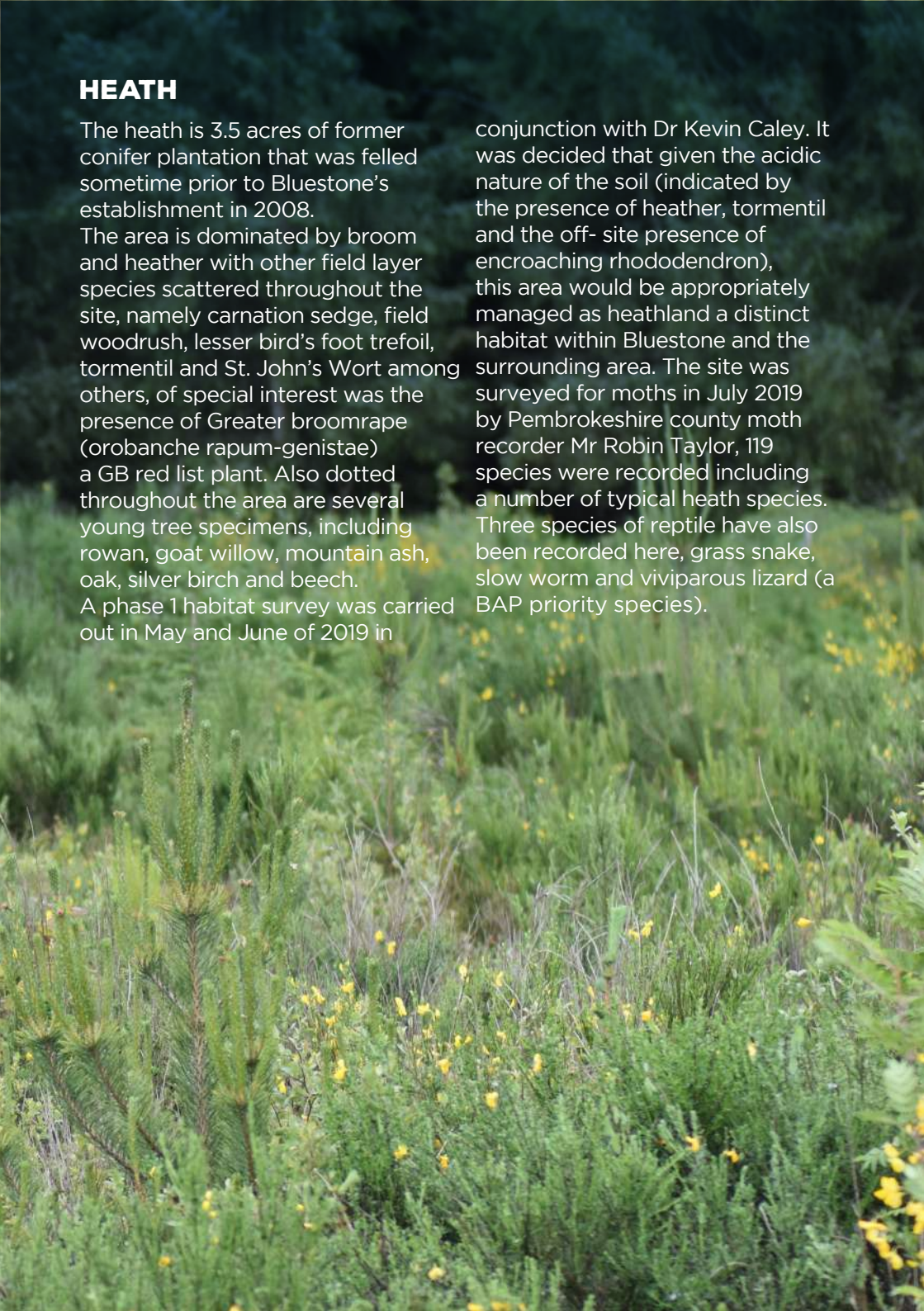
Continue with annual hay harvest.

Consider sowing with additional wildflower seed mix if grasses have been noticeably weakened by yellow rattle.

Investigate possibility of grazing with sheep after hay cut to reduce grass and aid germination of wildflower seeds. If grazing is to be carried out fencing and gates will need to be installed at both entrances, these will not obstruct the nature trails and will only be closed during periods of grazing allowing guests full enjoyment of the meadow during the growing and flowering season.

