**EcoServ-GIS Report** 

Joint - Horsham District and Crawley Borough

March 2019

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- Water Purification

Please Note: Section 2 and and 3 provide identical data but presented in a different order

Section 1 - Habitats



### Basemap: habitat classes

Date: 15/03/2019



### Key to map:











Record

Sussex

Contains

Survey

#### Section 2 - Output in order of assessment criteria

- Capacity
- Demand
- Ecosystem Service Benefiting Areas and Gaps Prioritisation
- Management Zones
- Green Infrastructure Assets

CAPACITY



(version 3.3)

Date: 15/03/2019

Accessible Nature - Capacity

Roffe

Hill

Three



#### Accessible Nature occurs where greenspace or semi-natural habitats give health and well being benefits to people through regular access for walking, cycling or jogging.

METHODS: Accessible Nature Capacity values per habitat are inferred from available literature. Values are estimates of "perceived naturalness" from public surveys, via photo interpretation. High values represent areas where habitats have a higher "perceived naturalness" score at both the site, and local, scale. Therefore larger continuous blocks of more natural habitat types will have higher scores than smaller isolated sites of the same habitat type. Default local search neighbourhood values are used, but can be modified by the user. (Default = 300 m)





#### Air Purification occurs where habitats help to intercept or absorb airborne pollutants produced from road traffic.

METHODS: Air Purification values per habitat are inferred from available literature. Values are estimates of potential Air Purification ability per habitat type. High values represent areas where habitats have a predicted higher capacity to intercept or absorb airborne pollutants. This is based on habitat type and structure. Habitat age and management are not included. Values are calculated within a local search neighbourhood (Default = 200 m). Habitat capacity is assumed to be cummulative, scores are summed within the neighbourhood. Both higher scoring habitats, and wider / larger areas of habitat lead to larger mapped capacity scores.



(version 3.3) Date: 15/03/2019

### **Carbon Storage - Capacity**

Study Area



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Sussex

Biodiversity

**Record Centre** 

#### Carbon storage occurs in vegetation and soil

METHOD: This toolkit maps the estimated amount of carbon stored in different ecosystem or habitat types. Carbon storage values are taken from available literature. Values are estimates of typical storage levels per habitat type. Soil type is assumed to be typical of the mapped habitat. Soil types are not separately mapped from soil data. Habitat age and management is not considered. High values represent high carbon storage levels per unit area. Carbon storage values are calculated from the data used within the attribute link table in the BaseMap models. Carbon storage values may link to mapped habitat types at different hierarchy levels (Phase 1 Habitat, Broad Habitat or Habitat Class)

LIMITATIONS: Care should be taken in map interpretation for certain habitats where it is known that certain soil types occur, such as deep peat, or where plantation woodlands or improved grasslands occur on deep peat. In such situations the capacity will reflect the current dominant habitat type. Running an alternative scenario analysis with such habitat restored or converted to blanket bog or marshy grassland would show the higher storage capacity in such habitats. EcoServ-GIS relies on indicators to predict levels of capacity and demand. Results are relative to the study area and cannot be compared to other areas. Local knowledge must be used to interpret what the values mean in absolute terms.







#### Areas where young people can benefit from the education and knowledge opportunities of diverse semi-natural habitats.

METHODS: Education and knowledge capacity is mapped by illustrating the number of broad habitat types that occur in a nearby local area (5 mins walk / 300 m). This map reflects the range of habitat types that are available in a local area for formal or informal study. Areas with a mix of habitats are assumed to offer opportunities for study, reflection and knowledge. The "unrestricted" capacity is shown, for areas which are likely to be accessed by the public. Thresholds are applied to limit the area of mapped capacity. Defaults are applied, but can be varied with custom settings. Local search distance = 300 m, Minimum education site size = 5,000 m (0.5 ha), Minimum number of Broad Habitats present = 2





Study Area





EcoServ-GIS models executed by Sussex Biodiversity Record Centre (hosted by Sussex Wildife Trust). Contains Ordnane Survey data © Crown copyright and database rights 2019 Ordnance Survey 0100023865

# Local climate regulation reflects the ability of different ecosystems and habitats to absorb or intercept sunlight and reflected heat, controlling local temperatures & reducing the urban heat island effect

METHODS: Local climate regulation values per ecosystem / habitat are inferred from available literature. These are based on the area coverage of woodland habitats. Habitat age and management is not considered. Thresholds are applied to limit the area of mapped capacity. Defaults are applied, but can be varied with custom settings. Defaults: Local search distance = 200m



Variate incare.

