Chapter 1: Introduction

Contents

Figures

Flowcharts

1.0   Introduction

Great Britain's trees, woodlands and forests are some of our countryside's greatest assets. Trees provide a haven for wildlife and people, help to mitigate climate change, provide employment, timber and other useful products, and form an integral part of many of Britain's most beautiful landscapes.

The Forestry Commission (FC), in conjunction with Natural Resources Wales (NRW), is the Government Department responsible for Britain's woodlands, and our mission is "to protect and expand Britain's forests and woodlands and to increase their value to society and the environment". In order to achieve this effectively, we need to have accurate scientific and statistical information about Britain's woodlands, and to keep it up to date.

To do this we periodically carry out an extensive survey of woodlands and forests in England, Scotland and Wales, and the information gathered in the surveys contributes to the National Forest Inventory (NFI) of Great Britain.

With the information gathered by the NFI, the FC and other government organisations will be better equipped to draft policy and guidance for protecting and increasing the value of Britain's woodlands and forests, and to plan future developments, investment and research. To achieve this, and in accordance with our responsibilities under the Forestry Act (1967), NFI surveyors intend to visit approximately 15,000 one-hectare (≈2.5-acre) sample squares every 5 years, which are randomly located across Britain to gather representative information about woodlands.

The NFI surveyors will gather a variety of information, such as tree species, heights and ages, and the woodland area within each 1-ha sample square. The FC will then use this information to assess the biodiversity value and general condition of Britain's woodlands, as well as any potential they have for sustainable timber production. This will help the FC and other relevant government organisations and forest users to monitor a range of woodland issues, focus attention on what is important, and inform decisions about the future of forestry.

The information will also help the United Kingdom meet international commitments, such as reporting for the Global Forest Resources Assessment and the Ministerial Conference on the Protection of Forests in Europe (MCPFE). It can also contribute to the process of estimating how much carbon is stored in Britain's woodlands.

NFI Survey Manual Chapter 1: Introduction

All information gathered is held in the strictest confidence, and it will not be used to police, regulate or directly affect management of individual woods in any way. Information will only be published in a summary form that does not reveal information about individual woodland holdings. The main reporting units (Great Britain, country and regional) are shown below, and although "customised" reports might also be produced for some smaller areas, these, too, will not reveal any information about individual woodland holdings.
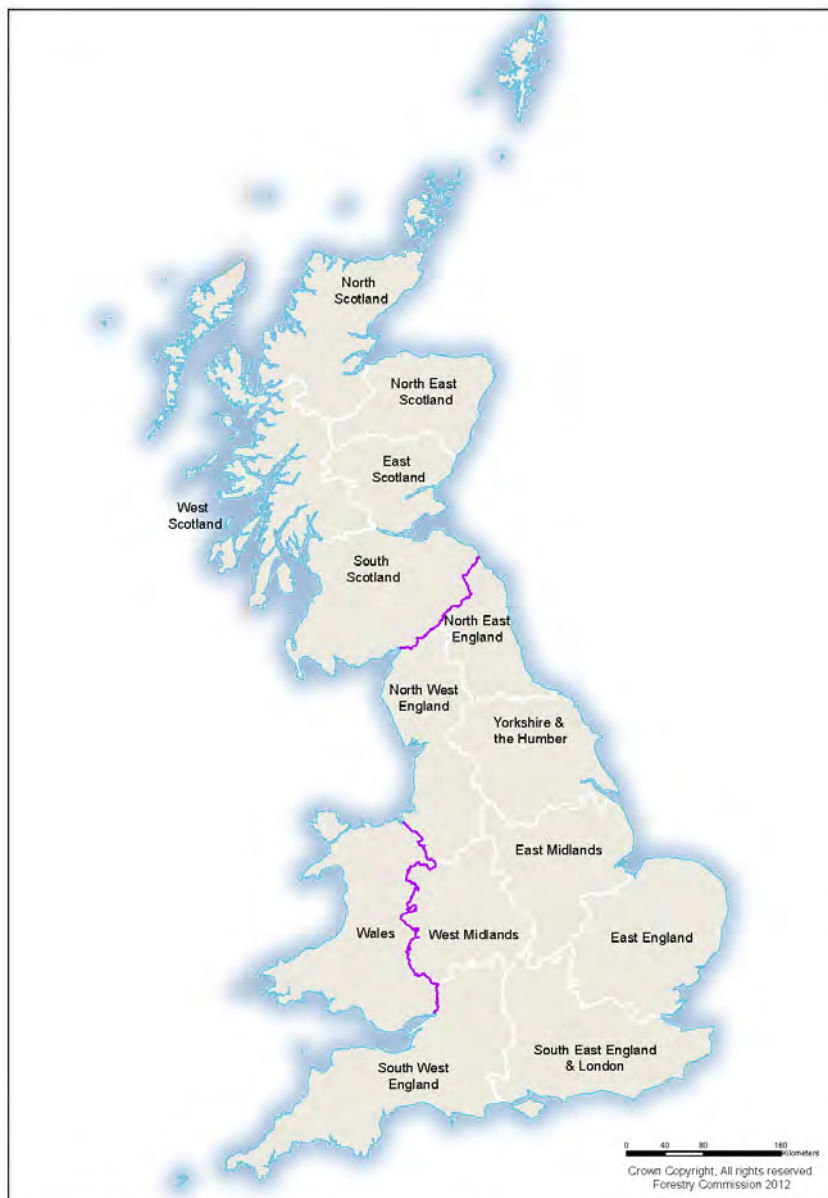

