

Simon Pryce Arboriculture

Report

Client: Mr B Zucchi

Site: 27 Pilgrims Lane, Hampstead, London, NW3 1SX

Subject: Climbing inspection and test drilling of ash tree

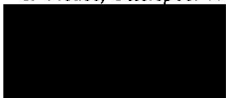
Inspection date: 8 October 2015

Report date: 23 November 2015

Reference: 15/092

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I Introduction

- I.1 This report has been prepared on the instructions of Mr Benedict Zucchi of 27 Pilgrims Lane, Hampstead, London, NW3 1SX.
- I.2 I have been asked to inspect a mature ash tree growing in the rear garden, to assess its health and structural condition and to specify any necessary or appropriate work.
- I.3 This report is based on a site visit and inspection on the afternoon of 8 October 2015. The areas of concern are former pruning points in the tree's crown and a wound in the lower trunk, so it was climbed to inspect the pruning points and the trunk was test drilled to assess the extent of any decay.
- I.4 This case is appraised and discussed below and a schedule of comments and recommendations for individual trees and shrubs is appended. Left and right are used as if facing the building from the front, unless noted otherwise.

2 Background

The tree

- 2.1 The tree is a mature ash growing in at the far end of the rear garden of no.27, which is surrounded by the rear gardens of houses in Denning Road to the north and Carlingford Road to the south. It is a mature specimen approximately 20m high with a single vertical trunk about 900mm in diameter. It divides at about 10m into a series of main limbs, all of which have been lopped or cut short in the past to form a basic framework from which it has regrown. That must have happened much earlier in the tree's life and since then it has grown on and been reduced again at least twice. It is shown in photograph 1 below.
- 2.2 The tree's age is difficult to assess accurately, but its size and appearance suggest that it is at least 120 years old, possibly more. There is some dead wood scattered through the crown, most of it minor, and the foliage is of normal density for an ash and healthy looking, indicating good physiological vitality.
- 2.3 The site is in Hampstead Conservation Area and Camden Council's online records give some details of various works they allowed, but the only pruning for which any documents or details are available is the most recent:

June 2003 - ref 2003/0262/T

- 2.4 Reduce regrowth back to previous reduction points to reform frame work. Reduce western growing limb (with decay at stub) by 40%. Thin remainder by 15-20%, remove basal growth and trunk sucker growth

March 1998 - ref TC9806229

- 2.5 Reduction work, no documents or description

November 1995 - ref 9592502

- 2.6 Consent sought to fell ash in rear garden and replant. This is recorded as being agreed, but no details or documents are available. That agreement would have expired after two years.

August 1991 - ref 9192198

- 2.7 Agreement to trimming of trees in rear garden

3 Test drilling

- 3.1 On the southeast side of the trunk is a wound about 2m high and about 400mm wide at the broadest point. The exposed timber is not physically damaged, but is weathered and there are signs of decay. There is callus growth up to about 150mm wide at the edges which, combined with the appearance of the exposed timber, shows that the wound has been present for many years.
- 3.2 The tree was test drilled in five locations using an IML Resistograph, a purpose built instrument that measures the resistance of the timber to a long, fine diameter drilling needle and plots it. By drilling from several directions an accurate picture of the tree's internal condition can be gained.
- 3.3 The five charts are attached, with annotations. These show that there is decay immediately behind the large wound, but it is not particularly extensive, as drilling in from the opposite side found no decay, as did test drill no.1, which went in to the centre of the trunk from a position to the side of the wound. The decayed timber has been softened, as shown by lower resistance in reading 5, but has retained some of the grain texture of sound wood and probably some of the strength. Readings 3 and 4, near the edge of the wound, show that the outer layers of wood, formed after the tree was damaged are sound. In reading 3 there is an abrupt transition sound and decayed, which is less evident in reading 4, showing that the tree has been resisting the spread of the decay. Most healthy trees have some ability to do this, particularly any spread into new wood formed after wounding. The small peaks in the readings correspond to annual growth rings and in these readings there are between about 28 and 30, suggesting that the wound occurred during the mid 1980s.

4 Climbing inspection

- 4.1 This confirmed the view from the ground that the tree had originally been lopped severely, although it must have been quite large at the time, as the lowest set of cuts are up to about 500mm across. Most of these have wound wood or callus growth round the edges, although the cuts are too large for this to occlude them completely within the likely life expectancy of the tree and in some the decay has developed into cavities. The worst is on the west side, probably the limb referred to in the 2003 decision, where there is little callus growth and the decay has spread down the limb and broken out laterally. (photo 2)
- 4.2 There were also old brackets of the decay fungus *Inonotus hispidus* on the larger limbs, most of them near old wounds or scars. These are produced in late summer and then die and fall off and there were also dark marks on the limbs where they had been shed.