#### Key to map:



## Green Travel routes are linear travel networks with a high cover of green infrastructure where people may benefit from a safer, calmer or more aesthetically pleasing travel route.

METHODS: This map reflects how "natural" habitat types are along linear travel networks. The model uses perceived naturalness scores. Routes are identified from Sustrans cycle routes, Public footpaths /Core paths and all pavements and paths mapped by OS MasterMap data. Informal footpaths and any paths not digitised within these data will not be idenified on the map. In rare cases paths and pavements will be mapped within private estates or industrial areas where no public access is permitted. Thresholds are applied to limit the area of mapped capacity.









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Noise regulation capacity reflects the ability of different ecosystems and habitats to absorb noise pollution.

METHODS: Noise regulation values per ecosystem / habitat are inferred from available literature. These are estimated typical values. Habitat age and management is not considered. Analysis is conducted at short and local scales to give capacity scores based on habitat type and patch size. Default short scale distance = 30 m. Default local scale distance = 100 m







#### Pollination capacity reflects the ability of different ecosystems to support wild pollinators, using an estimate of likely visitation by pollinators.

METHODS:Habitat types such as grassland and linear and edge habitats are identified that are likely to support wild pollinators. Distance from pollinator habitat is used to indicate the potential visitation likelihood by wild pollinators. A maximum travel distance of ~700 m is used within the mapping. Beyond this distance from a pollinator source habitat there is expected to be no capacity for pollination. Edge habitat is identified as 20 m into woodland habitats.

LIMITATIONS: The method used only considers habitat type and distance. No information on habitat area or habitat quality is included. The presence of any large areas of "unknown" or "unclassified" habitats in the BaseMap will have low capacity in this map. EcoServ-GIS relies on indicators to predict levels of capacity and demand. Results are relative to the study area and cannot be compared to other areas. Local knowledge must be used to interpret what the values mean in absolute terms.





#### Areas where vegetation may help to purify water and reduce pollution impacts before reaching watercourses.

METHODS: Water Purification values per ecosystem are inferred from available literature, based on surface roughness and slope type. Habitat age and management is not considered.

DEMAND





#### Accessible Nature occurs where greenspace or semi-natural habitats give health and well being benefits to people through regular access for walking, cycling or jogging.

METHODS: Demand is mapped based on population size, health scores, greenspace size and accessibility. The Demand score is based on several combined indicators: population density, health scores and estimated visitation likelihood, based on greenspace size and distance. High values represent areas where there is a higher predicted benefit to those people likely to use each accessible nature site. Default local search neighbourhood values are used, but can be modified by the user. Local = 600 m, Landscape = 2400 m, Region = 12800 m. Greenspace size thresholds are applied: Local > 0.1 ha, Landscape > 10 ha, Region > 100 ha







EcoServ-GIS models executed by Sussex Biodiversity Record Centre (hosted by Sussex Wildife Trust). Contains Ordnane Survey data © Crown copyright and database rights 2019 Ordnance Survey 0100023865

#### Air Purification occurs where habitats help to intercept or absorb airborne pollutants produced from road traffic.

METHODS: High values represent areas where there is a combination of higher population density, higher health deprivation scores and higher predicted air pollution levels based on proximity to roads. Threshold and search neighourhood values can be modified by the user. Default values are: Maximum air pollution occurence distance from roads = 400 m, Manmade surface cover = 400 m radius, Population density = 300 m, Health scores = 300 m





#### Carbon storage occurs in vegetation and soil.

METHODS: This toolkit maps the estimated amount of carbon stored in different ecosystem or habitat types. Because the benefits of carbon storage are global, all areas are mapped as high demand.





#### Areas where young people can benefit from the education and knowledge opportunities of diverse semi-natural habitats.

