Hedgerow Condition Report

December 2022

Old Chalk New Downs Project
Hosted by Kent County Council
Authored by: Lyndsay Wayman-Rook

OldChalk
NewDowns

Introduction

Historic Hedgerows

Old Chalk New Downs (OCND) is a five-year National Heritage Lottery Fund project, hosted by Kent County Council. The project area focuses on almost 10,000 hectares along the North Downs from Otford to Detling (See Map 1). The project supports landowners and land managers, as well as organisations and communities, to protect and enhance downland habitats.
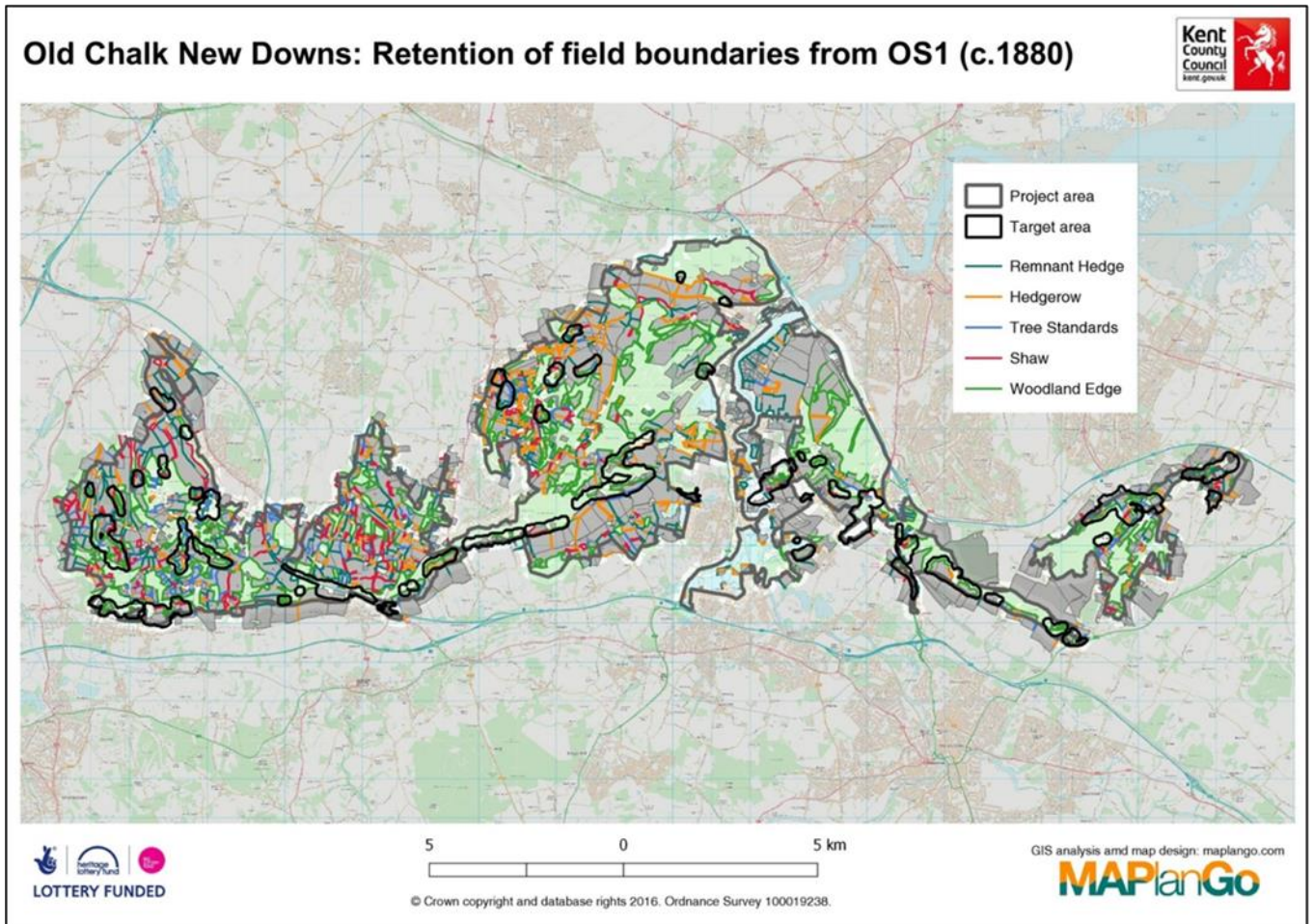
How it started

The 2011 report 'The State of Kent's Wildlife' (Kent Biodiversity Partnership. 2011) illustrated that during the last century Kent has seen major losses in wildlife and many of the species that remain have seen population declines. The causes of these losses and declines are various but all point to habitat fragmentation, change in farming practices and climate change as major factors.

In 2014 the urgency to increase the quality and extent of Kent's most iconic habitat prompted members of the Kent Biodiversity Partnership to select the OCND Project area as one of the first large scale ecological networks to be established in the county and be included in the Kent Environment Strategy as a pilot project.

