APPENDIX B: BASELINE MAPS AND DATA

List of Maps and Charts

Cultural Services

- Wild Land Areas
- Biological SSSI's, RSPB IBA's and Farmland Wader Areas
- Area and Condition of Protected Areas
- Geological SSSI's and Tayside Geodiversity Sites
- BAP Broad Habitat Change
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- Protected Species Distribution
- Landscape Character
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- Mode of Travel to Work/School
- Traffic Volume
- Population and Vulnerability
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- Obesity in School Children
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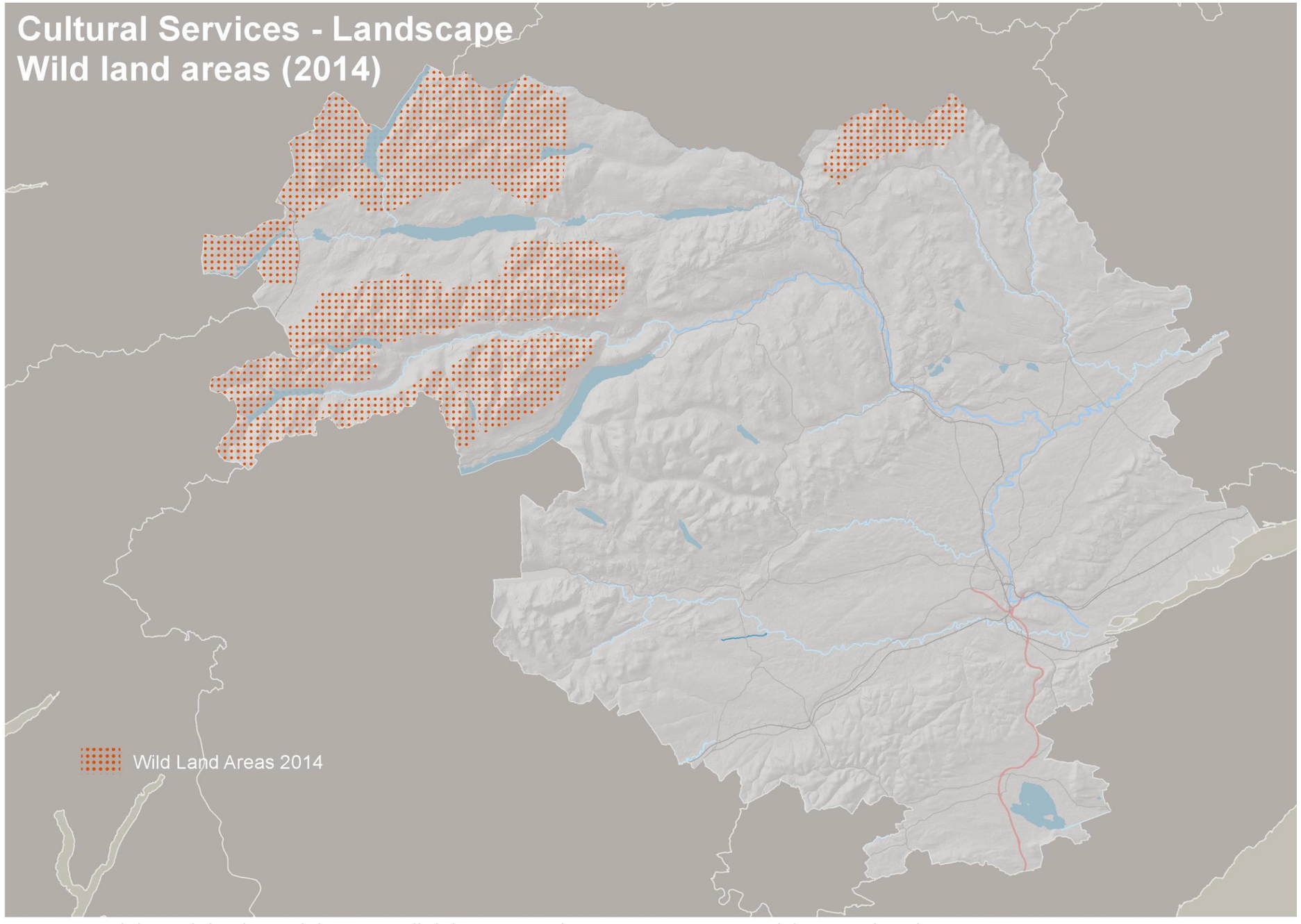
Supporting Services

- Household Waste
- Waste Sites
- Mean Annual Levels of Key Air Pollutants
- Annual Precipitation at Key Weather Stations
- Mean Daily Flow
- River Tay District Rod Count



Current position

Wilderness is defined, by SNH, as 'a quality experienced by people when visiting places of a certain character.' Relative wildness is mapped by determining the level to which 4 physical attributes are present. These are: the perceived naturalness of the land cover, the ruggedness of the terrain, remoteness from public roads or ferries, and the visible lack of buildings, roads, pylons and other modern artefacts. The results of these analyses are combined to produce a map of relative wildness of Scotland.

There are 5 Wildland areas within or intersecting the area. .

Relevance of this indicator

Preservation and enhancement of the distinctive landscape of Perth and Kinross is important to maintain community well being, biodiversity and to support the local economy, which are dependent on tourism and maintenance of a healthy environment. The required development of roads associated with forestry, rural development, windfarms and other development pressures can detract from an area's sense of wildness.

Links to PKC SD Principle:

SDP5 - Protecting and improving natural resources and biodiversity (e.g. air quality, water quality, land contamination)

SDP 6 Well maintained, local, user-friendly open spaces with facilities for everyone

Links to Local Outcome:

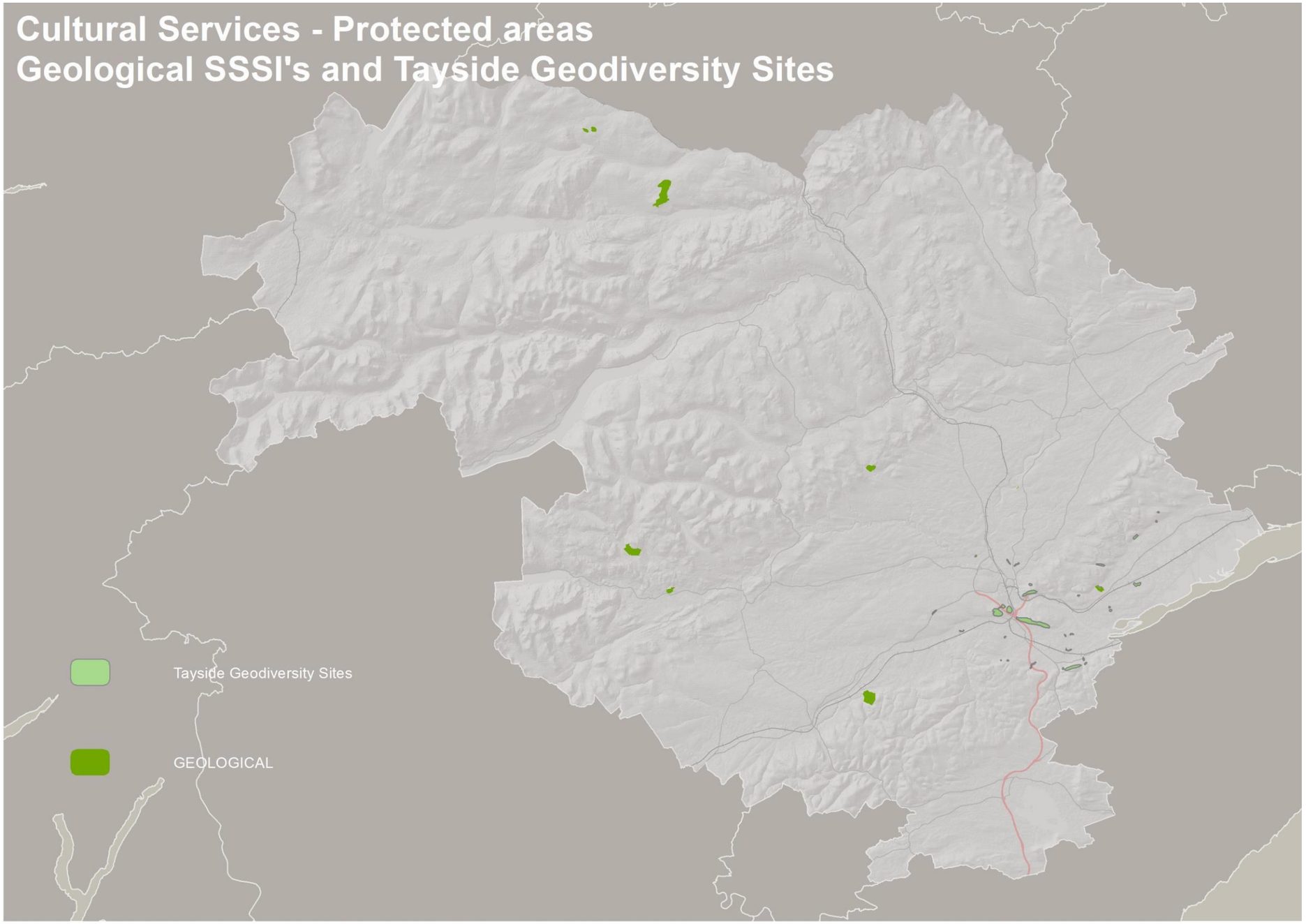
Our area will have a sustainable natural and built environment

Links to National Outcome:

We value and enjoy our built and natural environment and protect it and enhance it for future generations

Data source: PKC**,** Scottish Natural Heritage

Data availability: Annual



Map Published January 2014

Current position

Approximately 36% of Perth and Kinross is designated under national or international legislation to protect the landscape habitats and species (this includes NSA, HGDL, NP, SAC, SPA, SSSI).

In 2014/15 96 percent of Geological protected sites were considered to be in favorable condition. This represents a decline of 4 percent in the condition of geological notified features.

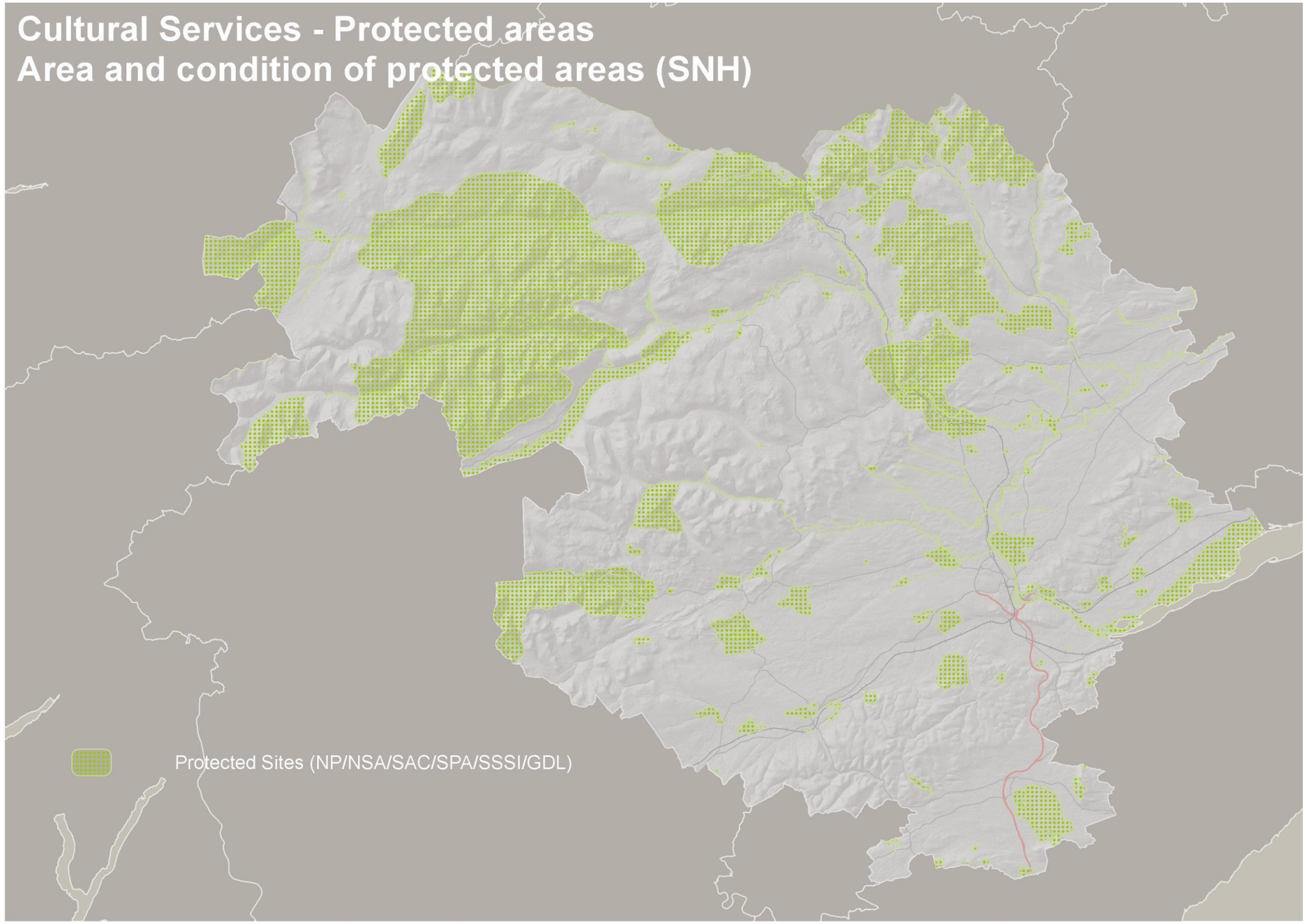
The Perth and Kinross Council area contains or adjoins 30 Geodiversity sites.

Relevance of this indicator

The diverse wildlife and habitats of the Tayside area are highly valued locally, nationally and internationally and are resources that need to be protected. Biodiversity benefits communities and human health through the provision of a high quality environment in which to live. Biodiversity is integral to the productivity and beauty of the countryside, contributing significantly to the local economy by attracting many tourists to the area.

Data source: National Biodiversity Network, RSPB, SNH

Data availability: ad hoc



Current position

Approximately 36% of Perth and Kinross is designated under national or international legislation to protect the landscape habitats and species (this includes NSA, HGDL, NP, SAC, SPA, SSSI).

In 2014/15 78.2 percent of Biological protected sites and 96 percent of Geological protected sites were considered to be in favorable condition. This represents an improvement in condition of 1.6 percent for biological notified features and a decline of 4 percent in geological notified features.

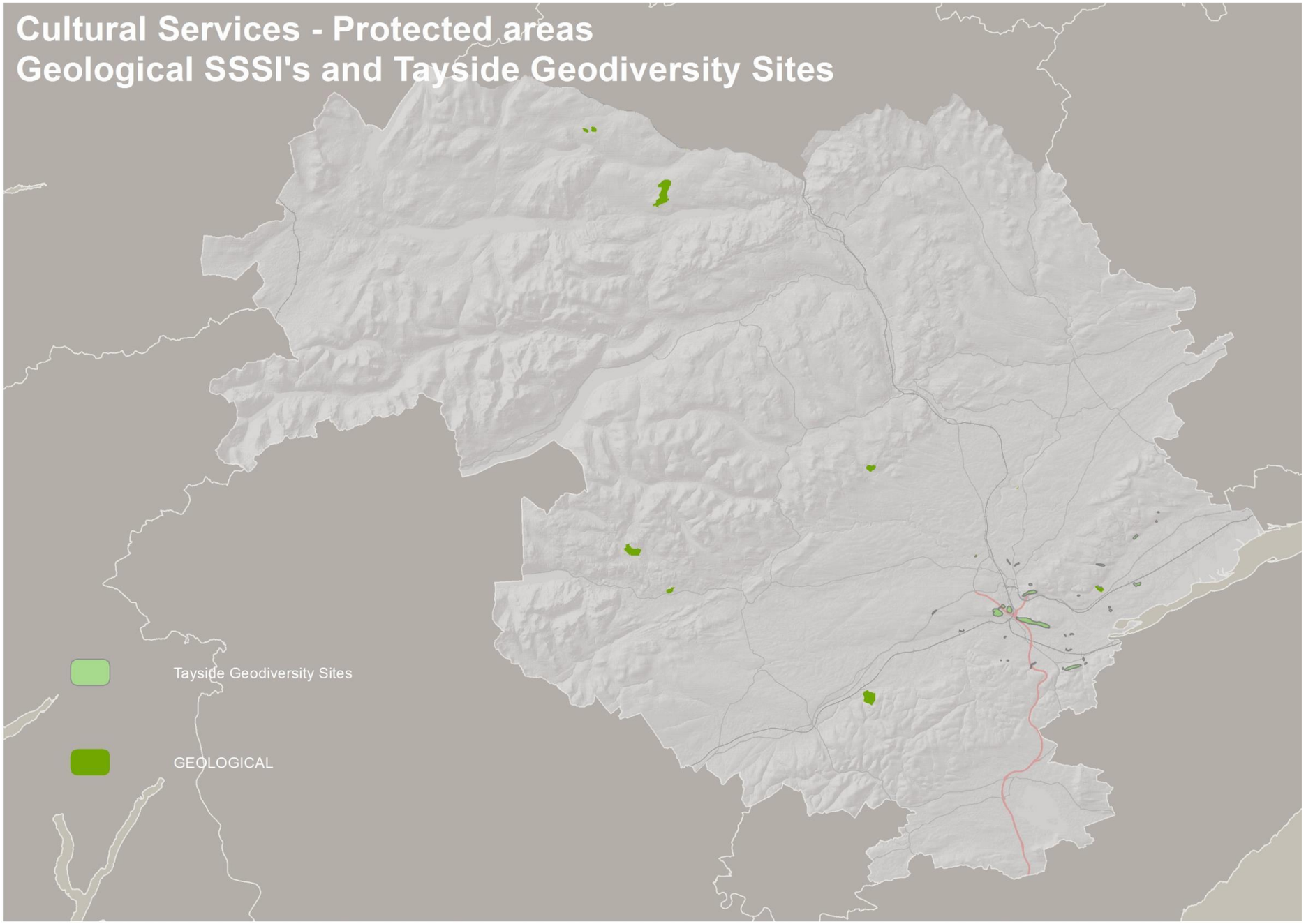
Relevance of this indicator

The diverse wildlife and habitats of the area are highly valued locally, nationally and internationally and are resources that need to be protected. Biodiversity benefits communities and human health through the provision of a high quality environment in which to live. This indicator identifies those areas within the Strategic Development Plan Area highlighted for their contribution to the landscape and identified for specific and habitats protection. (It should be noted that designation of an area does not guarantee its quality).

Data source: Scottish Natural Heritage

Data availability: Annual

Map Published January 2014



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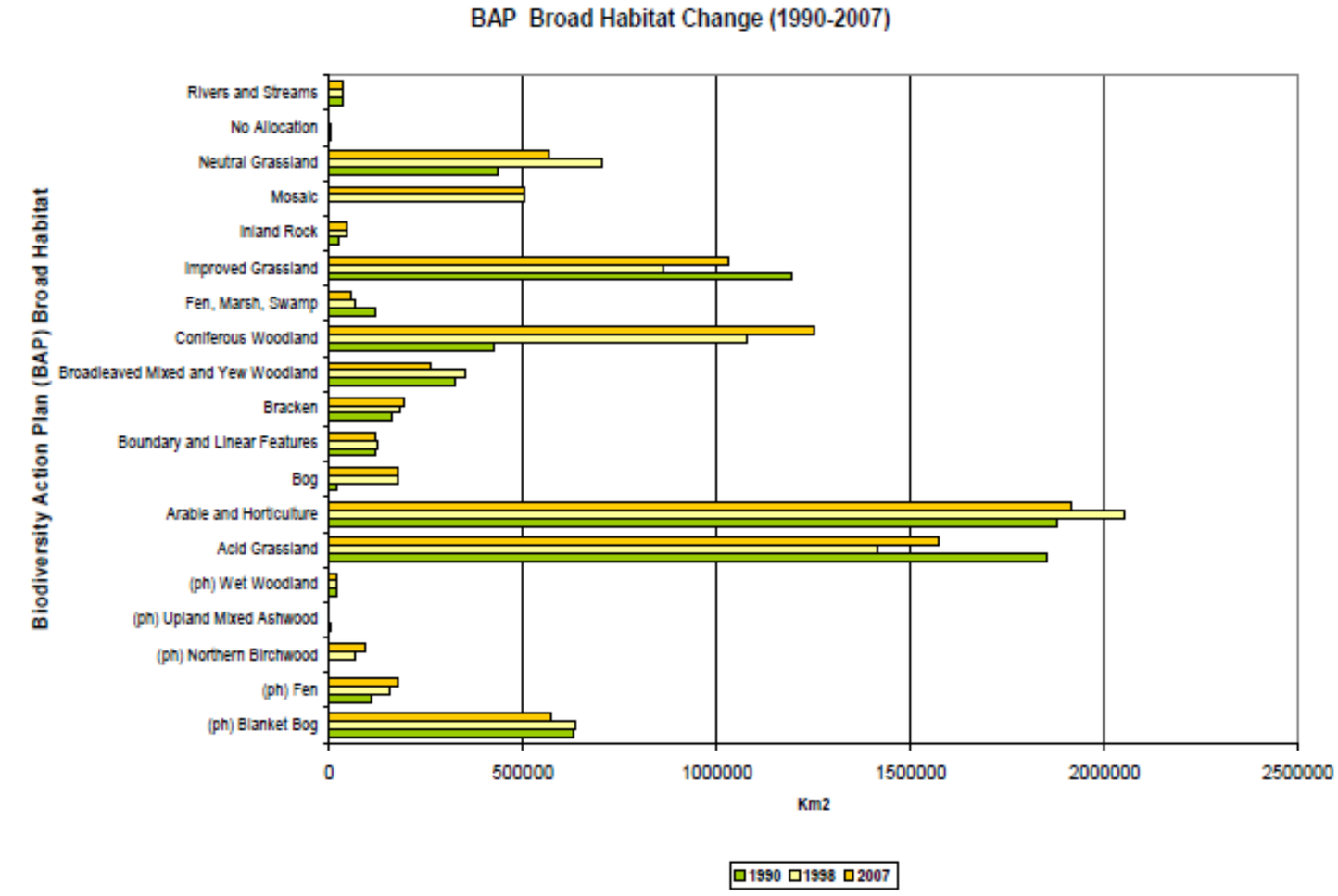
Data source: National Biodiversity Network, RSPB, SNH

Data availability: ad hoc

Cultural Services – BAP Broad Habitat Change



Current position

Available data collated from varied Phase 1 and Natural Vegetation Classification (NVC) habitat surveys (1984 – 2007) indicates a baseline of 9% priority BAP habitat coverage in Perth and Kinross.

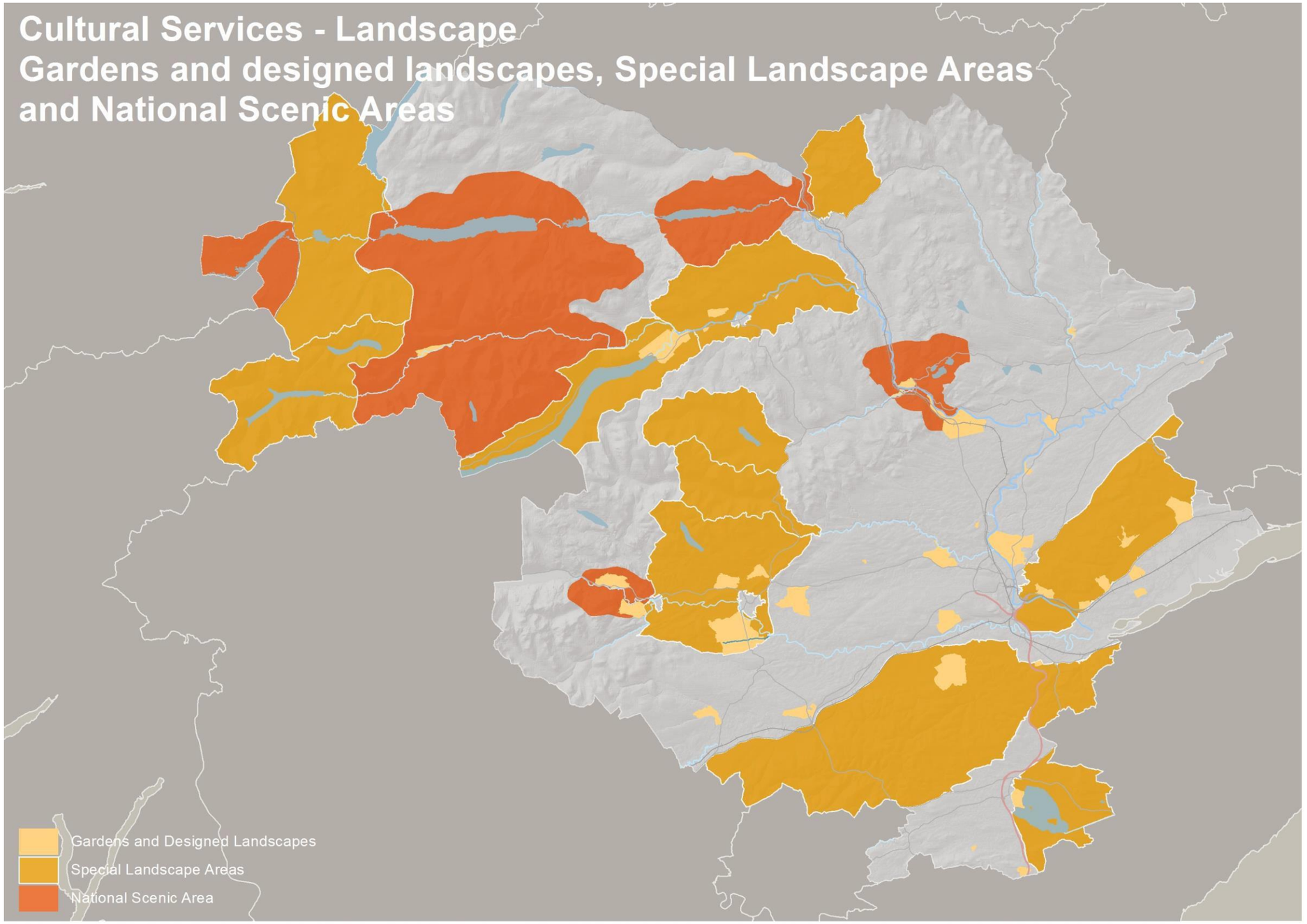
Results of the Countryside Survey 2007 indicate an overall increase in the net coverage of BAP priority habitats in Perth and Kinross, with 47% of habitats showing an increase, 26% remaining stable and 26% declining from 1990 to 2007.

Relevance of this indicator

Biodiversity benefits communities and human health through the provision of a high quality environment in which to live. Biodiversity is integral to the productivity and beauty of the countryside, contributing significantly to the local economy by attracting many tourists to Perth and Kinross each year specifically because of its unique wildlife. Natural and semi-natural habitats are subject to pressure due to the rising demand for residential and commercial development. The Tayside Biodiversity Action Plan identifies the lack of information on the quality of existing habitats and effective management techniques to protect them as the key factors contributing to the loss of habitats and species.

Data source: Scottish Natural Heritage, Countryside Survey 2007

Data availability: No Planned Update



Map Published 2015

Current position

The only national landscape designation in Scotland is National Scenic Area (NSA). These areas are considered to be of national importance due to their outstanding scenic interest which must be conserved as part of the country's natural heritage.

In 2015 there were 42 gardens and designed landscapes covering 11123 ha representing an increase in area of 68 ha over the previous year.