METHODS: Education and knowledge demand is mapped by combining two social indicators: the number of young people that live nearby, and the distance to nearby schools. Analysis examines greenspace sites at three spatial scales. Analysis defaults are: Young people <15yrs, Local scale: 600 m, Landscape scale: 3000 m. Region scale: 8000 m. Population thresholds are applied to remove areas of very sparse population. Defaults are: Local scale: > 50, Landscape scale: > 500, Region scale: > 1000





# Local climate regulation reflects the ability of different ecosystems and habitats to absorb or intercept sunlight and reflected heat, controlling local temperatures & reducing the urban heat island effect

METHODS: Larger urban areas are assumed to have demand for Local Climate Regulation. Demand is mapped based on cover of man made surfaces, population density and the proportion of the local population potentially susceptible to heat waves (based on age). There is assumed to be no demand in non-urban areas or areas below the mapped population density thresholds. Thresholds are applied to limit the area of mapped Demand. Defaults are applied, but can be varied with custom settings. Local search distance (population size) = 200 m Local search distance (age risk score) = 200 m. Minimum population size (local scale) > 50 people. Urban areas with heat islands (> 1,000 ha). Local cover of man made surfaces = 200 m





# Green Travel routes are linear travel networks with a high cover of green infrastructure where people may benefit from a safer, calmer or more aesthetically pleasing travel route.

Demand for Green Travel routes is mapped using a least-cost analysis, along the linear travel network. Travel destinations used are rail stations, town centre locations and schools. The maximum travel distance used can be altered by users. The default maximum travel distance is 4,500 m.







EcoServ-GIS models executed by Sussex Biodiversity Record Centre (hosted by Sussex Wildife Trust). Contains Ordnane Survey data © Crown copyright and database rights 2019 Ordnance Survey 0100023865

#### Noise regulation demand reflects the predicted need for noise regulation. This is based on modelled noise levels, population density and health data.

METHODS: Local search distance (population size) = 300 m, Minimum population size (local scale) = 50, Local search distance health scores = 300 m, Max noise distance from airports = 1500 m, Max noise distance from motorways = 800 m, Max noise distance from railways = 650 m, Max noise distance from A roads = 600 m, Max noise distance from B roads = 550 m. Thresholds are applied to limit the area of mapped Demand. Defaults are applied, but can be varied with custom settings.



**Pollination - Demand** 

(version 3.3) Date: 15/03/2019 The species C 50 Hentield an lackston snington 1 14 Sullingtor ambe South D



#### Key to map:



#### Pollination demand indicates areas of land that are expected to benefit from wild pollinators.

METHODS: Pollination demand is mapped from the locations of arable land, allotments and orchards.

LIMITATIONS: Often, depending on the input data used, arable land may be poorly mapped. Not all crops grown within areas of arable land will require pollination. If alternative data sources are available, they can be used to map the location of pollination demand. EcoServ-GIS relies on indicators to predict levels of capacity and demand. Results are relative to the study area and cannot be compared to other areas. Local knowledge must be used to interpret what the values mean in absolute terms.





#### Areas of land that may generate pollution risks to watercourses

METHODS: Demand is mapped based on a modified USLE equation, further adapted from a method presented in Sivertun and Prange (2003). Thresholds are applied to limit the area of mapped Demand. Defaults are applied, but can be varied with custom settings. Maximum risk distance from watercourses = 250 m. Potentially polluting land use types = Arable land, improved grassland, urban areas. Flow accumulation threshold used to identify streams, from which to map watersheds (catchments) = 20,000

#### ECOSYSTEM SERVICE BENEFITING AREAS AND GAP PRIORITISATION





#### Accessible Nature occurs where greenspace or semi-natural habitats give health and well being benefits to people through regular access for walking, cycling or jogging.

METHODS: Capacity and Demand quintiles are overlaid to estimate the levels of benefits that may be delivered to people by the habitats currently present (see above graphic). Not all categories are always present. White space indicates no data or no service benefits.





#### Air Purification occurs where habitats help to intercept or absorb airborne pollutants produced from road traffic.

METHODS: Capacity and Demand quintiles are overlaid to estimate the levels of benefits that may be delivered to people by the habitats currently present (see above graphic). Not all categories are always present. White space indicates no data or no service benefits.





