

Environmental Character Area Profile for the Minerals Local Plan: 24. Bewdley Fringe

1. Introduction

- 1.1. Minerals development usually takes place on previously undeveloped land and can therefore result in permanent change to the natural environment and green spaces in Worcestershire. The impacts of both the working and the restoration of mineral sites need to be considered in detail in the development of the Worcestershire Minerals Local Plan (the MLP).
- 1.2. The Council will take a 'green infrastructure' (GI) approach to considering these impacts. The GI approach is a different way of thinking about the green spaces in Worcestershire. It moves beyond solely considering the environmental benefits of green spaces and integrates the consideration of economic, health and social benefits in the planning and management of green spaces. Rather than considering each green space in isolation it looks at the ways in which individual sites and corridors of green space collectively form the distinctive character of Worcestershire that attracts both visitors and business to the County.
- 1.3. The components of GI include biodiversity, landscape, historic environment, access and recreation and water (also known as blue infrastructure). The GI approach requires thinking about the environment as an integrated system of stepping stones or nodes in a wider network¹.

Green infrastructure and mineral workings and restoration

- 1.4. There is significant potential for mineral workings to destroy existing networks of green infrastructure if the nature and character of these networks is not taken into account. However there is also significant potential to contribute positively to green infrastructure through the restoration of mineral workings.
- 1.5. The GI approach extends beyond thinking about designated sites of biodiversity or historic interest. This means that the impact of a mineral working on the wider environment and the integrated system of stepping stones or nodes in a wider network² will need to be considered.

Environmental Character Areas³ and the Minerals Local Plan

- 1.6. The Worcestershire Green Infrastructure Partnership has undertaken an analysis of the landscape character, biodiversity and the historic environment of Worcestershire to identify 30 distinct GI Environmental Character Areas (ECAs). Details about how these were developed is set out in *Planning for a Multifunctional Green Infrastructure Framework in*

¹ Green Infrastructure Guidance – Natural England.

² Green Infrastructure Guidance – Natural England.

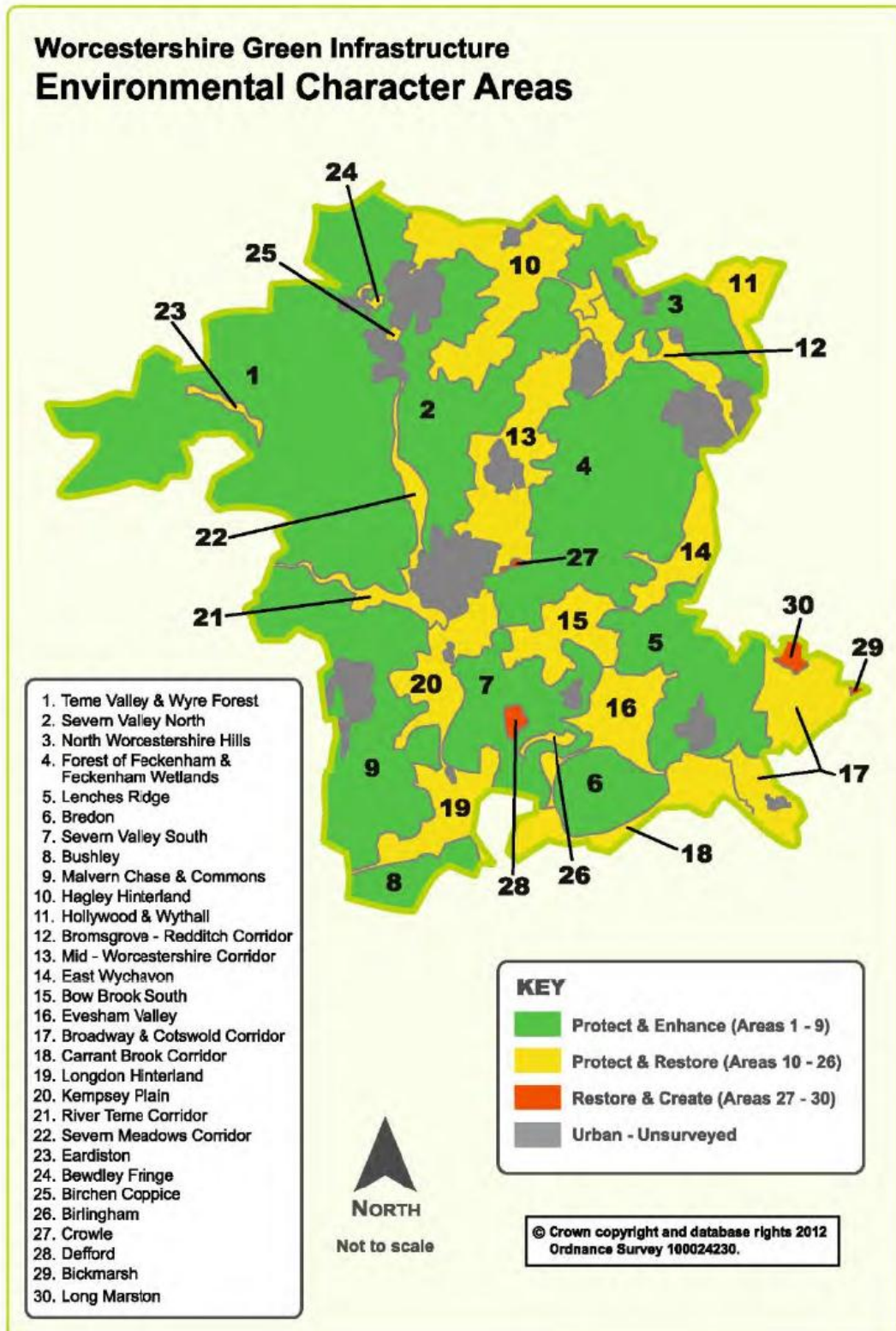
³ Worcestershire County Council (July 2012) *Planning for a Multifunctional Green Infrastructure Framework in Worcestershire: Green Infrastructure Framework 2*

