Sensitivity of landscape character to Natural Flood Management measures

15th April, 2020

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1   Background

Natural Flood Management measures designed primarily to slow the flow of water through a catchment can be targeted to optimise their impact on downstream flooding. However, they may also impact both biodiversity features as well as the landscape character of an area. Often, the impact can be positive but there are occasions where there may be a detrimental effect on landscape character. This short report shows how mapping can be used to help land managers and advisers identify actions that may be harmful.

1.1   Method

There are specific Natural Flood Management (NFM) measures that have the potential to have a negative impact on landscape character. A recent meeting of the NFM ELM project contributors identified that the following were likely to be the issues that have the biggest impact on landscape character.

- Woodland creation (including shaws, shaves and riparian planting)
- Species choice when planting either woodland or hedgerows
- Creation of reservoirs (and to a lesser extent offline ponds and other runoff attenuation features)
- Hedgerow planting

The focus of this mapping is the Darent catchment with a specific intent to use the maps alongside (or even integrated into) the HydroloGIS mapping created by Viridian Logic.

Each of the Landscape Character Areas that were assessed by KCC/Jacobs in 2004 were mapped and an assessment of whether the landscape character in each of these areas was sensitive to the four issues listed above was made. For each area each issue was assessed as having either high, medium or low potential for having a negative impact on landscape character. These flags can be used to help farmers, landowners and advisors to identify whether the landscape character impact of NFM measures need to be considered.

1.2   Limitations

There are a number of limitations:

- Not all of the Landscape Character Areas are homogenous. For example, some areas may be well suited to woodland creation on plateaus but less suited on steep slopes and valley bottoms.
- The assessment is somewhat subjective

- The assessments made need to be reviewed as they were made by looking at aerial photography and by reviewing the condition assessment and proposed actions for each area.
- The assessment does not include other areas that may be sensitive to NFM measures. An example in the Darent catchment is the area with acid grassland/heath potential to the East of Sevenoaks.

2   Results

The process yielded three maps. The species choice for planting projects required a different approach with guidance being provided based on the national Character Area maps.

2.1   Hedgerow planting

This resulted in a map that shows hedgerow planting can be considered in most areas. Large parts of the Darent Valley have a network of fields with hedgerow boundaries. Many of these areas have lost hedgerows through the 20th century and the restoration of landscape character involves hedgerow planting. There are low-lying flat areas of ground where hedgerows are not appropriate.

High sensitivity – Generally marshes in this mapping where hedgerows are not part of the existing or historic landscape.

Medium sensitivity – These are areas where parts of the landscape may be suitable for hedgerow planting but other parts less so. Hence, an assessment needs to be made as to whether hedgerow planting is appropriate. For example, areas with large open field structures with unobstructed views such as scarp slopes and the fields at the base of valleys may not be suitable for planting but other areas within the Landscape Character Area may be suitable.

Low sensitivity – Areas with the least need to assess the likely landscape impact of hedgerow planting.

It is important that the species chosen are appropriate for the landscape character of the area.

2.2   Woodland creation

This mapping exercise was more complex than the hedgerow creation exercise. The reason for this was that there are a number of character areas that have areas that are suitable for tree planting as well as areas where it may not be appropriate. Consequently, a large part of the catchment was labelled as medium sensitivity.

High sensitivity – These areas are restricted to the coastal marshes where tree cover is low and has historically been low. Tree planting in these areas is highly likely to impact upon landscape character.

Medium sensitivity – These are landscape character areas that have open field structures and vistas that may be impacted by tree planting projects. However, the creation of smaller scale plantings such as shaves and shaws may be appropriate in these areas and the area may have steep sided, wooded areas and plateau woodland that would benefit from expansion and addition.

Low sensitivity – Areas where tree planting is appropriate across the vast majority of the landscape.

2.3   Reservoir creation

The confidence levels for this map are low and making assessments about the level of sensitivity was difficult. So much depends upon the local impact on views and how secluded any water retention

feature is. The permanence of water features is also relevant here with temporary features having less of an impact than permanent ones. The map reflects a general feeling that the creation of reservoirs within the AONB is likely to be problematic and should be reviewed as a matter of course.

High sensitivity – Generally these areas are within the AONB and are likely to have a negative visual impact. However, there may be areas where the visual impact is lessened and may be appropriate (e.g. along the spring line at the base of the chalk scarp slope).

Medium sensitivity – Areas where the creation of reservoirs and ponds should be considered on a case by case basis.

Low sensitivity – Areas where impact of wetland creation is of least concern with regard to landscape character impact.