#### Areas where people benefit from carbon storage in vegetation and soil.

METHODS: Capacity and Demand quintiles are overlaid to estimate the levels of benefits that may be delivered to people by the habitats currently present (see above graphic). Not all categories are always present. White space indicates no data or no service benefits.





#### Areas where young people can benefit from the education and knowledge opportunities of diverse semi-natural habitats.

METHODS: Capacity and Demand quintiles are overlaid to estimate the levels of benefits that may be delivered to people by the habitats currently present (see above graphic). Not all categories are always present. White space indicates no data or no service benefits.





Local climate regulation reflects the ability of different ecosystems and habitats to absorb or intercept sunlight and reflected heat, controlling local temperatures & reducing the urban heat island effect.

METHODS: Capacity and Demand quintiles are overlaid to estimate the levels of benefits that may be delivered to people by the habitats currently present (see above graphic). Not all categories are always present. White space indicates no data or no service benefits.



### **Green Travel - Service Benefiting Areas**





Green Travel routes are linear travel networks with a high cover of green infrastructure where people may benefit from a safer, calmer or more aesthetically pleasing travel route.

METHODS: Capacity and Demand quintiles are overlaid to estimate the levels of benefits that may be delivered to people by the habitats currently present (see above graphic). Not all categories are always present. White space indicates no data or no service benefits.





#### Areas where people benefit from the noise reducing impact of semi-natural habitats and ecosystems

METHODS: Capacity and Demand quintiles are overlaid to estimate the levels of benefits that may be delivered to people by the habitats currently present (see above graphic). Not all categories are always present. White space indicates no data or no service benefits.





#### Areas where crops in farmland, allotments or orchards are likely to benefit from wild pollinators from nearby semi-natural habitats.

METHODS: Capacity and Demand quintiles are overlaid to estimate the levels of benefits that may be delivered to people by the habitats currently present (see above graphic). Not all categories are always present. White space indicates no data or no service benefits.





#### Areas where people may be benefiting from the water purification effects of vegetation near streams

METHODS: Capacity and Demand quintiles are overlaid to estimate the levels of benefits that may be delivered to people by the habitats currently present (see above graphic). Not all categories are always present. White space indicates no data or no service benefits.
### MANAGEMENT ZONES





#### Accessible Nature occurs where greenspace or semi-natural habitats give health and well being benefits to people through regular access for walking, cycling or jogging.

METHODS: Capacity and Demand quintiles are overlaid to estimate the management interventions that could maintain or increase the benefits delivered to people (see above graphic). Not all categories are always present.



### Air Purification occurs where habitats help to intercept or absorb airborne pollutants produced from road traffic.

METHODS: Capacity and Demand quintiles are overlaid to estimate the management interventions that could maintain or increase the benefits delivered to people (see above graphic). Not all categories are always present.





### Areas where people benefit from carbon storage in vegetation and soil.

METHODS: Capacity and Demand quintiles are overlaid to estimate the management interventions that could maintain or increase the benefits delivered to people (see above graphic). Not all categories are always present.





### Areas where young people can benefit from the education and knowledge opportunities of diverse semi-natural habitats.

METHODS: Capacity and Demand quintiles are overlaid to estimate the management interventions that could maintain or increase the benefits delivered to people (see above graphic). Not all categories are always present.



Local climate regulation reflects the ability of different ecosystems and habitats to absorb or intercept sunlight and reflected heat, controlling local temperatures & reducing the urban heat island effect.

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### Areas where people may be benefiting from the water purification effects of vegetation near streams

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**GREEN INFRASTRUCTURE ASSETS** 





#### Accessible Nature occurs where greenspace or semi-natural habitats give health and well being benefits to people through regular access for walking, cycling or jogging.

METHODS: This map highlights those areas of existing natural, semi-natural, Greenspace or Green Infrastructure (GI) sites where there is predicted demand for a service as well as a level of capacity to deliver the service, Those areas with capacity, but with no demand, are ommitted from this map.





### Air Purification occurs where habitats help to intercept or absorb airborne pollutants produced from road traffic.

METHODS: This map highlights those areas of existing natural, semi-natural, Greenspace or Green Infrastructure (GI) sites where there is predicted demand for a service as well as a level of capacity to deliver the service, Those areas with capacity, but with no demand, are ommitted from this map.