During the pilot project hedgerows were considered a potential habitat for improvement and subsequently included in the projects works programme. Looking at the Kent Habitat Survey 2012 it was found that hedgerow habitats and species richness of hedgerows were not recorded during the survey, showing a clear gap in Kent's habitat records giving scope for further investigation. A desk top study using aerial photography was carried out identifying possible historic hedgerows from field boundaries, which had existed since 1875 or earlier.

The study showed that approximately 150Km of hedgerow and a similar length of remnant hedgerow was present in the project area with around 40km falling within the

projects target areas (See Map 1).

Old Chalk New Downs: Retention of field boundaries from OS1 (c.1880)

Legend:
- Project area
- Target area
- Remnant Hedge
- Hedgerow
- Tree Standards
- Shaw
- Woodland Edge

5   0   5 km

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GIS analysis amd map design: maplango.com

(Map 1: Retention of Field boundaries in the OCND area)

The project set out to Identify those hedgerows that were of particular importance for wildlife, landscape, cultural or historical reasons, and so particularly worthy of protection or conservation.

This work was delivered through in field hedgerow condition surveys, with the assistance of volunteers that the OCND team recruited and trained in surveying and species identification.

The surveys would help to provide accurate baseline data to landowners, assess habitat connectivity across the project area, ground-truth the previous hedgerow desk-top survey/regression analysis and help provide advice and guidance to land managers on

hedgerows.

What is a Hedgerow?

As defined in Defra's (2007) Hedgerow Survey Handbook:
'*A hedgerow is defined as any boundary line of trees or shrubs over 20m long and less than 5m wide at the base, provided that at one time the trees or shrubs were more or less continuous. It includes an earth bank or wall only where such a feature occurs in association with a line of trees or shrubs. This includes 'classic'* shrubby hedgerows, lines of trees, shrubby hedgerows with trees and very gappy hedgerows (where each shrubby section may be less than 20m long, but the gaps are less than 20m).'

Surveying Method

The survey method used to determine the hedgerow condition was based on Defra's (2007) Hedgerow Survey Handbook 2nd edition.
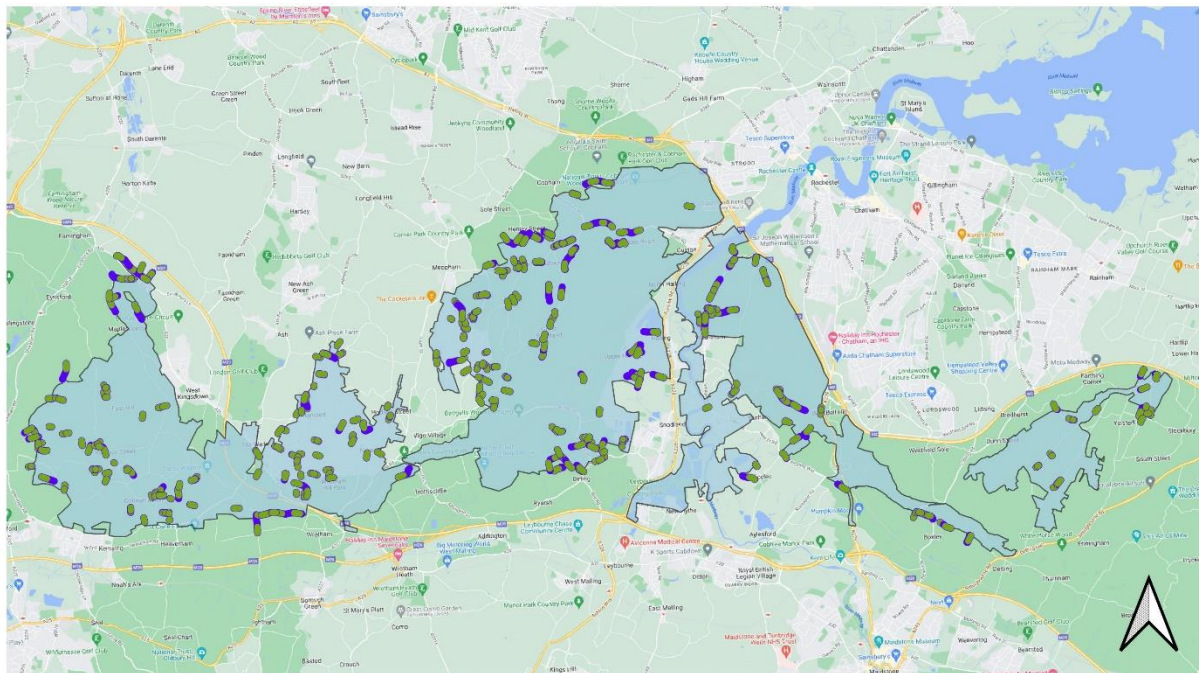
Adaptations to meet the projects requirements were made but the core survey method stayed the same. Paper forms were used for the first season of surveying, after this an app was developed by KCC staff, with consultation with the volunteer Tree and Pond Wardens for Hadlow Parish and the app was set up by Maplango.