HEATH

The heath is 3.5 acres of former conifer plantation that was felled sometime prior to Bluestone's establishment in 2008.
The area is dominated by broom and heather with other field layer species scattered throughout the site, namely carnation sedge, field woodrush, lesser bird's foot trefoil, tormentil and St. John's Wort among others, of special interest was the presence of Greater broomrape (orobanche rapum-genistae) a GB red list plant. Also dotted throughout the area are several young tree specimens, including rowan, goat willow, mountain ash, oak, silver birch and beech.
A phase 1 habitat survey was carried out in May and June of 2019 in conjunction with Dr Kevin Caley. It was decided that given the acidic nature of the soil (indicated by the presence of heather, tormentil and the off- site presence of encroaching rhododendron), this area would be appropriately managed as heathland a distinct habitat within Bluestone and the surrounding area. The site was surveyed for moths in July 2019 by Pembrokeshire county moth recorder Mr Robin Taylor, 119 species were recorded including a number of typical heath species. Three species of reptile have also been recorded here, grass snake, slow worm and viviparous lizard (a BAP priority species).



Objective

To maintain and improve the heathland nature of this area.

Control the spread of scrub and invasive non-native plants in order to increase biodiversity, particularly plant diversity (which will have a positive influence in the diversity of animal species present).

Encourage growth of resident reptile populations.

Approach

Cut down and burn rhododendron on western edge of site.

Remove non-native species (spruce, larch and rhododendron) from within the site.

Implement a rotational clearance regime possibly over 10 - 15 years to prevent scrubbing over and to aid re-colonisation of the area by previously noted species.

Build hibernacula and log/rock piles to encourage reptiles.

Work to be carried out in conjunction with volunteer and educational groups.

Long term

Continue annual clearance rotation.

Monitor and remove saplings of invasive species.

Survey reptiles and monitor population growth.

Non-native invasive rhododendron encroaching from the western edge of the site.

MANMADE LAKE

The small manmade lake in the centre of the village has become well established since construction with a dense emergent zone containing many aquatic plants such as Marsh marigold, Meadowsweet, Purple loosestrife, Yellow iris and Bulrush.

The lake supports good numbers of common frog, toads and palmate newts. There are also many dragonflies and damselflies including Southern hawker and Migrant hawker.

Mallard, Little grebe and Moorhen are all resident with Grey heron and Cormorant regular visitors. Water rail, Tufted duck and Kingfisher have also been spotted. The lake is also a stop off point in early spring for migrating Sand martins.

The lake is also regularly visited by Otters and Grass snakes.

Footpaths, Holloways, Hedgerows and Verges

Our hedgerows, Holloways, footpaths and verges are important wildlife corridors. These are particularly vital for bats commuting from their foraging sites to their roosts. The linear features act as landmarks as well as protection from predation.

Hedgerows will generally be allowed to grow to 4m high and 2-3 m wide. Trimming will be by exception for access and around buildings only. Hedgerow trees will be allowed to establish between rows to encourage connectivity.

We will make the most of any existing hedges and shrubs through sensitive trimming at the appropriate time of year (normally in winter before the leaves have emerged). Manage hedge banks for wildflowers (E.g. Primrose, wood anemone, and lords and ladies) by cutting them once a year in late autumn.

Hedges around the lodges and the village high amenity will be traditionally laid as and when required.

In 2018 we worked with the Long Forest Project to create new hedgerows and plant up gaps in existing hedgerows across the resort in an effort to increase connectivity. In 2019 in an effort to continue this work we established a tree nursery to grow trees from seed collected on the resort.

5. IDENTIFIED FAUNA

Mammals

The following list of mammals have been recorded since 1980 within 2 km of the site;

- Hedgehog
- Rabbit
- Common shrew
- Wood mice
- Field vole
- Weasel
- Mink
- Badger
- Mole
- Bank Vole
- Grey Squirrel
- Fox
- Polecat
- Otter

The hay meadow, extensive bramble coverage and rough tussocky pastures throughout the resort are habitat for small mammals. Hedgerows and verges create connective pathways. There is lots of evidence of their presence, with burrows. Our woodland area with potential for dormouse habitat will be managed and checked regularly for activity.

We have 5 badger setts around the park with frequent activity and camera traps are set to observe their well being. Maintaining their success relies on an effective woodland management plan and the identification and monitoring of more setts. Keeping public paths away from them ensures little disturbance.

Evidence of otters using Pen Glyn brook was first found in early 2019 with spraint regularly seen along the stream and around the lake thereafter. An otter was also captured on camera visiting the lake in January 2020.