Figure 1-1: National Forest Inventory main reporting units

More information about the Forestry Commission and the NFI can be found at www.forestry.gov.uk/inventory

1.1 Purpose of the Fieldwork and Required Outputs

1.1.1   Purpose

The purpose of the fieldwork is to collect a representative and unbiased sample of the physical nature of Britain's woodlands, which will be used in combination with the NFI GB Woodland Map to produce reports on woodland facts and figures at a National, country and regional scale.

The NFI GB Woodland Map is a digital map of all woodland areas in Britain at least 0.5Ha in extent and at least 20m wide. "Woodland" for the purposes of the NFI is defined as land having at least 20% tree canopy cover, or the potential to achieve this through maturation of the existing crop of trees (saplings and seedlings included).

A tree, for NFI purposes, is a woody perennial of a species typically forming a single self-supporting main stem and having a definite crown. Note: Hawthorn and blackthorn are always regarded as trees.

The 15,000 NFI Sample Squares that make up the survey are allocated without preference across all types of woodland, whether conifer or broadleaved, in public or private ownership, urban or rural, ancient or plantation. Approximately 67% of the Sample Squares are allocated on a systematic grid and 33% on a random basis.

The sample squares will be surveyed on a 5-year cycle to build a picture of the woodlands over that period. At the end of this, the data collected will be used to report on the state of Britain's woodlands. The NFI Reports will include information on basic woodland area and composition, timber production forecasts, carbon sequestration, bio mass availability and biodiversity factors such as woodland habitat condition. A full listing of NFI objectives and outputs can be found in the NFI strategy, on the FC website.

The first survey cycle is nearing completion and will be repeated immediately afterwards, on a rolling basis, *ad infinitum*, to monitor change in these parameters over time. The majority of the sample squares visited during the 1st 5-year survey cycle will be revisited during the 2nd 5-year survey cycle, and the data compared to detect change in woodlands between the two surveys.

The 15,000 sample squares that make up the survey of the 2nd cycle will be composed of ≈10,000 collected in the previous 5-year survey (re-measure squares) and ≈5,000 new squares. Together the two groups will build a picture of the woodlands from 2015 to 2020 and will enable comparison between this period and the previous (2010 to 2015)

1.1.2   Required Outputs

In summary the FC requires back from the supplier, as their core output for each Sample Square they are allocated, a field survey recorded in a completed NFI Forester Field Surveyor geo database (see Plate for an example). Documentation related to the management of the contract is also required and is specified in this document.

The NFI Squares taken together represent a 0.4% sample of all woodlands, which is multiplied up to represent 100% of the woodland area in Britain. It is therefore vital that surveyors capture a representative, true, fair and unbiased picture of each Sample Square, as any errors or biases will be multiplied when the data is extrapolated.