Surveyors were provided with woody and herbaceous species identification and hedgerow survey training before they assist with surveys. Continued support was provided by OCND team members, and data verified before analysed.

Choosing the hedgerows

Hedgerows were chosen based on data collected during the desk top regression study of aerial photographs, where field patterns and boundaries had stayed consistent over a long period of time. From this, 467 hedgerows were chosen as potentially historically important and would be the target of the OCND surveys. Each hedgerow was assigned a unique number and displayed in QGIS database a polygon data as shown in Map 2.

(Map 2, Old Chalk New Downs Hedgerow Survey Map)

Gaining Access

Maps with selected hedgerows and access permission letters were sent out to landowners before surveys were conducted. Once access was permitted, landowners were notified of when the surveys would take place, to ensure OCND surveys did not clash with any work schedules.

Hedgerow survey app

After the initial year of surveys, the OCND team worked in collaboration with the Darent Valley Landscape Partnership Scheme (DVLPS), Maplango and consulted the volunteer Tree and Pond Wardens for Hadlow Parish to create a hedgerow survey app. The app allowed for fast data entry which automatically uploaded to the OCND hedgerow survey

database. Each hedgerow was displayed as point data, points could be selected or searched for using their unique number as shown in figure. Once the hedgerow point is selected the app opens the hedgerow survey form (see figure 1).
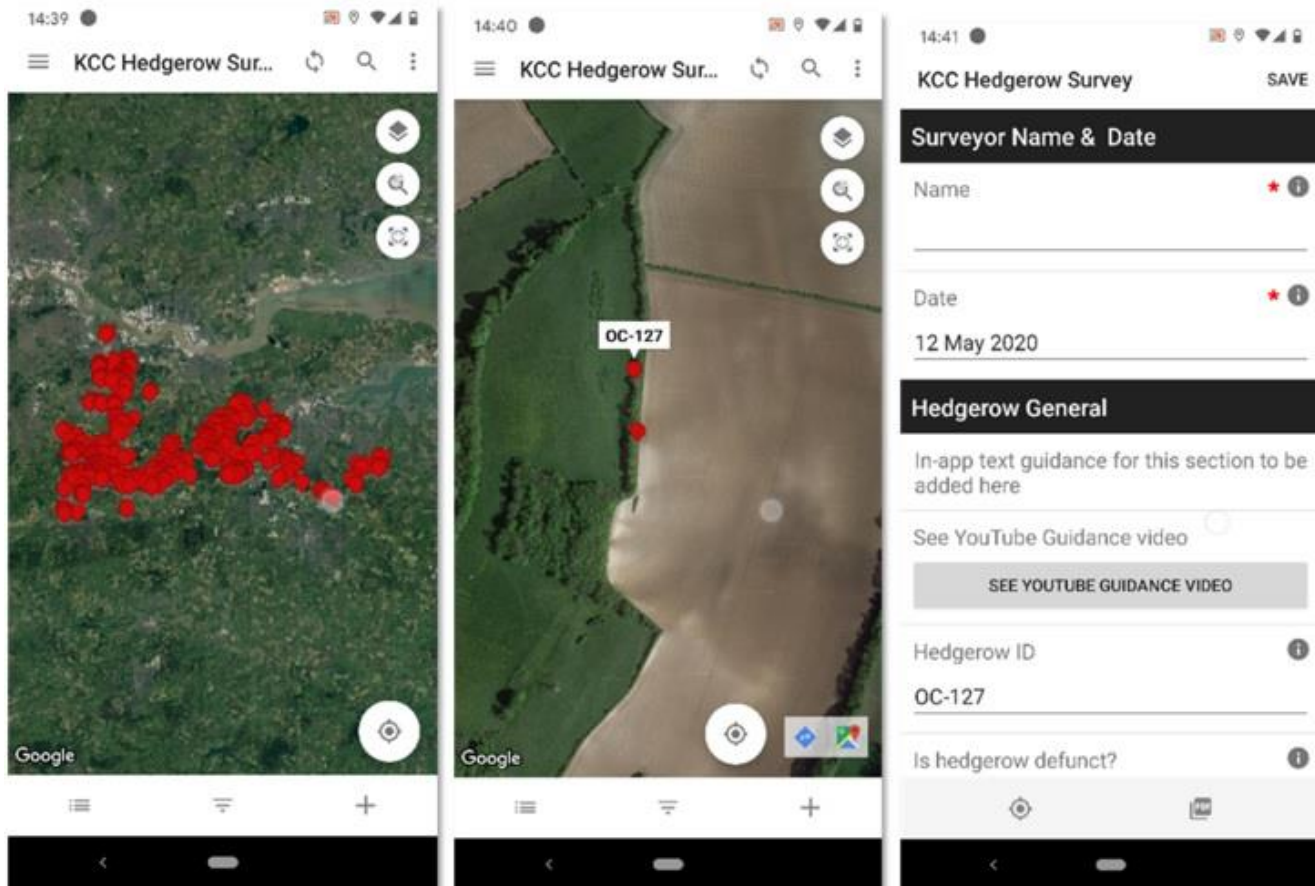
(Figure 1: Hedgerow app screen shots)

Hedgerow Survey

Field surveys are conducted with at least two surveyors. Once at the chosen hedgerow, surveyors walk the entire length noting if the hedgerow is surveyable and any other aspects that may affect the hedgerow condition assessment. Once satisfied that the survey can continue, the surveyor records the attributes listed in table 1.