Worcestershire: Green Infrastructure Framework 2 (2012) available at www.worcestershire.gov.uk/GI

- 1.7. These underlie the distinctive character of Worcestershire and it is the Council's intention that the unique characteristics of each area will drive the restoration strategy for the Minerals Local Plan.
- 1.8. This is one of 30 profile documents which set out the characteristics and priorities for the each ECA. It sets out the mineral resources in the ECA and the GI priorities identified by the Worcestershire GI Partnership. These priorities are structured around biodiversity, historic environment, landscape character, water environment (also known as blue infrastructure) access and recreation and transport. The document is also supplemented by other locally relevant information as appropriate.
- 1.9. This information will be used to develop the spatial strategy and restoration priorities for each ECA.
- 1.10. Profiles for each of the following ECAs are available on our website www.worcestershire.gov.uk/mineralsbackground:
- 1.11. The Environmental Character Areas are:
 1. Teme Valley & Wyre Forest
 2. Severn Valley North
 3. North Worcestershire Hills
 4. Forest of Feckenham & Feckenham Wetlands
 5. Lenches Ridge
 6. Bredon
 7. Severn Valley South
 8. Bushley
 9. Malvern Chase and Commons
 10. Hagley Hinterland
 11. Hollywood & Wythall
 12. Bromsgrove – Redditch Corridor
 13. Mid-Worcestershire Corridor
 14. East Wychavon
 15. Bow Brook South
 16. Evesham Valley
 17. Broadway & Cotswold Corridor
 18. Carrant Brook Corridor
 19. Longdon Hinterland
 20. Kempsey Plain
 21. River Teme Corridor
 22. Severn Meadows Corridor
 23. Eardiston
 24. Bewdley Fringe
 25. Birchen Coppice
 26. Birlingham
 27. Crowle
 28. Defford
 29. Bickmarsh
 30. Long Marston