To ensure this, the FC will apply rigorous and strict Quality Assurance (QA) processes upon the fieldwork. However**, it is primarily the Supplier's responsibility to provide the main corpus of QA** i.e. the FC is only checking if that is in place. If Suppliers consistently do not adhere to the standards laid out and fail to apply internal QA, they will be in breach of contract.

Plate 1-1: An example of a completed Sample Square

1.2 Field Data Collection Hierarchy

For each NFI sample square the FC requires data to be collected at the following levels of the NFI data model:

1. Square
2. Section
3. Component Group
4. Component
5. Sub-Component
6. Plot
7. Tree, stump and deadwood data

Each level is subservient to the other and generally represents a smaller area. The seven levels are linked and are used to build a physical picture of the woodland. See flowchart 1 overleaf.
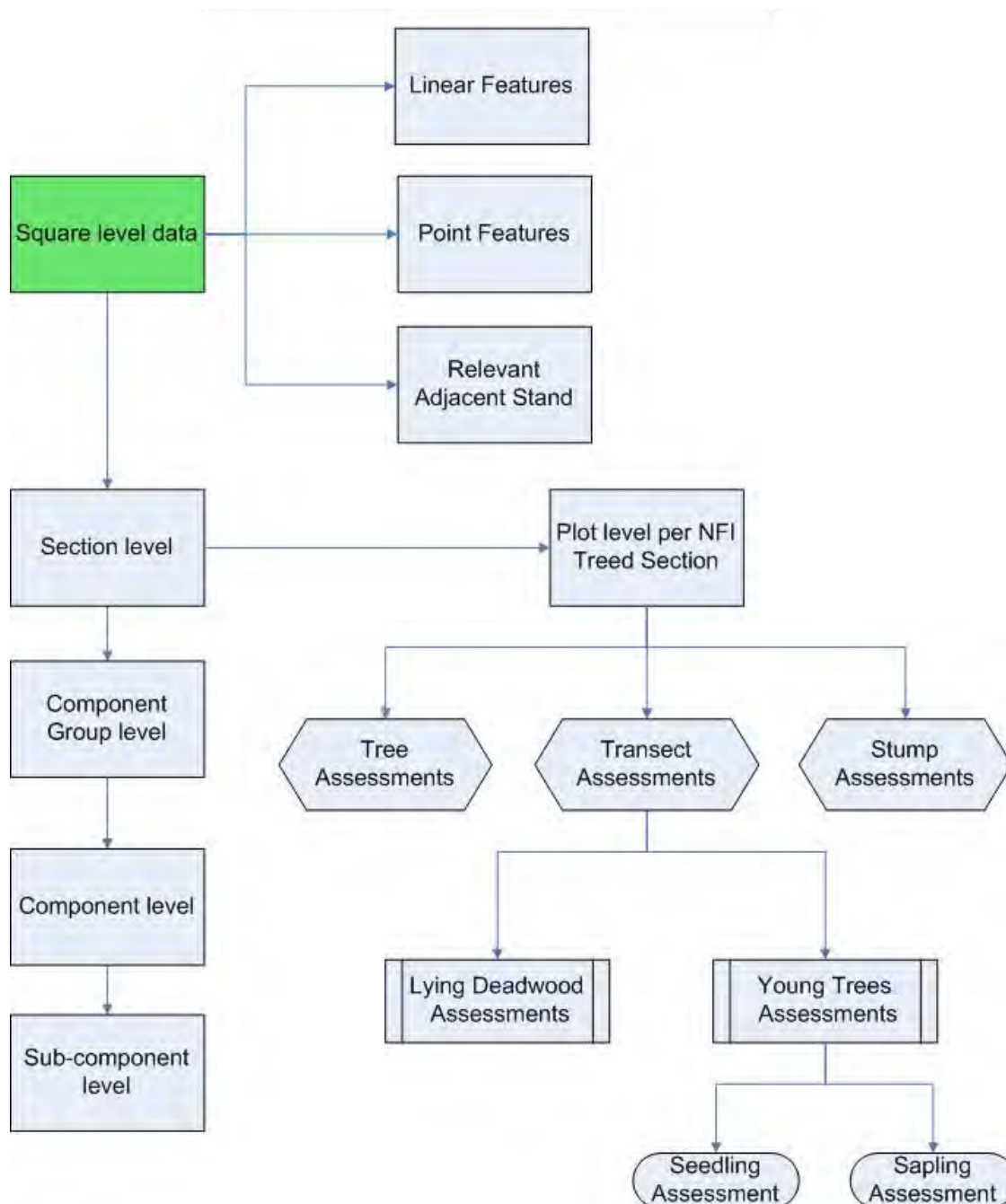
In addition Relevant Adjacent Stands, Linear Features and Point Features are collected. Other than being in the same square there is no direct link in the data hierarchy between these and the seven levels noted earlier with a road, for example, being able to span several sections.