Amphibians and Reptile

These species of amphibian and reptiles are present within the woodland, wetland and rough grassland areas on the site and all are commonly recorded across Pembrokeshire.

- Common lizard
- Slow worm
- Grass snake
- Palmate newt
- Common toad
- Common frog

We have installed hibernacula, refugia and log/rock piles in several areas of the resort in an effort to increase suitable habitat.

Toad patrols are carried out annually during the breeding to reduce casualties on roads near the lake with guests encouraged to join in.

We are also involved with Pembs ARG (Pembrokeshire Amphibian and Reptile Group) and hope to involve the group in future surveying and habitat work.

Bats

A Bat survey undertaken identified the following species at Bluestone

- Pipistrelles (Pipistrellus pipistrellus)
- Pipistrelle (Pipistrellus pydmaeus)
- Long-eared Bat (Plecotus auritus)
- Myotis Bat
- Natterers Bat

A 2019 survey carried out by the Pembrokeshire bat group discovered one of our rarest bats the Barbastelle bat to be roosting and foraging in woodland along the eastern Cleddau including parts of Bluestone.

Measures to encourage insects for food include the maintenance of rough pasture, hay meadow habitat, woodlands, the new Diamond wood plantation, hedgerows, other linear features and open water.

We hope to better understand where our bats are commuting and where they are roosting.

A future enhancement would be to retain more open water in our attenuation pond and linear features.

Bat boxes have also been installed on the resort with more to follow.

Fungi

There are a wide variety of fungi present on the resort with several interesting records sent to the local recorder, including Hazel gloves and false morel. In 2019 we were delighted to assist David Harries of the Pembrokeshire fungus recording network (PFRN) with his work on Cantharellus distribution in Pembrokeshire and hope to involve PFRN in more extensive fungi surveying in future. We will also experiment with grass cutting of amenity areas to assess the potential for encouraging wax caps, an enigmatic group of fungi containing 112 species.

Birds

A wide variety of birds were identified, of special interest are the following;

- Yellowhammer (RSPB Red list)
- Tree pipits (RSPB Amber list)
- Red poll
- Barn Owl
- Tawny Owl
- Kingfisher (Amber List of species of conservation Concern in the UK and Wales)

We have a pair of Barn Owls on the resort and have erected more boxes to encourage Tawny and Little Owls. Camera traps are put in place to monitor their activity and we have recently seen Owlets from one of our boxes.

We also have an ongoing nest box project with the students at Portfield school to install and monitor nest boxes around the site that the students have made as part of their school work.

The rough pasture, hay meadow and Diamond wood are all managed to increase small mammal and insect populations which are prey for owls and other birds.

Honey Bees

In partnership with independent Apiary Manger Paul Eades, Bluestone Honey is produced at the on-site apiary and sold in the Bluestone village store. The Bluestone Apiary was originally set up in 2018 and currently has three hives, each of which has approximately 50,000 bees at the height of the season. The bees are intended to increase the pollination of wildflower species and to enhance engagement opportunities with guests around environmental and biodiversity issues.

Ducks

Many guests feed bread to ducks in the lake. This is very bad for ducks, other wildlife and the general health of the lake.

A new grain dispenser has been bought which dispenses local Barley for 50P a handful which will support the Bluestone Foundation. Interpretation is placed around the lake explaining the detrimental effects of bread, the reason for Barley, the work of the Foundation and links to the nationwide campaign to stop feeding ducks bread, called Breaducation.

• Over £1000 per annum raised for local good causes.

SURVEYING AND RECORDING

Butterflies

Below is a list of butterflies identified on park.

- Small skipper
- Large skipper
- Dingy skipper
- Large white
- Small white
- Green-veined white
- Orange- tip
- Purple hairstreak
- Green hairstreak
- Common blue
- Small copper
- Painted lady
- Red admiral
- Small tortoiseshell
- Peacock
- Silver-washed fritillary
- Speckled wood
- Gatekeeper
- Meadow brown
- Ringlet

In 2019 we held a successful local recorders day in conjunction with WWBIC (West Wales Biodiversity Information Centre) with many county recorders present and some interesting records returned. It is hoped to build on this in future with more frequent and wider ranging surveys carried out to better inform the ongoing management of habitats on the resort.

