

## NCC Highways Ash Dieback Survey procedures 2017.

### Aim:

To understand the impact of ash dieback to NCC by finding the distribution, size, ownership and extent of dieback of ash trees that could (should they decline) impact the highway or busy walking and cycling trails network.

The survey information will be processed and extrapolated to provide an estimate of the scale of the issue, the cost to NCC and the impact on the landscape, ecology and other benefits that ash currently provide. This information will be used as part of an evidence based strategy for NCC to manage ash dieback in the most cost effective way to ensure that ash do not represent an unacceptable risk and that the landscape recovers from the loss of ash trees.

As part of this survey, trees in a dangerous condition requiring work to maintain the highway in a reasonably safe condition were identified.

### Planning:

For driven surveys an **average survey speed of 3.7 mile per hour** was achieved. This is for surveying both sides of a road and includes the time taken to mark up, photograph and record data. For planning purposes **20 miles a day** is a reasonable target.

The most important and busiest roads were surveyed as a priority in the following order:

- A roads
- B roads
- HGV routes

In order to capture information on lesser roads entire parishes were also surveyed. Parishes were chosen to provide a reasonable coverage across Norfolk and different land use. Parishes where the land adjacent to the highway is owned by NCC (for instance NCC County Farm land) were prioritised.

### Survey staff and equipment:

- Chapter 8 marked car (reflective markings and flashing beacon)
- One driver and one inspector. At least one qualified arboriculturalist per inspection
- Paper overview maps of roads to survey, and roads that have been surveyed
- Paper log of car movements to monitor speed of surveys and have a record of the driver in case of road traffic violations etc.
- Samsung Tab A tablet (+ USB charging lead) loaded with the Ezytreev tree database with maps to record inspections
- Digital camera
- Basic tree inspection equipment:
  - Binoculars
  - Sounding mallet (Thor nylon 32mm)
  - Metal probe
  - Chisel / knife
- Aluminium tree tags and nails
- Spray paint (pink for trees to fell, green for trees to remain, orange for other work)

- First aid kit
- High viz jacket and trousers
- Mobile phone

Information recorded (Only trees that may affect the highway were recorded):

- Tree species
- Location (plotted electronically on Ezytreev using GPS location, verified by on site observation)
- Ownership of tree (see appendix 'determining NCC tree ownership'):
  - Highly likely to be NCC property
  - Highly unlikely to be NCC property
  - Further research required
- Height (m)
- % dieback (0, 0-25, 25-50, 50-75, 75-100, 100% categories)
- If a tree has no dieback within an area of widespread dieback
- If Single tree or Group of trees
- Number of trees
- Specific work recommendations with timeframe (if required)
- Photograph (linked to Ezytreev record) of each tree or group of trees that require work
- Positive marking of trees that require work (spray paint of tree tag) – record what colour sprayed or tag number

Additional information collection to trial in 2018 surveys:

- Presence of epicormic growth in the crown
- Further information on location to enable faster and better determination on ownership from HW boundary specialists'

Practical survey issues (with solutions in bullet points):

Human

Car sickness

- Assess staff susceptibility, have one inspector per car that is not car sick
- Stop car before inspector writes down results
- Swap car sick inspector with driver as soon as sickness develops
- Car sick inspectors primarily drive

Tiredness

- Build up time surveying to a full working day – surveying is initially very tiring
- Swap driver and inspector during the day
- Driver and surveyor to discuss each survey results
- Eat and drink regularly, not just one big meal at lunchtime
- Regular breaks that include exercise / fresh air (this can include walking to trees to further inspect or mark-up)

Failure to record all information

- Set up electronic survey that prompts surveyor if information fields are missing (this is less of an issue if using a paper based system where it is easy to see if all of the fields have been filled in)
  - Always record information in the same order
- Consistent collection of survey data
- Group training of all inspectors
  - Discussion between inspectors during inspections
  - Rotate inspector pairings
  - Estimates (e.g. heights) measured periodically with clinometer to ensure reasonable accuracy

### Information Technology

GPS fix not found or poor accuracy

- Turn tablet on prior to first inspection to give time to find a GPS signal
- Turn tablet off and on again
- Compare location with other GPS system

Flat battery on tablet (rare):

- Routinely charge device after use
- USB power source in car with cable to connect
- Switch device off between inspections

### Survey by bike:

For some situations surveys were carried out by bike rather than car.

#### Advantages of bike survey over driven survey:

- Easier to pull over to make record or mark-up trees
- Only one inspector required
- Can reduce inspector mental fatigue
- Better visibility of trees
- Can take less time to inspect than by car
- Suited to inspection of high density of ash trees, quiet roads and circular routes (where inspector returns to car at end of inspection)

#### Disadvantages of bike survey over driven survey:

- Increased risk of traffic accident
- Less effective in rain or wind
- Physically more tiring
- Requires transport for bike to inspection site
- Not suited to low ash tree densities, busy roads (e.g. some HGV routes) or linear routes (where inspector has to cycle back to car)