Table 1: Hedgerow survey attributes

Surveyor	Hedgerow General	Side A/B – Type and Shape	Side A/B – Signs Of Management	Side A/B – Dimensions	Side A/B – Species
Name/s	Hedgerow ID	Orientation	Hedgerow management	Average width (m)	Woody species
Date	Star & end points	Type		Average height of base (cm)	Ground flora
Start time	Total length (m)	Shape		Average width perennial vegetation (m)	Nutrient rich indicator species
End time	Number of gaps	Connections		Average width undisturbed ground (m)	
Weather	Any gaps >5m	Adjacent land-use			
		Associated features			

OCND Surveys

Surveys were carried out in 2019, 2020 and 2022 between May and September with most surveys being conducted in 2020 and 2022 due to staff capacity.

Condition assessment

The condition assessment calculations were based on the Species Recovery Trust's Hedgerow condition assessment criteria (See figure 2). Adaptations to fit the OCND project data were made as not all data was included in the OCND surveys. This calculation was created in collaboration with consultant company Maplango, it puts woody species diversity as the highest priority indicator and includes four additional

features. Condition calculations can result in one of two outcomes, favourable or unfavourable.

CRITERIA	FEATURES	
· at least 7 woody species/30m	Bank/wall	Must run for at least half its length
· at least 6 woody species/30m and at least 3 features	Ditch	Must run for at least half its length
· at least 6 woody species/30m including any one of Black poplar, Wild Service-tree, Small-leaved Lime or Large-leaved Lime	Intact	Contains less than 10% gaps
· at least 5 woody species and at least 4 features	Trees	The hedgerow supports at least 1 standard tree per 50 m. Standard trees are defined as those which when measured at 1.3m above ground level have a diameter of at least 20 cm, or 15 cm for multi-stemmed trees.
· if adjacent to a bridleway/footpath, at least 4 woody species and at least 2 features	3 flora species	The hedgerow supports at least 3 of the valuable ground flora species within 1m.
Hedge automatically qualifies if it supports any protected species	Connections ≥4 points	Connections with an adjoining hedgerow score 1 point each, Connection with a pond or woodland (in which the majority of the trees are broad-leaved) scores 2 points each. A hedgerow is considered to be connected if it meets the feature, or if it has a point within 10m of it and would meet it if the line of the hedgerow continued.*
	Parallel hedge	A parallel hedgerow is present within 15m*
		*These features cannot be used in conjunction with a footpath

(Figure 2: Criteria and features for hedgerow condition calculations, Species Recovery Trust)
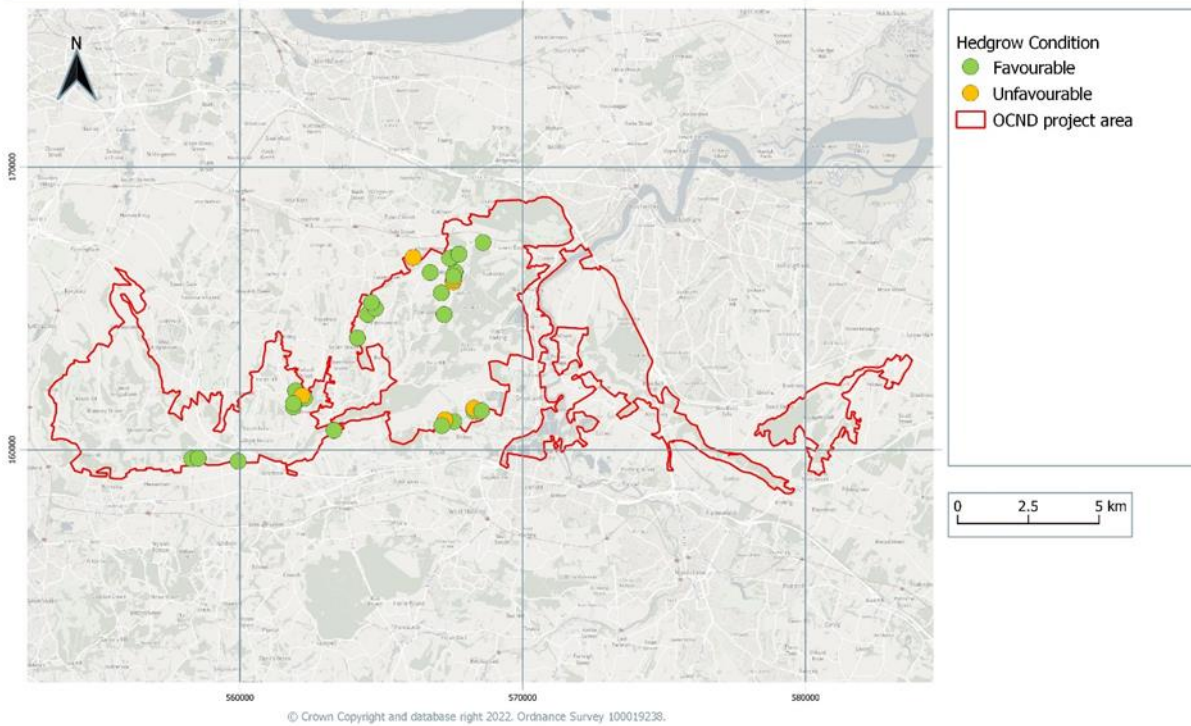
Results