Moth Species list - Bluestone - 26 / 6 / 2019

Code	Taxon	Vernacular	Status
3.003	Korscheltellus fusconebulosa	Map-winged Swift	Local
15.008	Caloptilia alchimiella	a moth	Common
18.001	Plutella xylostella	Diamond-back Moth	Migrant
20.011	Argyresthia brockeella	a moth	Common
22.002	Prays fraxinella	Ash Bud Moth	Common
35.028	Brachmia blandella	a moth	Common
35.064	Argolamprotes micella	a moth	Nationally Scarce B
49.013	Archips podana	Large Fruit-tree Tortrix	Common
49.015	Archips xylosteana	Variegated Golden Tortrix	Common
49.025	Pandemis cerasana	Barred Fruit-tree Tortrix	Common
49.029	Lozotaenia forsterana	a moth	Common
49.038	Clepsis consimilana	a moth	Common
49.060	Aleimma loeflingiana	a moth	Common
49.091	Pseudargyrotoza conwagana	a moth	Common
49.109	Agapeta hamana	a moth	Common
49.156	Hedya nubiferana	Marbled Orchard Tortrix	Common
49.157	Hedya pruniana	Plum Tortrix	Common
49.166	Celypha lacunana	a moth	Common
49.194	Bactra lancealana	a moth	Common
49.265	Eucosma cana	a moth	Common
49.294	Notocelia uddmanniana	Bramble Shoot Moth	Common
63.017	Anania lancealis	a moth	Common
63.034	Udea prunalis	a moth	Common
63.037	Udea olivalis	a moth	Common
63.064	Scoparia ambigualis	a moth	Common
63.072	Eudonia delunella	a moth	Nationally Scarce B
63.074	Eudonia mercurella	a moth	Common
63.080	Chrysoteuchia culmella	Garden Grass-veneer	Common
63.081	Crambus pascuella	a moth	Common
63.117	Parapoynx stratiotata	Ringed China-mark	Common

65.008	Thyatira batis	Peach Blossom	Common
65.009	Habrosyne pyritoides	Buff Arches	Common
65.013	Ochropacha duplaris	Common Lutestring	Common
66.003	Malacosoma neustria	Lackey	Common
66.010	Euthrix potatoria	Drinker	Common
69.003	Laothoe populi	Poplar Hawk-moth	Common
69.006	Sphinx ligustri	Privet Hawk-moth	Common
69.016	Deilephila elpenor	Elephant Hawk-moth	Common
70.009	Idaea subsericeata	Satin Wave	Common
70.011	Idaea dimidiata	Single-dotted Wave	Common
70.013	Idaea biselata	Small Fan-footed Wave	Common
70.016	Idaea aversata	Riband Wave	Common
70.023	Scopula marginepunctata	Mullein Wave	Local
70.027	Scopula floslactata	Cream Wave	Local
70.029	Timandra comae	Blood-Vein	Common
70.074	Hydriomena furcata	July Highflier	Common
70.079	Thera britannica	Spruce Carpet	Common
70.085	Cidaria fulvata	Barred Yellow	Common
70.089	Eulithis prunata	Phoenix	Common
70.091	Eulithis populata	Northern Spinach	Common
70.093	Gandaritis pyraliata	Barred Straw	Common
70.100	Colostygia pectinataria	Green Carpet	Common
70.112	Euchoeca nebulata	Dingy Shell	Local
70.113	Hydrelia sylvata	Waved Carpet	Nb
70.121	Hydria undulata	Scallop Shell	Common
70.133	Perizoma alchemillata	Small Rivulet	Common
70.142	Chloroclystis v-ata	V-Pug	Common
70.144	Pasiphila rectangulata	Green Pug	Common
70.184	Eupithecia exiguata	Mottled Pug	Common
70.207	Lomaspilis marginata	Clouded Border	Common
70.214	Macaria liturata	Tawny-barred Angle	Common
70.222	Petrophora chlorosata	Brown Silver-line	Common
70.226	Opisthograptis luteolata	Brimstone Moth	Common
70.231	Apeira syringaria	Lilac Beauty	Local