For the 2nd cycle the same data collection hierarchy will be used, except that it will be used for the two types of squares, new squares and re-measure squares:

The NFI Squares taken together represent a 0.6% sample of all woodlands, which is multiplied up to represent 100% of the woodland area in Britain. It is therefore **vital** that surveyors capture a representative, true, fair and unbiased picture of each Sample Square, as any errors or biases will be multiplied when the data is extrapolated.

To ensure this, the FC will apply rigorous and strict Quality Assurance (QA) processes upon the fieldwork. However, it is **primarily** the **Supplier's** responsibility to provide the main corpus of QA i.e. the FC is only checking if that is in place. If Suppliers consistently do not adhere to the standards laid out and fail to apply internal QA, they will be in breach of contract.

Flowchart 1-1: Field Data Collection Hierarchy

1.2.1 Definitions

1.2.1.1 Square

A one-hectare (100m x 100m) square used to sample NFI woodland throughout Britain. Sample Squares may fall wholly within, or may straddle, the NFI GB Woodland Map Boundary. In either case, the entire one-hectare Square is assessed.

1.2.1.2 New Square (1st Assessment squares)

 A sample that square that has never been previously surveyed and would have to be surveyed from 'scratch'

1.2.1.3 Re-measure squares

A sample square that has been previously surveyed (≈5 years previously) and here the surveyors role is to assess the square for change since the last survey (tree growth, felling etc.). Note that the final record of the square should show what that square contains on the day the surveyor visits it.

1.2.1.4 Section

Each one-hectare Sample Square is divided into unique **mappable** areas/Sections i.e. discrete and homogenous areas of unique character, minimum size 0.05Ha (exceptionally 0.01Ha).

1.2.1.5 Component Group

Sections are sub-divided into **unmappable** Component Groups, minimum size 0.01Ha. These are essentially "mini-Sections" i.e. discrete and homogenous areas of unique character that are too small to be mapped off as separate Sections.

1.2.1.6 Component

Components are the individual elements, or building blocks, that describe the nature and composition of the Component Group. In wooded situations, Components are generally distinguished according to species, age class and canopy height. In non-wooded situations (e.g. open glades), Components are broadly distinguished according to landuse, habitat and vegetation cover.

1.2.1.7 Sub-Component

Sub-Components are attributes specifically associated with a Component e.g. associated plant communities, browsing and bark stripping damage, tree health and diseases, and management interventions.

1.2.1.8 NFI Treed Section

A Section that falls wholly within the NFI GB Woodland Map Boundary and has at least 20% tree canopy cover, or the potential to achieve this through maturation of the existing crop of trees (saplings and seedlings included).

1.2.1.9 Plot

A defined area within an NFI Treed Section where detailed tree, stump and lying deadwood data is collected.

1.2.1.10 Linear Features

Mapped line features showing the location of cultural boundaries (e.g. fences, hedges), woodland edges, transport features (e.g. public roads, forest rides), recreation features (e.g. PROW, informal paths), hazards (e.g. powerlines, quarries), and water features (e.g. drains, streams).

1.2.1.11 Point Features

Mapped point features showing the location of areas or items that are <0.01Ha in extent and therefore too small to map. Point Features are restricted to water features (i.e. ponds, springs), veteran trees and hazards (e.g. mine shafts, bridges).