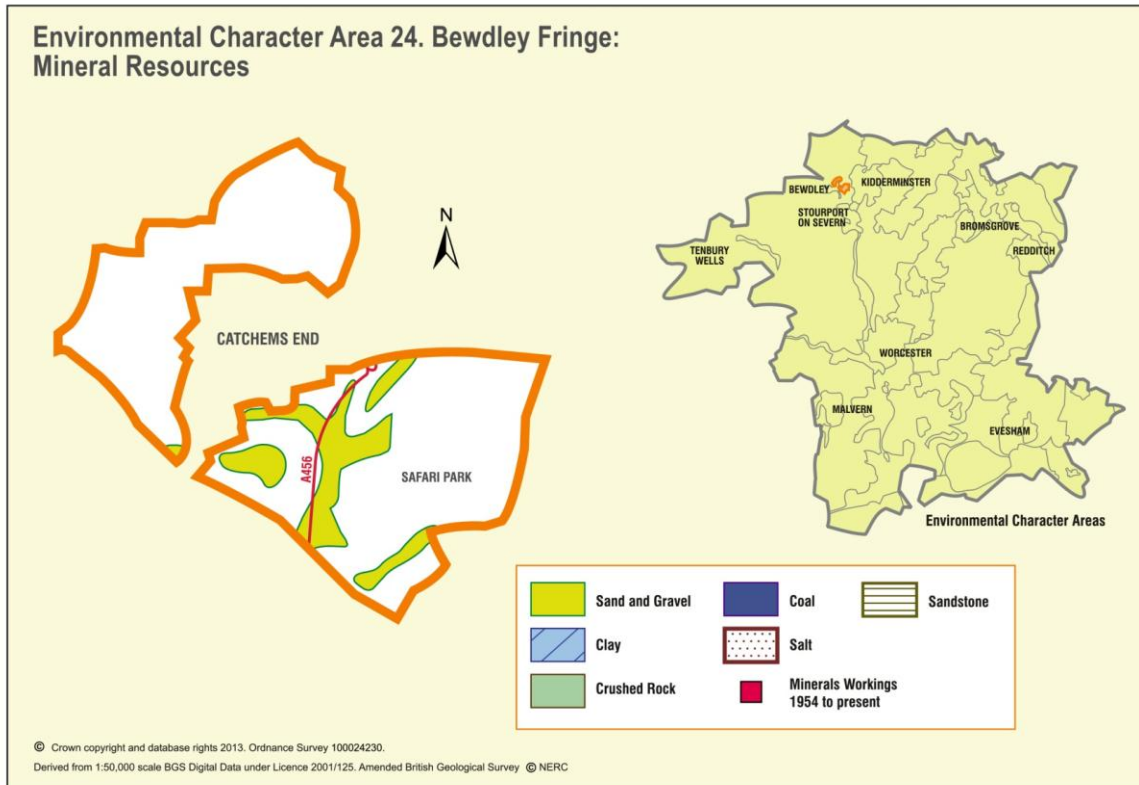
These are illustrated on Figure 1. Environmental Character Areas.

Figure 1. Environmental Character Areas



2. Characteristics and priorities of the Bewdley Fringe ECA

Figure 2. Environmental Character Area 24 Bewdley Fringe: Mineral Resources



Mineral Resources

Aggregates

- 2.1. Details about the aggregate resources in this ECA are given in the background report "Analysis of Mineral Resources in Worcestershire" available on www.worcestershire.gov.uk/mineralsbackground. The following is therefore only a simple summary.

Sand and gravel

- 2.2. ECA 24 contains deep deposits of Wildmoor Formation Sandstone (302ft is recorded at immediately south of Bewdley). Kidderminster Formation strata are also present and are exposed at Blackstone rock and the Devil's Spittleful. Although not suitable for use as crushed rock both of these strata have been worked elsewhere to produce sand for aggregate and industrial use.
Small, thin deposits of river terrace sand and gravel exist in this ECA, none of which are extensive.

Building stone

- 2.3. There is no evidence of suitable material in this ECA.

Industrial minerals

Clay

2.4. There is no evidence of suitable material in this ECA.

Silica sand

2.5. Wildmoor Formation Sandstone deposits exist in this ECA. This material has been used to produce moulding sand from similar deposits north of Bewdley.

Brine

2.6. There is no evidence of brine working in this area or that Halite deposits might exist at depth.

Future Growth

2.7. The key driver for mineral extraction is to provide the raw materials required for the economy to function properly and for homes and infrastructure to be built. Minerals are unevenly distributed. Some of the minerals that we need are not found in Worcestershire and will need to be imported from outside the County. Many minerals are expensive to transport, particularly aggregates as they are a relatively low value and bulky material, and they are likely to be used close to their source, meaning that some local mineral extraction will be needed to support local growth in housing and the associated infrastructure that is required, or to provide raw materials for local industry. On average, about 80 per cent of mineral products are used within 30 miles of the quarry.

2.8. This ECA is a rural area within Wyre Forest District. The district anticipates the development of 2,946 homes and 35.17 ha of employment land in the between 2006 and 2026 years. No development is proposed in this ECA in the Wyre Forest District Council Core Strategy.

2.9. Other areas beyond the boundary of the ECA could create demand for minerals in this Environmental Character Area, particularly the Market Town of Bewdley which is adjacent to the ECA, Kidderminster to the East and Stourport-on-Severn to the south.

Green Infrastructure priorities⁴

2.10. All Environmental Character Areas (ECA's) have been placed into one of three categories based on their overall score for Green Infrastructure. These are:

1. Protect and enhance
2. Protect and restore
3. Restore and create

⁴ Worcestershire County Council (July 2012) *Planning for a Multifunctional Green Infrastructure Framework in Worcestershire: Green Infrastructure Framework 2*

- 2.11. The category is based on an assessment of the ECAs landscape character, biodiversity and the historic environment characteristics. These characteristics were each attributed a score, with biodiversity being given a greater weighting than landscape and the historic environment, each of which were given equal but lower weightings.
- 2.12. The strategic GI approach for the Bewdley Fringe ECA is to *protect and restore*. The overarching principle identified by the GI partnership is to protect and enhance multi-functional Severn river corridor.