70.243	Ourapteryx sambucaria	Swallow-tailed Moth	Common
70.252	Biston betularia	Peppered Moth	Common
70.258	Peribatodes rhomboidaria	Willow Beauty	Common
70.265	Alcis repandata	Mottled Beauty	Common
70.280	Lomographa temerata	Clouded Silver	Common
70.283	Campaea margaritaria	Light Emerald	Common
70.288	Cleorodes lichenaria	Brussels Lace	Local
70.305	Hemithea aestivaria	Common Emerald	Common
71.009	Stauropus fagi	Lobster Moth	Common
71.021	Ptilodon capucina	Coxcomb Prominent	Common
71.025	Phalera bucephala	Buff-tip	Common
72.002	Rivula sericealis	Straw Dot	Common
72.003	Hypena proboscidalis	Snout	Common
72.015	Calliteara pudibunda	Pale Tussock	Common
72.019	Spilosoma lutea	Buff Ermine	Common
72.020	Spilosoma lubricipeda	White Ermine	Common
72.031	Tyria jacobaeae	Cinnabar	Common
72.037	Thumatha senex	Round-winged Muslin	Local
72.038	Cybosia mesomella	Four-dotted Footman	Local
72.042	Atolmis rubricollis	Red-necked Footman	Local
72.044	Eilema griseola	Dingy Footman	Common
72.053	Herminia tarsipennalis	Fan-foot	Common
72.055	Herminia grisealis	Small Fan-foot	Common
72.061	Schrankia costaestrigalis	Pinion-streaked Snout	Local
73.001	Abrostola tripartita	Spectacle	Common
73.017	Autographa jota	Plain Golden Y	Common
73.024	Deltote pygarga	Marbled White Spot	Common
73.047	Craniophora ligustri	Coronet	Local
73.102	Rusina ferruginea	Brown Rustic	Common
73.114	Euplexia lucipara	Small Angle Shades	Common
73.162	Apamea monoglypha	Dark Arches	Common
73.261	Polia nebulosa	Grey Arches	Common
73.267	Lacanobia oleracea	Bright-line Brown-eye	Common
73.270	Melanchra persicariae	Dot Moth	Common

73.281	Hadena bicruris	Lychnis	Common
73.293	Mythimna impura	Smoky Wainscot	Common
73.298	Mythimna ferrago	Clay	Common
73.301	Leucania comma	Shoulder-striped Wainscot	Common
73.317	Agrotis exclamationis	Heart and Dart	Common
73.328	Axylia putris	Flame	Common
73.329	Ochropleura plecta	Flame Shoulder	Common
73.332	Diarsia brunnea	Purple Clay	Common
73.333	Diarsia mendica	Ingrailed Clay	Common
73.342	Noctua pronuba	Large Yellow Underwing	Common
73.352	Anaplectoides prasina	Green Arches	Common
73.359	Xestia c-nigrum	Setaceous Hebrew Character	Common
73.361	Xestia triangulum	Double Square-spot	Common
74.008	Pseudoips prasinana	Green Silver-lines	Common
	Cnephasia sp.	Cnephasia species	
	Hoplodrina octogenaria/blanda	Uncertain/Rustic agg.	
	Oligia strigilis agg.	Marbled Minor agg.	

Moths - Bluestone, Heath area on Cott Lane - 22 / 7 / 2019

Code	Taxon	Vernacular
3.002	Korscheltellus lupulina	Common Swift
4.061	Stigmella atricapitella	a micro moth
15.010	Caloptilia stigmatella	a micro moth
16.001	Yponomeuta evonymella	Bird-cherry Ermine
17.002	Ypsolopha nemorella	a micro moth
17.003	Ypsolopha dentella	Honeysuckle Moth
20.011	Argyresthia brockeella	a micro moth
20.012	Argyresthia goedartella	a micro moth
28.010	Hofmannophila pseudospretella	Brown House-moth
31.001	Carcina quercana	a micro moth
32.010	Agonopterix conterminella	a micro moth
32.030	Agonopterix nervosa	a micro moth
35.011	Anacampsis populella	a micro moth
35.020	Anarsia spartiella	a micro moth

35.028	Brachmia blandella	a micro moth
35.064	Argolamprotes micella	a micro moth
35.065	Monochroa cytisella	a micro moth
40.004	Mompha propinquella	a micro moth
41.002	Blastobasis adustella	a micro moth
49.013	Archips podana	Large Fruit-tree Tortrix
49.023	Pandemis cinnamomeana	a micro moth
49.066	Acleris laterana	a micro moth
49.080	Acleris hastiana	a micro moth
49.091	Pseudargyrotoza conwagana	a micro moth
49.150	Apotomis betuletana	a micro moth
49.166	Celypha lacunana	a micro moth
49.223	Rhopobota naevana	Holly Tortrix
49.231	Epinotia brunnichana	a micro moth
49.255	Epinotia nisella	a micro moth
49.260	Zeiraphera isertana	a micro moth
49.265	Eucosma cana	a micro moth
49.279	Gypsonoma dealbana	a micro moth
49.294	Notocelia uddmanniana	Bramble Shoot Moth
49.341	Cydia splendana	a micro moth
62.028	Dioryctria abietella	a micro moth
62.029	Phycita roborella	a micro moth
63.034	Udea prunalis	a micro moth
63.038	Pleuroptya ruralis	Mother of Pearl
63.062	Scoparia subfusca	a micro moth
63.064	Scoparia ambigualis	a micro moth
63.065	Scoparia ancipitella	a micro moth
63.067	Eudonia lacustrata	a micro moth
63.072	Eudonia delunella	a micro moth
63.074	Eudonia mercurella	a micro moth
63.081	Crambus pascuella	a micro moth
63.089	Agriphila tristella	a micro moth
63.093	Agriphila straminella	a micro moth
63.099	Catoptria pinella	a micro moth
63.117	Parapoynx stratiotata	Ringed China-mark