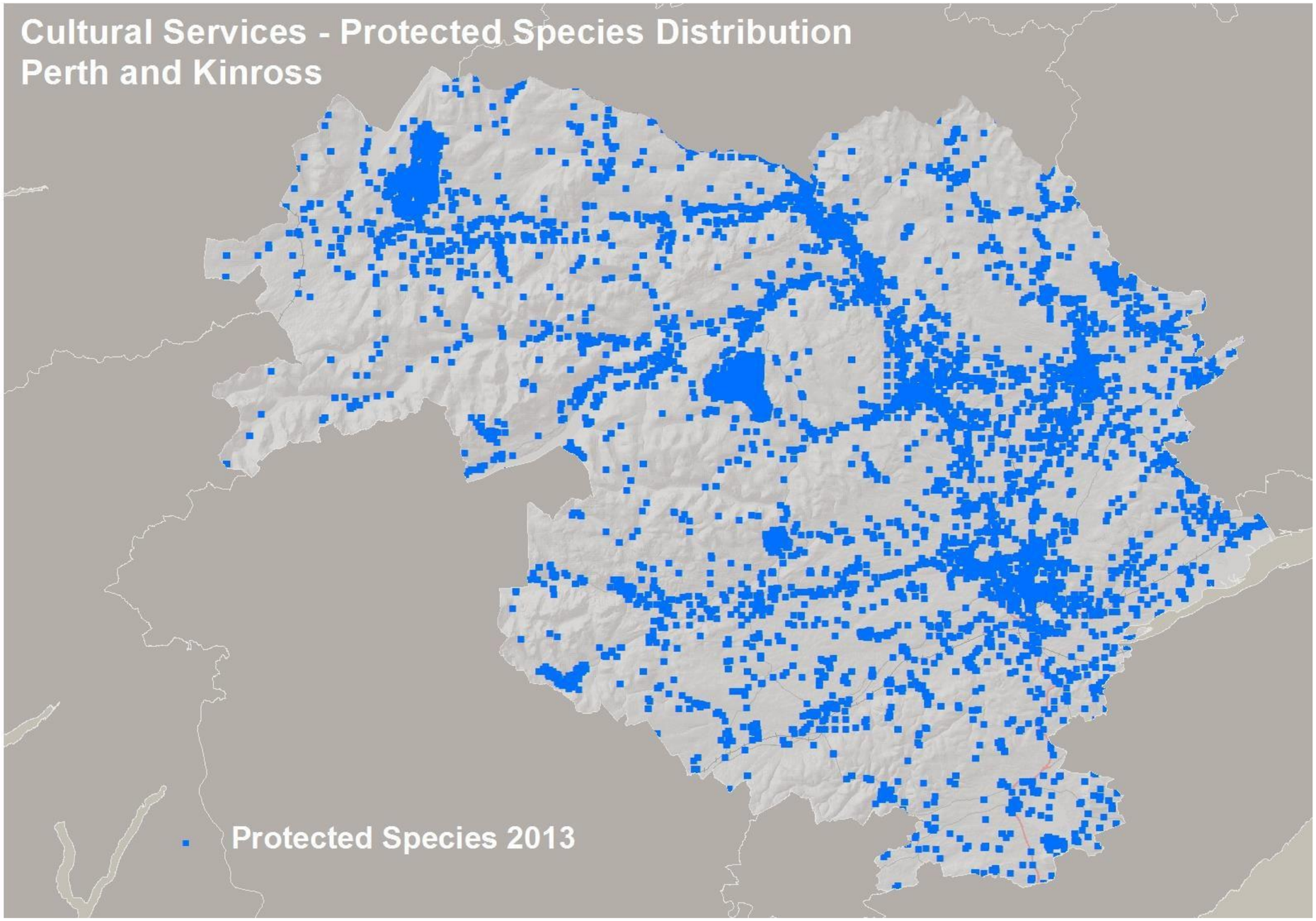
There are 11 Special Landscape Areas (SLAs) spread across Perth and Kinross, and consist of a range of highland and lowland areas covering 144 400 ha or around 27% of Perth and Kinross. SLAs are landscapes within Perth and Kinross which merit special attention, either because they are of particular value and warrant protection or because they are degraded and require active management or positive restoration, or are under threat from inappropriate development.

Relevance of this indicator

Landscape incorporates the environmental and cultural features present in an area. Preservation and enhancement of the distinctive landscape of Perth and Kinross is important in maintaining community well being, biodiversity and supporting the local economy (tourism in particular). This indicator identifies those areas within Perth and Kinross highlighted for their contribution to the landscape and identified for specific protection. (It should be noted that designation of an area does not guarantee its quality).

Data source: Scottish Natural Heritage, Historic Scotland, PKC

Data availability: Ad hoc



Current position

Protected species have been recorded throughout Perth and Kinross. The map provides a record of the location of all protected species recordings and includes both Statutory Species and LBAP protected species.

There are 5391 recordings of LBAP species and 9394 recordings of statutory species covering 44% of all one km squares in Perth and Kinross.

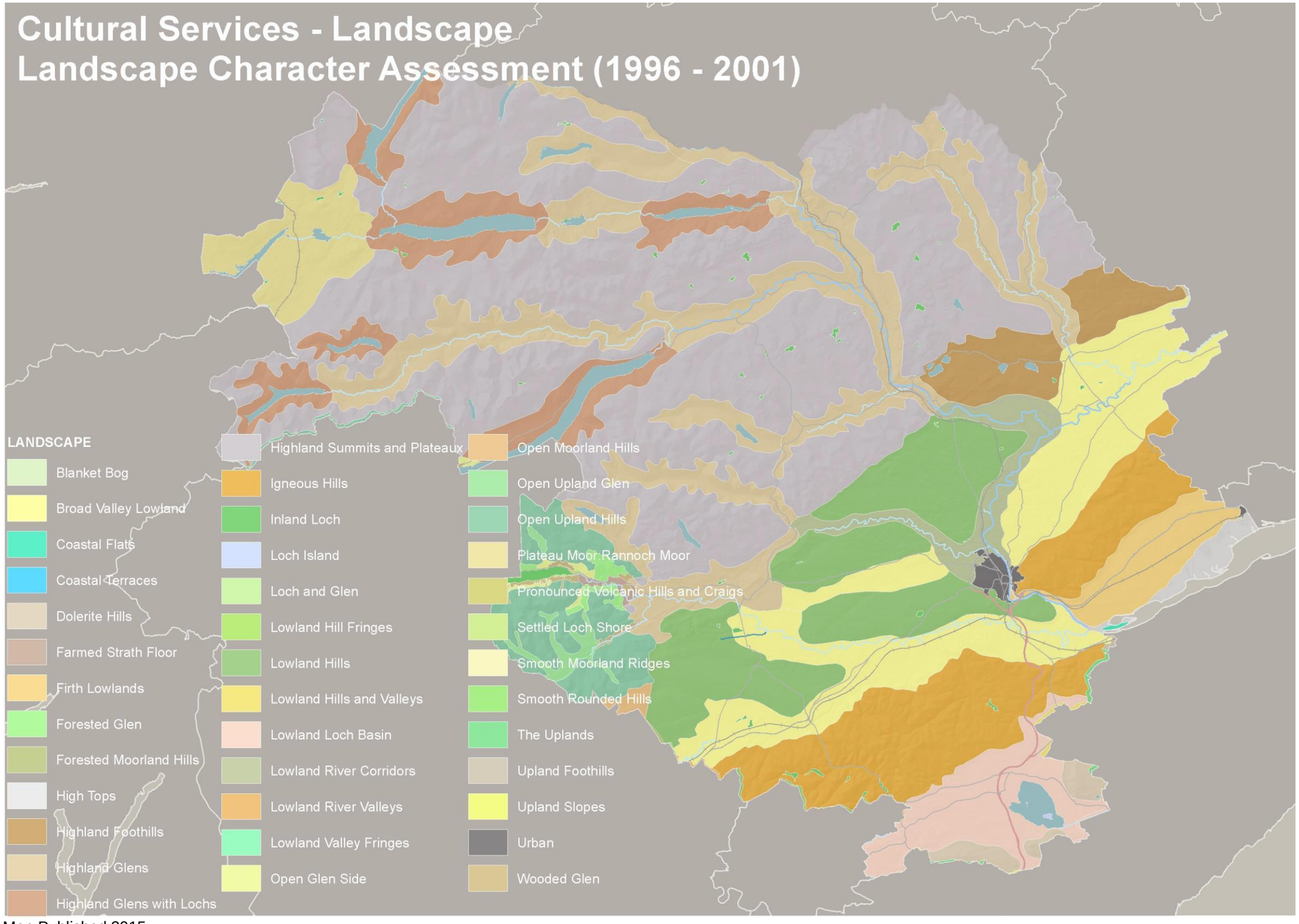
Relevance of this indicator

The diverse wildlife and habitats of Perth and Kinross are highly valued locally, nationally and internationally and are resources that need to be protected. Biodiversity benefits communities and human health through the provision of a high quality environment in which to live. Biodiversity is integral to the productivity and beauty of the countryside, contributing significantly to the local economy by attracting many tourists to Perth and Kinross each year specifically because of its unique wildlife. Species identified as priority species (Tayside BAP, national and/or internationally protected) are those most important to the area in terms of conservation requirements. This indicator represents how effective management practices have been in improving the condition of these key species

Data source: National Biodiversity Network, Local Records Centre, Scottish Natural Heritage

Data availability: As and when required

Map Published May 2015



Current position

The landscape within the Perth and Kinross is divided into two main units: highlands and lowlands, reflecting geology, topography, vegetation and land use. Key landscape character areas are mountains of the highlands and islands (30%), highland and island glens (13%) broad valley lowlands (10%), lowland hills (5%) and upland igneous and volcanic hills (6%). The remaining areas are comprised of a mix of lowland basins and valley, peatlands and inland lochs (The Macaulay Institute, 2001)

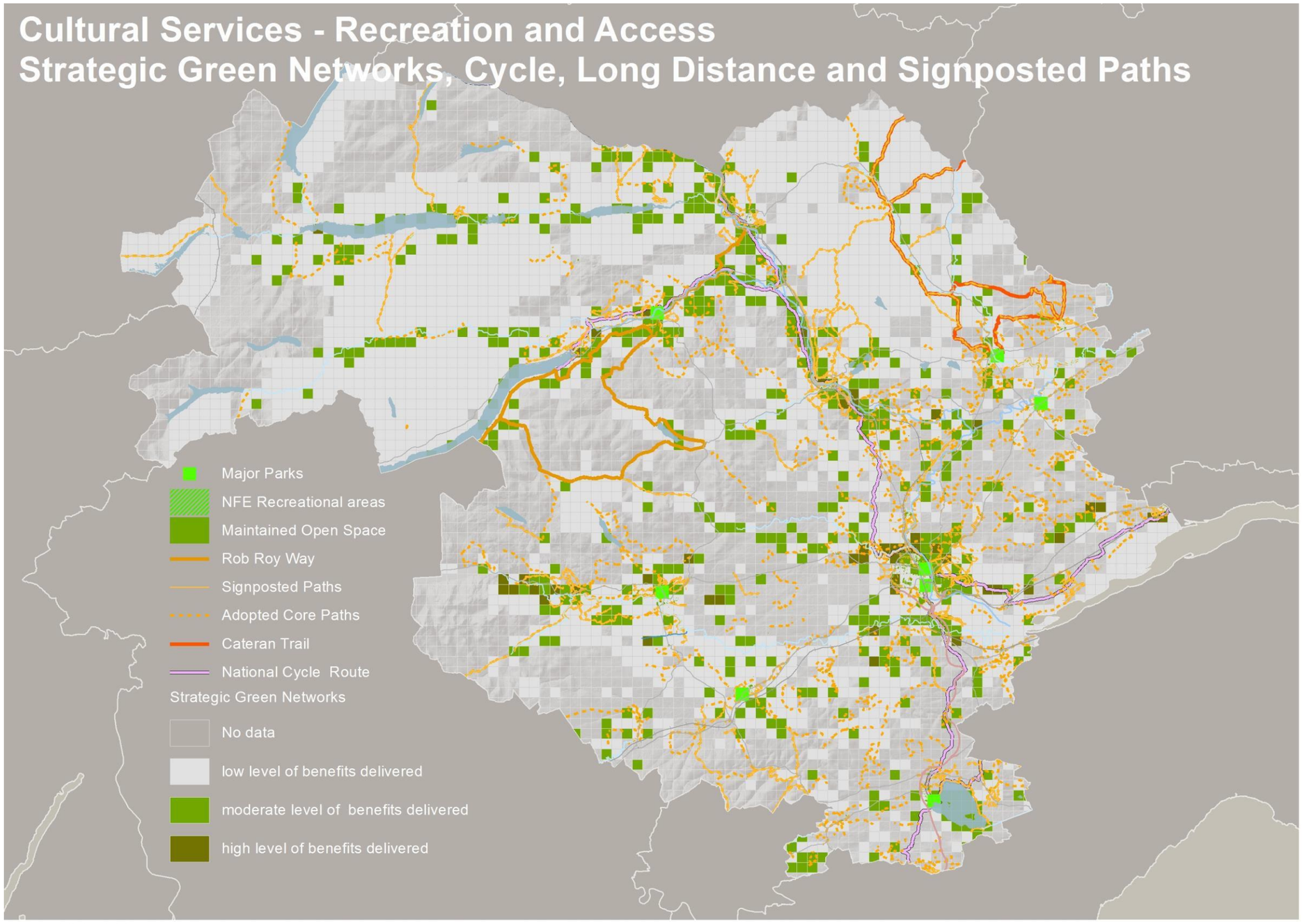
Relevance of this indicator

Landscape incorporates the environmental and cultural features present in an area. Preservation and enhancement of the distinctive landscape of the Perth and Kinross area is important to maintain community wellbeing, biodiversity and to support the local economy, which is dependent on tourism and maintenance of a healthy environment.

Data source: James Hutton Institute

Data availability: No Planned Update

Map Published 2015



Map Published 2015

Current position

Development should not only contribute towards new green infrastructure as the need arises as a result of individual developments, a contribution should also be made towards existing green infrastructure, by improvement or enhancement and / or by ensuring that there is no adverse impact or fragmentation of existing green infrastructure as a result of development.

These are requirements placed on developers by Local Development Plan policy. However there is also a growing demand from the public for developers to create places which are healthier, more attractive and pleasant, more sustainable and better able to withstand the effects of climate change, and which work with nature and the environment rather than against it.

Relevance of this indicator

Open space and woodland are valued elements of the landscape. Access to these areas contributes to long term human health and well being.

Planning authorities should consider the need to strengthen and develop existing access and greenspace networks, and the contribution that these areas might make to improving quality of life and providing opportunities for informal recreation as part of their open space audits and strategies and core path planning.

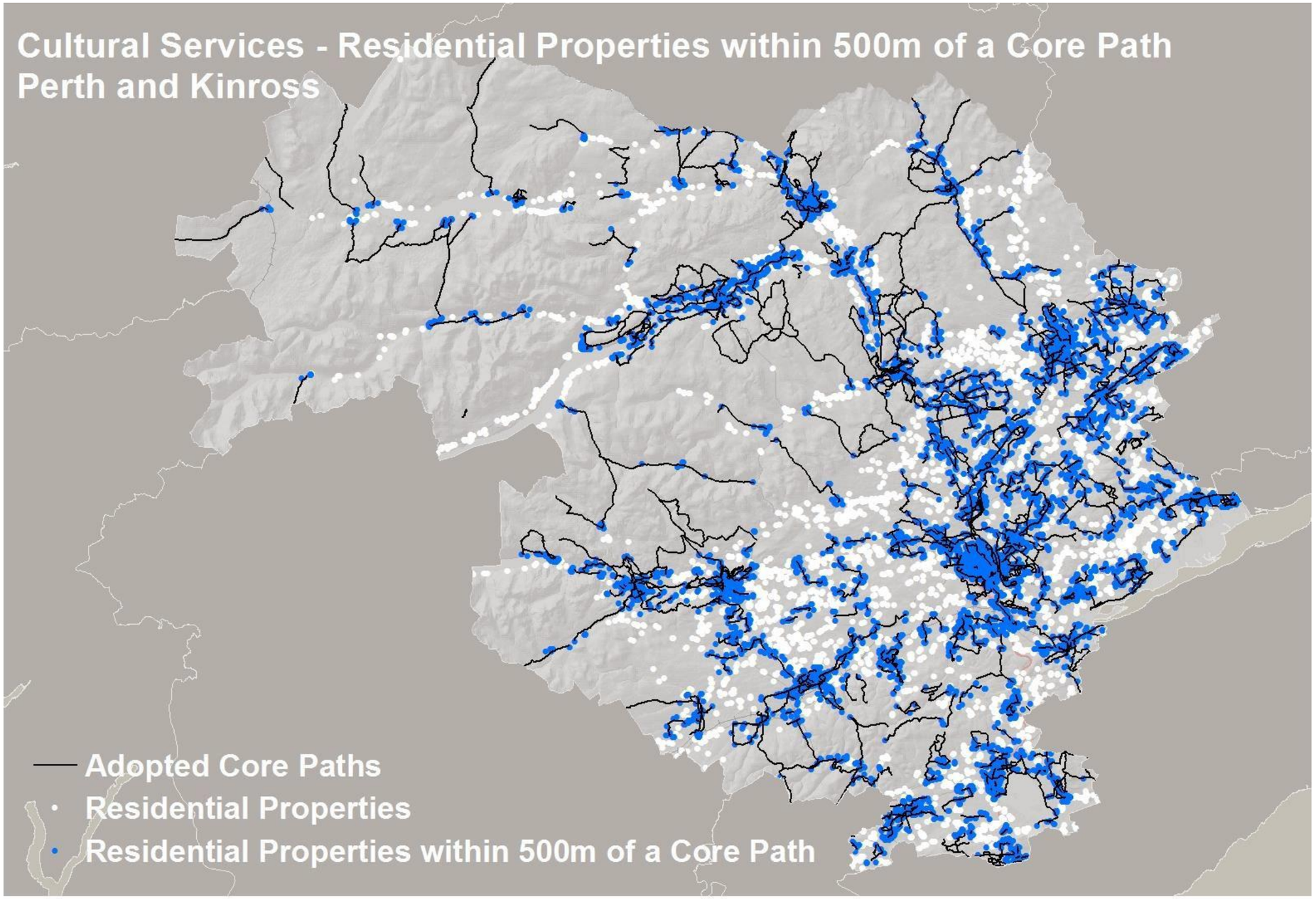
Links to National Outcome:

We live in well-designed, sustainable places where we are able to access the amenities and services we need

We value and enjoy our built and natural environment and protect it and enhance it for future generations

Data source: FC, TACTRAN, PKC, EKOS, PKC

Data availability: Annual



Current position

Available data from Perth and Kinross Council indicates that the majority (89%) of households are within a 500 metre straight-line distance of an adopted core path.

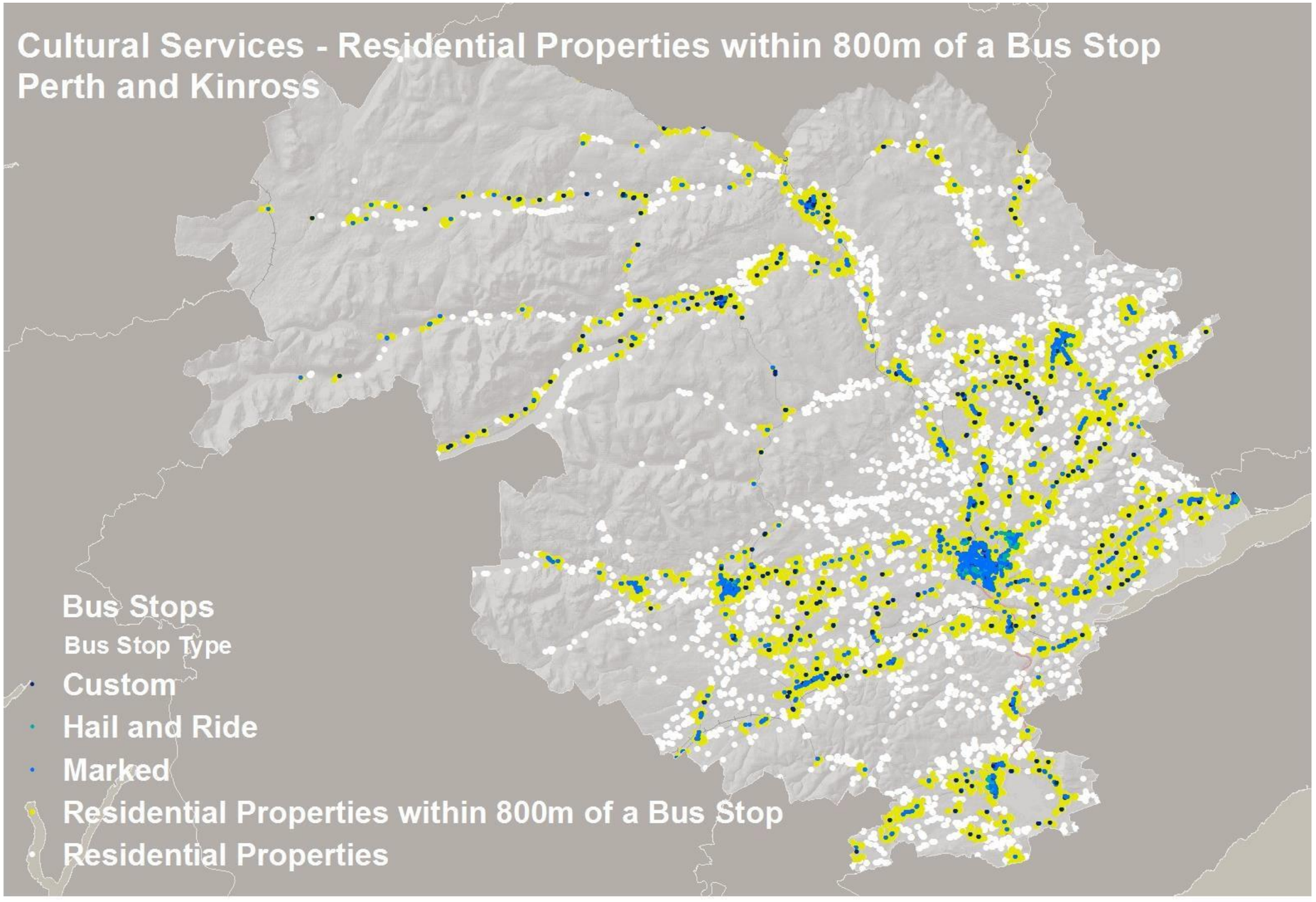
Relevance of this indicator

Open space and woodland are valued elements of the landscape. Access to these areas contributes to long term human health and wellbeing.

Data source: Perth and Kinross Council

Data availability: Annual

Map Published May 2015



Current position

Available data in Perth and Kinross indicates a high proportion of the households in Perth and Kinross are within an 800 metre straight-line distance of a bus stop (93%) a slight decrease of 1% over the 2010 figure. The accompanying map indicates how sparse bus stops are in rural areas.

Relevance of this indicator

Accessibility to transport is a key issue for sustainable development and social inclusion. As well as being a more sustainable mode of travel (better resource efficiency, less polluting) public transport is vital (especially to non-car owners) in promoting social inclusion through better access to work and key local services for all.

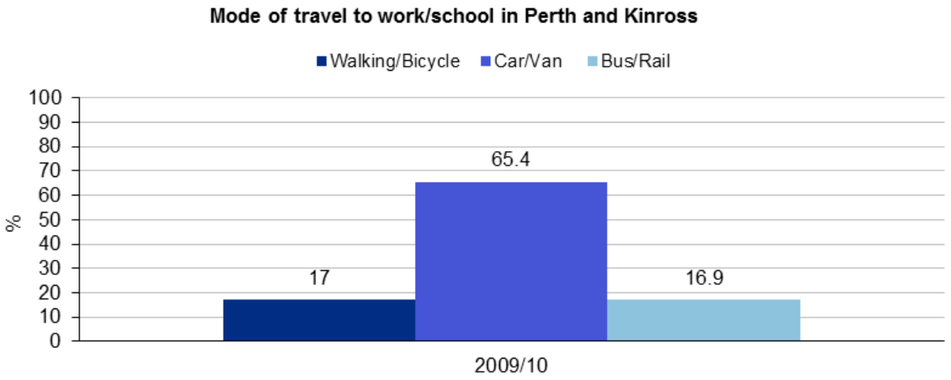
The UK Department for Transport (DfT) uses '% of all households within 13 minutes walk of an hourly or better bus service' to monitor and assess local transport accessibility. 800 metres should be used as the equivalent of "up to 13 minutes".

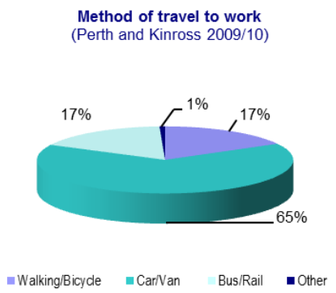
Data source: Perth and Kinross Council

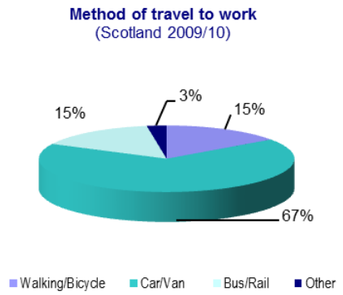
Data availability: Annual

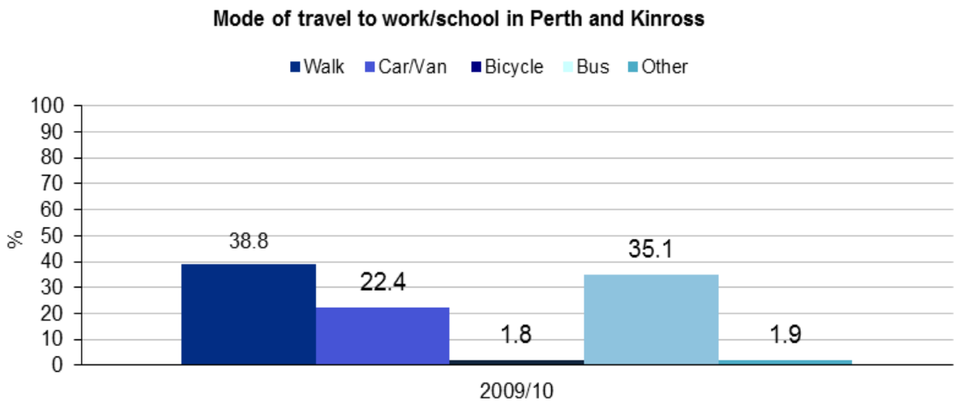
Map Published May 2015

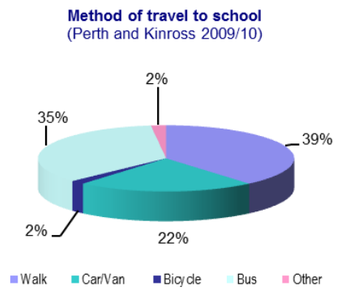
Cultural Services – Mode of Travel to Work/School

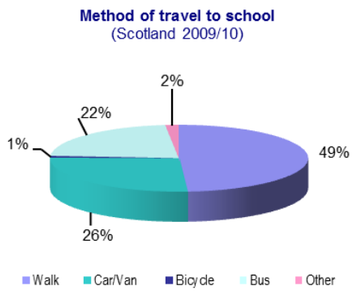












Current position

The usual method of travel to work by employed adults (16+) not working from home in Perth and Kinross is presented in these graphs. The most popular method of travel to work in Perth and Kinross in 2009/10 was by car/van (65%). The findings for Perth and Kinross in 2009/10 follow the pattern across Scotland as a whole.

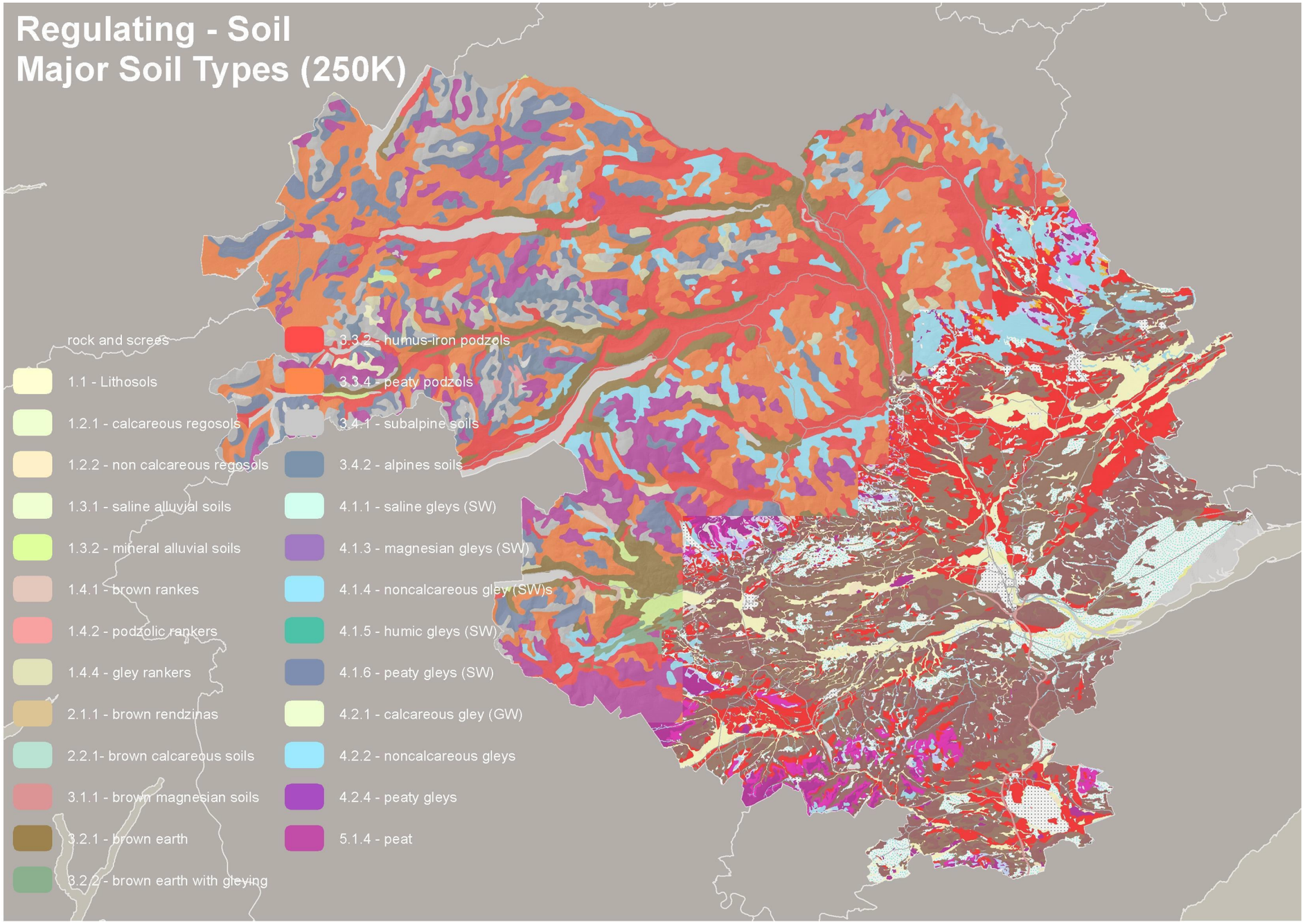
The usual method of travel to school by children in full time education in Perth and Kinross is presented in these graphs. The most popular method of travel to school in Perth and Kinross in 2009/10 was by walking, followed by bus, car/van, bicycle and others. The findings for Perth and Kinross in 2009/10 show a higher use of bus travel and lower use of walking as the main travel to school method compared to the rest of Scotland.