Biodiversity and landscape

- 2.13. The Bewdley Fringe Environmental Character Area lies within the Kinver Sandlands Regional Landscape Character Area. This is an area of former woodland and waste which is closely associated with an irregular zone of Permian and Triassic rocks that extend northwards from Stourport-on-Severn into south Staffordshire and south-east Shropshire. The nature of the underlying bedrock typically gives rise to sandy, free draining soils supporting woodland and heath. Worcestershire's heaths once formed part of a heathy belt extending north to Kinver, then into Staffordshire and to the north of Birmingham to link to the Arden area. This is reflected today by the frequent occurrence of place names ending in "heath" and in the presence of isolated red brick farmsteads and clusters of wayside dwellings, both of which are associated with the enclosure of former commons.
- 2.14. The ECA almost encircles the urban area of Wribbenhall, separated from Bewdley by the River Severn. The ECA can be conveniently divided into three Landscape Types, identified by the county Landscape Character Assessment (LCA) as Principal Timbered Farmlands to the north where the character is of an intricate small scale landscape with filtered views through dense hedgerow trees, small woods and an organic enclosure pattern; Sandstone Estatelands to the east where the inherent heathy, large scale, planned character has been highly modified by the West Midland Safari Park that occupies the majority of the area; Riverside Meadows to the south lying parallel and adjacent to the river where the flat pastoral landscape has also been substantially modified by school development, playing fields and car parking.
- 2.15. The undeveloped areas contain a complex network of small watercourses, historic farmsteads, heath landscapes and former woodland. The ECA contains a valuable heathland and acid grassland resource with significant opportunities for heathland and floodplain restoration. In the Principal Timbered Farmlands the hedgerow networks, scattered oaks and relict pockets of forest glade flora are important components of this ECA, which is also a national stronghold for *Arabis glabra*, the nationally rare grass *Corynephorus canescens* and a county stronghold for the white mullien *Verbascum lychnitis*. The ECA abuts and partially overlaps the Severn Gorge and Habberley Valley Natural Areas which are notable for their high biodiversity value, semi-natural habitats which include woodland communities and wetland.

GI Priorities:

2.16. The biodiversity and landscape priorities identified for the Bewdley Fringe ECA are⁵:

- Newly created GI features should aim to augment the existing resource concentrating on the main priorities for protection and creation including acid grassland and veteran tree, hedge and small woodland connectivity through linking, merging and buffering existing and newly created habitats.
- Implementation and delivery to be directed to existing site management and buffering as a first principle. Linking of networks to be applied where practicable.
- Restore functional stream corridors, and re-link flood plain corridors in particular wet and floodplain grassland, reedbed and wet woodland.
- In these urban fringe areas, seek opportunities to restore the characteristic features of the three distinct Landscape Types that comprise this ECA. Where possible seek opportunities to address the characteristic (and contrasting) enclosure and tree cover patterns, particularly the hedgerows and scattered oaks in the Timbered Farmlands and linear watercourse tree belts in the Riverside Meadows. The varied (and uncharacteristic) land uses in the Sandstone Estatelands to the east, have disrupted the field boundary pattern and condition. Opportunities to address this could be sought as well as scrub/woodland management options to restore heathland character.
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Geodiversity

2.17. There are two local geological sites in this ECA, Bewdley Road Cutting West and Blackstone Rock. There are no geological SSSIs.

⁵ Worcestershire County Council (July 2012) *Planning for a Multifunctional Green Infrastructure Framework in Worcestershire: Green Infrastructure Framework 2*

Historic Environment⁶

- 2.18. This small character area has had little archaeological investigation, however the northern area has produced rare Anglo Saxon cremation burials and a number of small mounds have been interpreted as possible burial mounds, but these have not been verified. Wribbenhall was an established settlement by the medieval period and there is potential for associated below ground archaeology close to the fringe of the earlier settlement. Much of the area was unenclosed heathland within the Severn Valley and has a moderate to high potential for artefacts and seasonal settlement remains associated with early prehistoric society.
- 2.19. The historic landscape character falls into three dominant categories: enclosed riverside meadows in the south of the areas (heavily impacted on by construction of the schools and leisure centre); unenclosed heathland and former parkland south east of Wribbenhall and post-medieval, piecemeal enclosure in the northern part of the area.