### Carbon storage occurs in vegetation and soil.

METHODS: This toolkit maps the estimated amount of carbon stored in different ecosystem or habitat types. This map highlights those areas of existing natural, semi-natural, Greenspace or Green Infrastructure (GI) sites where there is predicted demand for a service as well as a level of capacity to deliver the service, Those areas with capacity, but with no demand, are ommitted from this map.





### Areas where young people can benefit from the education and knowledge opportunities of diverse semi-natural habitats.

METHODS: This maps highlights those areas of existing natural, semi-natural, greenspace or green infrastructure (GI) sites where there is predicted demand for a service as well as a level of capacity to deliver the service, The "unrestricted" capacity is shown, for areas which are likely to be accessed by the public.





### Local climate regulation reflects the ability of different ecosystems and habitats to absorb or intercept sunlight and reflected heat,

METHODS: This map highlights those areas of existing natural, semi-natural, Greenspace or Green Infrastructure (GI) sites where there is predicted demand for a service as well as a level of capacity to deliver the service, Those areas with capacity, but with no demand, are ommitted from this map.





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### Noise regulation capacity reflects the ability of different ecosystems and habitats to absorb noise pollution.

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Pollination - GI Assets



### Pollination capacity reflects the ability of different ecosystems to support wild pollinators, using an estimate of likely visitation by pollinators.

METHODS: Capacity is based on the identification of habitats that may support pollinators, and likely travel distances from such habitats. This map highlights those areas of existing natural, semi-natural, Greenspace or Green Infrastructure (GI) sites where there is predicted demand for a service as well as a level of capacity to deliver the service. Those areas with capacity, but with no demand, are ommitted from this map.

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### Areas where people may be benefiting from the water purification effects of vegetation near streams

METHODS: This map highlights those areas of existing natural, semi-natural, Greenspace or Green Infrastructure (GI) sites where there is predicted demand for a service as well as a level of capacity to deliver the service,

### Section 3 - Output in order of Ecosystem

- Accessible Nature
- Air Purification
- Carbon Storage
- Education and Knowledge
- Green Travel
- Local Climate
- Noise Regulation
- Pollination
- Water Purification

### ACCESSIBLE NATURE



(version 3.3)

Date: 15/03/2019

Accessible Nature - Capacity

Roffe

Hill

Three



### Accessible Nature occurs where greenspace or semi-natural habitats give health and well being benefits to people through regular access for walking, cycling or jogging.

METHODS: Accessible Nature Capacity values per habitat are inferred from available literature. Values are estimates of "perceived naturalness" from public surveys, via photo interpretation. High values represent areas where habitats have a higher "perceived naturalness" score at both the site, and local, scale. Therefore larger continuous blocks of more natural habitat types will have higher scores than smaller isolated sites of the same habitat type. Default local search neighbourhood values are used, but can be modified by the user. (Default = 300 m)





#### Accessible Nature occurs where greenspace or semi-natural habitats give health and well being benefits to people through regular access for walking, cycling or jogging.

METHODS: Demand is mapped based on population size, health scores, greenspace size and accessibility. The Demand score is based on several combined indicators: population density, health scores and estimated visitation likelihood, based on greenspace size and distance. High values represent areas where there is a higher predicted benefit to those people likely to use each accessible nature site. Default local search neighbourhood values are used, but can be modified by the user. Local = 600 m, Landscape = 2400 m, Region = 12800 m. Greenspace size thresholds are applied: Local > 0.1 ha, Landscape > 10 ha, Region > 100 ha





### Accessible Nature occurs where greenspace or semi-natural habitats give health and well being benefits to people through regular access for walking, cycling or jogging.

METHODS: Capacity and Demand quintiles are overlaid to estimate the levels of benefits that may be delivered to people by the habitats currently present (see above graphic). Not all categories are always present. White space indicates no data or no service benefits.