Condition Assessment

80% of the overall condition of hedgerows fully surveyed within the OCND project area were in favourable condition as seen in figure 3. Map 3 shows the distribution of these hedgerows through the project area.

Figure 3: Favourable / Unfavourable Count hedgerows
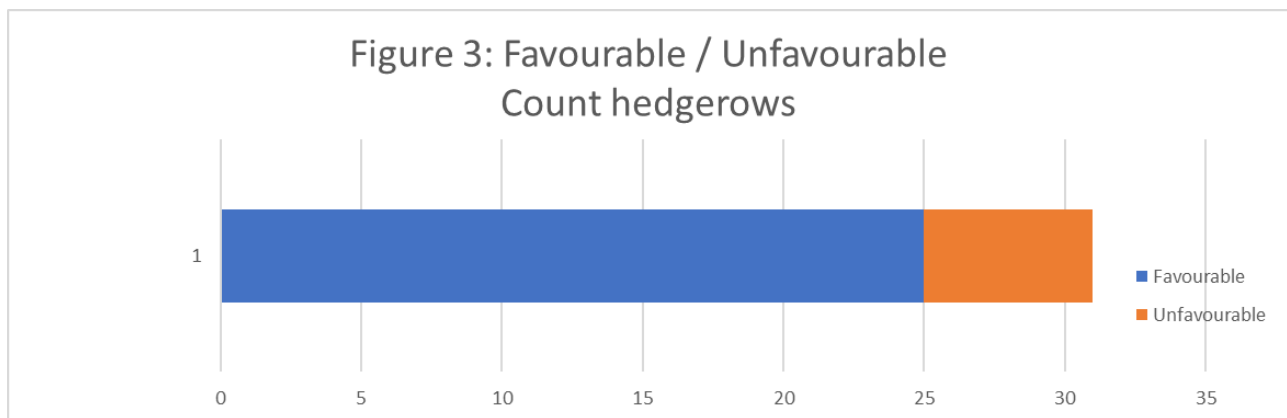
(Map 3: Condition assessment results distribution)

Distribution

Map 4 shows the full distribution of surveys carried out across the OCND project area, including 32 full field surveys, 24 partial surveys and 180 desk top surveys where google and OS aerial maps were reviewed to pick out defunct, shaws or woodland edges.
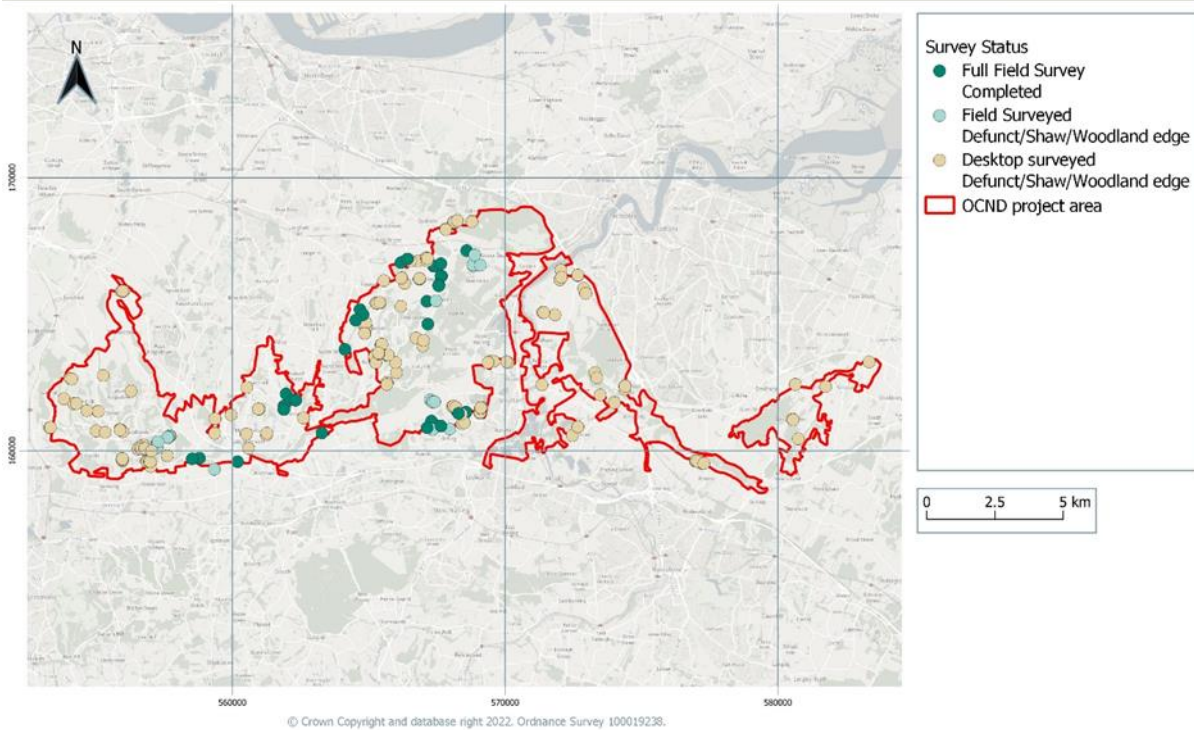
(Map 4: Hedgerow survey distribution)