65.008	Thyatira batis	Peach Blossom
65.009	Habrosyne pyritoides	Buff Arches
66.003	Malacosoma neustria	Lackey
66.007	Lasiocampa quercus	Oak Eggar
66.010	Euthrix potatoria	Drinker
69.003	Laothoe populi	Poplar Hawk-moth
69.016	Deilephila elpenor	Elephant Hawk-moth
70.011	Idaea dimidiata	Single-dotted Wave
70.013	Idaea biselata	Small Fan-footed Wave
70.016	Idaea aversata	Riband Wave
70.052	Xanthorhoe ferrugata	Dark-barred Twin-spot Carpet
70.053	Xanthorhoe designata	Flame Carpet
70.068	Mesoleuca albicillata	Beautiful Carpet
70.074	Hydriomena furcata	July Highflier
70.094	Ecliptopera silaceata	Small Phoenix
70.100	Colostygia pectinataria	Green Carpet
70.121	Hydria undulata	Scallop Shell
70.133	Perizoma alchemillata	Small Rivulet
70.141	Gymnoscelis rufifasciata	Double-striped Pug
70.142	Chloroclystis v-ata	V-Pug
70.147	Eupithecia tenuiata	Slender Pug
70.207	Lomaspilis marginata	Clouded Border
70.214	Macaria liturata	Tawny-barred Angle
70.226	Opisthograptis luteolata	Brimstone Moth
70.227	Epione repandaria	Bordered Beauty
70.241	Crocallis elinguaria	Scalloped Oak
70.252	Biston betularia	Peppered Moth
70.264	Deileptenia ribeata	Satin Beauty
70.270	Ectropis crepuscularia	Engrailed
70.278	Cabera exanthemata	Common Wave
70.288	Cleorodes lichenaria	Brussels Lace
70.297	Pseudoterpna pruinata	Grass Emerald
70.299	Geometra papilionaria	Large Emerald
70.305	Hemithea aestivaria	Common Emerald
71.013	Notodonta ziczac	Pebble Prominent

71.020	Pterostoma palpina	Pale Prominent
71.021	Ptilodon capucina	Coxcomb Prominent
71.025	Phalera bucephala	Buff-tip
72.003	Hypena proboscidalis	Snout
72.007	Hypena crassalis	Beautiful Snout
72.010	Lymantria monacha	Black Arches
72.035	Miltochrista miniata	Rosy Footman
72.037	Thumatha senex	Round-winged Muslin
72.043	Eilema depressa	Buff Footman
72.044	Eilema griseola	Dingy Footman
72.053	Herminia tarsipennalis	Fan-foot
72.055	Herminia grisealis	Small Fan-foot
72.061	Schrankia costaestrigalis	Pinion-streaked Snout
73.017	Autographa jota	Plain Golden Y
73.024	Deltote pygarga	Marbled White Spot
73.047	Craniophora ligustri	Coronet
73.063	Amphipyra berbera	Svensson's Copper Underwing
73.142	Coenobia rufa	Small Rufous
73.160	Apamea scolopacina	Slender Brindle
73.162	Apamea monoglypha	Dark Arches
73.212	Ipimorpha retusa	Double Kidney
73.216	Cosmia trapezina	Dun-bar
73.220	Brachylomia viminalis	Minor Shoulder-knot
73.267	Lacanobia oleracea	Bright-line Brown-eye
73.291	Mythimna pallens	Common Wainscot
73.293	Mythimna impura	Smoky Wainscot
73.298	Mythimna ferrago	Clay
73.317	Agrotis exclamationis	Heart and Dart
73.328	Axylia putris	Flame
73.329	Ochropleura plecta	Flame Shoulder
73.332	Diarsia brunnea	Purple Clay
73.342	Noctua pronuba	Large Yellow Underwing
73.345	Noctua comes	Lesser Yellow Underwing
73.353	Xestia baja	Dotted Clay
73.360	Xestia ditrapezium	Triple-spotted Clay

5. IDENTIFIED FLORA Total number of different higher plant and fern species recorded by S.B.Evans on 27/06/2019 at Bluestone = 159

This represents a partial list as it was a large and diverse site and not all parts were examined.