Relevance of this indicator

The mode of travel used by individuals has a subsequent impact on the environment (i.e. the use of public transport, walking or cycling having less of an impact on the environment than the use of cars). Increased use of these more sustainable modes of travel for journeys to work and school contributes towards improved resource efficiency and air quality, reduced greenhouse emissions and congestion, and can be beneficial to health through increased physical activity.

Data source: Scottish Household Survey

Data availability: Annual



Current position

The 1:250,000 soil dataset is used to identify potential soil with natural heritage issues of national interest. This included; *a)Soils with high organic content* (peat and peaty soil types), **b) *Soils directly associated with a habitat of conservation or a key geodiversity feature*** *and c) Prime agricultural land*

Of the 138 soil unit maps identified on the 1:250,000 scale soil maps in the TAYplan area. The dominant soils types in the area are Humus-iron podzols (19%), peaty podzols (18%), brown forest soils with gleying (18%) and brown forest soils (17%). Peaty soils cover 9% of the TAYplan area. Soil Major sub groups considered to be of national interest occurring in the area include:

- Humus – iron podzols in semi natural settings (associated with native pinewood forests)
- Peat – peatland habitats
- Alluvial soils – associated with river geomorphology (<5%)
- Alpine and subalpine soils – sensitive to degradation (<5%) (SNH, 2013)

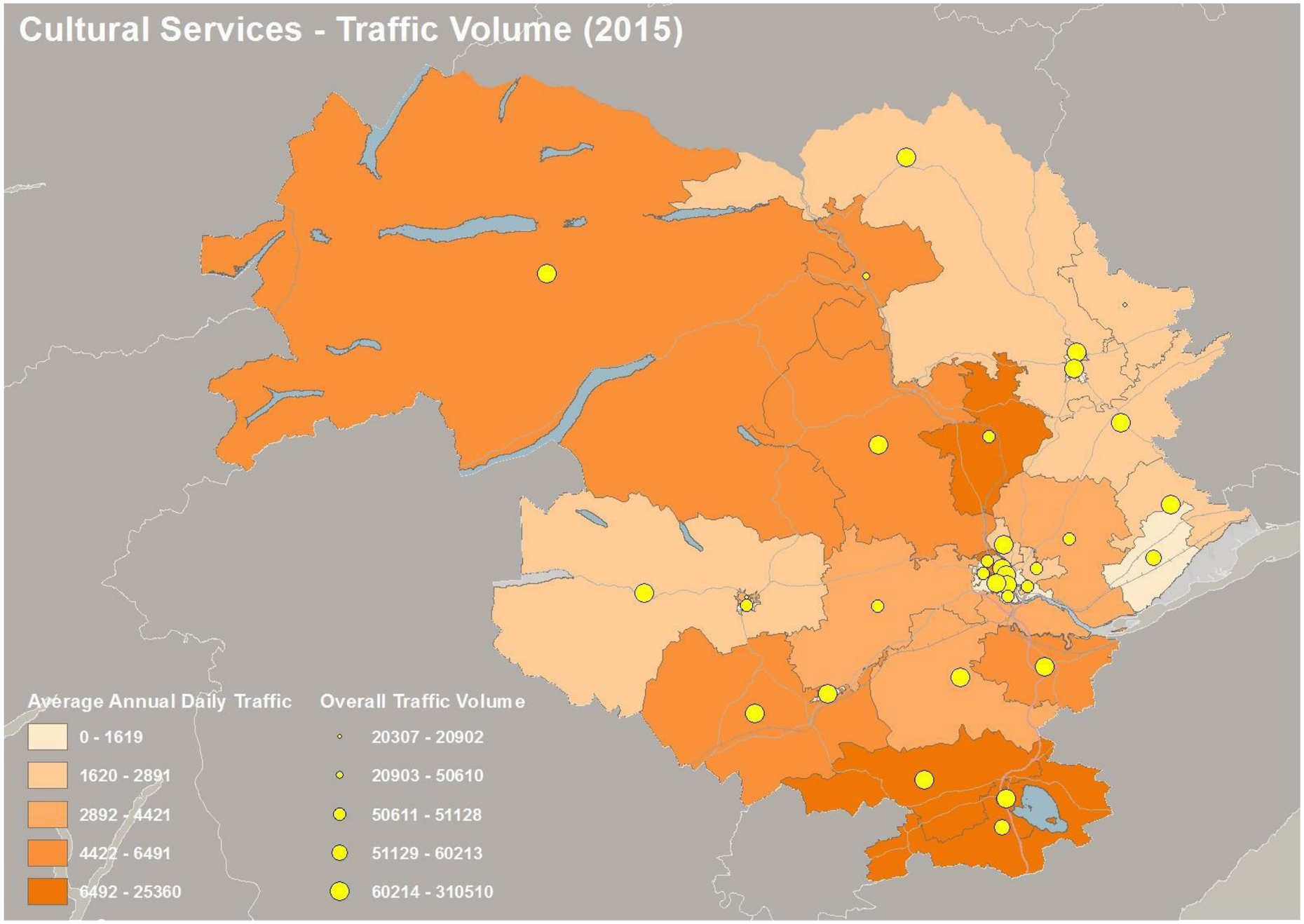
Relevance of this indicator

Healthy soils provide a range of environmental, economic and social benefits, which include providing the basis of the agricultural and forestry industries.

Threats to soil functions are erosion and compaction related to land management, contamination, sealing, loss of biodiversity, acidification from acid rain, climate change, and loss of organic matter.

Sources James Hutton Institute, PKC

Map Published 2015



Map Published May 2015

Current position

A traffic survey from 2015 shows the variation in the latest average annual daily traffic volume across Perth and Kinross by geographic area and the points indicate the total traffic count recorded at key sites throughout Perth and Kinross. As would be expected, the greatest volumes of traffic are observed within Perth and on the roads south of Perth leading to Edinburgh and Stirling.

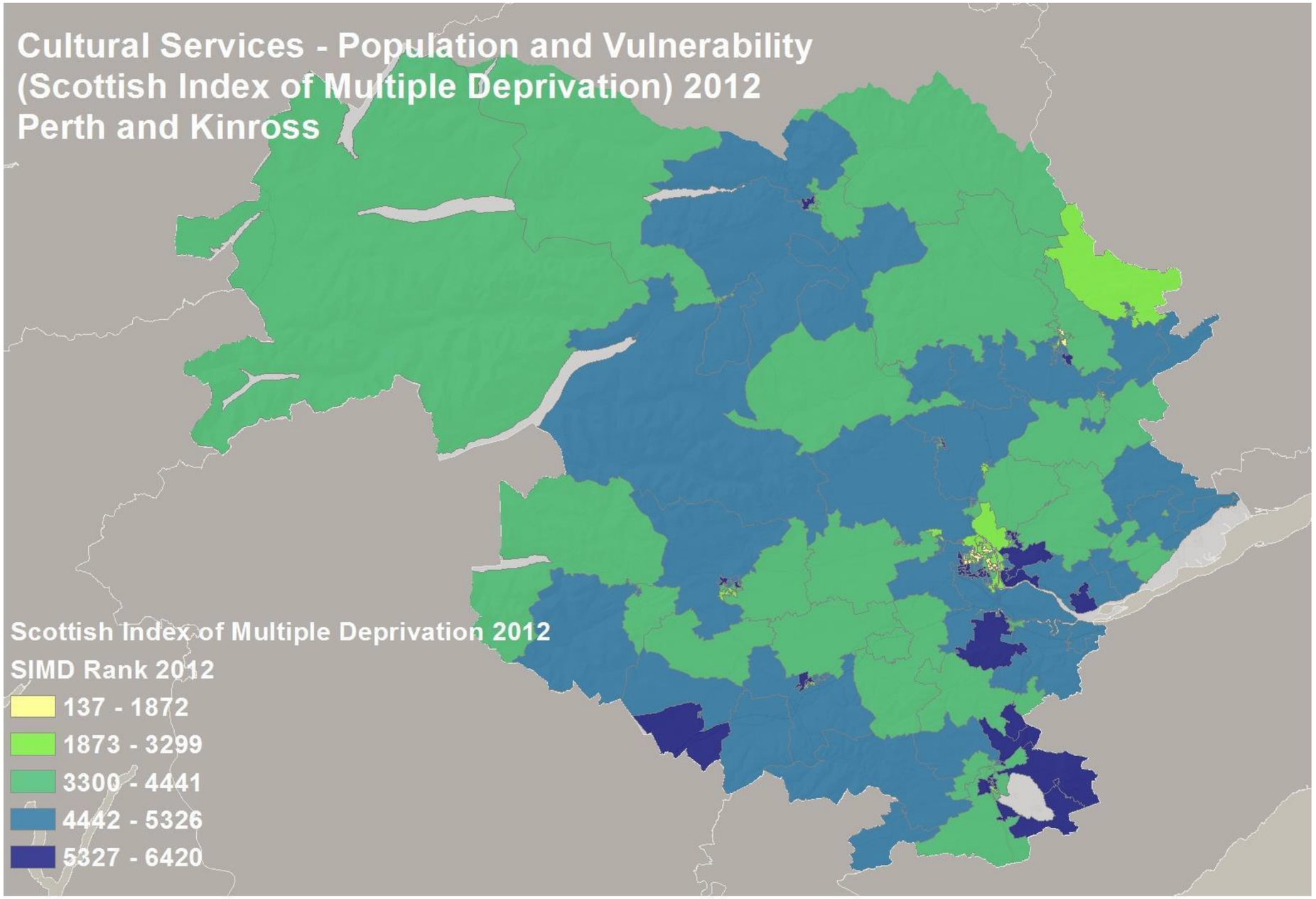
According to the regional transport strategy traffic on the road network in Tayside and central Scotland has been increasing by an average of approximately 1.6% per annum over the last 10 years. Local trend data is not currently available.

Relevance of this indicator

The type of transport used by residents and visitors influences the built and natural environment, human health and climate change. Traffic exhaust emissions are the primary source of air pollutants in Perth and Kinross and transport is the principle source of carbon dioxide. Transport also directly endangers human health and fauna due to road accidents.

Data source: Perth and Kinross Council

Data availability: Unknown



Current position

The Scottish Index of Multiple Deprivation (SIMD) targets small concentrations of multiple deprivations to be identified. The data zones are ranked from most deprived (1) to least deprived (6,505) on the overall SIMD and on each of the individual domains. The SIMD, thus provides, a picture of relative area deprivation across Scotland (Scottish Government, 2015).

Most of Perth and Kinross's datazones are found in less deprived deciles in SIMD 2012. The SIMD 2012, shows that 6 (3.4%) of Perth & Kinross's 175 datazones were found in the 15% most deprived datazones in Scotland, compared to 6 (3.4%) in 2009.

The map shows the overall SIMD by 20% bands within the local authority. The most deprived areas within Perth & Kinross are found in Perth and Crieff with a small number of datazones in Blairgowrie. The larger rural datazones in the south show as being the least deprived (Local Authority Results, Scottish Government, 2012) a trend that has continued from 2009.

Relevance of this indicator

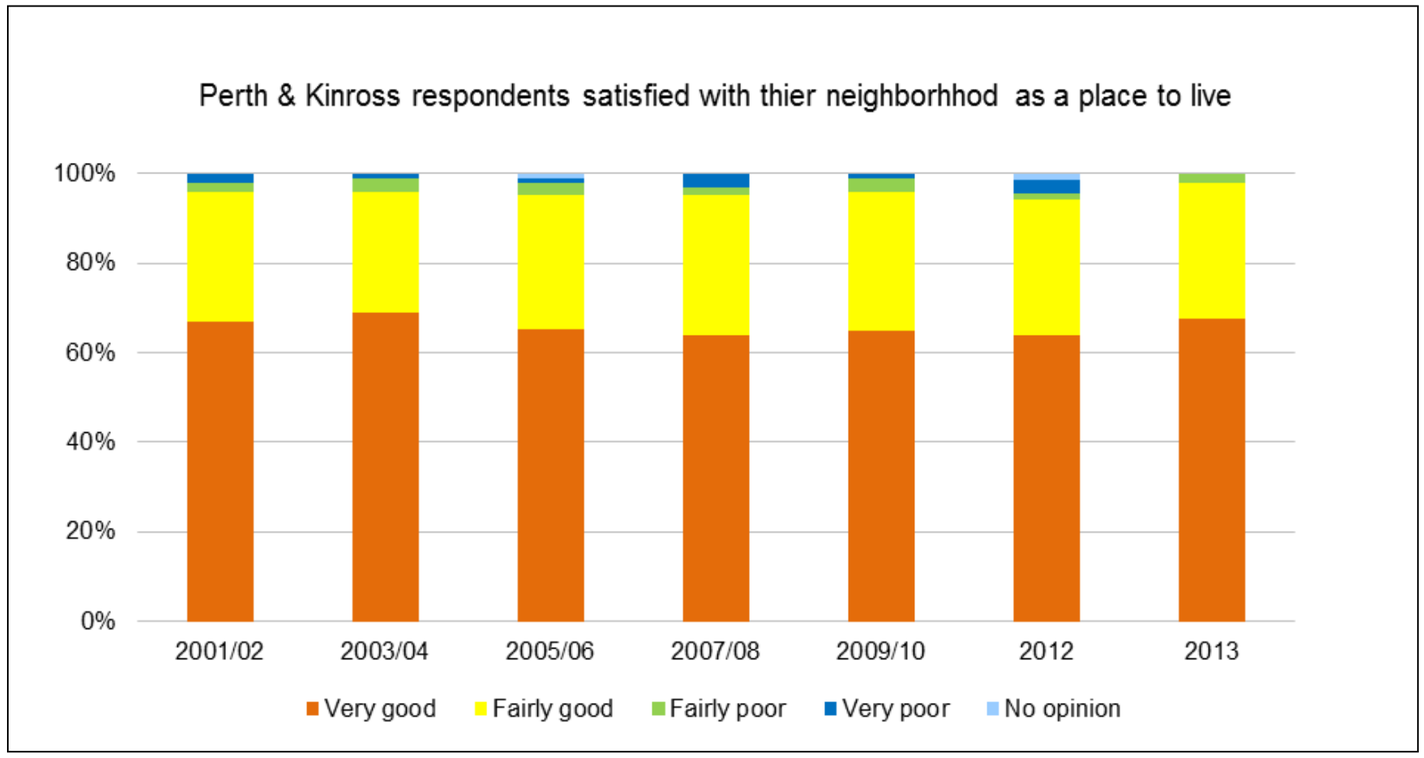
Sustainable development and growth of the Local Development Plan Area is important in maintaining community wellbeing, biodiversity, landscape and natural and cultural heritage and supporting the local economy (tourism in particular).

Data source: SIMD; GROS

Data availability: Annual

Map Published May 2015

Cultural Services – Resident satisfaction with their neighbourhood as a place to live



Current position

Since 2001/2, the percentage of residents surveyed in Perth and Kinross who rate their neighborhood as a very good or fairly good place to live has remained steady between 94 - 97%. This is consistently higher than the average for Scotland over the same period.

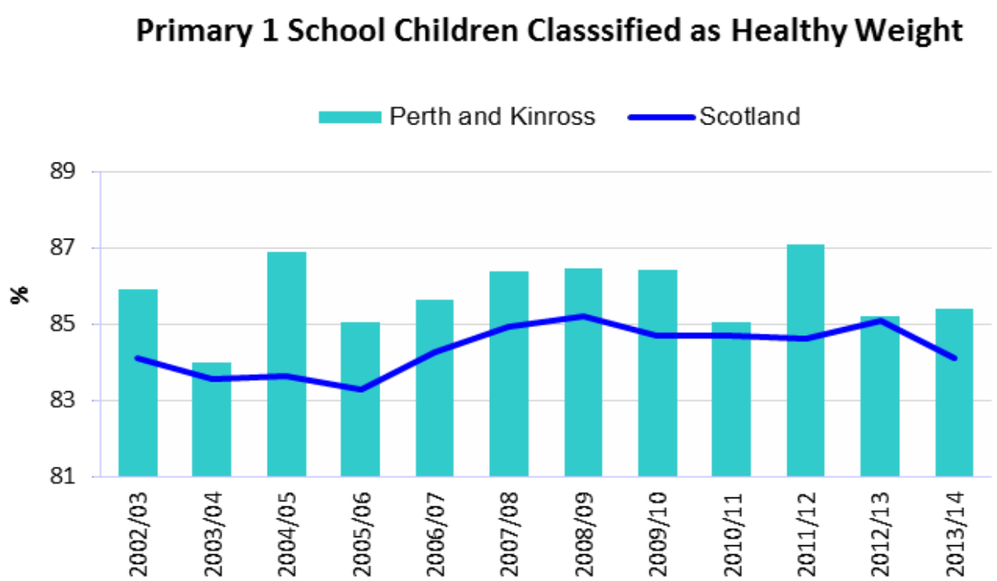
Relevance of this indicator

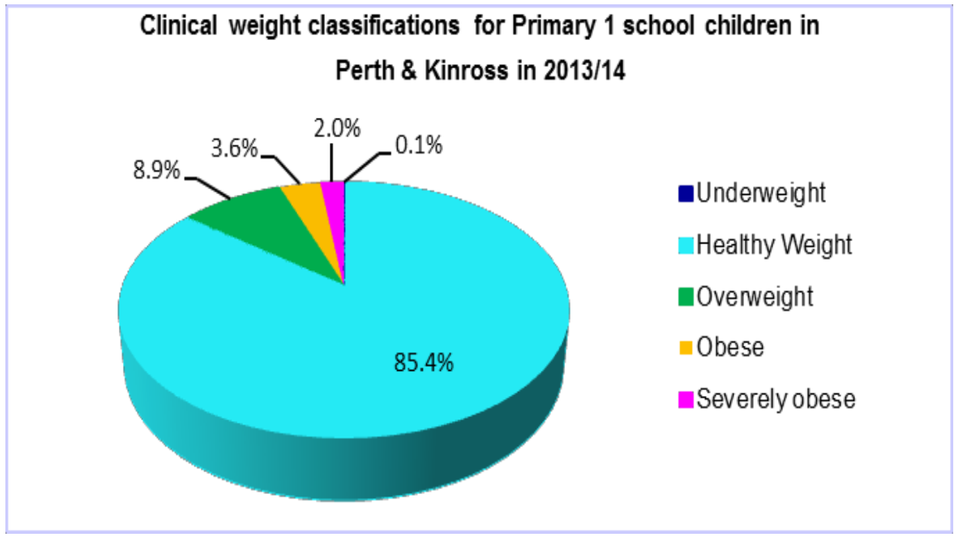
Neighbourhood well-being is an important feature of sustainable communities and there is a strong relationship between neighbourhood assets (e.g. safety, trust, co-operative neighbours, housing quality, and local services) and neighbourhood well-being. Assessing resident satisfaction with their neighbourhood as a place to live can give an indication of this.

Data source: Scottish Household Survey

Data availability: Annually

Cultural Services – Obesity in School Children





Current position

In 2013/14, 85.4% of Perth and Kinross primary 1 children receiving a review were classified as of clinically healthy weight. This is consistent with the previous period and above the average for Scotland over the same period. 8.9% were classified as overweight, 3.4% as obese, 3.6% as severely obese and 0.1% as underweight.

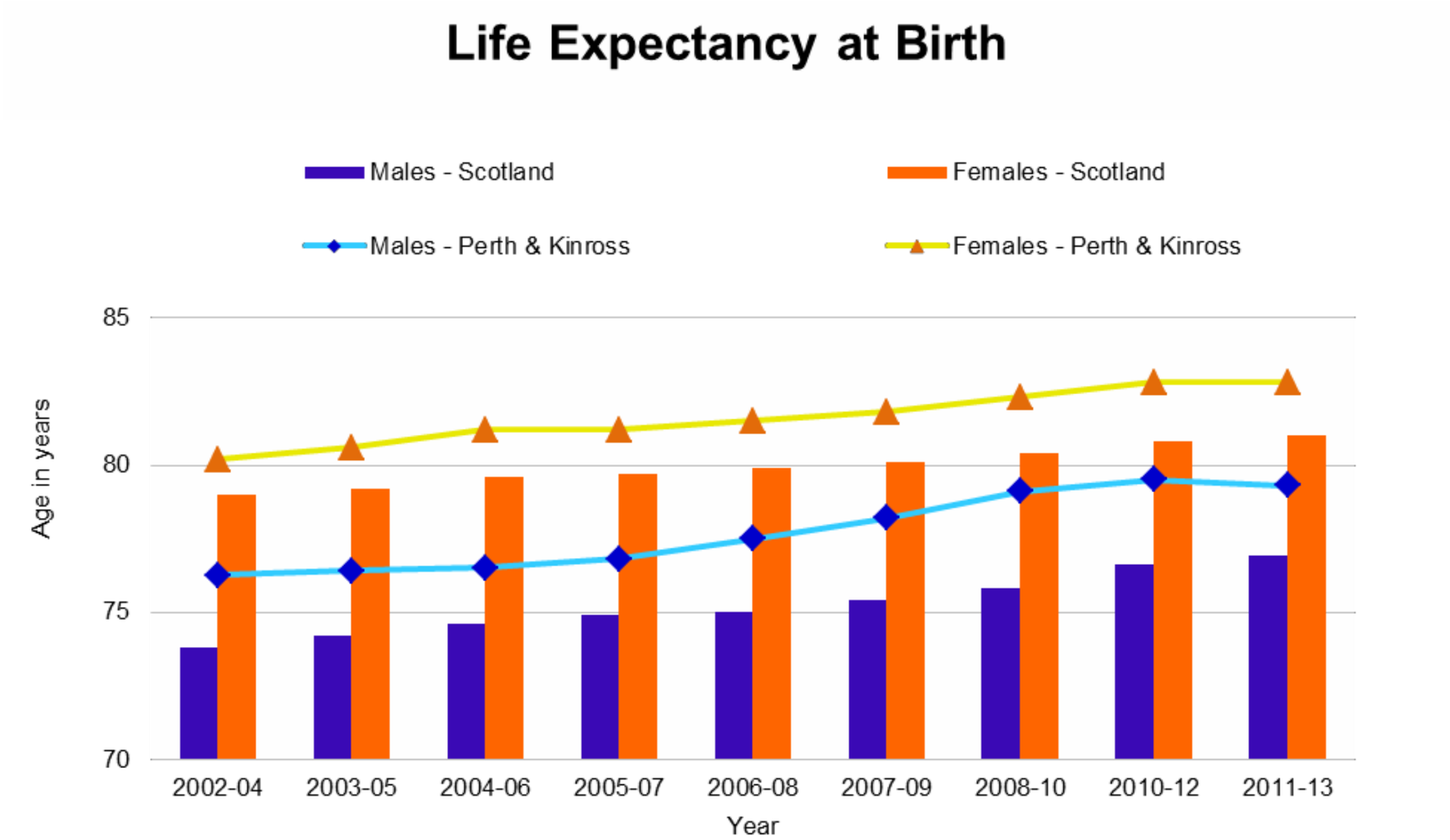
Relevance of this indicator

Being overweight or obese during childhood is a health concern in itself, but can also lead to physical and mental health problems in later life, such as heart disease, diabetes, osteoarthritis, and back pain, increased risk of cancer, low self-esteem and depression.

Data source: ISD Scotland

Data availability: Annually

Cultural Services – Life Expectancy at Birth



Current position

Life expectancy at birth (in years) in Perth and Kinross remains consistently high for both men and women, being consistently above the average for Scotland. The latest life expectancy figures published (2011-13) identify men (79.3%) and women (82.8%) in Perth and Kinross as having a higher life expectancy than the average for men (76.9%) and women (81%) across Scotland.

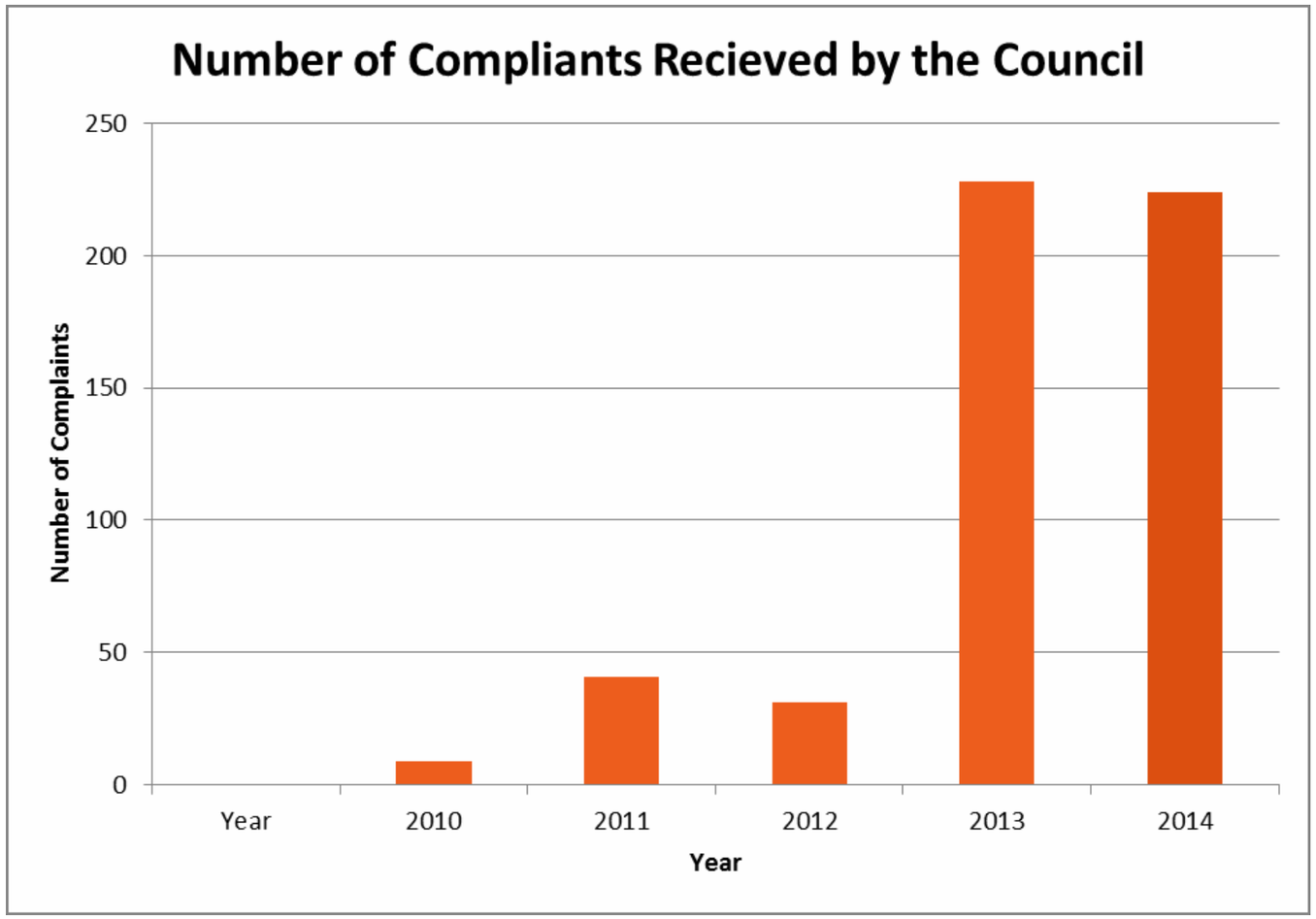
Relevance of this indicator

The life expectancy for a given population indicates the number of years that a person born in a specific year could be expected to live. It is influenced by numerous factors, including educational, social and economic status, as well as the performance of the health system. There are often links between lower life expectancy and deprivation.

Data source: National Records of Scotland

Data availability: Annually

Cultural Services – Number of Noise Complaints Received by the Council



Current position

The increase in the number of noise complaints observed in 2013 relates to a change in recording method, which in future will allow more accurate information to be collected with regards to the type of noise complaint received.