Hedgerow gaps

Figure 4: % of gaps in surveyed hedgerows
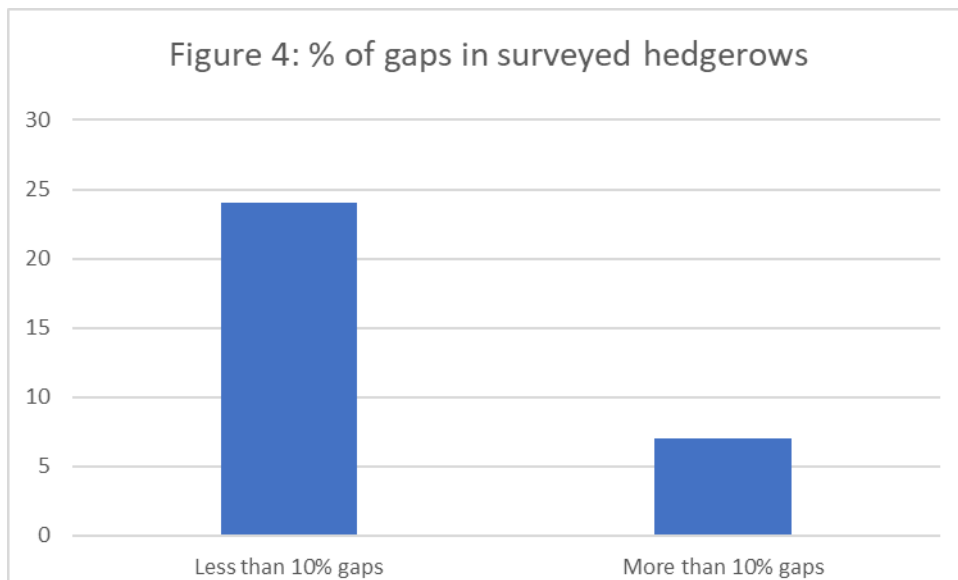
Figure 4. shows the percentage of gaps higher or lower than 10% for all hedgerows

fully surveyed.

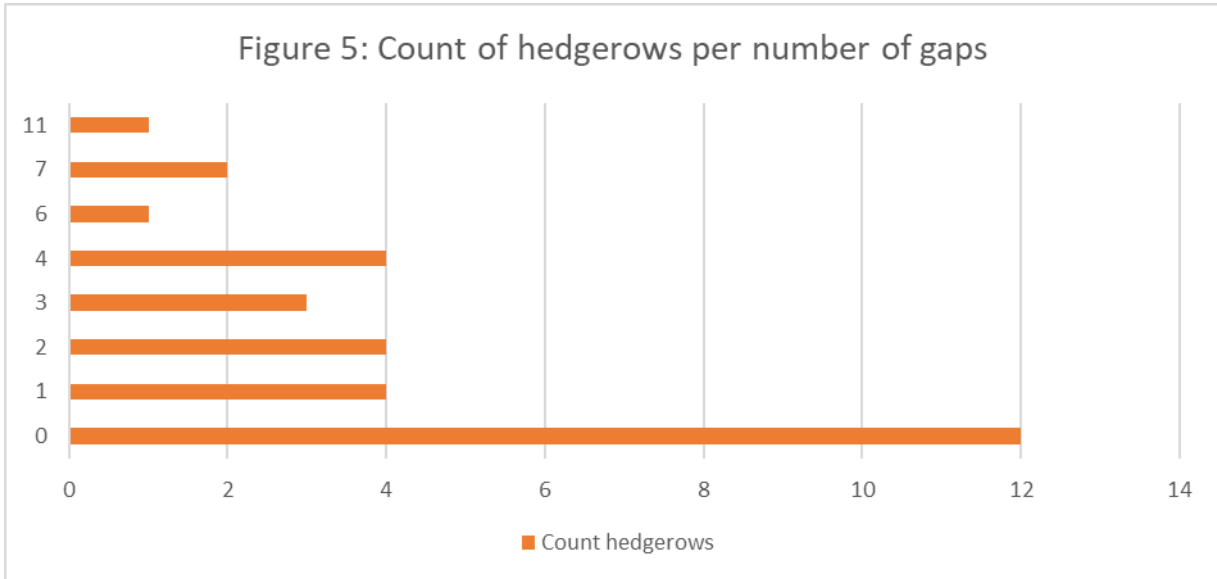**Figure 5: Count of hedgerows per number of gaps**

Figure 5. shows the number of gaps found within each hedgerow fully surveyed.