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### AIR PURIFICATION





### Air Purification occurs where habitats help to intercept or absorb airborne pollutants produced from road traffic.

METHODS: Air Purification values per habitat are inferred from available literature. Values are estimates of potential Air Purification ability per habitat type. High values represent areas where habitats have a predicted higher capacity to intercept or absorb airborne pollutants. This is based on habitat type and structure. Habitat age and management are not included. Values are calculated within a local search neighbourhood (Default = 200 m). Habitat capacity is assumed to be cummulative, scores are summed within the neighbourhood. Both higher scoring habitats, and wider / larger areas of habitat lead to larger mapped capacity scores.







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#### Air Purification occurs where habitats help to intercept or absorb airborne pollutants produced from road traffic.

METHODS: High values represent areas where there is a combination of higher population density, higher health deprivation scores and higher predicted air pollution levels based on proximity to roads. Threshold and search neighourhood values can be modified by the user. Default values are: Maximum air pollution occurence distance from roads = 400 m, Manmade surface cover = 400 m radius, Population density = 300 m, Health scores = 300 m





### Air Purification occurs where habitats help to intercept or absorb airborne pollutants produced from road traffic.

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**CARBON STORAGE** 



(version 3.3) Date: 15/03/2019

## **Carbon Storage - Capacity**

Study Area



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Sussex

Biodiversity

**Record Centre** 

### Carbon storage occurs in vegetation and soil

METHOD: This toolkit maps the estimated amount of carbon stored in different ecosystem or habitat types. Carbon storage values are taken from available literature. Values are estimates of typical storage levels per habitat type. Soil type is assumed to be typical of the mapped habitat. Soil types are not separately mapped from soil data. Habitat age and management is not considered. High values represent high carbon storage levels per unit area. Carbon storage values are calculated from the data used within the attribute link table in the BaseMap models. Carbon storage values may link to mapped habitat types at different hierarchy levels (Phase 1 Habitat, Broad Habitat or Habitat Class)

LIMITATIONS: Care should be taken in map interpretation for certain habitats where it is known that certain soil types occur, such as deep peat, or where plantation woodlands or improved grasslands occur on deep peat. In such situations the capacity will reflect the current dominant habitat type. Running an alternative scenario analysis with such habitat restored or converted to blanket bog or marshy grassland would show the higher storage capacity in such habitats. EcoServ-GIS relies on indicators to predict levels of capacity and demand. Results are relative to the study area and cannot be compared to other areas. Local knowledge must be used to interpret what the values mean in absolute terms.





### Carbon storage occurs in vegetation and soil.

METHODS: This toolkit maps the estimated amount of carbon stored in different ecosystem or habitat types. Because the benefits of carbon storage are global, all areas are mapped as high demand.




#### Areas where people benefit from carbon storage in vegetation and soil.

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EDUCATION AND KNOWLEDGE







#### Areas where young people can benefit from the education and knowledge opportunities of diverse semi-natural habitats.

METHODS: Education and knowledge capacity is mapped by illustrating the number of broad habitat types that occur in a nearby local area (5 mins walk / 300 m). This map reflects the range of habitat types that are available in a local area for formal or informal study. Areas with a mix of habitats are assumed to offer opportunities for study, reflection and knowledge. The "unrestricted" capacity is shown, for areas which are likely to be accessed by the public. Thresholds are applied to limit the area of mapped capacity. Defaults are applied, but can be varied with custom settings. Local search distance = 300 m, Minimum education site size = 5,000 m (0.5 ha), Minimum number of Broad Habitats present = 2





#### Areas where young people can benefit from the education and knowledge opportunities of diverse semi-natural habitats.

METHODS: Education and knowledge demand is mapped by combining two social indicators: the number of young people that live nearby, and the distance to nearby schools. Analysis examines greenspace sites at three spatial scales. Analysis defaults are: Young people <15yrs, Local scale: 600 m, Landscape scale: 3000 m. Region scale: 8000 m. Population thresholds are applied to remove areas of very sparse population. Defaults are: Local scale: > 50, Landscape scale: > 500, Region scale: > 1000





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METHODS: This maps highlights those areas of existing natural, semi-natural, greenspace or green infrastructure (GI) sites where there is predicted demand for a service as well as a level of capacity to deliver the service, The "unrestricted" capacity is shown, for areas which are likely to be accessed by the public.

**GREEN TRAVEL** 



Variate incare.