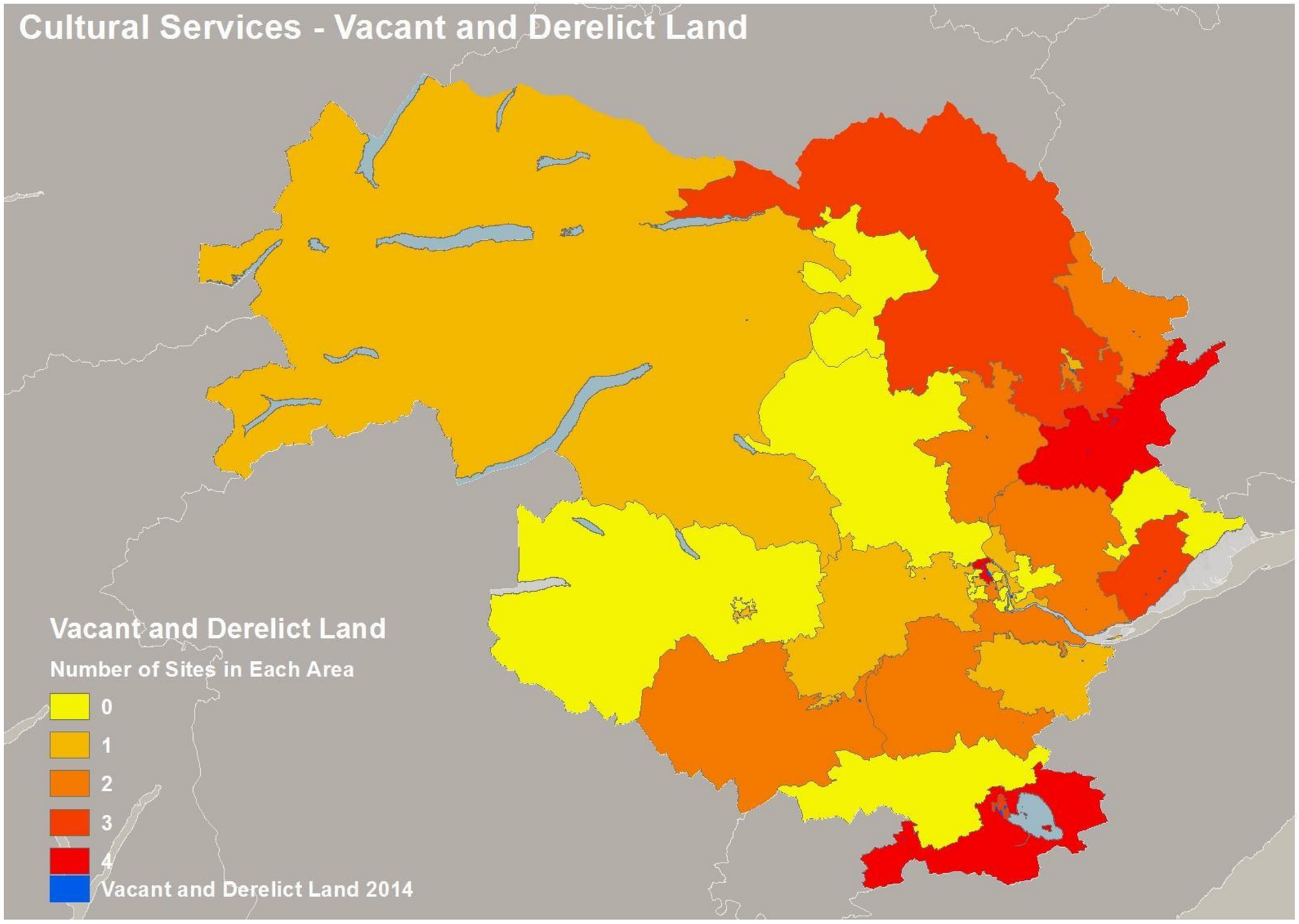
This change in recording method means that we are unable to see a pattern with regards to noise complains in the Perth and Kinross Area.

Relevance of this indicator

There is a growing understanding, both at the government and individual level, of the contribution of the environment to long term human health and wellbeing. Nearly a third of UK residents are annoyed by neighbour noise, and for 14% it has an impact on quality of life

Data source: Perth and Kinross Council

Data availability: Annually



Map Published 2015

Current position

A relatively small area of the land stock (46ha) in Perth and Kinross is vacant or derelict. The number of sites either vacant or derelict has decreased gradually from 49 in 2010 to 38 in 2015.

There has been a decline in the area of land vacant or derelict over the same period (50ha in 2010 compared to 46 ha in 2014) however there was a slight rise (2ha) in area of land that I vacant or derelict between 2013 and 2014.

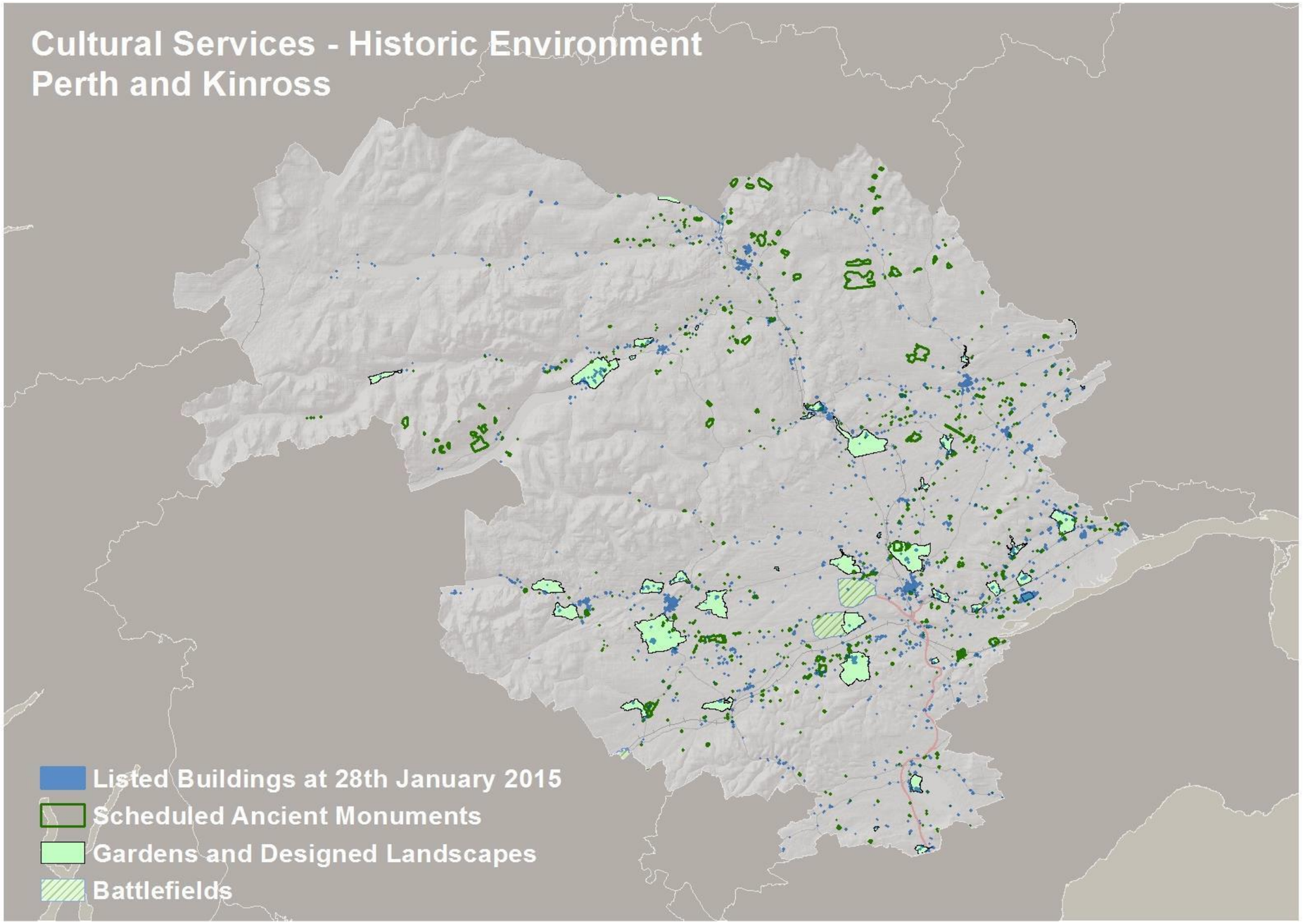
The map highlights the spatial distribution of the number of sites that are vacant and derelict using intermediate geography zones.

Relevance of this indicator

Preservation and enhancement of the distinctive landscape of Perth and Kinross is important to maintain community wellbeing, biodiversity and to support the local economy, which are dependent on tourism and maintenance of a healthy environment. Vacant and derelict land can often detract from the quality of the landscape and impact surrounding communities by deterring investment from the area.
Derelict land may also pose a threat to human health, if contamination is present by, for example, leaching of harmful chemicals into the local water courses.

Data source: Scottish Vacant and Derelict Land Survey, PKC

Data Availability: Annual



Map Published May 2015

Current position

Perth and Kinross contains 744 Scheduled Ancient Monuments and 3113 listed buildings. 131 listed buildings are on the buildings at risk register an increase of 35 since 2009. There are 42 historic gardens and designed landscapes covering 11123 ha.

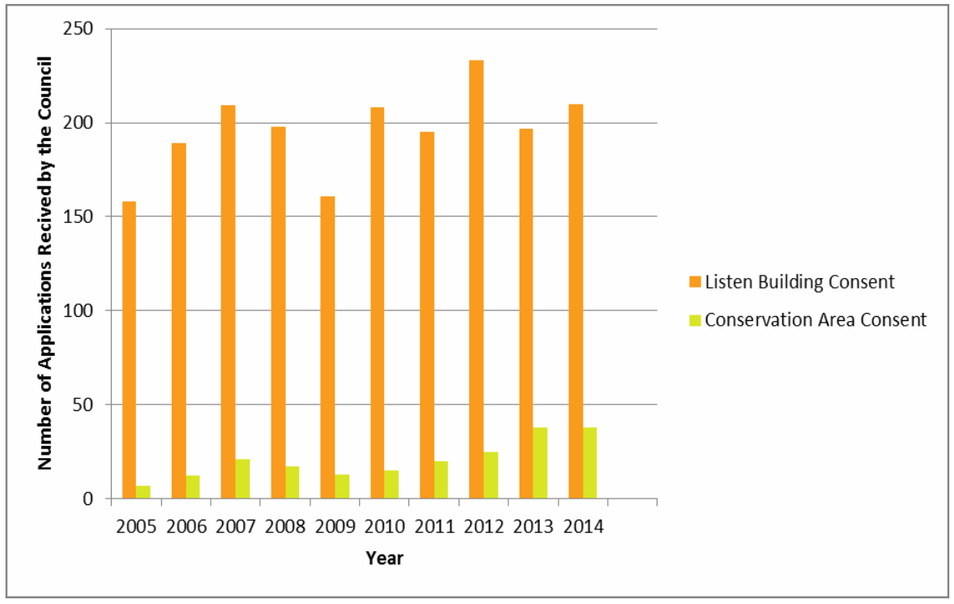
There are 36 conservation areas throughout Perth and Kinross.

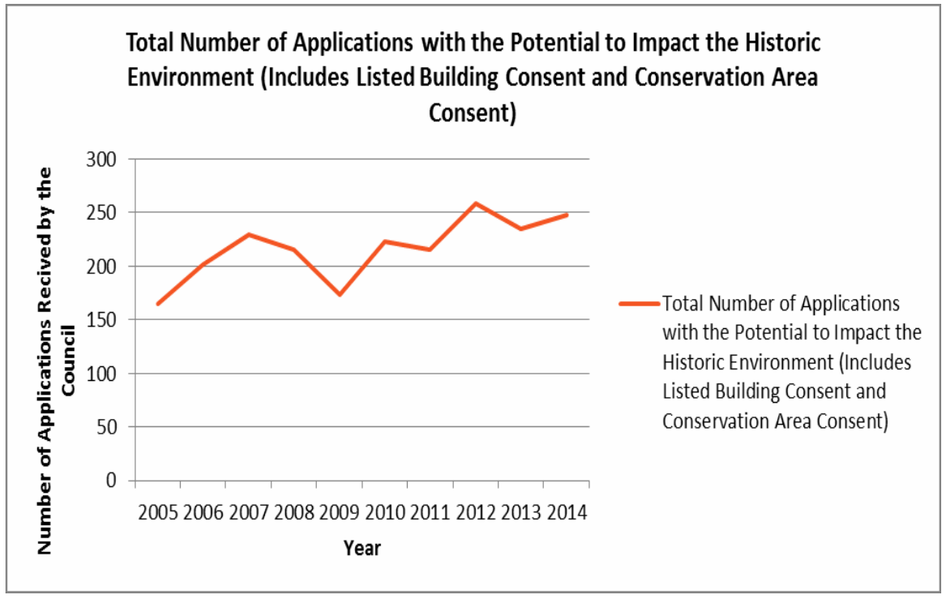
Relevance of this indicator

The historic character of the environment is important to quality of life and sense of identity, and it is a vital contributor to the economy through the attraction of visitors. Constant change in the historic environment is a result of natural processes, such as climate change and erosion, and human interventions, such as land management, urban and rural development, transportation and pollution.

Data source: Historic Scotland
Data availability: Annually

Cultural Services – Number of applications for Planning Consent with the Potential to Impact the Historic Environment





Current position

In 2014 there were 210 applications involving listed building consent and 38 involving conservation area consent; a slight decrease over the previous year.

The number of planning applications with the potential to impact the historic environment has been gradually increasing since 2005. There was a drop in 2009 which could be due to the economic downturn and the number of application peaked in 2012 with 258 in total. Overall however the pattern shows an increasing number of planning applications with the potential to impact the historic environment.

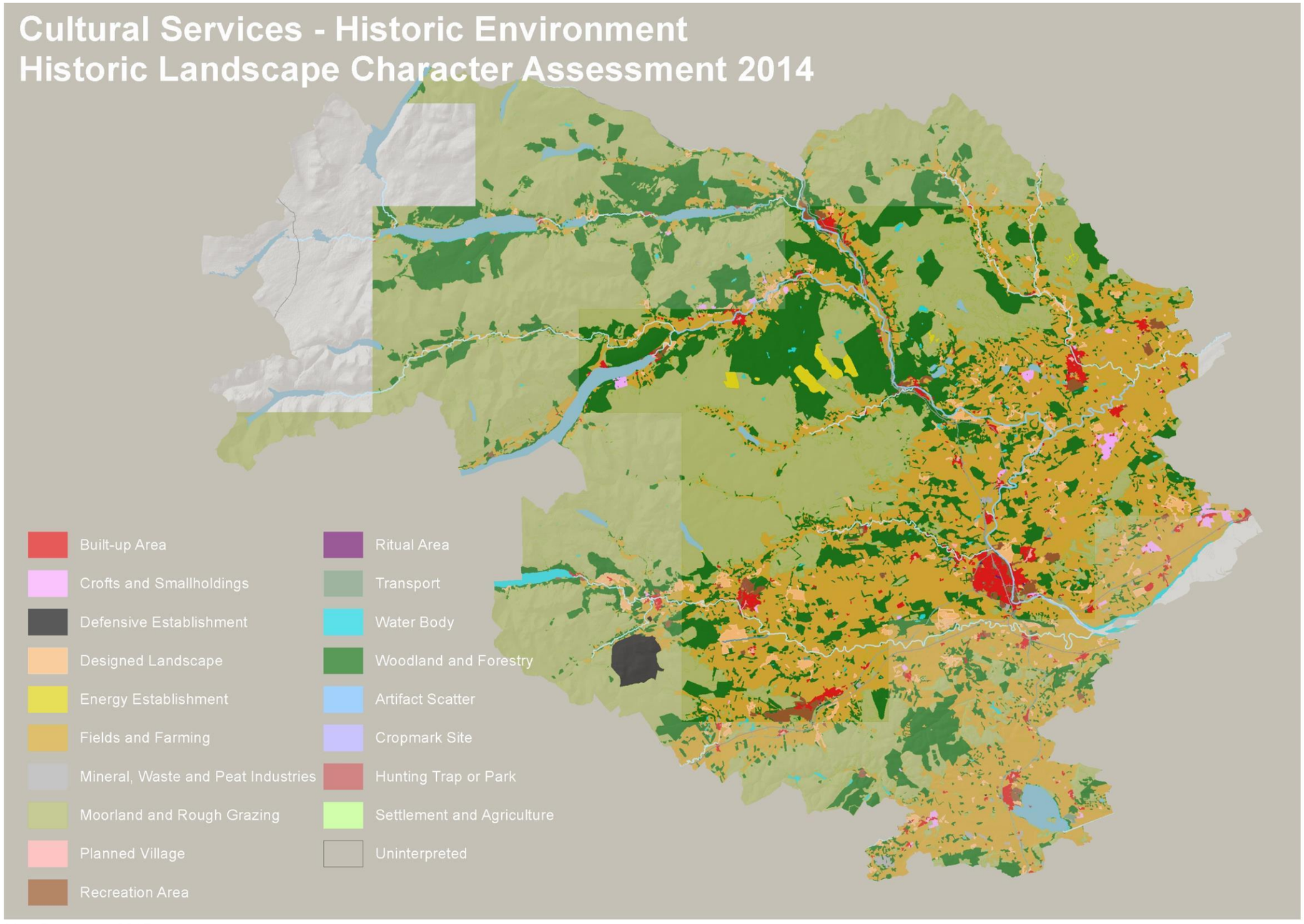
(Note that this is the total number of applications received, Not all will have been approved.)

Relevance of this indicator

The historic character of the environment is important to quality of life and sense of identity, and it is a vital contributor to the economy through the attraction of visitors. Constant change in the historic environment is a result of natural processes, such as climate change and erosion, and human interventions, such as land management, urban and rural development, transportation and pollution.

Data source: Perth and Kinross Council

Data availability: Annually



Map Published 2015

Current position

The HLA is a GIS-based mapping project that shows the historic origin of land-use patterns, describing them by period, form and function. It is compiled at a scale of 1:25000, and is based on the analysis of key data sources, such as early maps, aerial photography and survey results (Historic Scotland 2013).

The HLA has identified some 55 individual historic land-use types. The majority of the region has been identified as rough grazing and rectilinear fields. The second largest areas consist of coniferous and woodland plantation and managed woodland (nearly 100, 000 ha).

Relevance of this indicator

The historic character of the environment is important to quality of life and sense of identity, and it is a vital contributor to the economy through the attraction of visitors. Constant change in the historic environment is a result of natural processes, such as climate change and erosion, and human interventions, such as land management, urban and rural development, transportation and pollution.

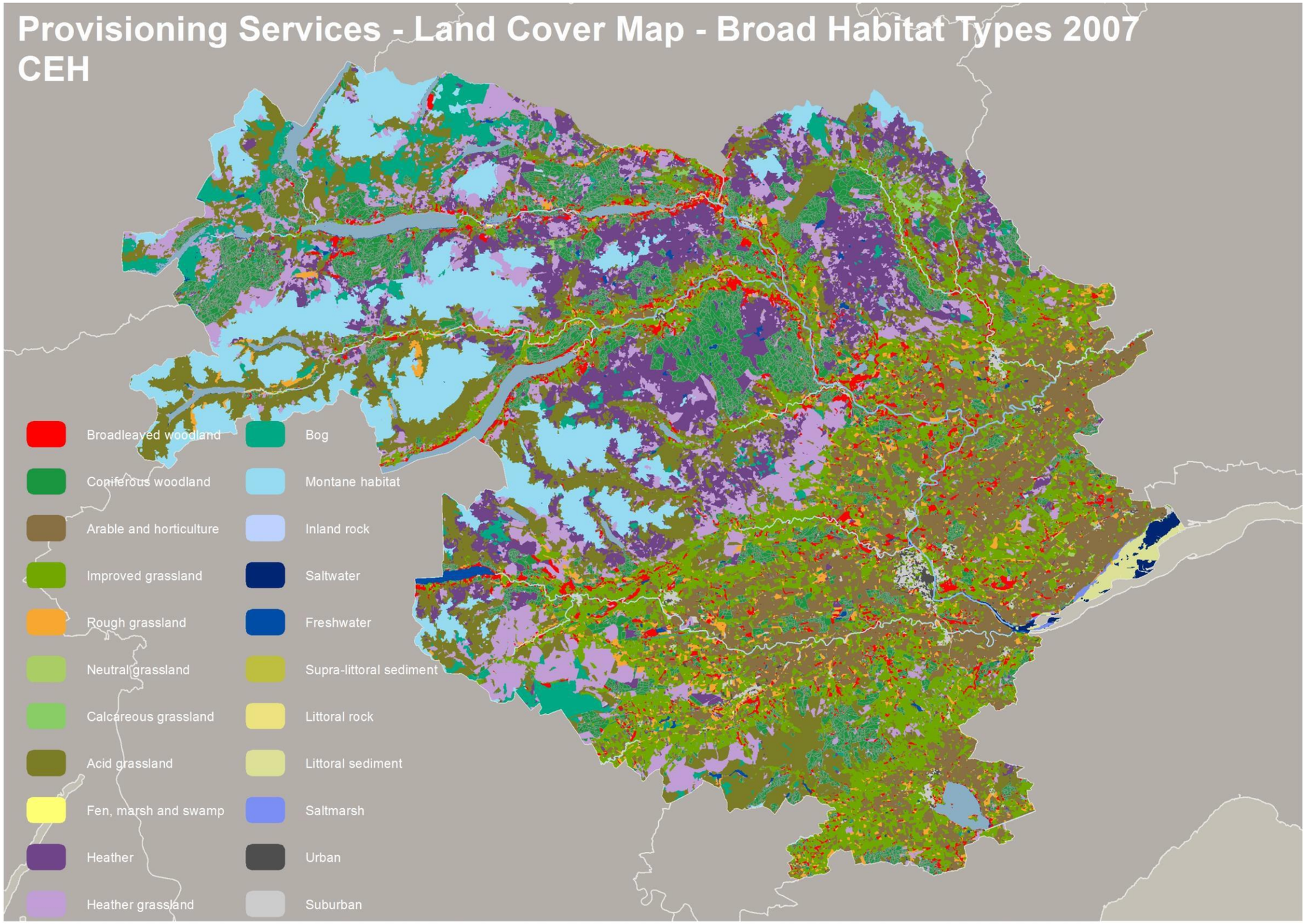
Links to National Outcome:

We value and enjoy our built and natural environment and protect it and enhance it for future generations

We take pride in a strong, fair and inclusive national identity

Data source: Historic Scotland

Data availability: Annual



Map Published February 2014.

Current position

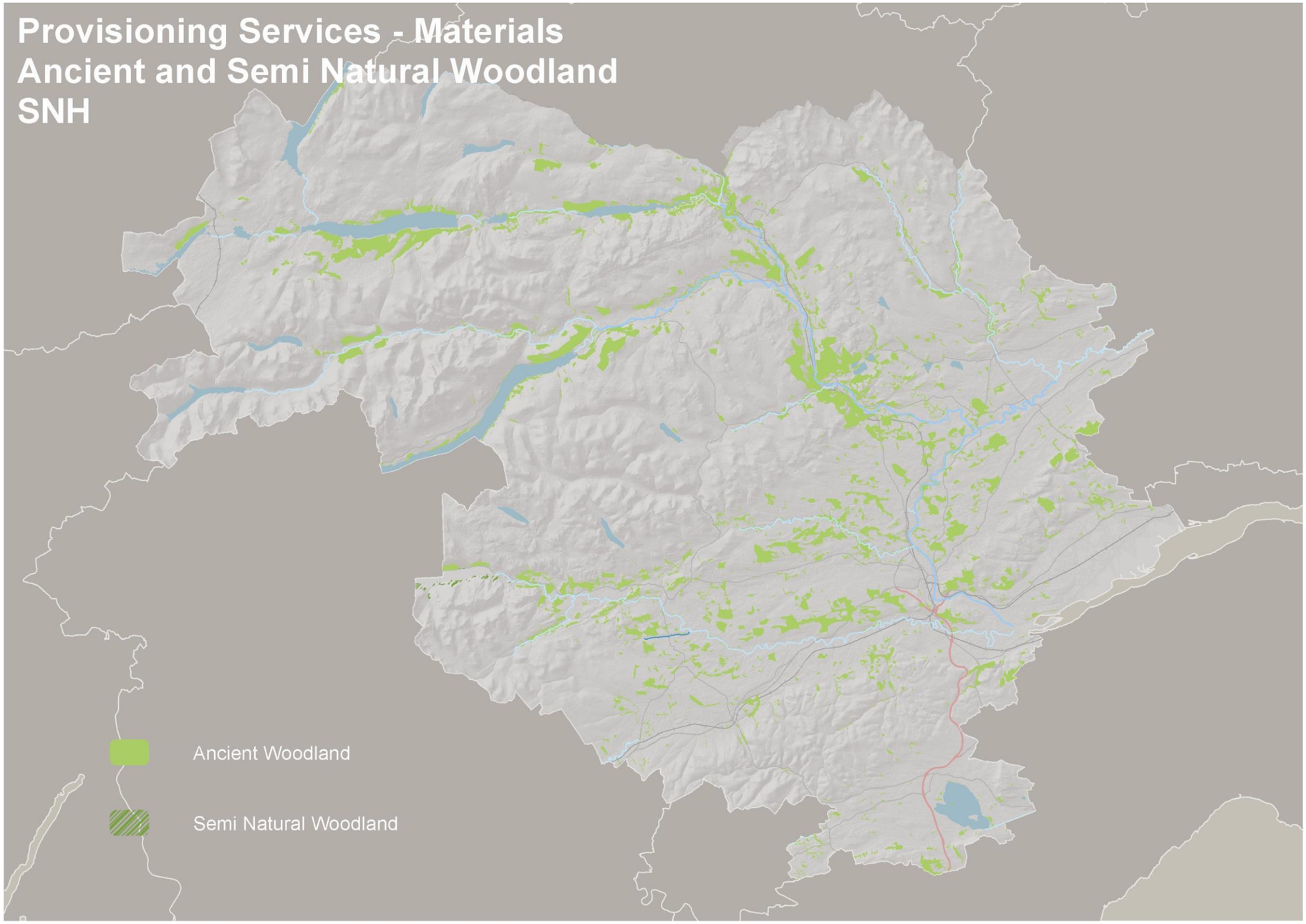
There is a clear distinction between scrub, heath and moorland in the upland area in the north west and agriculture in the lowland areas of the south east and river valleys. The main land cover categories are montane and heath scrub (36%), grassland (28%) agriculture (10%) and forestry / woodland (17%). Predominantly residential areas account for less than 1% of the total Perth and Kinross area.

Relevance of this indicator

Land cover as assessed by the Centre for Ecology and Hydrology (CEH) is a parcel-based classification of UK land cover. It uses 23 classes to map the UK, which are based on the UK Biodiversity Action Plan (BAP).
The natural physical influences which originally shaped the landscape of Perth and Kinross and continue to cause it to change are solid and drift geology, hydrology and climate.

Data source: Centre for Ecology and Hydrology

Data availability: No Planned Update



Current position

The Forestry Commission identified approximately 57,142 ha of ancient and semi-natural woodland in Perth and Kinross (2006).

Relevance of this indicator

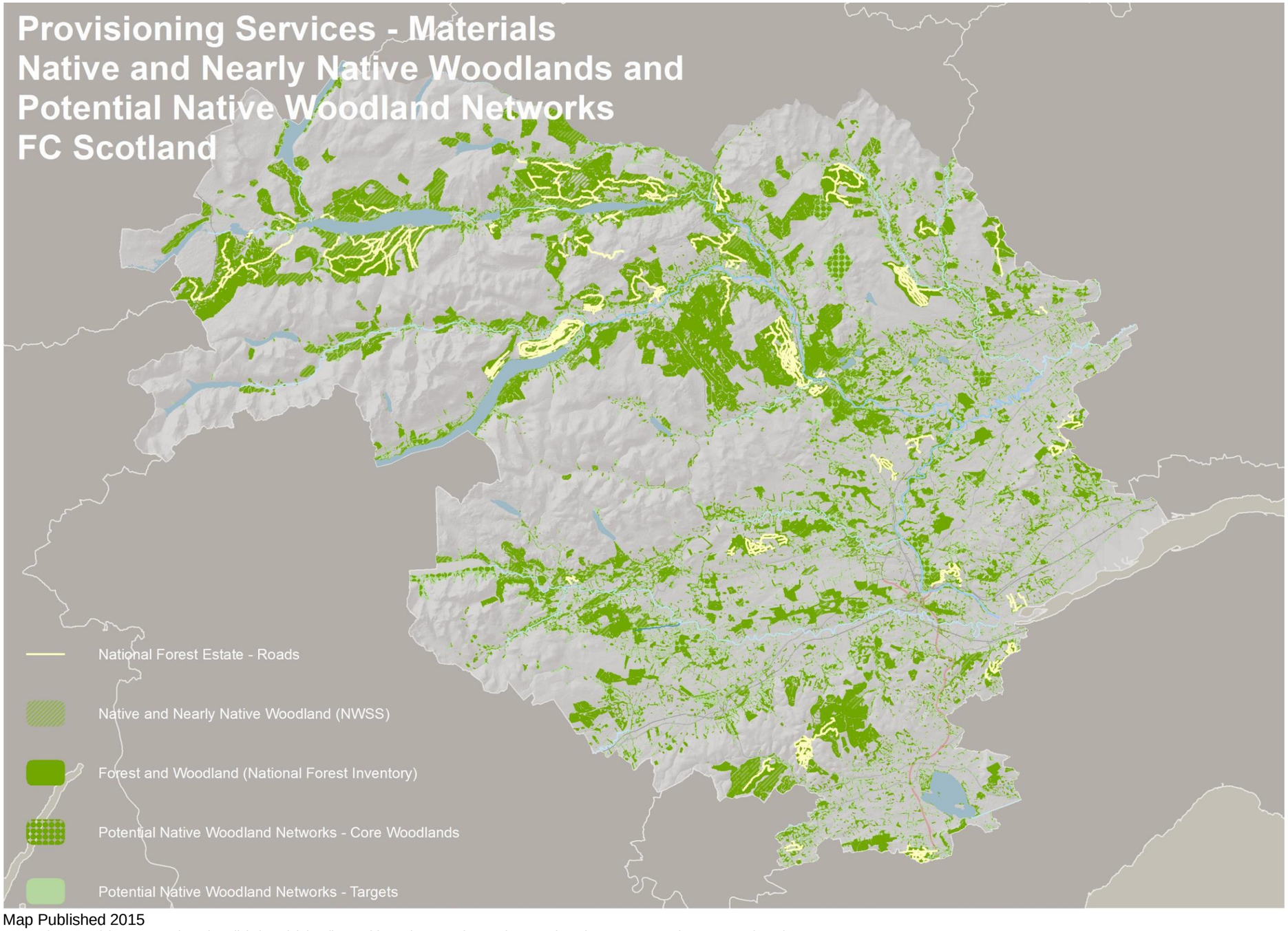
This dataset contains information gathered by remote means using 1970s sources (maps, aerial photos) about the woodland cover present on Ancient & Long-Established Woodland Inventory sites. It does not contain information about woods not on the Inventory.