GI Priorities:

- 2.20. The historic environment priorities identified for the Bewdley Fringe ECA are⁷:
- Protect and restore locally distinctive historic hedgerows and field boundary patterns associated with piecemeal enclosure of former woodland and heath landscapes. Protect and restore the setting of Spring Grove Park and the setting of historic farmsteads north of Catchems End.
 - Explore opportunities to restore heathland landscapes employing methods sensitive to historic asset conservation

Blue Infrastructure

- 2.21. The River Severn presents the main source of flood risk to Bewdley; it bisects the town and this ECA. Demountable defences have been installed to protect the town and nothing should be done which would risk compromising these. On the River Severn at Bewdley the 1947 event reached a level of 22.82m AOD. However, the recent flooding events that occurred in the summer of 2007 derived principally from non-main river sources. Very heavy rainfall within the District has the potential to result in large numbers of individual local floods. Surface water run-off management in the entire District therefore remains an important issue for all developments which highlight the need for Sustainable Drainage Systems (SUDS) thereby maximising the use of source control measures.
- 2.22. The Environment Agency is not aware of any specific incidences of groundwater flooding within the Wyre Forest District.

⁶ Historic Environment and Archaeology Service, Worcestershire County Council and Cotswold Archaeology (R Jackson and H Dalwood et al) (November 2007) *"Archaeology and aggregates in Worcestershire: A resource assessment and research agenda"* Supported by English Heritage through the Aggregates Levy Sustainability Fund.

⁷ Worcestershire County Council (July 2012) *Planning for a Multifunctional Green Infrastructure Framework in Worcestershire: Green Infrastructure Framework 2*

- 2.23. The River Severn Catchment Flood Management Plan makes this a policy 5 area, where it will "Take further action to reduce flood risk".

Water Quality

- 2.24. Surface Water quality in this ECA is moderate, the whole area is categorised as a water body with agricultural/rural diffuse pollution pressure and water company point source pollution pressure. Groundwater quality is poor however. The WFD Ecological status is moderate.

Water Supply

- 2.25. Most supplies in Wyre Forest District are from the Trimley reservoir and River Severn. The Sherwood Sandstone aquifer beneath the central part of the district provides an additional source of supply and must be protected. Both the river and the aquifer are susceptible to over abstraction and pollution. These restrictions must be taken into account when considering any new development sites in this ECA.

GI Priorities:

- 2.26. The blue infrastructure priorities identified for the Bewdley Fringe ECA are⁸:
- Manage areas of low, moderate or high flood risk and take action where necessary to keep pace with climate change.
 - Explore opportunities to restore sustainable natural storage of floodwater on undeveloped floodplains. Make more space for rivers through urban areas via 'blue corridors' (i.e. Restoring access for floodwater onto key strips of floodplain by limiting redevelopment to flood-compatible land-uses e.g. parkland).
 - Seek ecological improvements.

Access, informal recreation and tourism

- 2.27. There are no sub-regional assets in this ECA. However, the River Severn runs alongside this ECA and forms a significant GI asset.
- 2.28. Visitor pressure on the sub-regional assets in the Wyre Forest District is quite mixed. The Wyre Forest and Kingsford Forest Park are both felt to be under significant visitor pressure already with only limited capacity to accommodate increases in visitor pressure. In a large site such as the Wyre Forest, visitor demand does vary greatly across the site, with areas close to car parks, and offering visitor facilities experiencing the greatest pressures.
- 2.29. The other recreational assets within the districts are not under such severe visitor pressure and could accommodate an increase in visitor pressure, such as Ribbesford Wood and Stourport-on-Severn are underutilised.
- 2.30. In addition much of this ECA is part of the Abberley and Malvern Hills Geopark which covers 1250 square kilometres of Gloucestershire,

⁸ Worcestershire County Council (July 2012) *Planning for a Multifunctional Green Infrastructure Framework in Worcestershire: Green Infrastructure Framework 2*

Herefordshire, Shropshire and Worcestershire. The 109 mile Geopark Way walking trail also runs through part of the ECA.

- 2.31. Tourist attractions in the ECA include the Severn Valley Railway which stops at Bewdley, and the West Midlands Safari Park.

GI Priorities:

- 2.32. The access and recreation priorities identified for the Bewdley Fringe ECA are⁹:
- Consider the proximity to and ability to integrate with the rights of way network, recreational way-marked routes and the cycle network;
 - Accommodate associated facilities necessary for the use and enjoyment of the site in a manner that is appropriate and able to integrate with the landscape character, wildlife and cultural interests.
 - Act as a greenway from town into the countryside and utilise existing canal, former railway lines, river corridors and wherever possible link with public transport routes.
 - Adopt minimum quality standards, (commensurate with its location and scale) that sites and routes should be expected to achieve will be those from the Green Flag Award Programme, and the Country Parks Accreditation Scheme, as appropriate.