2.4   Species Choice

Species choice for planting projects is an issue in the entirety of the Darent catchment. However, the issues are different in different parts of the landscape. Consequently, the approach of looking at each landscape character area and assessing the sensitivity to species is not appropriate. As an alternative, National Character Area was mapped and then suitable species were listed for each of these areas and stored within the GIS layer. Guidance also needs to be given about local provenance.

North Downs – alder, beech, blackthorn, wild cherry, crab apple, dogwood, field maple, guelder rose, hawthorn, hazel, holly, small leaved lime, English oak, wayfaring tree, whitebeam, willow

North Kent Plain and Inner London – alder, blackthorn, wild cherry, crab apple, dogwood, field maple, guelder rose, hawthorn, hazel, holly, hornbeam, small leaved lime, English oak, wayfaring tree, whitebeam, willow

Greater Thames Estuary – alder, aspen, hawthorn, willow

**Wealden Greensand** – alder, aspen, beech, birch, hawthorn, hazel, holly, hornbeam, sessile oak, rowan, common oak

For more information on trees appropriate for specific landscape character areas refer to the Kent Downs AONB Landscape Design Handbook: https://s3-eu-west-1.amazonaws.com/explore-kent-bucket/uploads/sites/7/2018/04/18113859/Landscape-Design-Handbook.pdf

3   Next steps

These rather rudimentary maps have been created to show the general process, but decisions need to be taken to assess:

- Whether maps such of this are useful
- Can we use these as part of the ELM project to show what an NFM database can achieve
- If these maps need to be refined and not treat landscape character areas as homogenous. Existing polygons could be split to reflect the different parts of each landscape unit.
- How to address the tree species choice issue

Hedgerows - Landscape character sensitivity
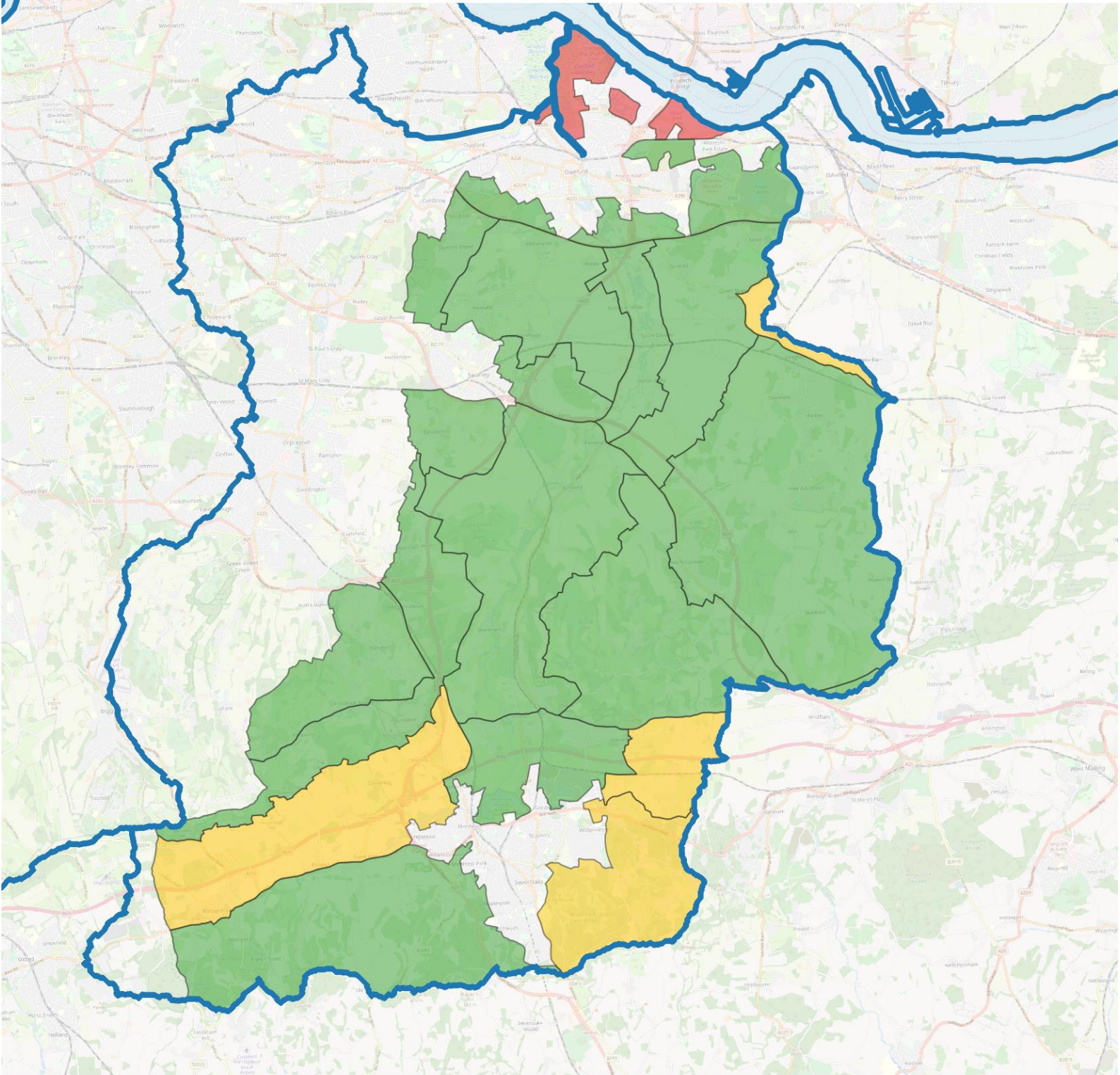
Darent catchment boundary