The historic character of the environment is important to quality of life and sense of identity, and it is a vital contributor to the economy through the attraction of visitors. Constant change in the historic environment is a result of natural processes, such as climate change and erosion, and human interventions, such as land management, urban and rural development, transportation and pollution. This dataset is under review to ensure all relevant AWI are mapped.

Data source: SNH

Data availability: Annual

Map Published 2015



Map Published 2015

Current position

There has been a clear upward trend in woodland cover in the region since 1905. The Scottish Forestry Strategy sets an aspirational target of 25% woodland cover in Scotland by 2025.

There has been a clear upward trend in woodland cover in Perth and Kinross since 1905. The Scottish Forestry Strategy sets an aspirational target of 25% woodland cover in Scotland by 2025. In 2010, the Forestry Commission completed the National Woodland Inventory (NFI) which shows the extent of all woodland of 0.5 ha or over. The objective is to identify; real woodland gains and real woodland losses. According the NFI 17% of Perth and Kinross is forested, an increase of 1% or over 6500 ha since 2002. (Forestry Commission, 2011)

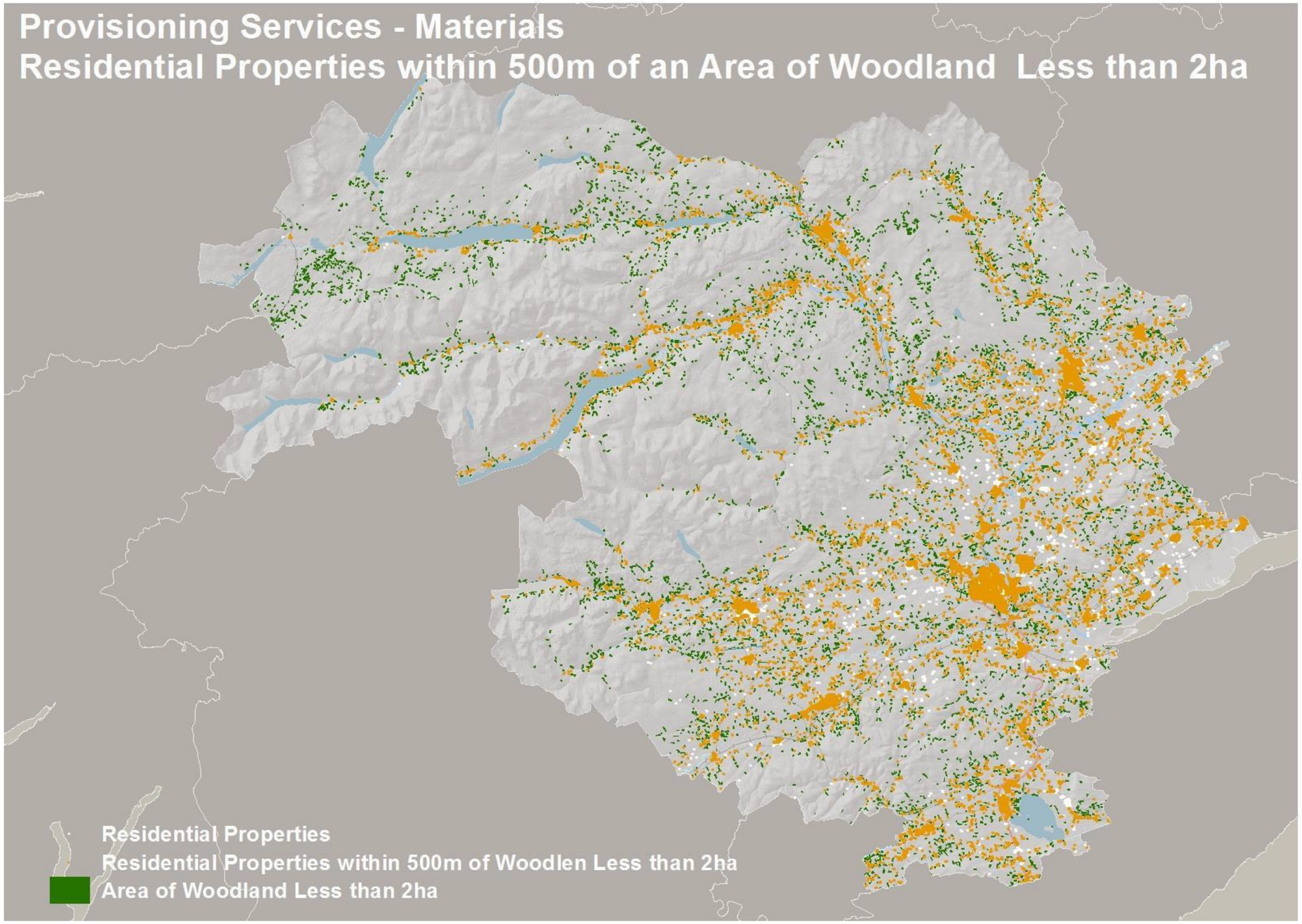
Approximately 6% of this area is native or nearly native woodland according to the Native Woodland Survey of Scotland (Forestry Commission, 2013)

Potential Native Woodland Networks have been identified to help focus native woodland expansion, improvement and restoration. This map highlights core areas of woodland for native woodland expansion and potential expansion zones to core woodlands and shows the location where new native woods would best develop a successful ecological connection to an adjoining core woodland area.

Relevance of this indicator

Preservation and enhancement of the distinctive landscape of the Perth and Kinross area is important to maintain community well being, biodiversity and to support the local economy. Woodlands support the region's economy through timber production, and play a key role in the tourist industry, providing recreational opportunities and contributing to the region's unique landscape and ecology.

Data source: Forestry Commission



Map Published May 2015

Current position

Based on information available in the National Forestry Inventory 87% of residential properties within Perth and Kinross are within 500m of woodland with an area of up to 2 ha. The majority of residential properties (95%) are within 4km of a woodland area greater than 20ha. These figures highlight the accessibility of woodland areas within Perth and Kinross.

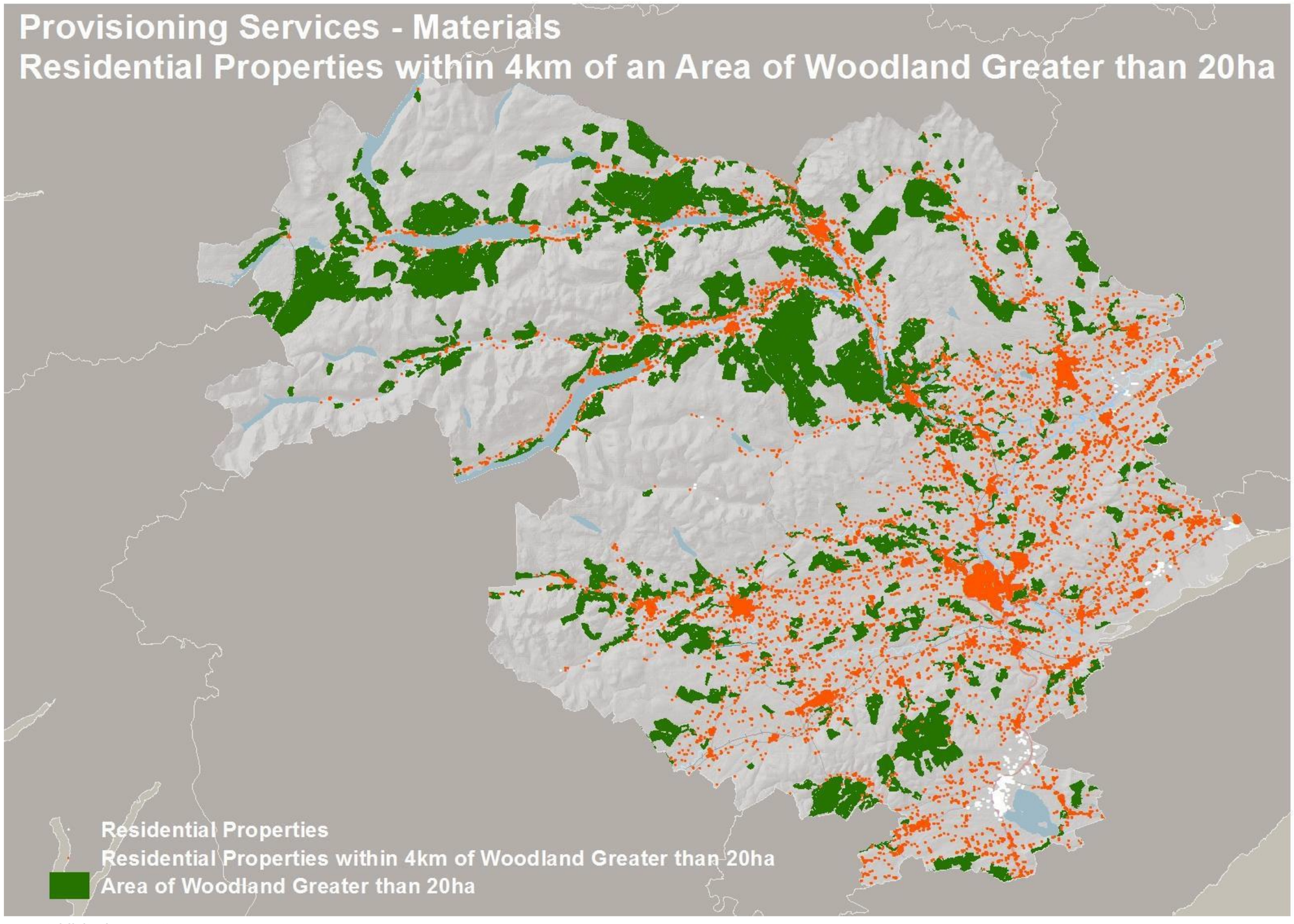
Relevance of this indicator

Open space and woodland are valued elements of the landscape. Access to these areas contributes to long term human health and wellbeing.

There are limited opportunities to provide new open space areas within and in the vicinity of built areas; existing areas are under pressure for development.

Data source: Forestry Commission

Data availability: Unknown



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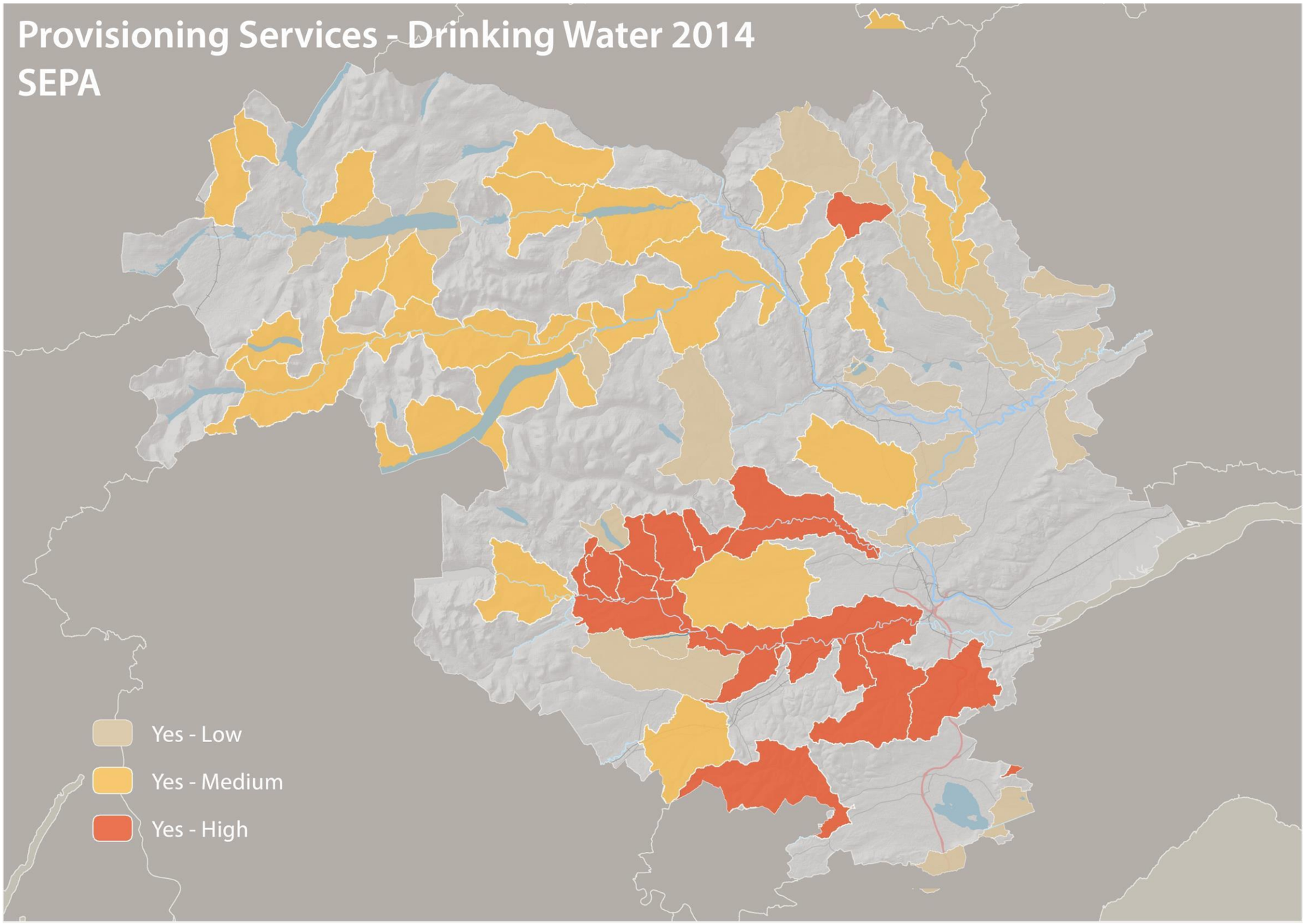


Map Published 2014

Current position

Currently approximately 160,000 ha or 36% of sub catchments intersecting the Perth and Kinross Planning Authority area provide drinking water services.

Brief overview

Drinking water is essential for our survival. 97% of drinking water is supplied by Scottish Water with the remaining 3% coming from private supplies.

Service provided

The service that the water environment provides is volumes of water for abstraction and use in drinking water. This service is provided by lochs, rivers and groundwaters.

Benefits provided

The data we have shows the relative number of people served drinking water. It has been calculated from the abstraction size by assuming that each person requires 300 litres/day.

Impacts caused by use of water environment for drinking water

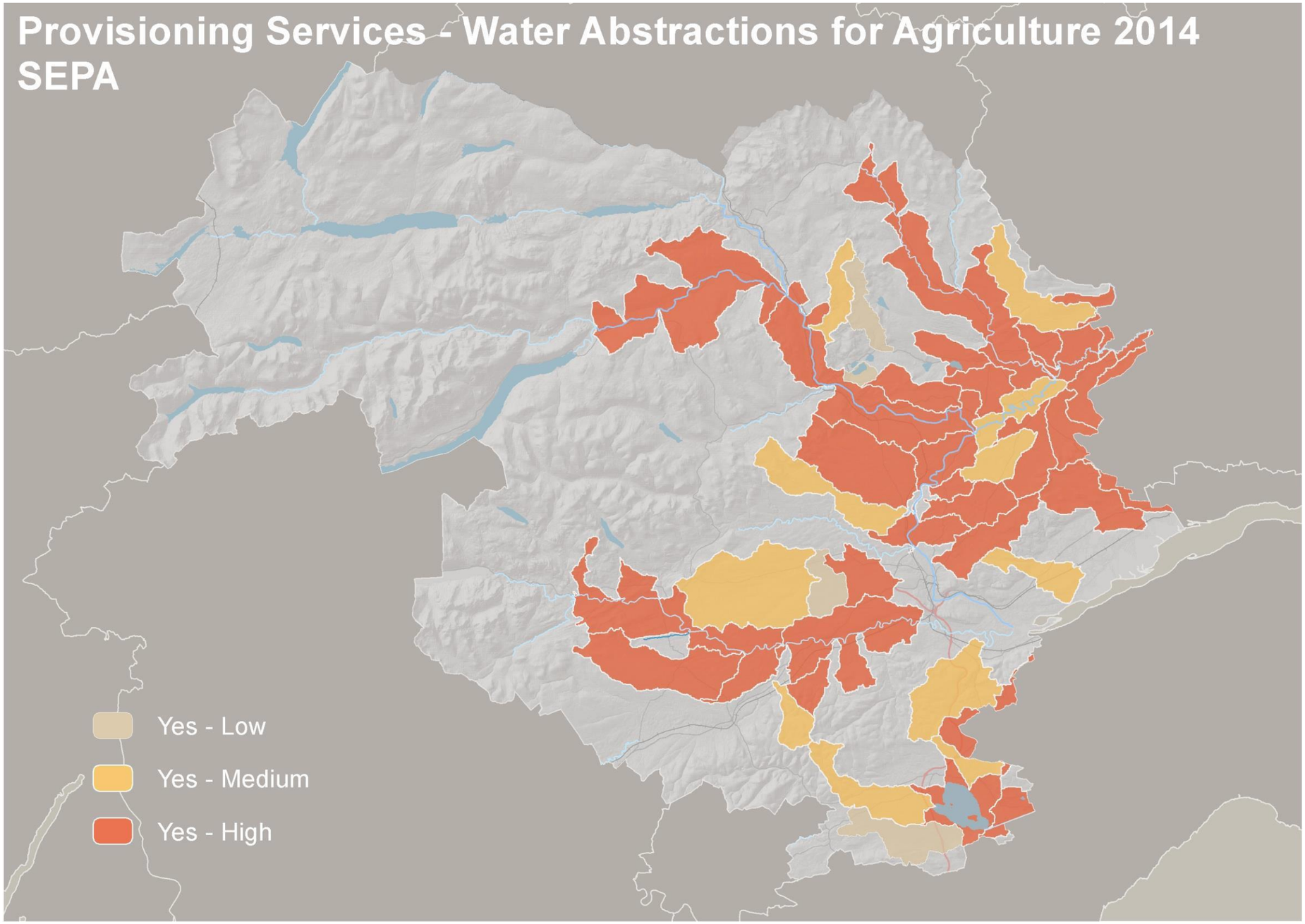
Abstracting water for drinking can impact on river water flows and levels, and therefore on other activities that rely on river water flows, and the habitat that rivers provide. Removal of water could also impact on a water body's ability to dilute other discharges and therefore affect water quality.

Impacts affecting use of water environment for drinking water

Drinking water needs to come from relatively clean supplies. This is particularly the case where private supplies of drinking water are used because they cannot be treated to the same standards as public supplies. If drinking water supplies are not clean and free of pollutants, then costs of treatment for Scottish Water and/or the health of consumers could be affected.

Data availability: Annual

Data provider: SEPA, Scottish Government Drinking Water Quality Dept.



Map Published 2015

Current position

Currently approximately 174,160 ha or ~ 35% of sub catchments intersecting the Perth and Kinross Planning Authority area provide drinking water services.

The data shows that most large abstractions are in the east areas of Perth and Kinross.

Service provided

The data shows the size of abstractions for agriculture from the water environment that SEPA has licensed.

Benefits provided

Total income from farming in Scotland amounts to approximately £600m/year. The relative value of agricultural output is indicated by average Gross Margin for the main farming enterprises (SAC, The Farm Management Handbook, 2011/12, 32nd Edition) for each surface inland water body catchment (Scottish Government data showing percentage of each farm type each agricultural parish was assigned to water body catchment areas). The highest value farming takes place in the water body catchments on the east and north east coast which is also where the largest abstractions for agriculture are licensed. Farming also provides employment for people in many remote areas where there is no alternative employment.

Impacts caused by use of the water environment for agricultural production

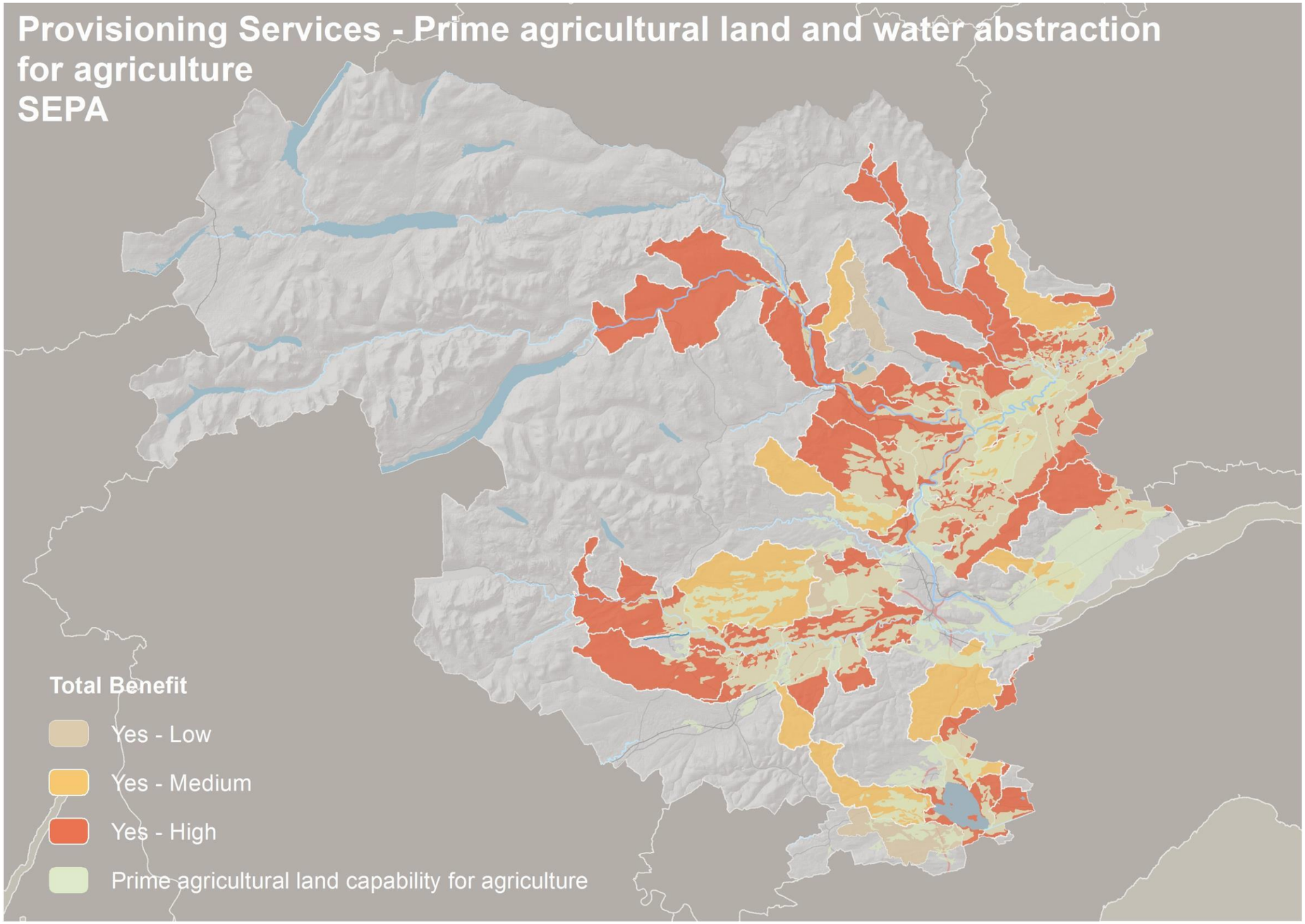
Abstracting water for agriculture can impact on both the availability and flow characteristics of water in rivers and lochs. Removal of water can also affect the ability of a water body to dilute other discharges and therefore impact water quality..

Impacts affecting use of the water environment for agricultural production

Other activities that affect the flows and levels of water in a water body have potential to impact upon its use for agricultural irrigation. In addition, if water quality is reduced this could affect its suitability for use in irrigation. For example, water that is contaminated with faecal indicator organisms would not be suitable for irrigation of fruit or vegetables. water environment.

Data availability: unknown

Data provider: SEPA



Map Published 2015

Current position

The data shows that approximately 11% or 57 000 ha of prime agricultural land are located in the south and eastern areas of Perth and Kinross. Most(~25%) of large abstractions for agriculture are also in these areas.

Service provided

The map shows the size of abstractions for agriculture from the water environment that SEPA has licensed and the Land Capability for Agriculture (LCA) classification , a classification system widely used as a basis of land valuation to rank land on the basis of its potential productivity and cropping flexibility. This is determined by the extent to which the physical characteristics of the land (soil, climate and relief) impose long term restrictions on its agricultural use.

Benefits provided

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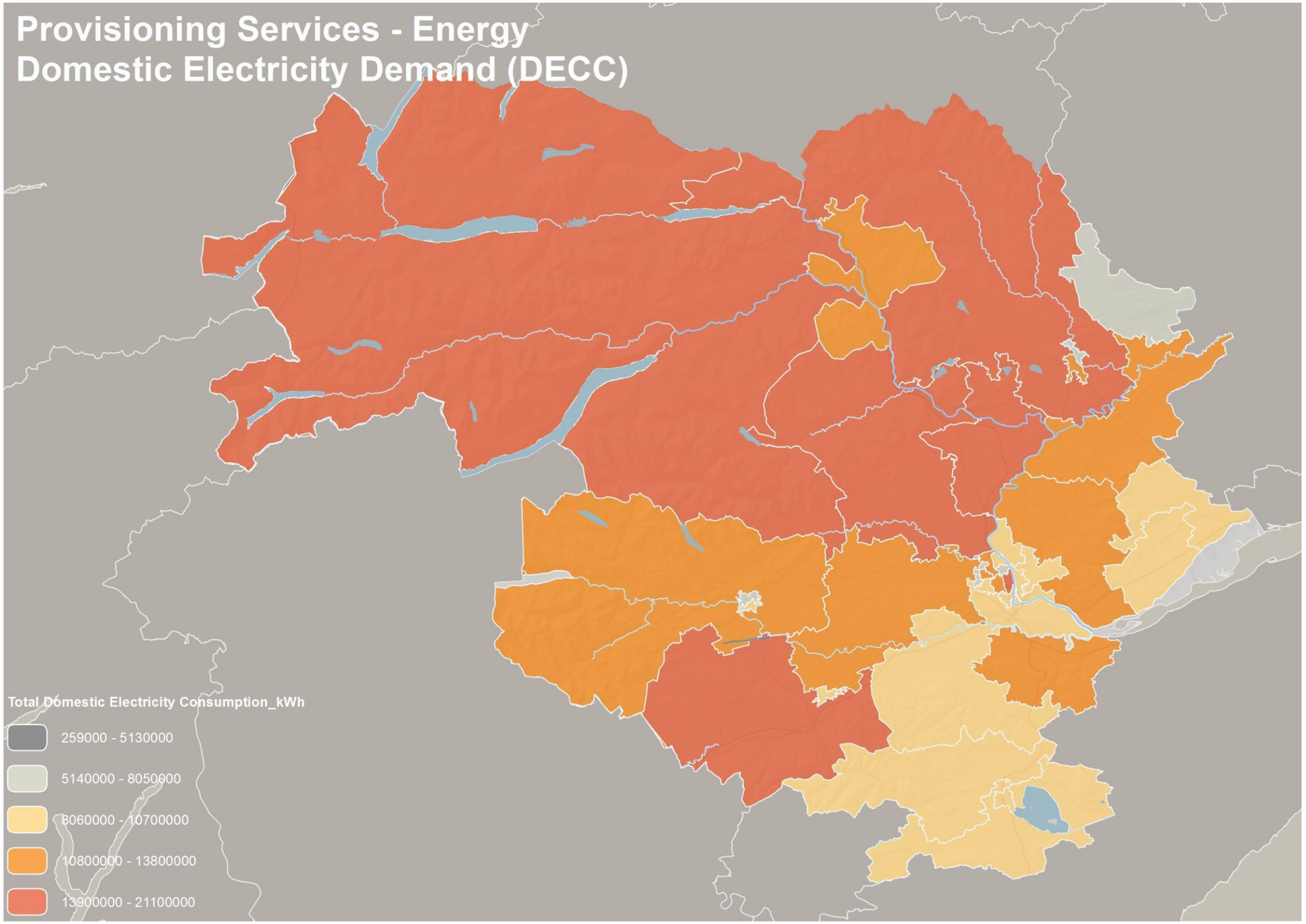
Data availability: unknown

Data provider: SEPA, JHI



Current position

This indicator shows DECC's sub-national estimates of electricity and gas consumption for Great Britain. Estimates are based on the aggregation of Meter Point Reference Number (MPRN) readings throughout Great Britain obtained as part of DECC's annual meter point gas data exercise.