Name	Name	No of times recorded
Acorus calamus	Sweet-flag (introduced)	1
Agrostis capillaris	Common Bent	4
Alnus glutinosa	Alder	2
Anemone nemorosa	Wood Anemone	1
Angelica sylvestris	Wild Angelica	1
Anthoxanthum odoratum	Sweet Vernal-grass	2
Apium nodiflorum	Fool's-water-cress	1
Arctium minus	Lesser Burdock	1
Arrhenatherum elatius	False Oat-Grass	3
Asplenium scolopendrium	Hart's-tongue	1
Asplenium trichomanes subsp.quadrivalens	Maidenhair Spleenwort	3
Asplenium trichomanes	Maidenhair Spleenwort	1
Athyrium filix-femina	Lady-fern	1
Bellis perennis	Daisy	1
Betula pubescens	Downy Birch	3
Blechnum spicant	Hard-fern	2
Brachypodium sylvaticum	False-brome	1
Butomus umbellatus	Flowering-rush (introduced)	1
Calluna vulgaris	Heather	5
Caltha palustris	Marsh-marigold	1
Capsella bursa-pastoris	Shepherd's-purse	1
Carex laevigata	Smooth-stalked Sedge	2
Carex pendula	Pendulous Sedge	1
Carex pilulifera	Pill Sedge	1
Carex pseudocyperus	Cyperus Sedge (introduced)	1
Carex remota	Remote Sedge	1
Carex sylvatica	Wood-sedge	1

Cerastium fontanum	Common Mouse-ear	1
Chaerophyllum temulum	Rough Chervil	1
Chamaecyparis lawsoniana	Lawsons Cypress (self-sown)	1
Chrysosplenium oppositifolium	Opposite-leaved Golden-saxifrage	1
Circaea lutetiana	Enchanter's-nightshade	3
Cirsium arvense	Creeping Thistle	1
Cirsium vulgare	Spear Thistle	1
Corylus avellana	Hazel	3
Crataegus monogyna	Hawthorn	3
Cynosurus cristatus	Crested Dog's-tail	1
Cytisus scoparius	Broom	7
Dactylis glomerata	Cock's-foot	2
Deschampsia flexuosa	Wavy Hair-grass	2
Digitalis purpurea	Foxglove	3
Dryopteris aemula	Hay-scented Buckler-fern *	4
		UK International UK has a special responsibility
Dryopteris affinis agg.	Scaly Male-fern	1
Dryopteris dilatata	Broad Buckler-fern	1
Dryopteris filix-mas	Male-fern	2
Elytrigia repens agg.	Common Couch	1
Epilobium hirsutum	Great Willowherb	3
Epilobium montanum	Broad-leaved Willowherb	3
Epilobium obscurum	Short-fruited Willowherb	1
Epilobium parviflorum	Hoary Willowherb	2
Euonymus europaeus	Spindle	1
Euphorbia amygdaloides	Wood Spurge	2
Fagus sylvatica 'Purpurea'	Copper Beech (self-sown)	1
Fagus sylvatica	Beech	4
Filipendula ulmaria	Meadowsweet	1
Fragaria vesca	Wild Strawberry	1
Fraxinus excelsior	Ash	2
Galium aparine	Cleavers	3
Galium saxatile	Heath Bedstraw	1