Landscape character sesitivity to hedgerow planting

- High
- Medium
- Low

0   10   20   30 km
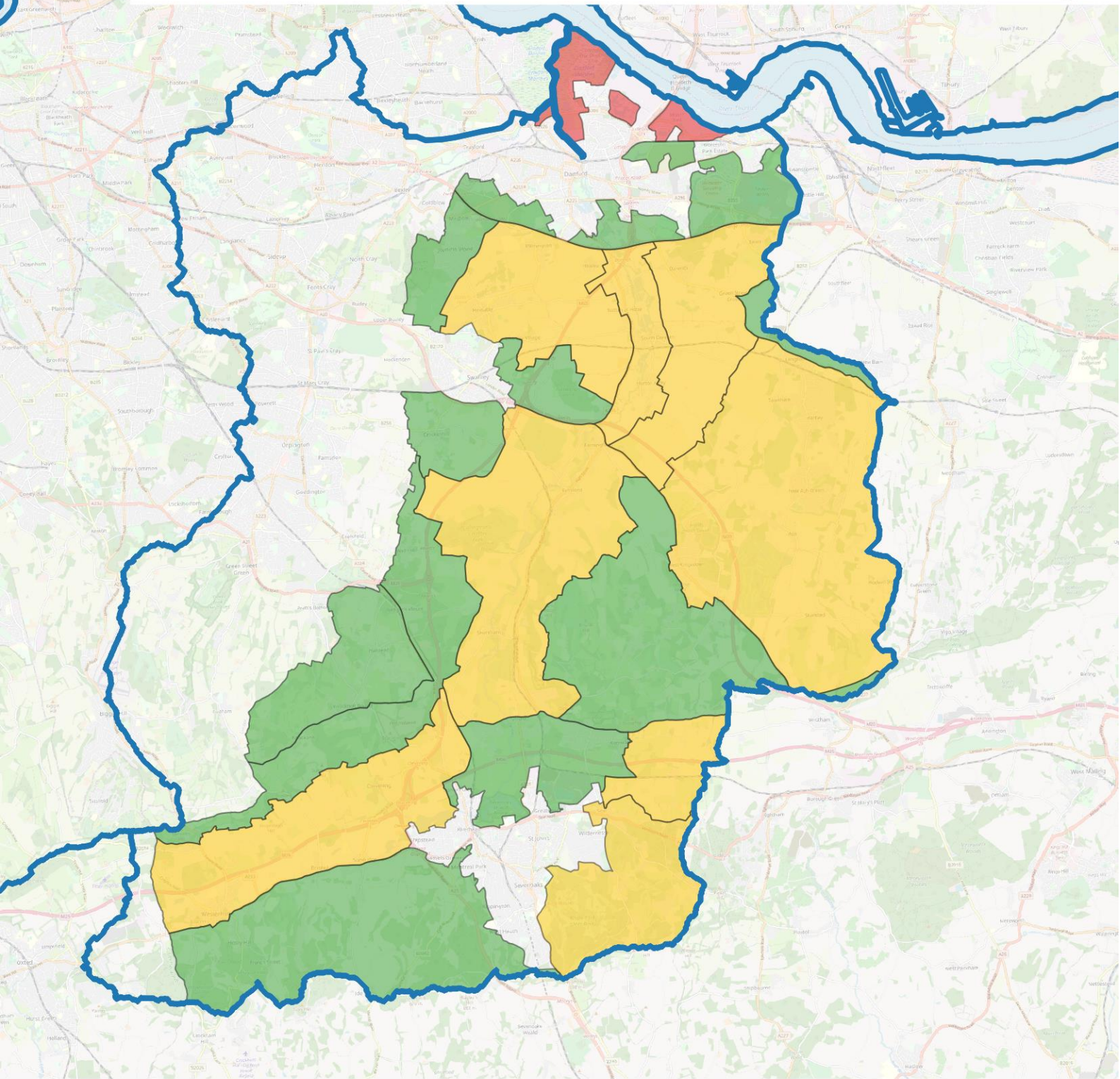
Kent Downs Area of Outstanding Natural Beauty