Woody species

Figure 6: Count of hedgerows containing Woody species
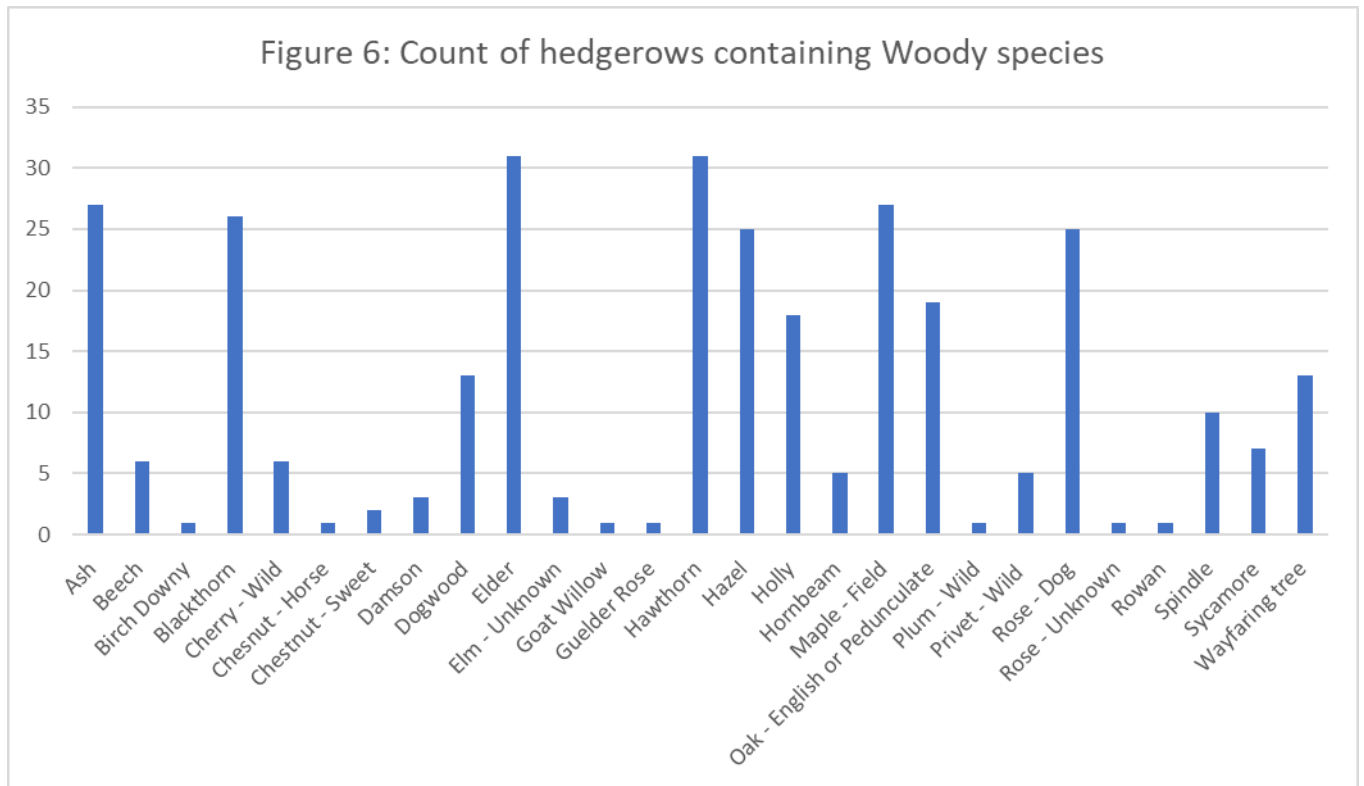
Figure 6. shows the diversity of woody tree species found in hedgerows fully surveyed.

Species	Count
Bramble	31
Elder	31
Hawthorn	31
Ash	27
Maple - Field	27
Blackthorn	26
Ivy	26
Hazel	25
Rose - Dog	25
Oak	19
Holly	18
Dogwood	13
Wayfaring tree	13
Spindle	10
Sycamore	7
Beech	6
Cherry - Wild	6
Hornbeam	5
Privet - Wild	5
Honeysuckle	4
Damson	3
Elm - Unknown	3
Chestnut - Sweet	2
Traveller's-joy	2

Figure 7. shows the diversity of all woody species and the number of fully surveyed hedgerows they were found in.