Geranium dissectum	Cut-leaved Crane's-bill	1
Geranium robertianum	Herb-Robert	3
Geum urbanum	Wood Avens	1
Glechoma hederacea	Ground-ivy	2
Glyceria fluitans	Floating Sweet-grass	1
Glyceria maxima	Reed Sweet-grass (introduction)	1
Hedera helix agg.	Ivy	5
Heracleum sphondylium	Hogweed	1
Holcus lanatus	Yorkshire-fog	3
Holcus mollis	Creeping Soft-grass	2
Hyacinthoides non-scripta	Bluebell	2
Hypericum androsaemum	Tutsan	2
Hypericum pulchrum	Slender St John's-wort	2
Hypericum tetrapterum	Square-stalked St John's-wort	1
Ilex aquifolium	Holly	1
Iris pseudacorus	Yellow Iris	3
Isolepis cernua	Slender Club-rush	1
Juncus bulbosus	Bulbous Rush	1
Juncus conglomeratus	Compact Rush	2
Juncus effusus	Soft-rush	3
Juncus tenuis	Slender Rush	1
Lapsana communis	Nipplewort	1
Lolium perenne	Perennial Rye-grass	3
Lonicera periclymenum	Honeysuckle	4
Lotus pedunculatus	Greater Bird's-foot-trefoil	1
Luzula multiflora	Heath Wood-rush	1
Luzula pilosa	Hairy Wood-rush	2
Luzula sylvatica	Great Wood-rush	3
Lysimachia nemorum	Yellow Pimpernel	1
Lythrum salicaria	Purple-loosestrife	1
Malus pumila	Apple	1
Matricaria discoidea	Pineappleweed	1
Melica uniflora	Wood Melick	1
Mentha aquatica	Water Mint	4

Menyanthes trifoliata	Bogbean (introduced)	3
Milium effusum	Wood Millet	1
Molinia caerulea	Purple Moor-grass	1
Myosotis arvensis	Field Forget-me-not	1
Odontites vernus	Red Bartsia	1
Oenanthe crocata	Hemlock Water-dropwort	3
Orobanche rapum-genistae	Greater Broomrape *	6 GB red List near threatened
Parietaria judaica	Pellitory-of-the-Wall	1
Picea sitchensis	Sitka Spruce (self-sown)	2
Plantago lanceolata	Ribwort Plantain	1
Plantago major	Greater Plantain	1
Poa annua	Annual Meadow-grass	2
Poa trivialis	Rough Meadow-grass	3
Polygonum aviculare	Knotgrass	1
Polypodium vulgare sens. lat.	Polypody	1
Populus tremula	Aspen	1
Potamogeton natans	Broad-leaved Pondweed	4
Potentilla anserina	Silverweed	1
Potentilla erecta	Tormentil	1
Potentilla reptans	Creeping Cinquefoil	1
Potentilla sterilis	Barren Strawberry	1
Prunella vulgaris	Selfheal	1
Prunus spinosa	Blackthorn	1
Pteridium aquilinum	Bracken	4
Quercus petraea	Sessile Oak	1
Quercus robur	Pedunculate Oak	1
Quercus x rosacea	Q. petraea x robur	2
Ranunculus repens	Creeping Buttercup	2
Rhododendron ponticum	Rhododendron	1
Rosa arvensis	Field-rose	1
Rosa canina agg.	Dog-rose	2
Rubus fruticosus agg.	Bramble	6

Rumex obtusifolius	Broad-leaved Dock	2
Rumex sanguineus	Wood Dock	1
Sagina procumbens	Procumbent Pearlwort	1
Sagittaria sagittifolia	Arrowhead (introduced)	1
Salix cinerea subsp.oleifolia	Rusty Willow	2
Sambucus nigra	Elder	1
Schedonorus arundinaceus	Tall Fescue	1
Scrophularia nodosa	Common Figwort	1
Senecio jacobaea	Common Ragwort	1
Silene dioica	Red Campion	1
Silene flos-cuculi	Ragged-Robin	1
Solidago virgaurea	Goldenrod	1
Sonchus asper	Prickly Sow-thistle	1
Sorbus aucuparia	Rowan	3
Sparganium erectum	Branched Bur-reed	1
Stachys sylvatica	Hedge Woundwort	1
Stellaria holostea	Greater Stitchwort	1
Stranvaesia davidiana	Stranvaesia (self-sown)	1
Taraxacum agg.	Dandelion	4
Trifolium repens	White Clover	1
Typha angustifolia	Lesser Bulrush (introduced)	1
Typha latifolia	Bulrush	2
Umbilicus rupestris	Navelwort	1
Urtica dioica	Common Nettle	3
Vaccinium myrtillus	Bilberry	1
Veronica arvensis	Wall Speedwell	1
Veronica chamaedrys	Germander Speedwell	1
Veronica montana	Wood Speedwell	3
Veronica officinalis	Heath Speedwell	2
Veronica persica	Common Field-speedwell	1
Veronica serpyllifolia	Thyme-leaved Speedwell	2
Vicia sativa subsp.nigra	Narrow-leaved Vetch	1
Viola riviniana	Common Dog-violet	1

NB Green asterisk indicates population forms compiled for these 2 species. These forms and lists for locations recorded at Bluestone are attached.