Transport

Road

- 2.33. The A456 runs through the ECA to connect Bewdley with Kidderminster in the east and Tenbury Wells in the west. Other roads in this Environmental Character Area are more minor.
- 2.34. The Worcestershire Advisory Lorry Route Map does not show any low bridges which would restrict the movement of vehicles over 16'3" (4.95m) on the lorry route network, although it does show a steep incline of 10% on the A456 to the east of Kidderminster. Local roads may have further restrictions and will need further assessment if they are to be used for accessing mineral resources.

Rail

- 2.35. There are no network railways in this Environmental Character Area, although the Severn Valley Railway heritage line runs along the boundary of the ECA through Bewdley.

Water

- 2.36. The River Severn runs along the eastern edge of the Environmental Character Area but is only navigable up to Stourport on Severn.

⁹ Worcestershire County Council (July 2012) *Planning for a Multifunctional Green Infrastructure Framework in Worcestershire: Green Infrastructure Framework 2*

GI Priorities:

- 2.37. The GI transport priorities identified for the Bewdley Fringe ECA are¹⁰:
- Opportunities should be sought to protect, enhance and create green infrastructure that promotes sustainable movement by walking and cycling, reducing the need to travel by car by providing pleasant environments that promote sustainable transport as a means to minimise the impact of transport on the natural environment and mitigate the impacts of climate change.

LTP Priorities:

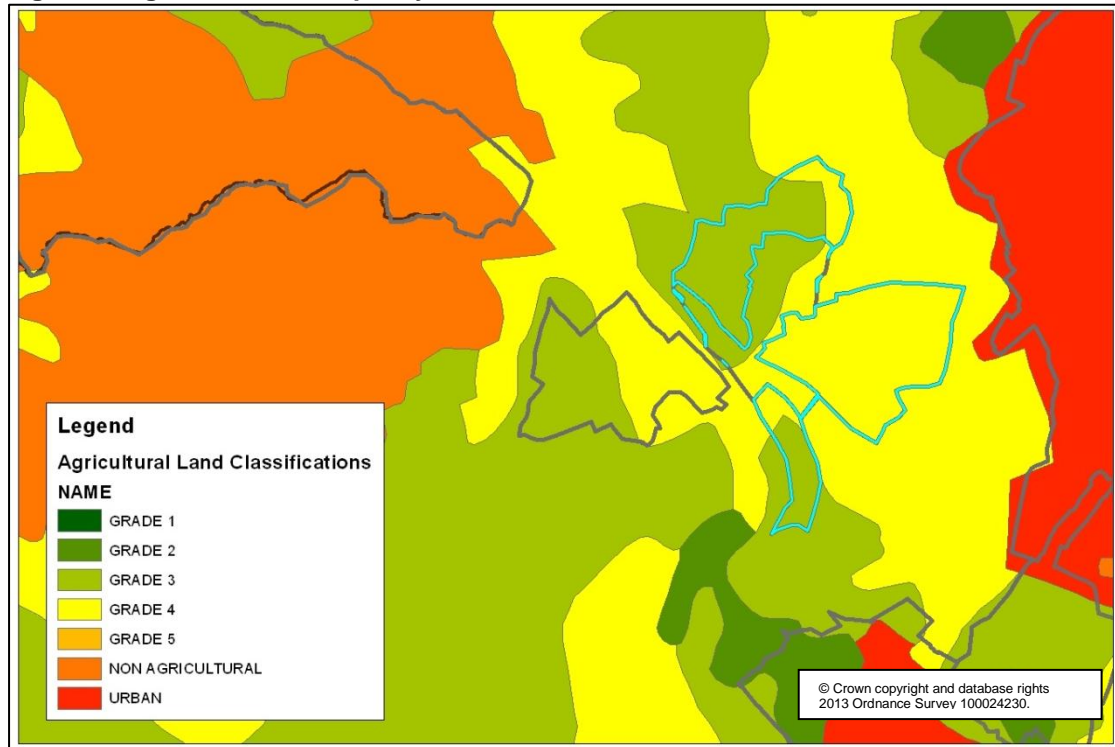
- 2.38. The LTP 3 transport priorities identified for the Bewdley Fringe ECA are:
- **Bewdley town centre public realm enhancement scheme** - This scheme would involve a package of public realm enhancements in Bewdley town centre, likely to be progressed in the medium term.
 - **Bewdley minor transport improvement scheme** - a programme to deliver minor complementary transport improvements to enhance safety, accessibility, information and travel choice, likely to be delivered in the short term.
 - **Bewdley walk/cycle bridge scheme** - This scheme would involve the development of a Walk/Cycle Bridge over the River Severn to the south of Bewdley Bridge, and may be progressed in the long term subject to local promotion and support of the proposed scheme.