1.2.1.12 Relevant Adjacent Stand

An area outside the Sample Square boundary that is mapped to show the continued extent of a Section across the Square boundary where specific circumstances are encountered (e.g. to reflect areas of native woodland extent).

1.3 Lots

For the purposes of managing the framework contractors, Britain has been split into 108 Lots (see Figure 1-2 below). Within each Lot, the NFI Sample Squares are allocated to **one** survey team/Supplier.
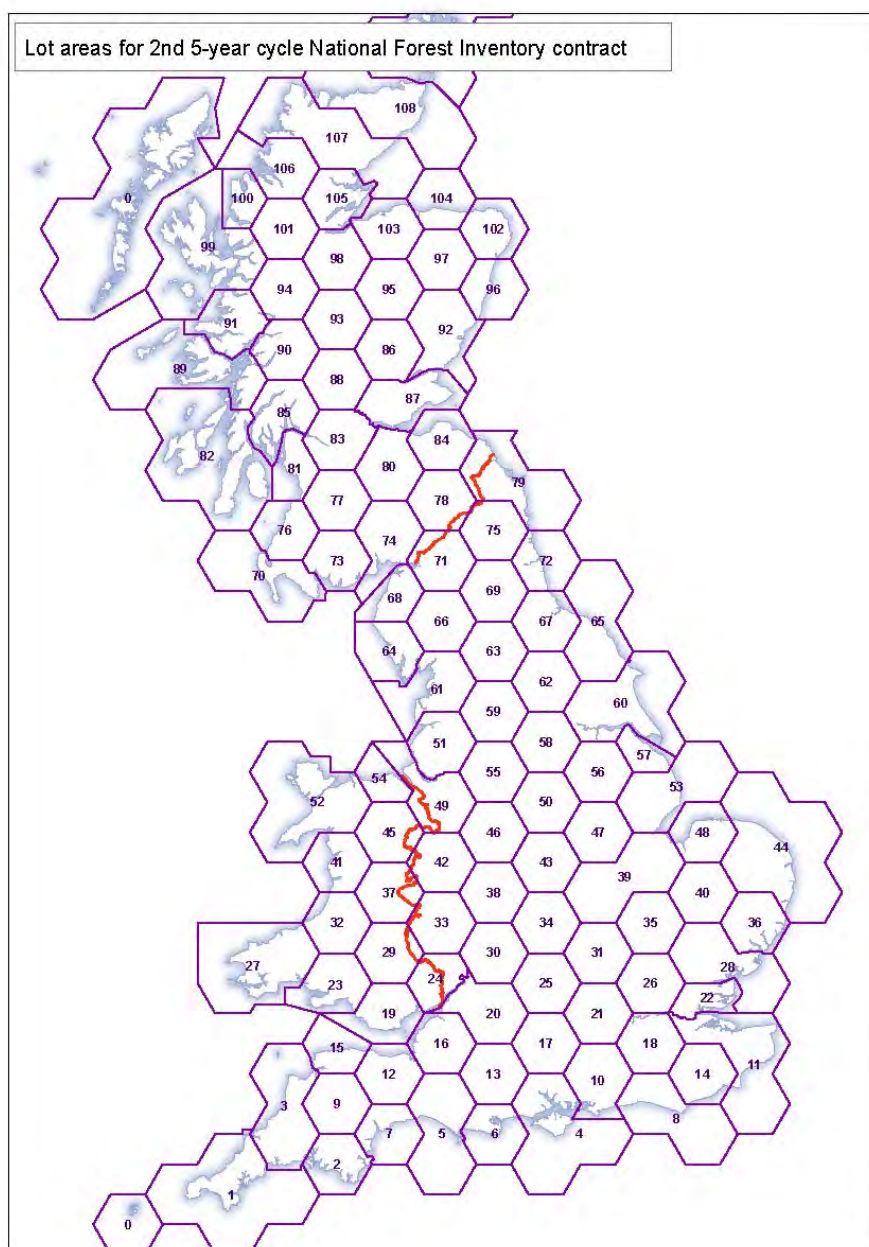

Figure 1-2: National Forest Inventory Lots