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Woodland creation - Landscape character sensitivity

0   10   20   30 km

Darent catchment boundary

Landscape character
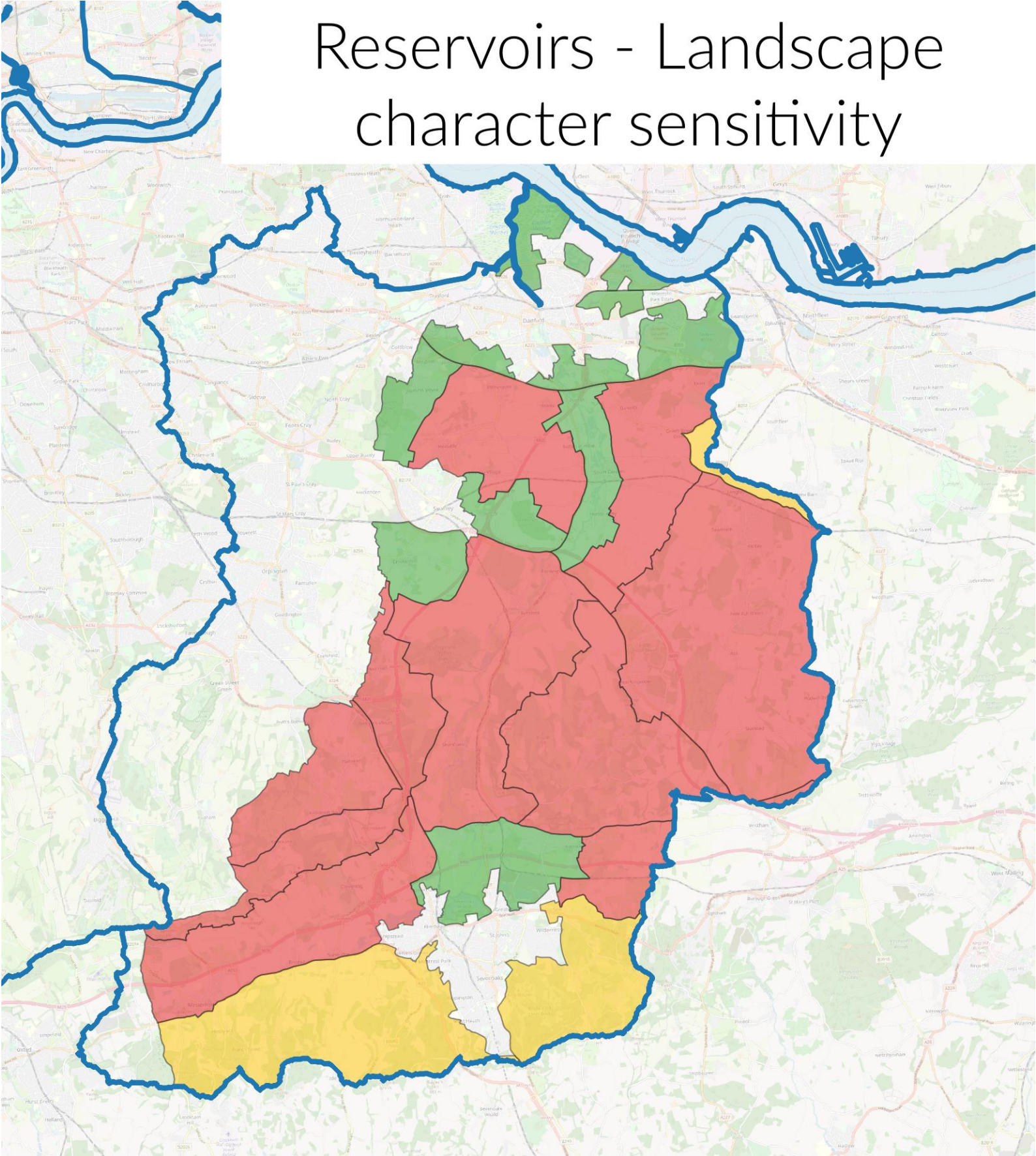## sesitivity to woodland creation