Agriculture/Forestry

- 2.39. This is a small ECA and a large area of it is currently the West Midlands Safari Park. However, other agricultural land use in this ECA includes pastoral and mixed farming. Agricultural land quality is a mixture of grade 3 and lower quality grade 4 land, as shown in Figure 3.

¹⁰ Worcestershire County Council (July 2012) *Planning for a Multifunctional Green Infrastructure Framework in Worcestershire: Green Infrastructure Framework 2*

Figure 3. Agricultural land quality



2.40. The forestry commission's woodland opportunity maps show that the northern and eastern sections of the ECA are listed as priority 2 for woodland creation which could benefit landscape character, biodiversity, cultural heritage and/or public access (Figure 4). However, they also show that the ECA is not an ancient woodland landscape and is not prioritised for woodland restoration (Figure 5).

Figure 4. Woodland creation for landscape, biodiversity, heritage and public access

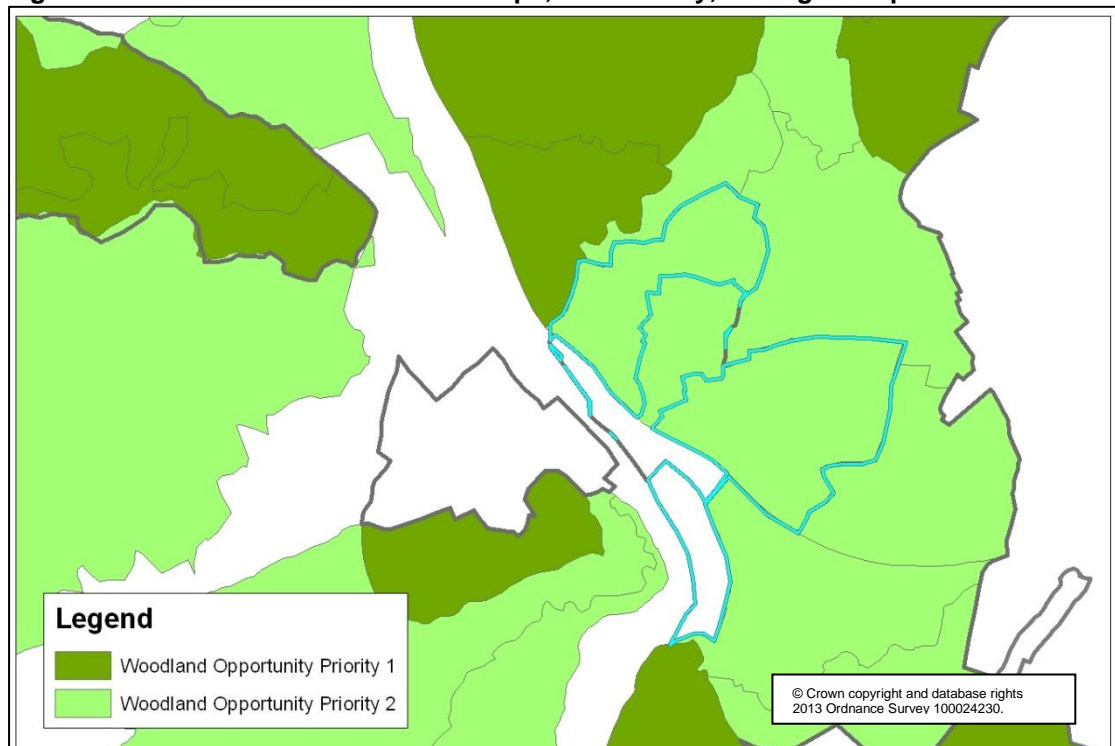
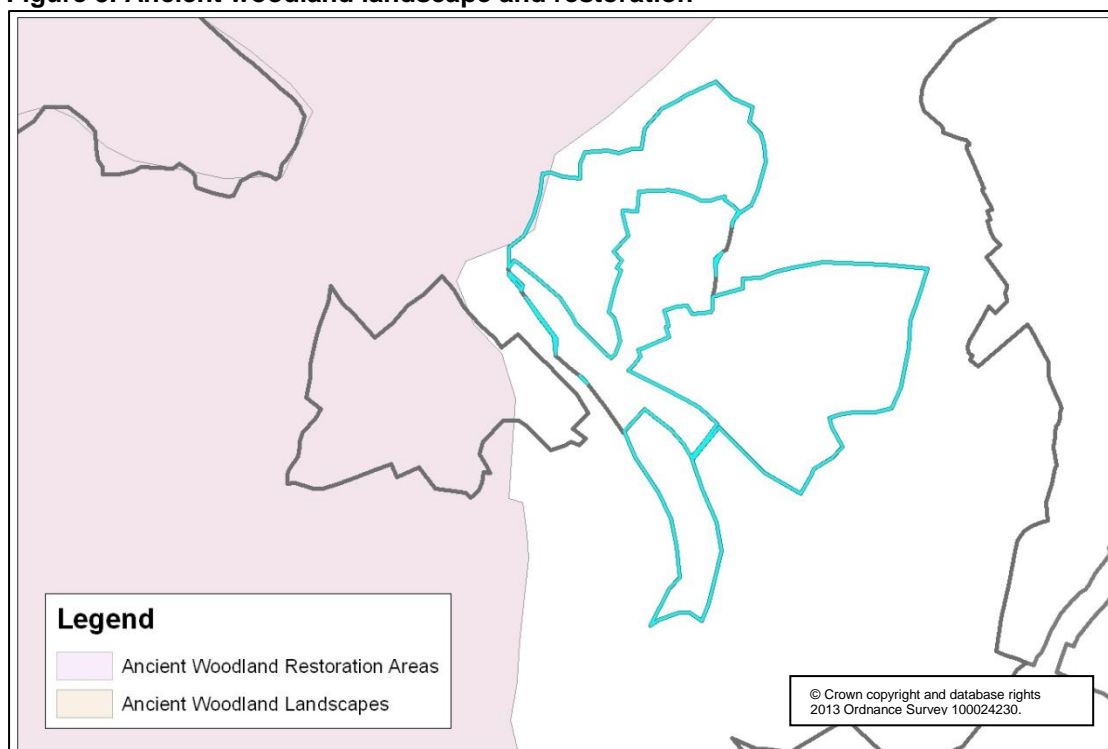