Estimates presented for 2013 are provisional.

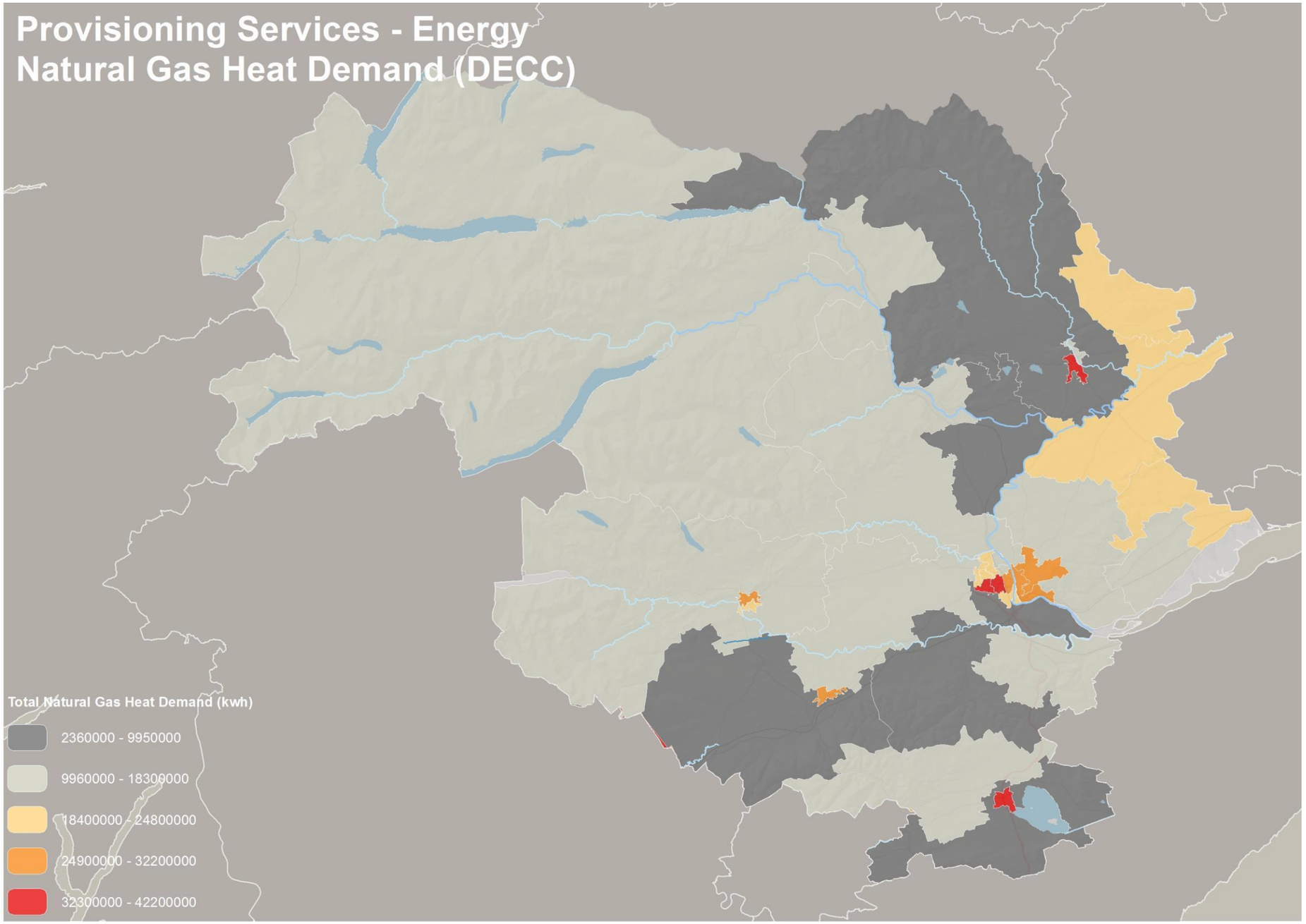
Mean annual domestic electricity consumption per meter in Scotland 3,900 kWh. In Perth and Kinross in 2013 mean domestic was significantly higher 5577 kwh per household.

Relevance of this indicator

Carbon dioxide from transport, industry and domestic sources (such as heating, lighting and cooking) is the main greenhouse gas emitted in Scotland. Reducing carbon dioxide emissions is key to tackling climate change. Energy use, conservation and supply are essential for the long term future of the region.

Data source: DECC

Data availability: Annual



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The estimates for 2013 cover the gas year between 1 October 2012 and 30 September 2013 and are supplied to DECC as weather corrected data. Estimates presented for 2013 are provisional.

Scotland had the highest mean domestic consumption with 14,300 kWh per meter (median consumption of 12,700 kWh). In Perth and Kinross in 2013 mean domestic consumption was significantly higher with a mean domestic consumption of 15, 822 kwh.

In the domestic sector, gas consumption is predominately used for heating purposes and as a result usage is driven by external temperatures and weather conditions

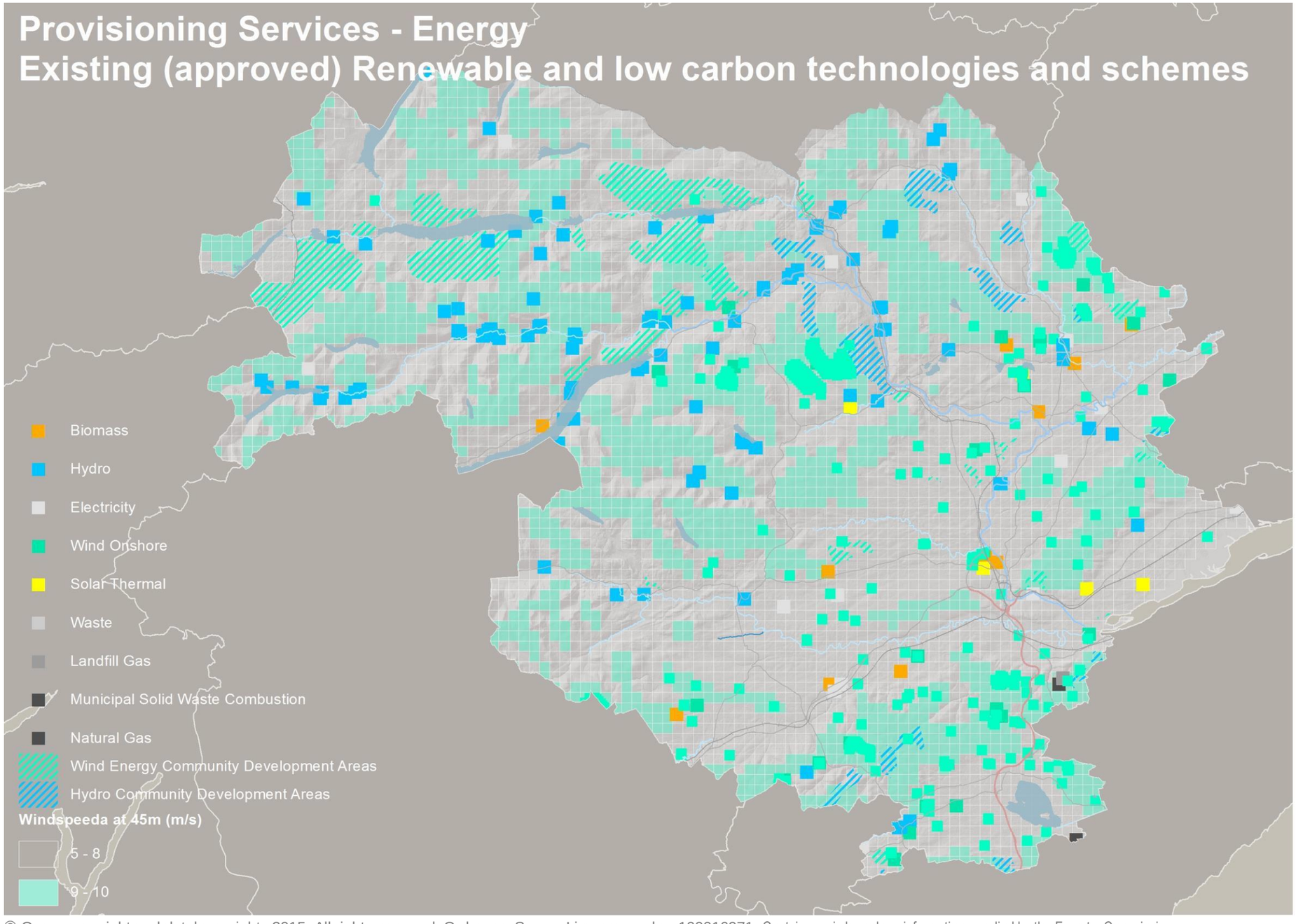
A change in survey methods prevents comment on this trend.

Relevance of this indicator

Carbon dioxide from transport, industry and domestic sources (such as heating, lighting and cooking) is the main greenhouse gas emitted in Scotland. Reducing carbon dioxide emissions is key to tackling climate change. Energy use, conservation and supply are essential for the long term future of the region.

Data source: DECC

Data availability: Annual



Current position

Areas available for communities to investigate the potential for wind and hydro development on the National Forest Estate are shown on the map. The areas shown are indicative of the sites available.

Indicative **hydro** sites are catchments based on a 50 metre resolution Digital Terrain Model (DTM). The power or turbine house has been used as the outlet point in defining the catchments.

To ensure the development of **wind generation** schemes on the NFE are complementary Forestry Commission Scotland will determine if the proposal is likely to be any detrimental impacts on wind speeds, cumulative visual and landscape or other impacts through consultation with partners.

Existing approved and installed windfarms are shown. Perth and Kinross has 3.15% of the nations installed microgeneration capacity, the second highest in Scotland and the UK. Installed capacity for windfarms in Perth and Kinross has increased by 70 MW since 2011 and in 2015 is 297 MW.

Relevance of this indicator

The Scottish Government has a target of generating 100% of Scotland's gross annual electricity consumption from renewable sources by 2020.

Wind and hydro power provide clean and renewable sources of electricity which help reduce greenhouse gas emissions.

Forestry Commission Scotland (FCS) is working to develop the wind and hydro power potential of the National Forest Estate (FCS, 2012).

Local Outcome:

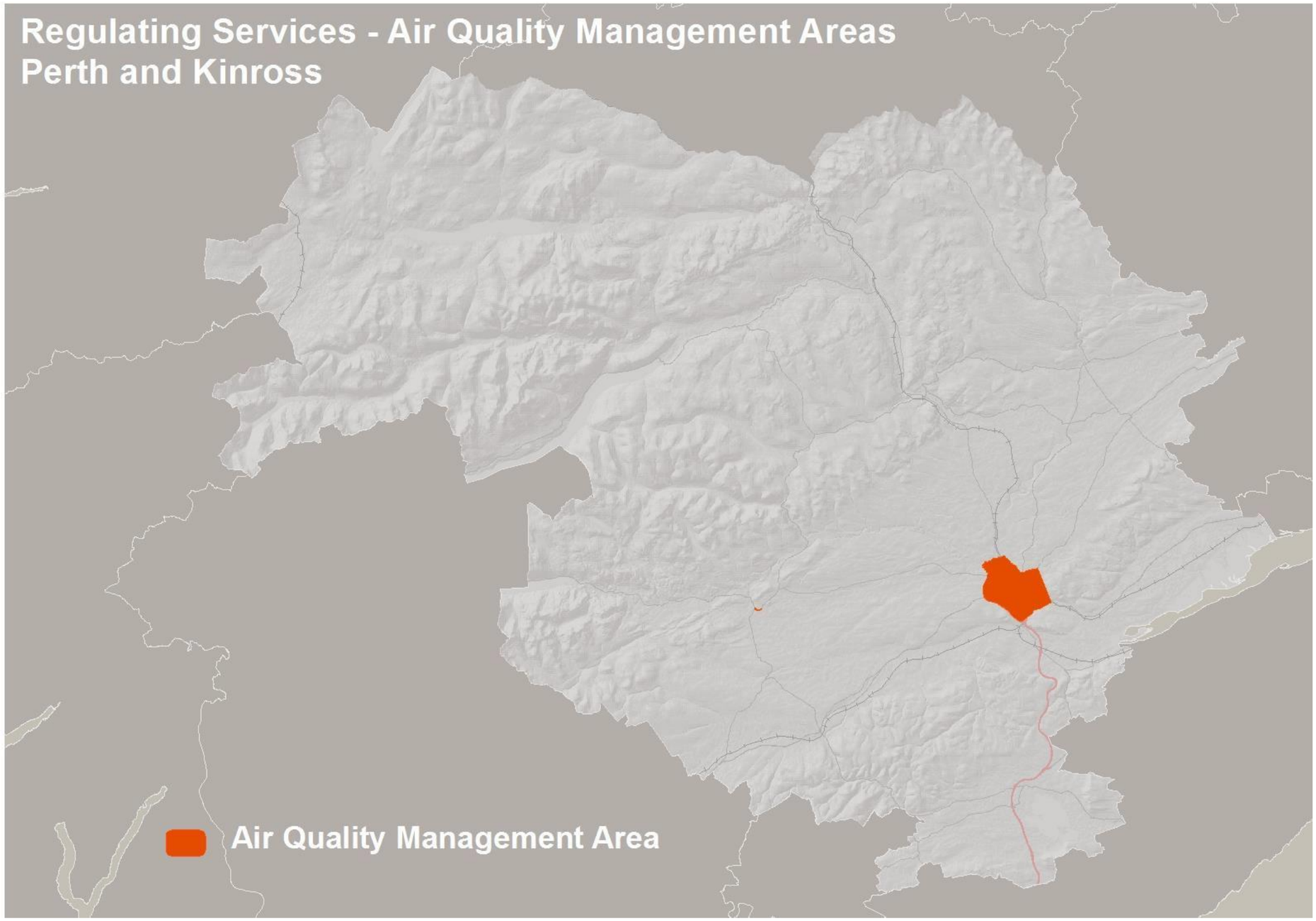
Our area will have a sustainable natural and built environment

National Outcome:

We value and enjoy our built and natural environment and protect it and enhance it for future generations

Data Source: Forestry Commission, PKC

Availability: Unknown



Current position

There are currently two Air Quality Management Areas in Perth and Kinross, One in Perth and one in Crieff.

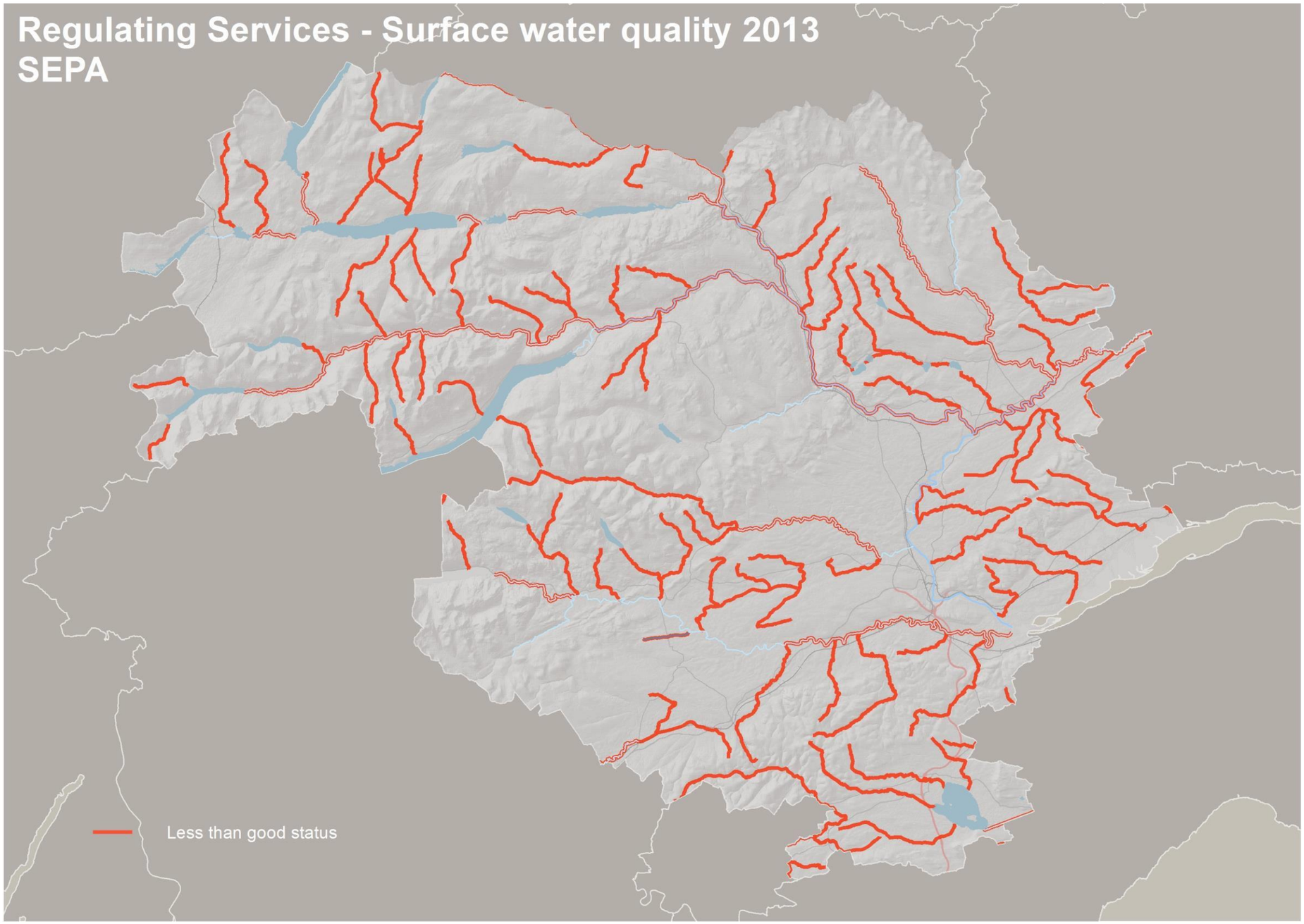
Relevance of this indicator

Clean air is essential for a good quality of life. Exposure to air pollution can have a long-term effect on health. The increase in development that will be suggested through the LDP could result in an increase in air pollution which could have an impact on human health and climate change.

Data source: Perth and Kinross Council

Data availability: ad hoc

Map Published May 2015



Map Published 2015

Current position

According to the draft Scottish River Basin Management Plan, river quality was of a good standard in 2007, with 53% achieving an overall status of good or high quality. In the Perth and Kinross area in 2013 a slightly lower percentage, 45%, of the total number of rivers were classified as being of good status or better, with areas in the East and South containing rivers of bad or poor status.

Benefits delivered

Improving and maintaining the ability of the water environment to support life is a fundamental purpose of the Water Framework Directive (WFD). While our scientific understanding of the ways that ecosystem processes work together to deliver supporting services is still not complete, the standards that have been set for maintaining the ecological status of the water environment in the WFD are based on the need to support its underlying health. If the ecological status of the water environment is deteriorating it is reasonable to assume that its provision of supporting benefits will also be undermined.

Impacts caused by use of the water environment to deliver supporting services

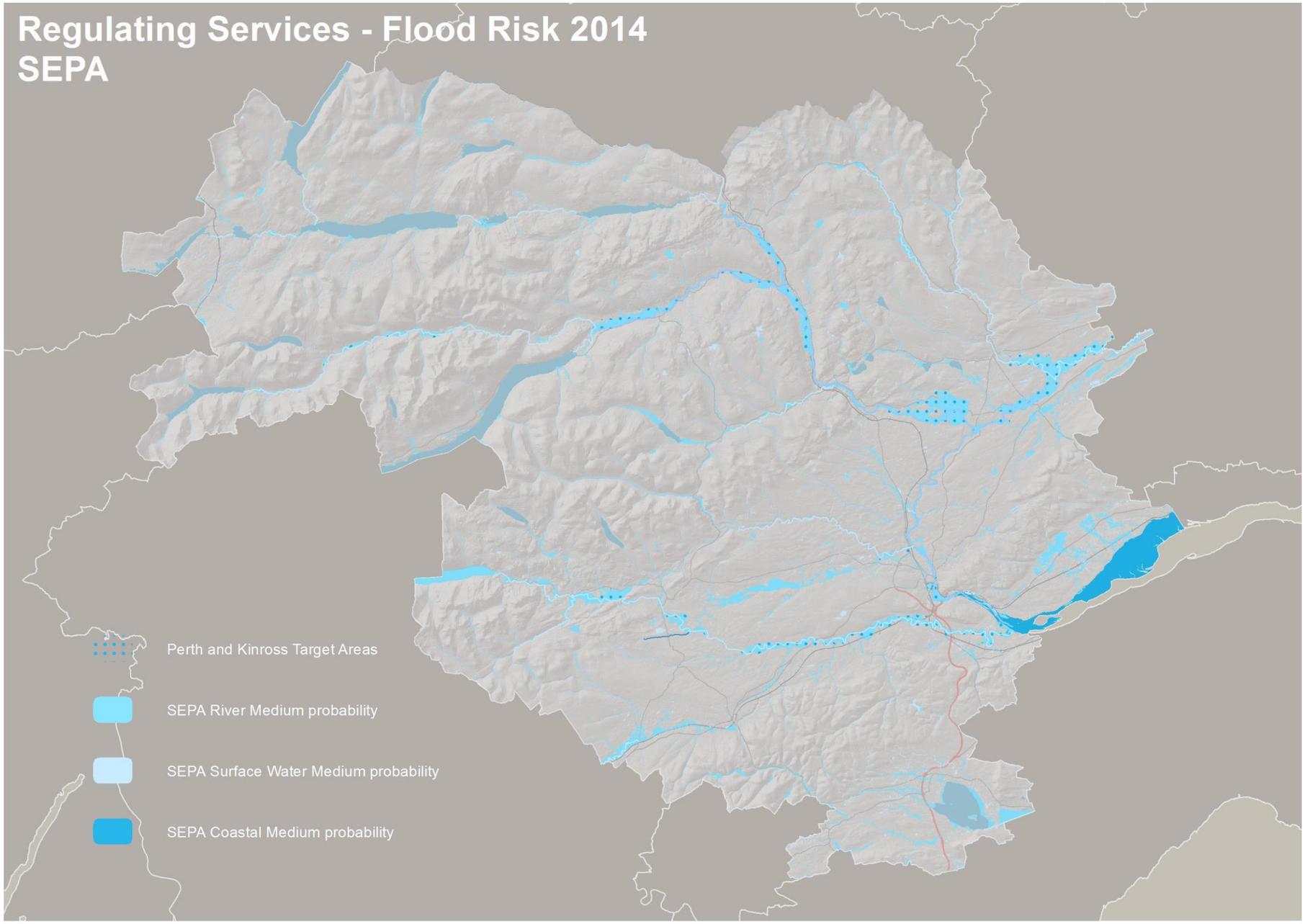
Use of the water environment to deliver basic supporting services for life may have an adverse impact on its use to deliver benefits that require major changes to the water environment.

Impacts affecting use of the water environment to deliver supporting services

Any factors that adversely impact upon the ecological status of the water environment have potential to impact upon its ability to deliver supporting (SEPA, 2014)

Data source: SEPA

Data availability: Annual



Map Published 2015

Current position

The National Flood Risk Assessment is the first step of the new risk-based approach to managing the impacts of flooding, introduced by the Flood Risk Management (Scotland) Act 2009.

The National Flood Risk Assessment has found that one in 22 of all residential properties and one in 13 of all non-residential properties are at risk of flooding from rivers, the sea or heavy rainfall in urban areas.

The medium probability layers (1:200yrs) for fluvial and coastal extents are the key datasets for screening new developments for flood risk and providing the first indication of flood risk in a proposed development location.

The medium probability fluvial layer includes hydraulic structures and defences and, thus, is referred to as a defended flood extent.

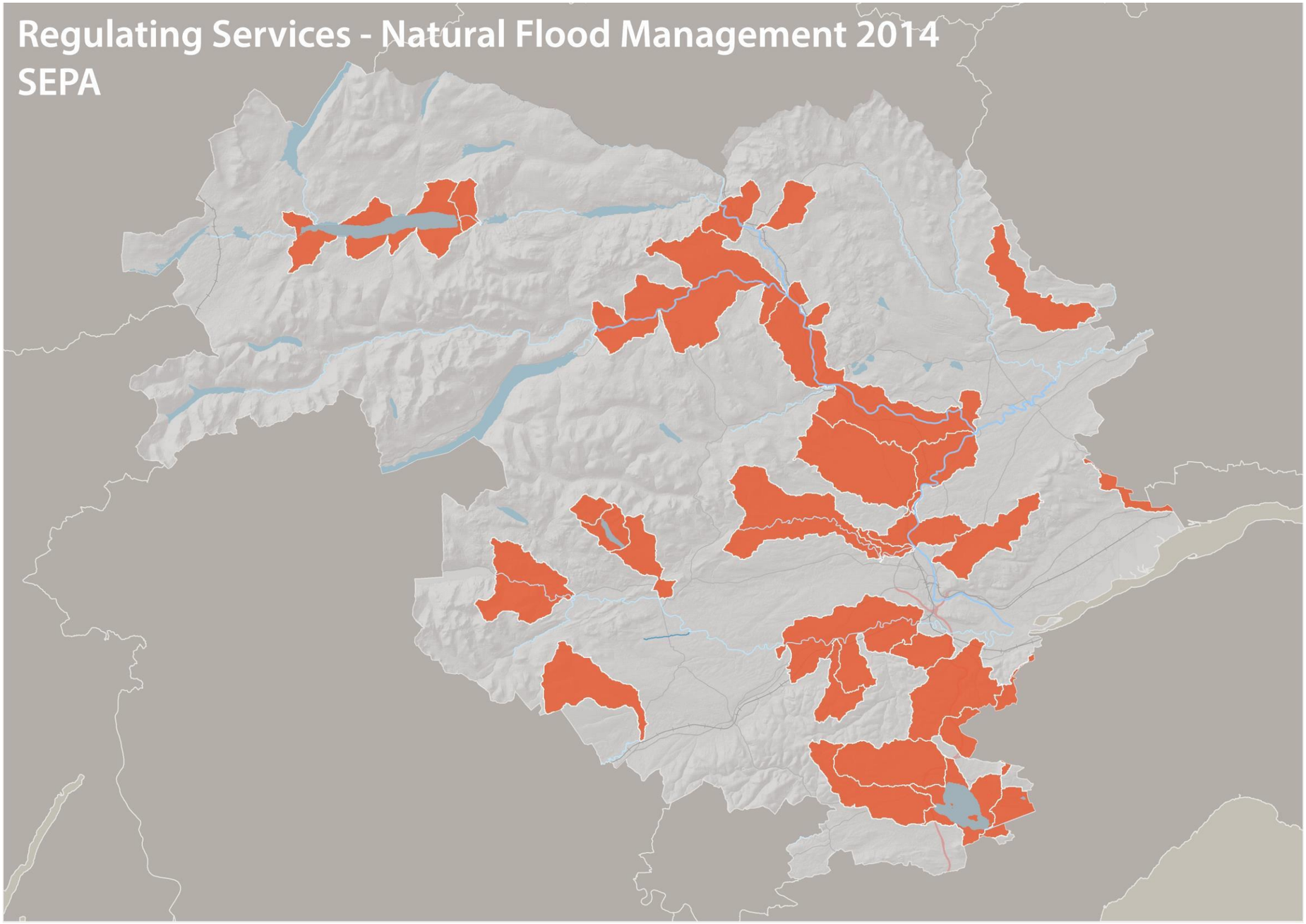
Two mitigation strategies can be implemented: (1) flood control measures and (2) avoidance of the affected area. Further analysis is required to indicate areas at risk within the TAYplan region.

Relevance of this indicator

Flooding is a complex problem affecting many people in Scotland. Approximately one in 22 homes and one in 13 businesses are at risk of flooding Climate change is likely to make the situation more challenging with heavier rainfall and increases in the frequency of extreme weather events expected. An important part of managing flood risk sustainably is to consider where features of the natural environment can be used to slow the flow of water, store water, or contribute to the transport and deposition of sediment that might otherwise contribute to flooding. Some features of the water environment contribute to natural flood management (NFM) for example, naturally functioning rivers (with meanders and flood plains) or coastal wetlands can help to enhance the storage capacity of floodplains and regulate tidal exchange (SEPA)

Presently the primary force driving the maintenance and improvement of inland water environments is the Water Framework. A significant pressure on inland waters is development of the floodplain.