- High
- Medium
- Low

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Area of Outstanding Natural Beauty

Reservoirs - Landscape character sensitivity

0   10   20   30 km

Darent catchment boundary

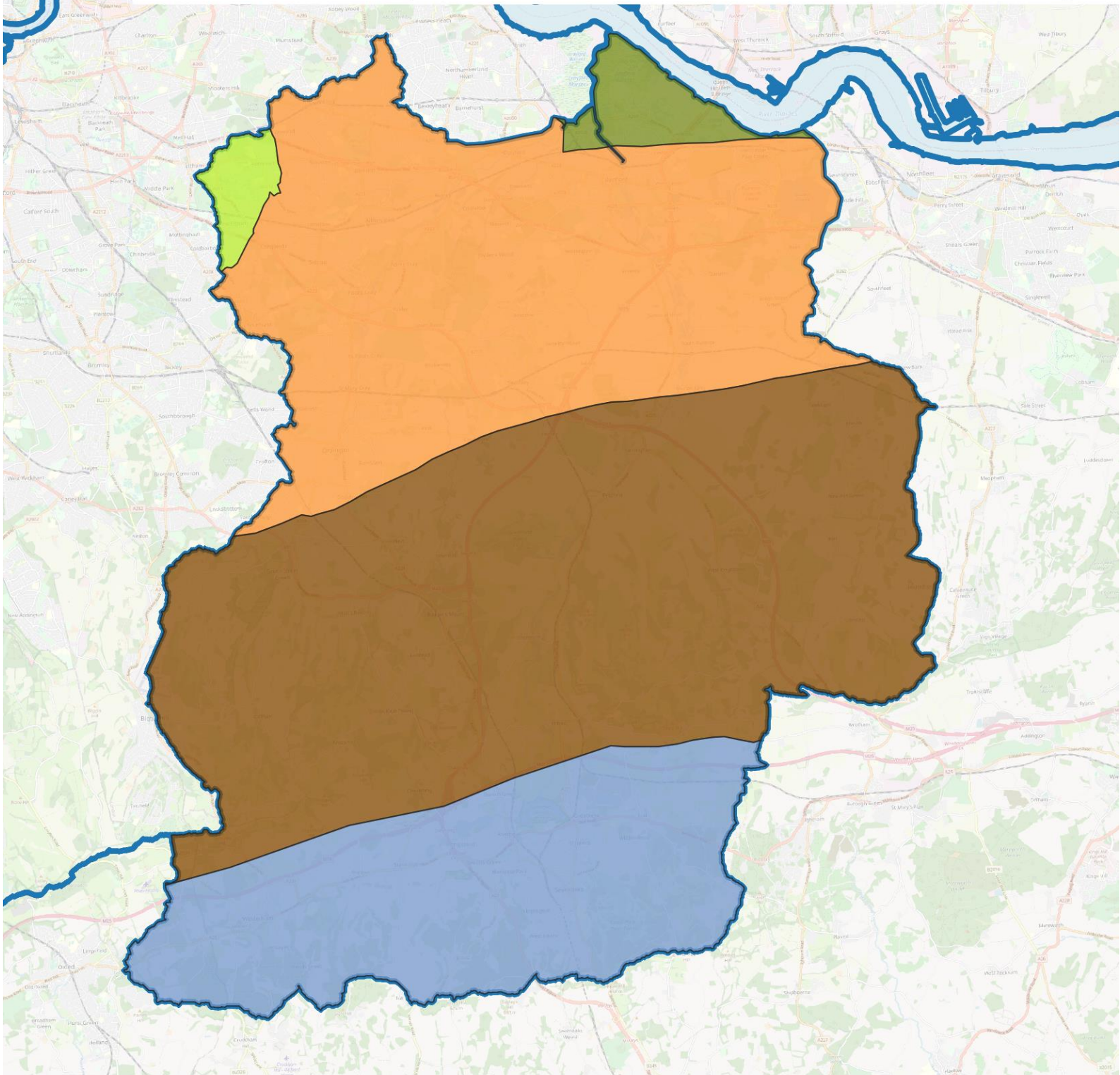Landscape character
sesitivity to reservoirs

High

Medium

Low

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Tree species -
Landscape character sensitivity

0   10   20   30 km

☐ Darent catchment boundary

National Character Area

■ Greater Thames Estuary
■ Inner London
■ North Downs
■ North Kent Plain
■ Wealden Greensand

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