Figure 5. Ancient woodland landscape and restoration



Climate Change

2.41. Some effects of climate change will be similar across the whole county and many of the issues which can be addressed are likely to be common to all ECAs, such as:

- Improving air quality
- Providing flood risk management solutions
- Preventing water and soils pollution as a result of climate change related extreme weather conditions
- Promoting energy efficient and low carbon solutions
- Contributing to renewable energy production

Opportunities and issues

2.42. Green Infrastructure features such as buffering of watercourses provide a way of minimising fluvial flooding. Planned landscaping incorporating flood defences could provide both short term benefits and sustainable drainage schemes (SUDS) are a mechanism for managing both fluvial and pluvial flood risk.

2.43. Agricultural and horticultural businesses could face damaging water shortages in the coming decades as a result of climate change. In many parts of Worcestershire, water resources are under severe pressure. The majority of catchments in which horticultural production is concentrated have been defined by the Environment Agency as being either over-licensed and/or over-abstracted. Well executed water storage facilities could not only provide water supply for the business in the dry periods but

a wide range of green infrastructure benefits such as biodiversity or landscape and opportunities for increased physical activity and exposure to nature.

Socio-economic considerations

- 2.44. The analysis of the socio-economic situation in Worcestershire in this strategy considers the economy and health & well-being at a high level. It is not intended to draw a full picture of the economy or health and well-being in the county, instead it focuses only on the indicators which are of most relevance to green infrastructure:
- **Economy:** unemployment, household income and deprivation levels.
 - **Health and well-being:** health deprivation, heart diseases, obesity, mental health problems and respiratory conditions.
 - **Access to sites for informal recreation:** considers links between informal recreation opportunities and mental and physical well-being.
- 2.45. There is thought to be a link between green infrastructure and some aspects of health. The issues of obesity, respiratory conditions, mental health, heart disease and health deprivation have been considered in this context.
- 2.46. 26% (120,000) of the Worcestershire's adult population is obese and another 40% is overweight. The adult obesity levels in Worcestershire are higher than the national average. The level of childhood obesity is around the national average, at 10% of five year olds and 18% of eleven year olds. In terms of land cover, most of the Worcestershire area has some problems with obesity.
- 2.47. Obesity and respiratory problems in this county generally follow the same geographical pattern. Mental health problems, by contrast, tend to be found in the and around major settlements. Although mortality rates from cardiovascular diseases are significantly lower than the national rate, patterns of heart diseases are more dispersed than the other health indicators assessed and poor performance is found across the county. Contrary to other health indicators, heart diseases are least prevalent in some of the urban areas.