#### Key to map:



### Green Travel routes are linear travel networks with a high cover of green infrastructure where people may benefit from a safer, calmer or more aesthetically pleasing travel route.

METHODS: This map reflects how "natural" habitat types are along linear travel networks. The model uses perceived naturalness scores. Routes are identified from Sustrans cycle routes, Public footpaths /Core paths and all pavements and paths mapped by OS MasterMap data. Informal footpaths and any paths not digitised within these data will not be idenified on the map. In rare cases paths and pavements will be mapped within private estates or industrial areas where no public access is permitted. Thresholds are applied to limit the area of mapped capacity.





# Green Travel routes are linear travel networks with a high cover of green infrastructure where people may benefit from a safer, calmer or more aesthetically pleasing travel route.

Demand for Green Travel routes is mapped using a least-cost analysis, along the linear travel network. Travel destinations used are rail stations, town centre locations and schools. The maximum travel distance used can be altered by users. The default maximum travel distance is 4,500 m.



### **Green Travel - Service Benefitting Areas**





Green Travel routes are linear travel networks with a high cover of green infrastructure where people may benefit from a safer, calmer or more aesthetically pleasing travel route.

METHODS: Capacity and Demand quintiles are overlaid to estimate the levels of benefits that may be delivered to people by the habitats currently present (see above graphic). Not all categories are always present. White space indicates no data or no service benefits.



Green Travel routes are linear travel networks with a high cover of green infrastructure where people may benefit from a safer, calmer or more aesthetically pleasing travel route.

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# Green Travel routes are linear travel networks with a high cover of green infrastructure where people may benefit from a safer, calmer or more aesthetically pleasing travel route.

METHODS: This map highlights those areas of existing natural, semi-natural, Greenspace or Green Infrastructure (GI) sites where there is predicted demand for a service as well as a level of capacity to deliver the service, Those areas with capacity, but with no demand, are ommitted from this map.

LOCAL CLIMATE









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# Local climate regulation reflects the ability of different ecosystems and habitats to absorb or intercept sunlight and reflected heat, controlling local temperatures & reducing the urban heat island effect

METHODS: Local climate regulation values per ecosystem / habitat are inferred from available literature. These are based on the area coverage of woodland habitats. Habitat age and management is not considered. Thresholds are applied to limit the area of mapped capacity. Defaults are applied, but can be varied with custom settings. Defaults: Local search distance = 200m





# Local climate regulation reflects the ability of different ecosystems and habitats to absorb or intercept sunlight and reflected heat, controlling local temperatures & reducing the urban heat island effect

METHODS: Larger urban areas are assumed to have demand for Local Climate Regulation. Demand is mapped based on cover of man made surfaces, population density and the proportion of the local population potentially susceptible to heat waves (based on age). There is assumed to be no demand in non-urban areas or areas below the mapped population density thresholds. Thresholds are applied to limit the area of mapped Demand. Defaults are applied, but can be varied with custom settings. Local search distance (population size) = 200 m Local search distance (age risk score) = 200 m. Minimum population size (local scale) > 50 people. Urban areas with heat islands (> 1,000 ha). Local cover of man made surfaces = 200 m





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### NOISE REGULATION









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Noise regulation capacity reflects the ability of different ecosystems and habitats to absorb noise pollution.

METHODS: Noise regulation values per ecosystem / habitat are inferred from available literature. These are estimated typical values. Habitat age and management is not considered. Analysis is conducted at short and local scales to give capacity scores based on habitat type and patch size. Default short scale distance = 30 m. Default local scale distance = 100 m







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#### Noise regulation demand reflects the predicted need for noise regulation. This is based on modelled noise levels, population density and health data.

METHODS: Local search distance (population size) = 300 m, Minimum population size (local scale) = 50, Local search distance health scores = 300 m, Max noise distance from airports = 1500 m, Max noise distance from motorways = 800 m, Max noise distance from railways = 650 m, Max noise distance from A roads = 600 m, Max noise distance from B roads = 550 m. Thresholds are applied to limit the area of mapped Demand. Defaults are applied, but can be varied with custom settings.