Data availability: Annual, SEPA



Map Published 2014

Current position

Approximately 84,00 ha or 19% of the sub catchments intersecting the Perth and Kinross Planning Authority area offer natural flood management regulation services.

Brief overview

An important part of managing flood risk sustainably is to consider where features of the natural environment can be used to slow the flow of water, store water, or contribute to the transport and deposition of sediment that might otherwise contribute to flooding. Some features of the water environment contribute to natural flood management (NFM) for example, naturally functioning rivers (with meanders and flood plains) or coastal wetlands can help to enhance the storage capacity of floodplains and regulate tidal exchange.

Service provided

Wetlands and flood plains are nonetheless important natural flood management features and their role depends on many factors including their location within a catchment and their vegetation cover. Water bodies can also store water and attenuate flows but this is variable and depends on factors such as their structure (for example whether they contain pools and meanders), the river bed and their location within the catchment.

Water bodies in PVAs have potential to provide more benefits by way of natural flood management than those outside of PVAs. Our data show which water bodies have more than 50% of their area within a PVA.

Impacts caused by use of the water environment for hydro electricity generation

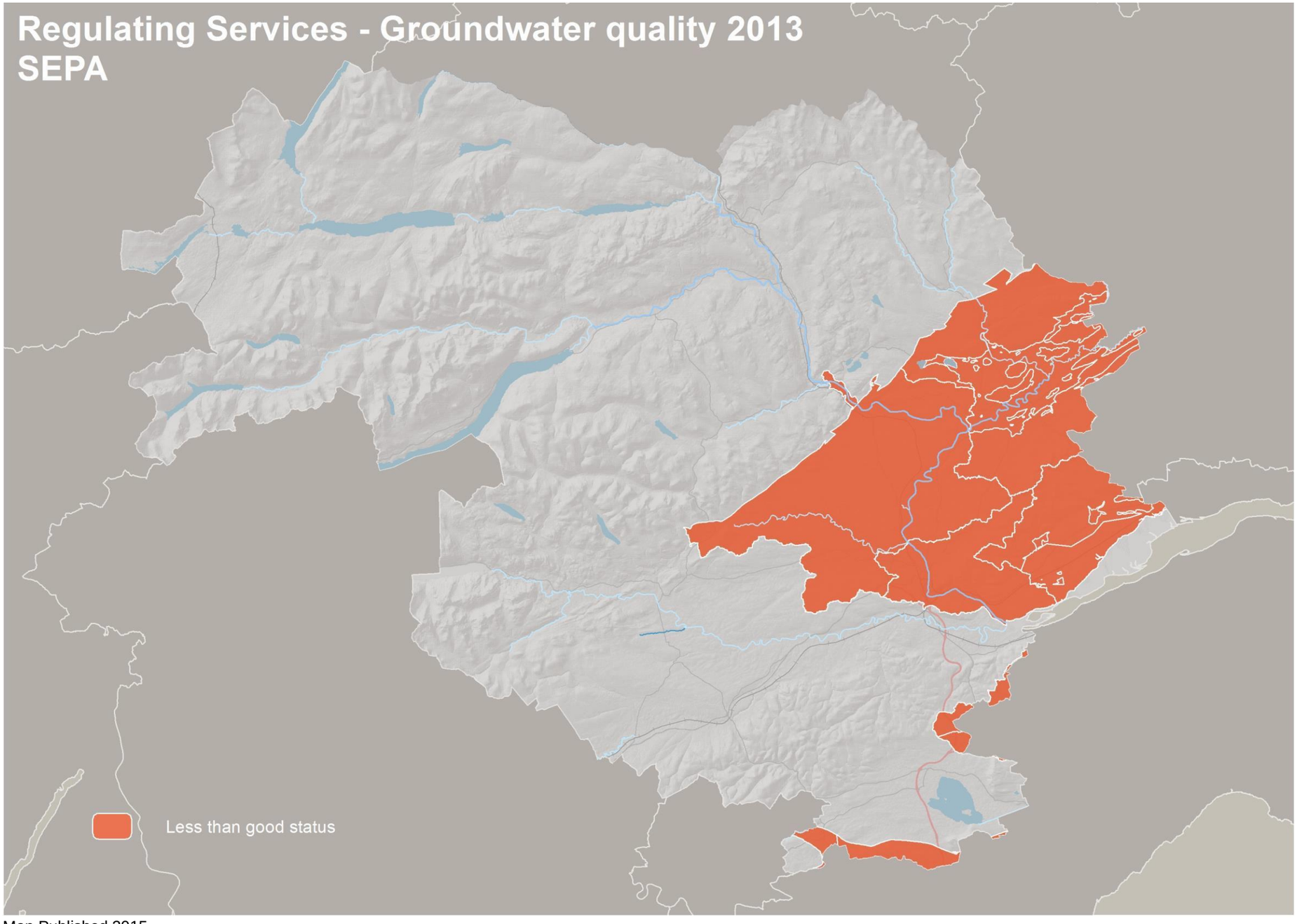
Use of the water environment to provide natural flood management generally has a positive impact on benefits that the water environment is able to provide

Impacts on the water environment that could impact on its use for hydro electricity generation

In general pressures that adversely impact upon flows and levels of water in water bodies have potential to influence the extent to which the water environment and wetlands are able to store and attenuate flows of water that may cause flooding.

Data availability: Annual

Data provider: SEPA



Map Published 2015

Current position

In the Perth and Kinross area in 2013 82%, of the total number of groundwater bodies were classified as being of good status or better, with areas in the East and South containing groundwater bodies of bad or poor status.

Benefits delivered

Improving and maintaining the ability of the water environment to support life is a fundamental purpose of the Water Framework Directive (WFD). While our scientific understanding of the ways that ecosystem processes work together to deliver supporting services is still not complete, the standards that have been set for maintaining the ecological status of the water environment in the WFD are based on the need to support its underlying health. If the ecological status of the water environment is deteriorating it is reasonable to assume that its provision of supporting benefits will also be undermined.

Impacts caused by use of the water environment to deliver supporting services

Use of the water environment to deliver basic supporting services for life may have an adverse impact on its use to deliver benefits that require major changes to the water environment.

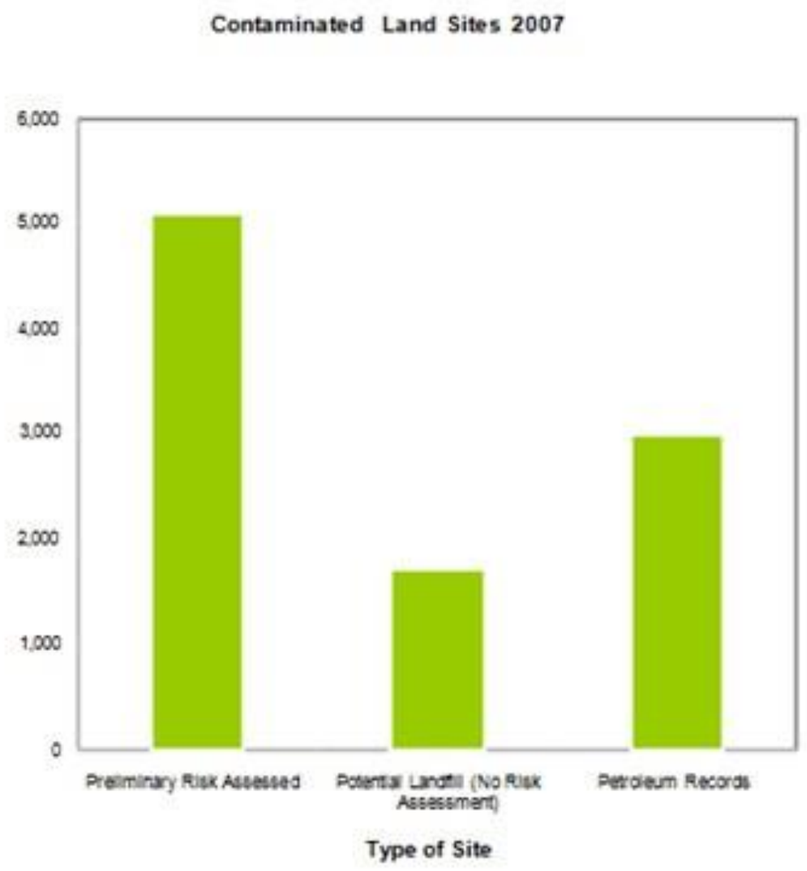
Impacts affecting use of the water environment to deliver supporting services

Any factors that adversely impact upon the ecological status of the water environment have potential to impact upon its ability to deliver supporting (SEPA, 2014)

Data source: SEPA

Data availability: Annual

Regulating Services – Contaminated Land



Area of Contaminated Land 2007

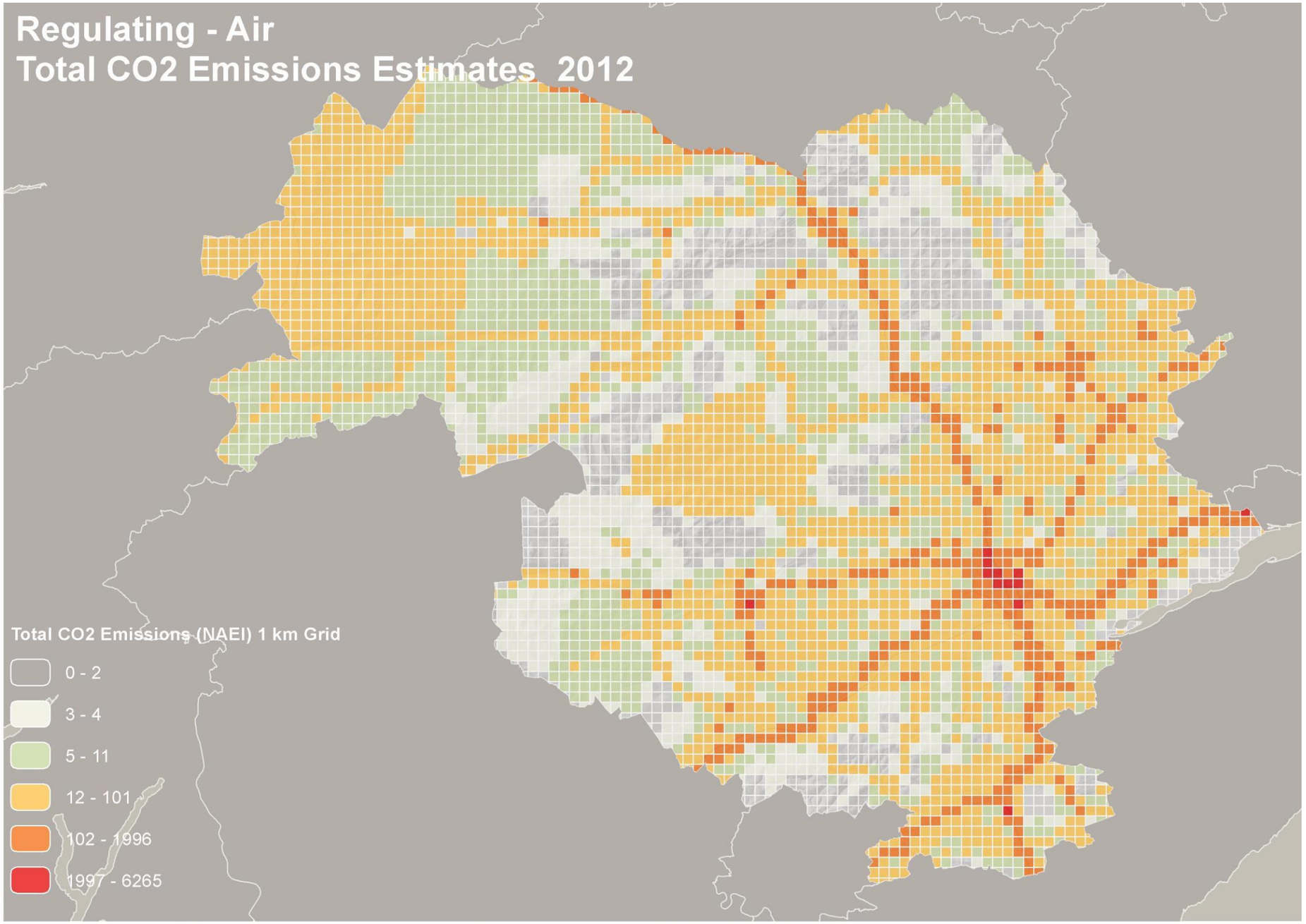
Type of site	Number
Preliminary Risk Assessed	5,087
Potential Landfill (No Risk Assessment)	1,709
Petroleum Records	3,000
Total	9,796

Current position
Perth and Kinross has remained relatively unaffected by the onset of the industrial revolution and does not suffer from the concentration of sites that have been affected by unregulated polluting activities in other areas of Scotland. Perth and Kinross has small scale problems over a large geographic area. The information in table identifies sites that may be contaminated based on their previous use and other historical information. These sites require a detailed inspection before any judgement can be made as to their current condition under the statutory definition of 'contaminated land'.

Relevance of this indicator
Healthy soils provide a range of environmental, economic and social benefits. Industrial processes such as town gas production, waste disposal and former garages (amongst others) caused the majority of the observed historical contamination of land in Perth and Kinross. Where there can be significant risks to people or the environment land is considered to be "contaminated land".

Data source: Perth and Kinross Council

Data availability: No Planned Update



Map Published February 2012

Current position
Carbon dioxide emission estimates per capita in Perth and Kinross have decreased slightly since 2007. In 2012, 8.1 tonnes of CO_2, a rise of 0.6 over previous year, were emitted per capita, compared with 6.7 tonnes per capita as an average across Scotland. Of this, 27% were from the Industry and Commercial sector, 31 % were from domestic and 42 % were from road transport.

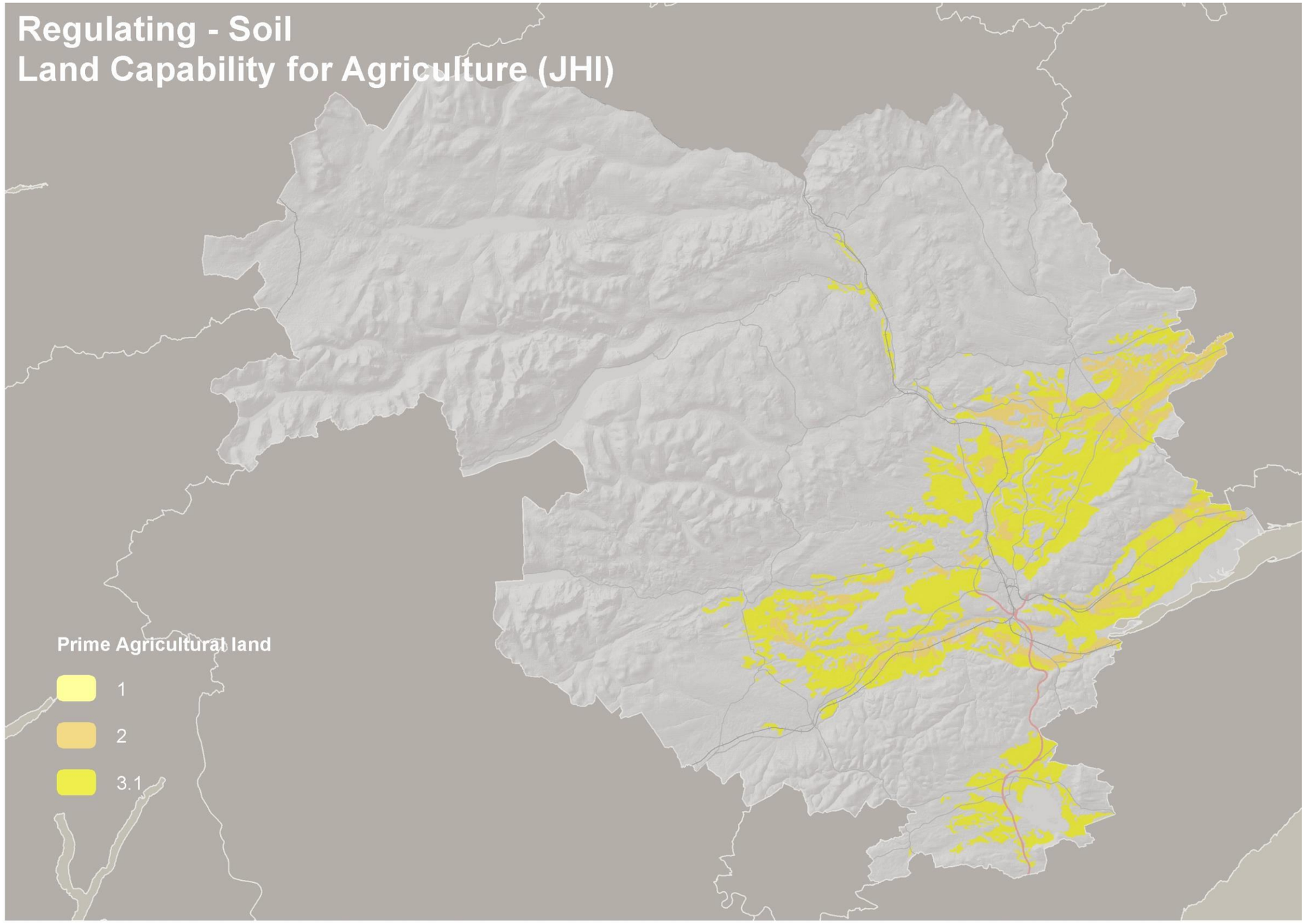
A relatively larger proportion of carbon emitted in Perth and Kinross is taken up by land use, land use change and forestry than at the Scottish level.

Relevance of this indicator

The gases that contribute most to the greenhouse effect are carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), and fluorine compounds. Carbon dioxide from transport, industry and domestic sources (such as heating, lighting and cooking) is the main greenhouse gas emitted in Scotland and Perth and Kinross.

Data source: DEFRA, NAEI

Data availability: Annual (2yr lag)



Map Published 2015

Current position

Land capability for agriculture is classified using factors such as climate, soil properties (texture, depth, stoniness etc.) and slope. Classes 1, 2 and 3.1 are defined as 'prime agricultural land' with a semi-protected status in the planning system.

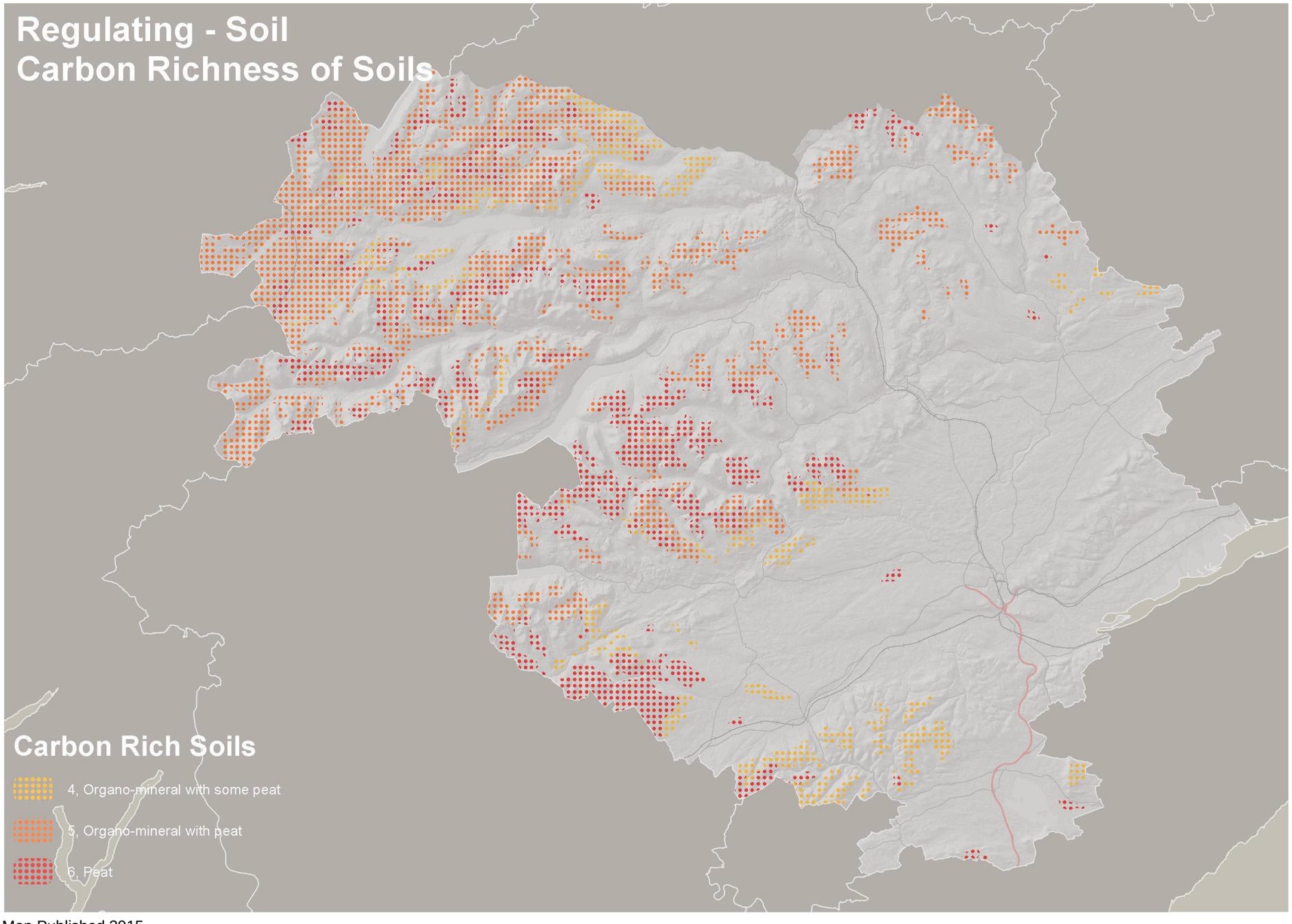
At 1:250 000 scale, 11.6% (62000 ha) of the area is occupied by prime agricultural land (class 2 and 3.1).
The 50K soil map surveys mapped in more detailed the most productive south east fringe. The area of prime agricultural land (class 2 to 3.1) occupied 57,000 ha. Land capable of average production but high yield of barley, oat and grass (LCA class 3.2) cover another 45, 250 ha on the 50K map and 4500 ha 57900ha on the 250K map.
Over 50% of the area is occupied by soil class 6 and 7 (rough grassing and soil of limited agricultural values).

Relevance of this indicator

Preservation and enhancement of the distinctive landscape of the Perth and Kinross area is important to maintain community well being, biodiversity and to support the local economy. Woodlands support the region's economy through timber production, and play a key role in the tourist industry, providing recreational opportunities and contributing to the region's unique landscape and ecology.

Pressures from increased development activity have the potential to impact the prime agricultural land resource. Relevant planning policies addressing landscape and environmental issues need to be taken into account when considering development of prime quality agricultural land

Data source: James Hutton Institute



Current position

The 1:250,000 soil dataset is used to identify potential soil with natural heritage issues of national interest. This included; ***a)Soils with high organic content*** **(peat and peaty soil types)**, b) *Soils directly associated with a habitat of conservation or a key geodiversity feature and c) Prime agricultural land*

Soil types with potential higher organic content and associated peat are shown in the adjacent map. Organo-mineral and organic soils are mainly located on the North West fringe of the area and cover around 2000 km^2.

Relevance of this indicator

Healthy soils provide a range of environmental, economic and social benefits, which include providing the basis of the agricultural and forestry industries.

Threats to soil functions are erosion and compaction related to land management, contamination, sealing, loss of biodiversity, acidification from acid rain, climate change and loss of organic matter.

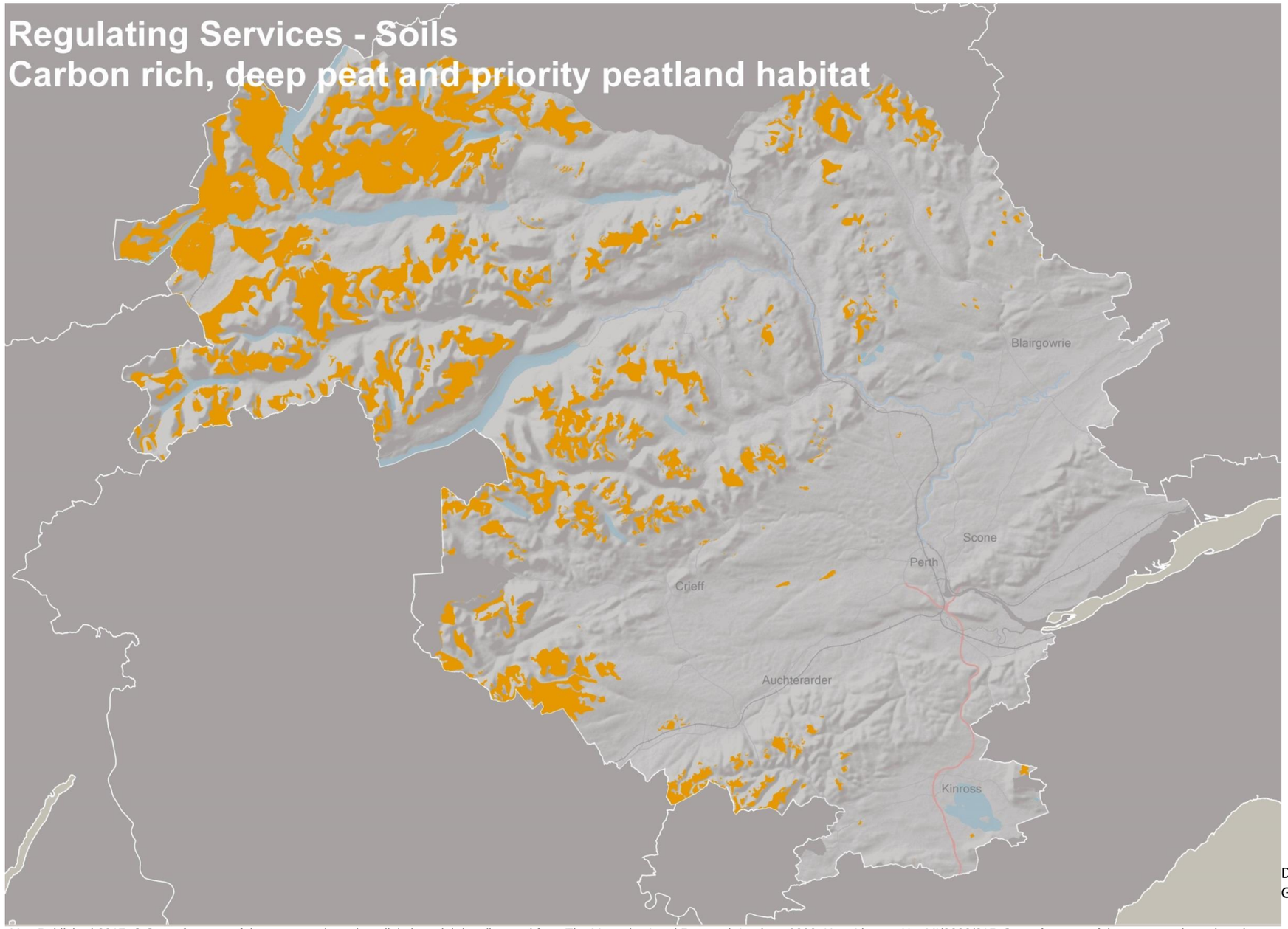
Links to Local Outcome:

Our area will have a sustainable natural and built environment

Sources James Hutton Institute, Scottish Government

Map Published 2015

Regulating Services - Soils
Carbon rich, deep peat and priority peatland habitat



Current position

Scottish Natural Heritage (SNH) has prepared consolidated spatial dataset of 'carbon rich soil peat and priority peatland habitats 'in Scotland from existing soil and vegetation data. The der 'Carbon and Peatland' (2014) map updated ea work undertaken by SNH for the identification natural heritage features of national importanc intention behind developing and publishing this to give greater understanding to a wide range audiences, as to where Scotland's peatlands a found. The new map and associate informatior be used to:

- Provide greater appreciation and transparency where Scotland's peatland are
- Support strategies and projects related to the management and restoration of Scotland's pea habitats
- Support the implementation of the forthcoming Scotland's National Peatland Plan
- Assist in identifying peat and other carbon rich for development plans
- Facilitate mapping of wind farm spatial framew line with the new Scottish Planning Policy (SPI (2014)
- Support the siting of proposals that could impa the soil resource and design of mitigation to av reduce such impacts

Perth and Kinross planning area contains over ha of Class 1 and over 54,000 of Class 2 ((Nat important carbon rich soils, deep peat and prio peatland habitat) which represent areas likely t high conservation value and areas of potentiall conservation value and restoration potential respectively. (SNH, 2015)

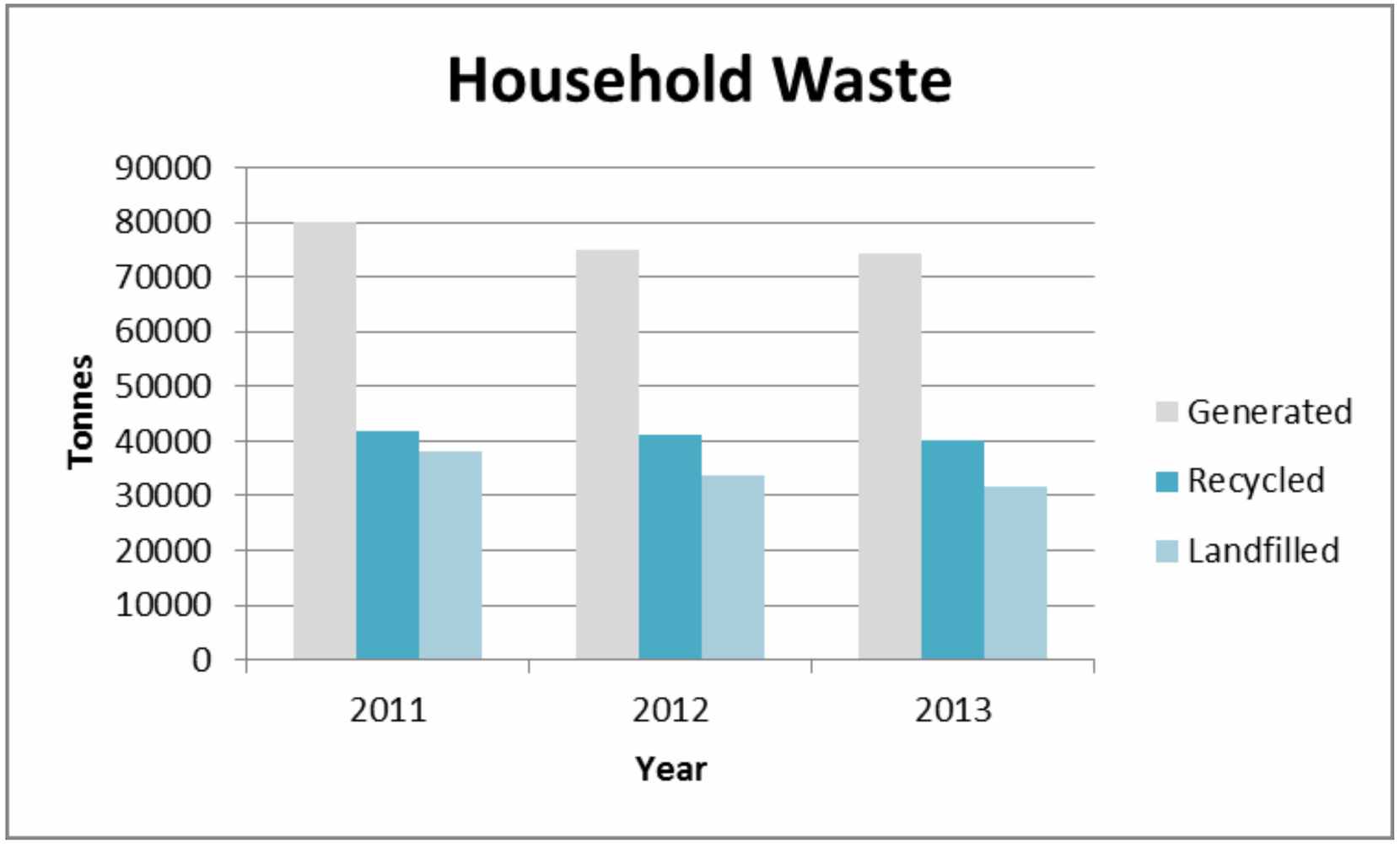
Relevance of this indicator

Healthy soils provide a range of environmental economic and social benefits, which include pr the basis of the agricultural and forestry indust

Threats to soil functions are erosion and compactic related to land management, contamination, sealir of biodiversity, acidification from acid rain, climate and loss of organic matter.