Figure 8: Count of hedgerows containing Woody climbing species

Figure 8: Count of hedgerows containing Woody climbing species

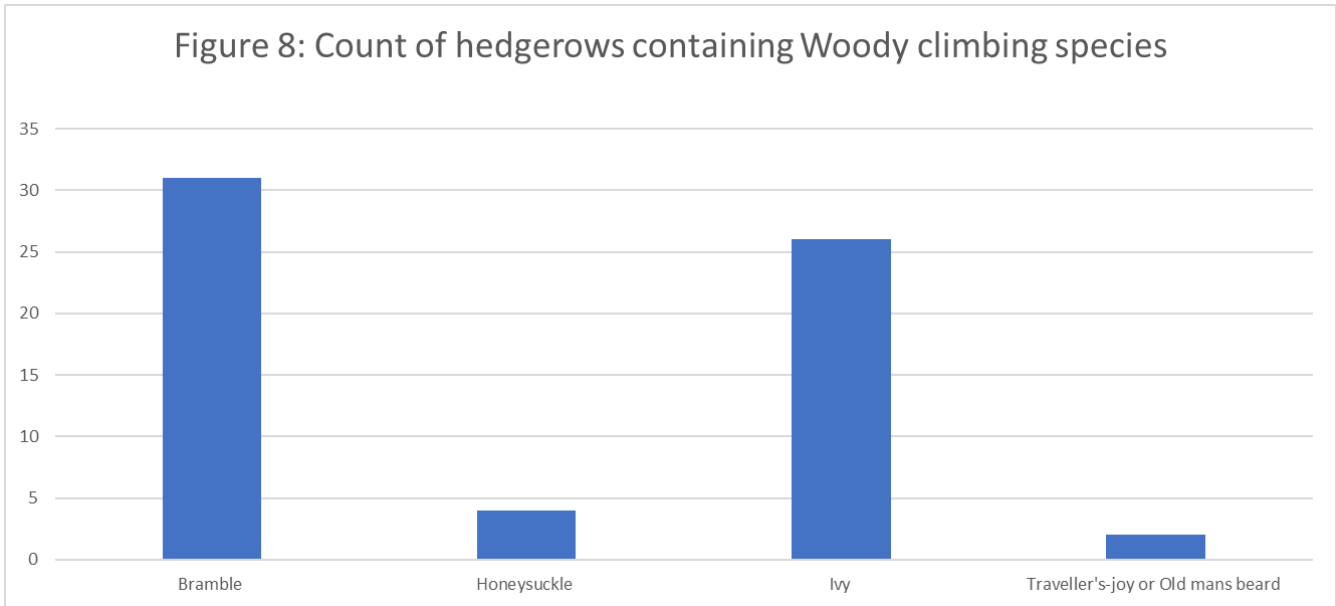| Species	Count
Bramble	31
Honeysuckle	4
Ivy	26
Traveller's-joy or Old mans beard	2

Figure 8. shows the diversity of climbing woody species found in fully surveyed hedgerows.

Discussion

The hedgerow survey data provides a base level understanding of hedgerow condition within the OCND project area. It is difficult to make a comparison to the original desk top survey as recording categories changed. The reduction in sampling size also reduces the ability to make forecasts for the wider area.

Surveys did not start until late in the 2019 survey season, resulting in very few surveys conducted. Surveys carried out in 2020 using the hedgerow survey app did increase survey capacity but due to the covid-19 pandemic, no volunteers were permitted to assist. The disruption of the covid-19 pandemic also resulted in the need for additional training and guidance to support volunteers. With each survey taking several hours and staff capacity limited, the survey potential was reduced. Originally volunteers were to carry out surveys without the need for staff presence but due to the issues mentioned this did not occur.

Gaining access permission proved challenging, the majority of surveys were conducted on sites owned by individuals already involved with the OCND project. Parking also proved problematic with many sites only accessible on foot and suitable parking not

available in the local vicinity.

The majority of hedgerows fully surveyed were in favourable condition, having a diverse range of woody species and few to no gaps. Of the hedgerows fully surveyed and found to be in unfavourable condition, most of these results were due to the percentage of gaps.

Gaps can be a problem for animals to safely move through the countryside, particularly those that prefer to travel along branches than on the ground. Large gaps (5m or more) can often be indicative of poor hedgerow health, predominantly caused by poor management or lack of management.

Over-trimming, ploughing field too close to the hedgerow roots, under management and spray drift can all affect the health and longevity of a hedgerow. Gapping up is advised but it is vital that management practices are changed where needed to mitigate against the mentioned issues before replanting.

For full details on hedgerow trimming practices see: Devon Hedge Management 3: trimming by the Devon Hedge Group.

For general hedgerow management see: The Complete Hedge Good Management Guide by Hedgelink UK.

"Hedgerows are an integral part of the English countryside. They are the patchwork quilts of our countryside." Emma Marrington, Campaign to Protect Rural England (CPRE).