#### Areas where people benefit from the noise reducing impact of semi-natural habitats and ecosystems

METHODS: Capacity and Demand quintiles are overlaid to estimate the levels of benefits that may be delivered to people by the habitats currently present (see above graphic). Not all categories are always present. White space indicates no data or no service benefits.





#### Areas where people benefit from the noise reducing impact of semi-natural habitats and ecosystems.

METHODS: Capacity and Demand quintiles are overlaid to estimate the management interventions that could maintain or increase the benefits delivered to people (see above graphic). Not all categories are always present.





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POLLINATION







#### Pollination capacity reflects the ability of different ecosystems to support wild pollinators, using an estimate of likely visitation by pollinators.

METHODS:Habitat types such as grassland and linear and edge habitats are identified that are likely to support wild pollinators. Distance from pollinator habitat is used to indicate the potential visitation likelihood by wild pollinators. A maximum travel distance of ~700 m is used within the mapping. Beyond this distance from a pollinator source habitat there is expected to be no capacity for pollination. Edge habitat is identified as 20 m into woodland habitats.

LIMITATIONS: The method used only considers habitat type and distance. No information on habitat area or habitat quality is included. The presence of any large areas of "unknown" or "unclassified" habitats in the BaseMap will have low capacity in this map. EcoServ-GIS relies on indicators to predict levels of capacity and demand. Results are relative to the study area and cannot be compared to other areas. Local knowledge must be used to interpret what the values mean in absolute terms.



**Pollination - Demand** 

(version 3.3) Date: 15/03/2019 The species C 50 Hentield an lackston snington 1 14 Sullingtor ambe South D



#### Key to map:



#### Pollination demand indicates areas of land that are expected to benefit from wild pollinators.

METHODS: Pollination demand is mapped from the locations of arable land, allotments and orchards.

LIMITATIONS: Often, depending on the input data used, arable land may be poorly mapped. Not all crops grown within areas of arable land will require pollination. If alternative data sources are available, they can be used to map the location of pollination demand. EcoServ-GIS relies on indicators to predict levels of capacity and demand. Results are relative to the study area and cannot be compared to other areas. Local knowledge must be used to interpret what the values mean in absolute terms.





#### Areas where crops in farmland, allotments or orchards are likely to benefit from wild pollinators from nearby semi-natural habitats.

METHODS: Capacity and Demand quintiles are overlaid to estimate the levels of benefits that may be delivered to people by the habitats currently present (see above graphic). Not all categories are always present. White space indicates no data or no service benefits.





#### Areas where crops in farmland, allotments or orchards are likely to benefit from wild pollinators from nearby semi-habitats.

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Pollination - GI Assets



#### Pollination capacity reflects the ability of different ecosystems to support wild pollinators, using an estimate of likely visitation by pollinators.

METHODS: Capacity is based on the identification of habitats that may support pollinators, and likely travel distances from such habitats. This map highlights those areas of existing natural, semi-natural, Greenspace or Green Infrastructure (GI) sites where there is predicted demand for a service as well as a level of capacity to deliver the service. Those areas with capacity, but with no demand, are ommitted from this map.

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### WATER PURIFICATION





#### Areas where vegetation may help to purify water and reduce pollution impacts before reaching watercourses.

METHODS: Water Purification values per ecosystem are inferred from available literature, based on surface roughness and slope type. Habitat age and management is not considered.





#### Areas of land that may generate pollution risks to watercourses

METHODS: Demand is mapped based on a modified USLE equation, further adapted from a method presented in Sivertun and Prange (2003). Thresholds are applied to limit the area of mapped Demand. Defaults are applied, but can be varied with custom settings. Maximum risk distance from watercourses = 250 m. Potentially polluting land use types = Arable land, improved grassland, urban areas. Flow accumulation threshold used to identify streams, from which to map watersheds (catchments) = 20,000




## Areas where people may be benefiting from the water purification effects of vegetation near streams

METHODS: Capacity and Demand quintiles are overlaid to estimate the levels of benefits that may be delivered to people by the habitats currently present (see above graphic). Not all categories are always present. White space indicates no data or no service benefits.

LIMITATIONS: EcoServ-GIS relies on indicators to predict levels of capacity and demand. Results are relative to the study area and cannot be compared to other areas. Local knowledge must be used to interpret what the values mean in absolute terms.



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