Data Sources The James Hutton Institute, Scottish Government

Supporting Services – Household Waste



Current position

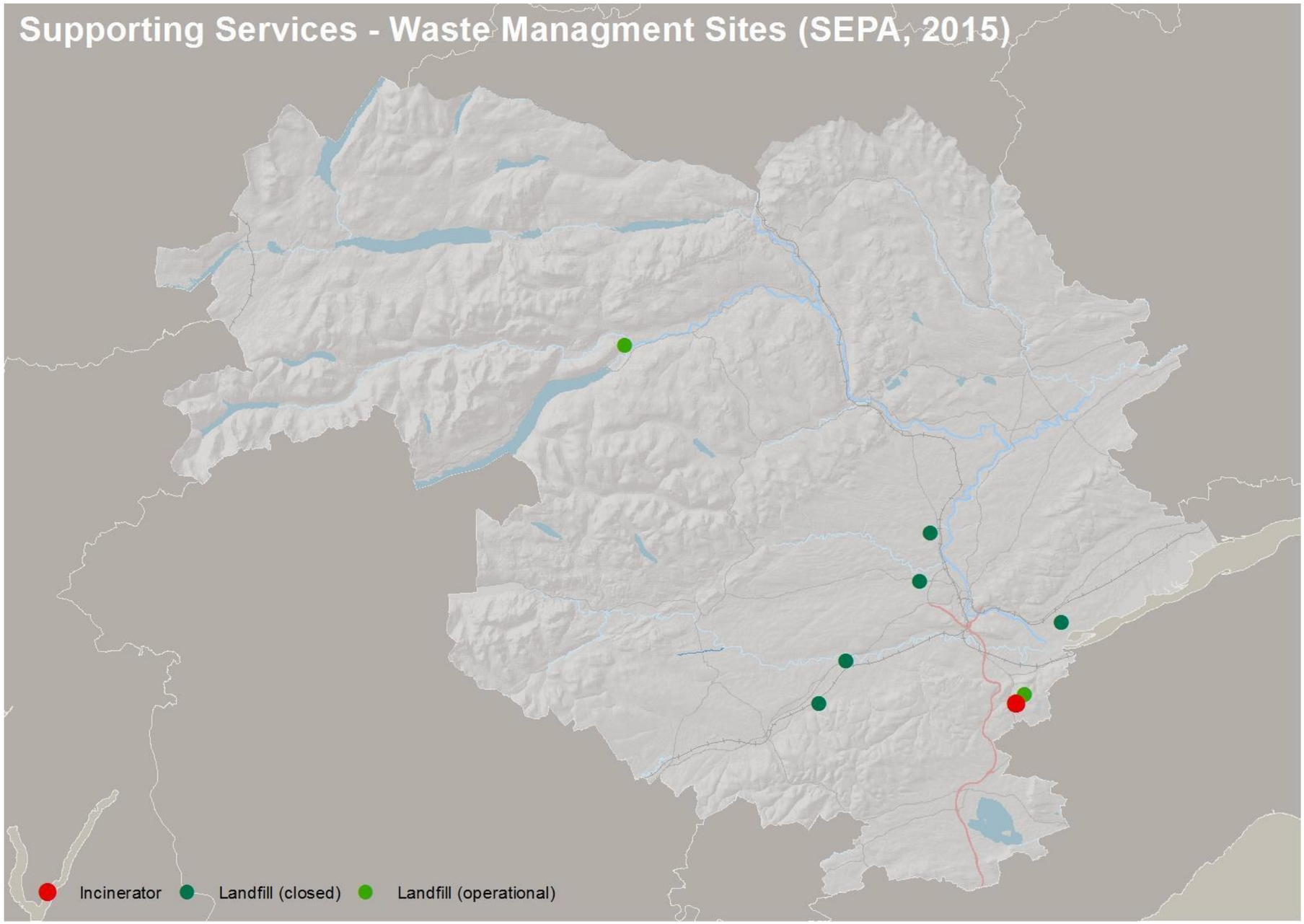
Total Household waste generated within Perth and Kinross has declined from 79918 tonnes in 2011to 74267 tonnes in 2013. As well as this the volume of waste sent to landfill has decreased and recycling rates have shown an increase of 2% between 2011 and 2013.

Relevance of this indicator

Waste management and disposal issues have significant implications for the environment and sustainable development. Disposal of waste to landfill contributes to greenhouse gas production and land degradation. Scotland's first Zero Waste Plan, published, 09 June 2010 sets out key actions, including new targets, to tackle the near 20 million tonnes of waste produced by Scotland annually. A Waste Management Plan (2010) has been produced in response and sets out actions to move away from landfilling waste, promoting waste minimisation and recycling and composting as alternative disposal methods.

Data source: SEPA

Data availability: Annual



Map Published 2015

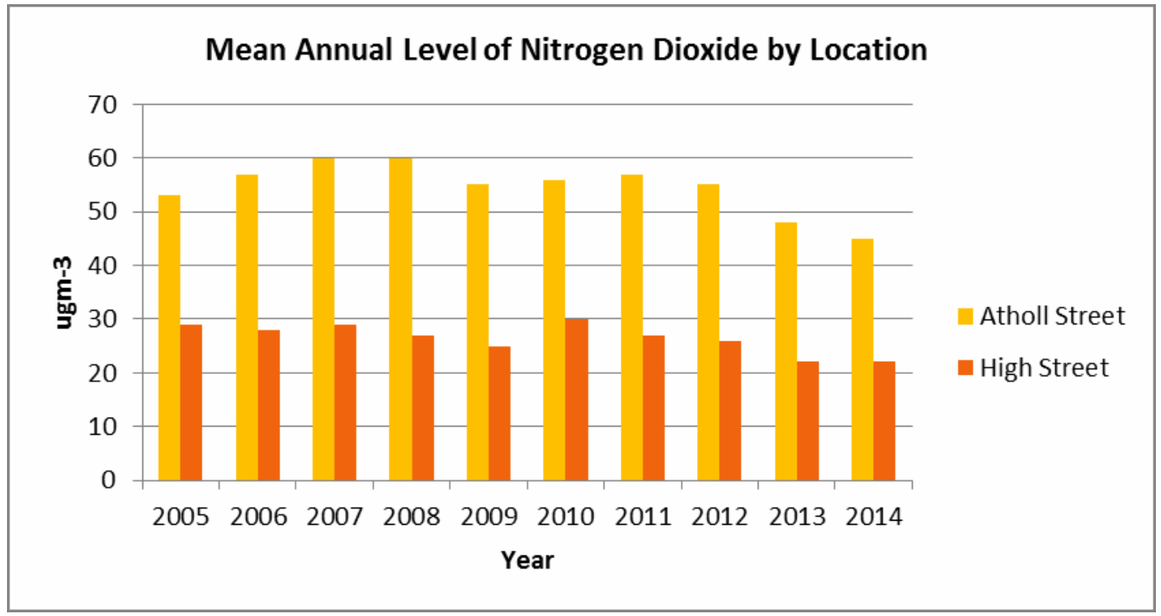
Current position
There are 41 Waste Management Sites within Perth and Kinross with an annual capacity of 1,422,433 tonnes (SEPA, 2013). These sites include 1 Incinerator facility and to landfills as shown on this map. This map also illustrates closed landfills showing the shift from landfill as a method of waste disposal.

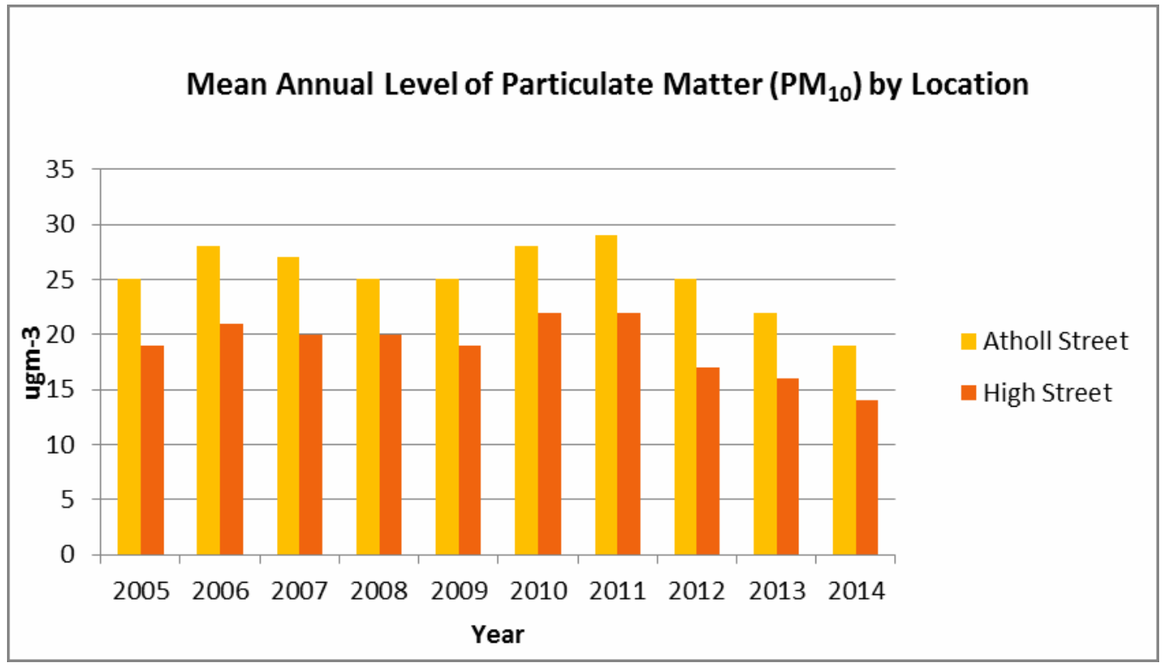
Relevance of this indicator
Waste management and disposal issues have significant implications for the environment and sustainable development. Disposal of waste to landfill contributes to greenhouse gas production and land degradation. Scotland's first Zero Waste Plan, published, 09 June 2010 sets out key actions, including new targets, to tackle the near 20 million tonnes of waste produced by Scotland annually. A Waste Management Plan (2010) has been produced in response and sets out actions to move away from landfilling waste, promoting waste minimisation and recycling and composting as alternative disposal methods.

Data source: SEPA

Data availability: Annual

Supporting Services – Mean Annual Levels of Key Air Pollutants





Current position

The primary cause of poor air quality in Perth and Kinross is emissions from road traffic. Perth and Kinross meets all of the Government's targets for air quality except at a few traffic hotspots in Perth and Crieff. It should be noted that these locations were selected for monitoring as they represent the worst case scenario for air quality in Perth and Kinross.

Atholl Street is the main area of Perth for which the objectives for NO2 and PM10 are unlikely to be met. Data for 2014 shows a slight decrease (3ug-3) for NO2 against the previous year, continuing to exceed the legislative limit of 40ugm-3. There was also a decrease of (3ug-3) for PM10 (Fig 2), exceeding the legislative limit. The levels of both NO2 and PM10 for Perth High Street are both within the legislative limits and a pattern of declined is beginning to emerge from 2011.

2014 data shows fairly constant levels of NO2, thought there has been a slight decline since 2010. PM10 levels are gradually decreasing for the two areas monitored.

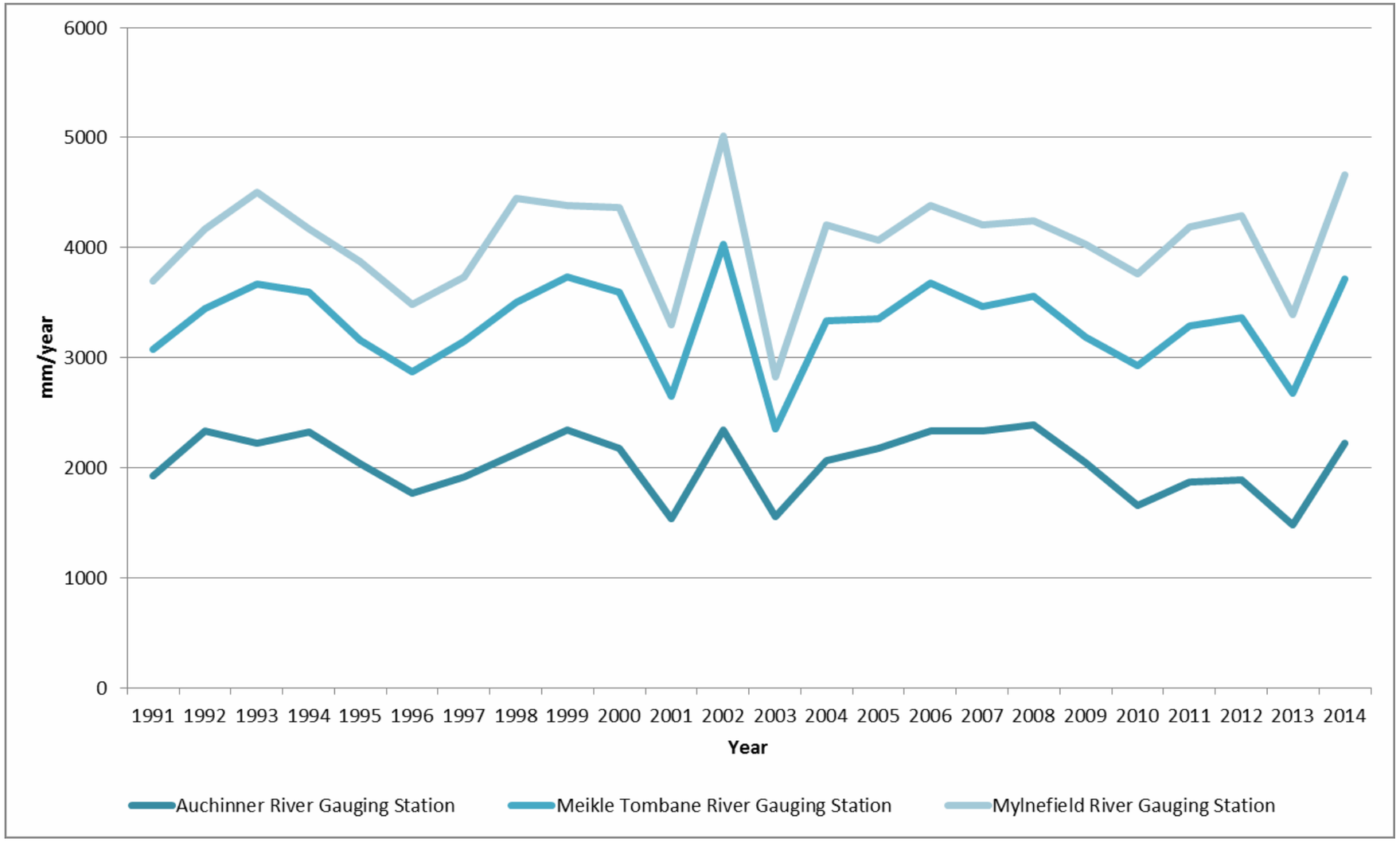
Relevance of this indicator

Good air quality is critical for the health of residents and visitors to Perth and Kinross as well as the condition of the area's wildlife, habitats and built environment. Air quality in most areas of Perth and Kinross is generally good. The main factor behind these emissions is transport, and indications are that traffic volumes are increasing. There are no significant industrial or domestic sources of air pollutants in Perth and Kinross.

Data source: Perth and Kinross Council

Data availability: Annual

Supporting Services – Annual Precipitation at Key Weather Stations



Current position

Rainfall data from key gauges in Perth and Kinross show that over the last 30 years there has been no clear upward or downward trend in total or seasonal rainfall in Perth and Kinross. However figures calculated at the national level show that there was a significant increase in winter and annual rainfall throughout Scotland as a whole, 58% and 20% respectively. The report containing these figures indicates a 5 to 50% increase in rainfall across Perth and Kinross between 1961 and 2004, with the greatest increases in upland areas[1].

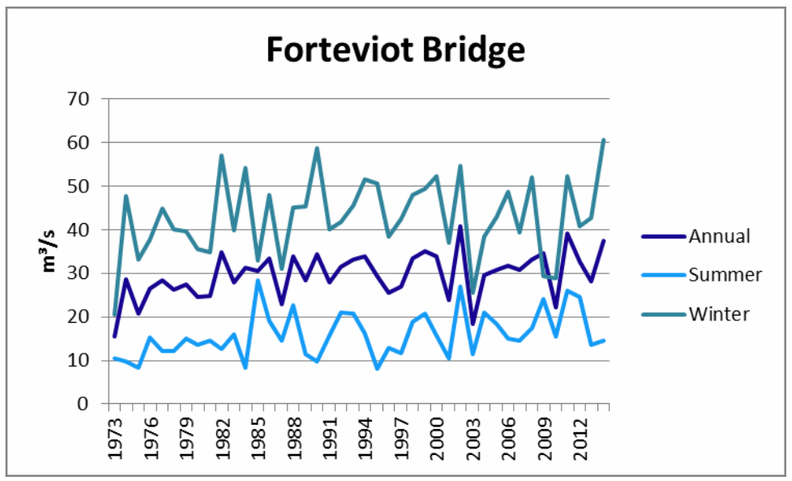
Relevance of this indicator

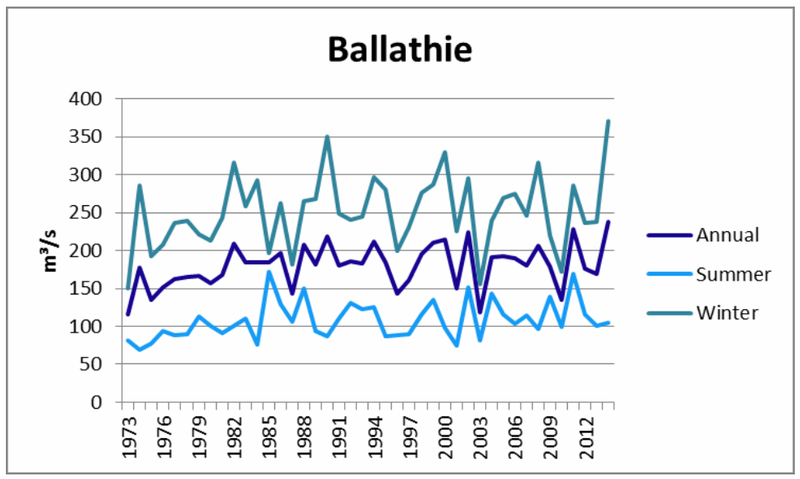
Water quality has significant implications for human health and for fauna coming into contact with or living within the water environment. A high level driver putting pressure on the inland water environment, primarily through alteration of rainfall and snow cover patterns, is climate change.

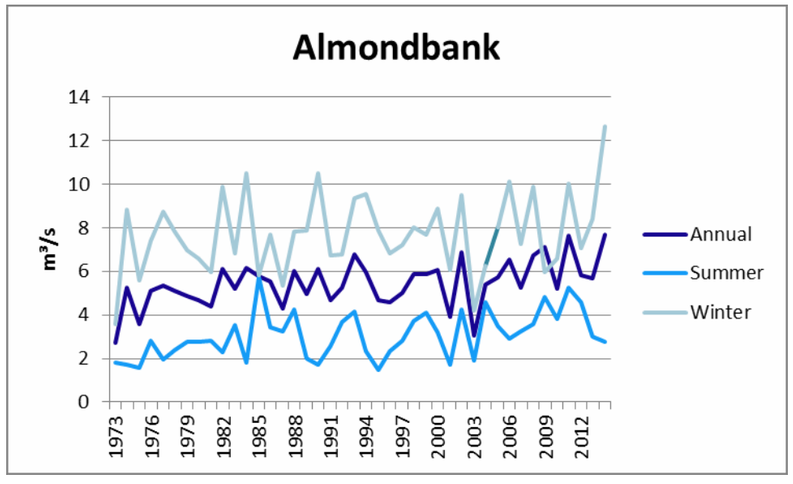
Data source: SEPA
Data availability: Annual

[1] Barnet, C; Hossell J; Perry M; Procter, C and Hughes, G (2006) *A handbook of climate trends across Scotland.* SNIFFER project CC03

Supporting Services – Mean Daily Flow at Key Gauging Stations (1975-2014)







Current position

Scotland's 2014 State of the Environment Report (managed by Scotland's Environment Web Partnership) predicts less overall summer rainfall, and higher autumn/winter rainfall which will lead to higher annual river flows. This along with an increased frequency of extreme precipitation events, a higher temperature in all seasons and sea-level rise is predicted to have an adverse impact on the environment through loss of habitat, increased pollution and increased flooding.

This indicator shows trends in mean annual, winter and summer daily flows at key gauges in Perth and Kinross.

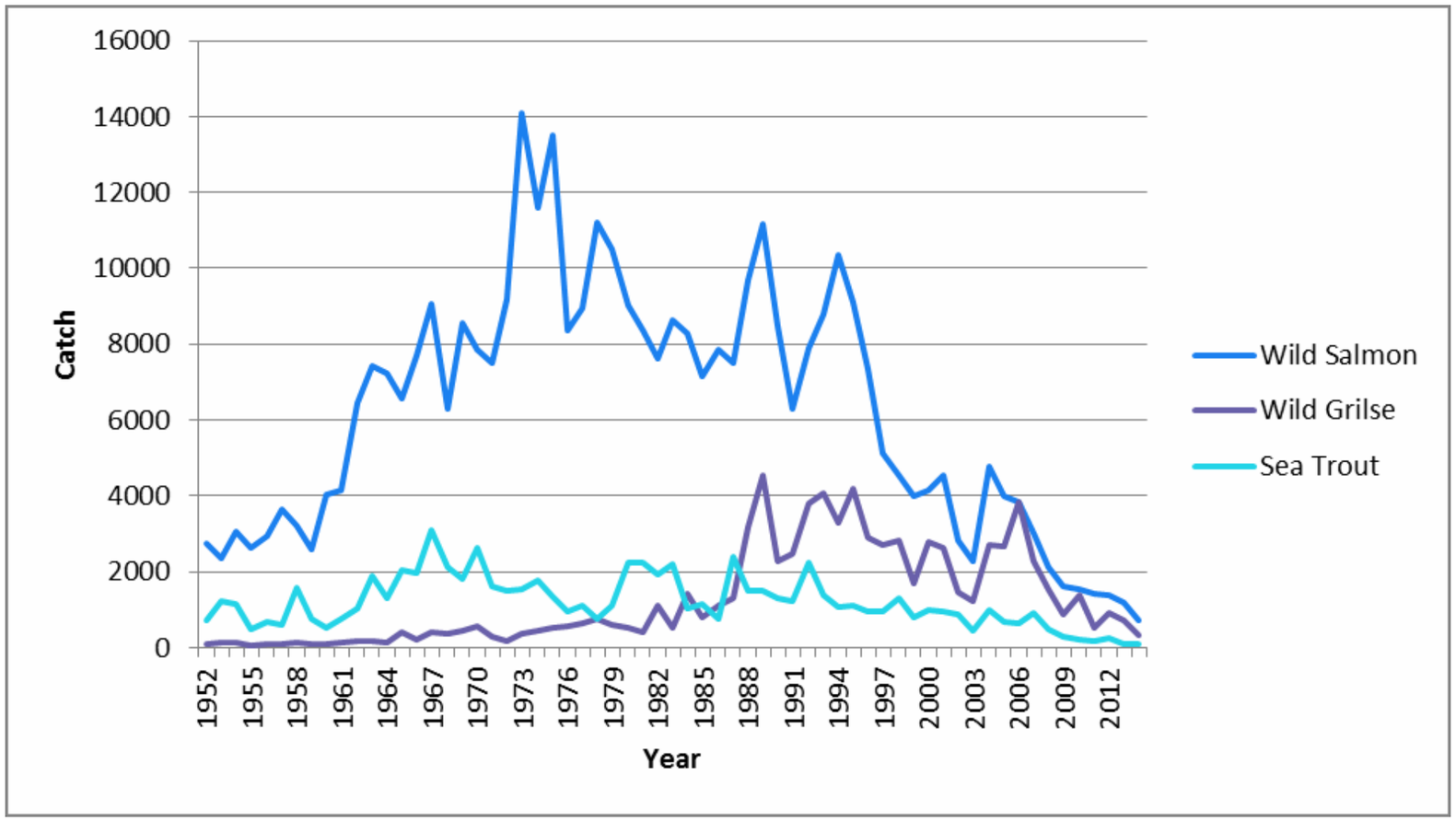
Relevance of this indicator

Water quality has significant implications for human health and for fauna coming into contact with or living within the water environment. A high level driver putting pressure on the inland water environment, primarily through alteration of rainfall and snow cover patterns, is climate change. Local pressures on inland waters include; abstraction and flow regulation including major hydropower and water supply schemes, the building of dams and weirs and the drilling of boreholes to extract groundwater ;and morphological pressures including engineering works to channels

Data source: SEPA

Data availability: Annual

Supporting Services – Tay District Rod Count Data (1952-2014)



Current position

Rod catch data for the Tay district remains relatively stable in 2014 despite annual fluctuations. When considering stock abundance prior to 2006, it should be remembered that there was much higher exploitation of salmon prior to the rod fishery. Today there is very little exploitation of salmon upstream of the rod fishery. Therefore though the rod fishery appears stable, total abundance was higher in 1960s -70s when there was a large net fishery which was bought and closed down in 1996.

Relevance of this indicator

Water quality can affect the local economy through influencing tourism and recreational activity. Fishing contributes significantly to the local economy and fish abundance is also a key indicator of ecosystem health.

Data source: The data used in this graph/figure/table are Crown copyright, used with the permission of Marine Scotland

Data availability: Annual