5 Discussion

Wound at the base

- 5.1 The wound at the base of the trunk is large and long standing, but the decay is not particularly extensive or advanced and there is a significant amount of sound wood. The absence of any physical damage to the exposed wood suggests that the wound was caused by localised death of the bark, which would have remained in place for some time protecting the wood before disintegrating and being shed. This is quite common where bark is heated by fires lit nearby and in such cases decay can be slow. There were no signs of any fruiting bodies, which might have enabled the fungus to be identified, but it is not likely to be *Inonotus hispidus*, which generally affects main limbs and branches rather than the bases of trees.
- 5.2 This decay has weakened the tree, but not to the point that the only safe option would be to fell it. Moderate crown reduction along the lines of the work that has been carried out in recent years would reduce its weight and wind resistance although new growth would need to be recut periodically.

Decay in the crown

- 5.3 This is more serious than the decay at the base, partly because the tree was substantial when it was first reduced, so the pruning cuts were large and have now decayed to form large cavities at the bases of the major limbs that formed since the tree was reduced. The one on the west side was noted as potentially problematic in the 2003 decision and has worsened markedly in the 12 years since then, as shown in photo 2. The pruning in recent years has reduced the mechanical load on these areas, but the decay is advancing steadily and they are becoming progressively weaker.
- 5.4 The other concern is the presence of the *Inonotus hispidus* brackets. This fungus colonises several species of tree including London plane, walnut and apple, but in ash it is particularly significant. Ash is particularly susceptible and the fungus causes drastic strength loss in the early stages, often before the timber is visibly decayed. This tree had several brackets growing on the main limbs and there were also marks where others had been shed, which normally happens at this time of year.

Remedial options

- 5.5 The tree is still physiologically healthy and would tolerate significant pruning. The main weakness is the decay in the old wounds in the crown and, on the basis of this inspection, the tree is more at risk of shedding major limbs than of uprooting. It would need to be reduced significantly in order to lessen the weight and wind resistance of the crown sufficiently and this would also reduce the load on the lower trunk and root system.
- 5.6 The tree would need to be reduced more than the previous light reduction indicated by the red arrows in photo 1, but anything similar to the drastic initial lopping would create another set of large wounds, so would be counterproductive. A more practical option would be to reduce it back to just above the main reduction points, removing the younger shoots, which are up to about 200mm diameter, as shown in photo 4. That would keep the wounds as small as practical, whilst still achieving a substantial reduction in weight and wind resistance and retaining the main limb framework. This is indicated by the set of yellow arrows in photo 1, although precise cutting points will need to be determined by the team whilst working. The lower western limb is beyond saving, but cutting back to the stump rather than the top of the trunk would also minimise wounding.
- 5.7 Initially the tree would inevitably look unnatural, but it would regrow. The frequency for cutting this would depend on its vigour and the spread of the decay, but a cycle of 3 - 6 years is typical in cases like this. As the growth of the new shoots will vary, so it might be possible to phase the work by cutting out the larger heavier ones and leaving smaller ones to grow on until the next cut. That reduces the amount of foliage removed each time, so is better for the tree's health and appearance. That technique is sometimes called pole thinning and is often used on veteran and ancient trees.
- 5.8 The other option would be to fell the tree, which eliminates any risk and the need for further work, although that would be a far larger and more complicated operation, given the tree's size and enclosed location.

Tree work

- 5.9 Any treework should be carried out in accordance with BS 3998: 2010, Recommendations for Treework, and any other relevant standards. It is essential that the contractor doing the work has appropriate third party and public liability insurance.

- 5.10 As the tree is in Hampstead Conservation Area Camden Council would normally need to be given six weeks notice of any pruning. This work is required to make the tree safe, so can be done after giving them five days notice. (Regulation 14 of the 2012 TPO regulations.)
- 5.11 The cavities are possible roosting sites for bats, although no obvious signs were found. These are not affected by the specified work, but the cavities should be checked before work is undertaken and appropriate measures taken to avoid harm. Guidance on this is in the Arboricultural Association's guide, Bats in the context of tree work operations.

6 Summary and conclusions

- 6.1 The tree has a large wound on the lower trunk, but it was not mechanically damaged, the decay there has developed slowly and is not particularly severe or extensive.
- 6.2 However the tree was lopped drastically quite late in its life, which created large wounds in the main limbs which are now decaying, with some forming major cavities. It has also been colonised by *Inonotus hispidus*, a fungus that weakens the main branches severely, even in the early stages.
- 6.3 The tree needs a significant crown reduction for safety and the most practical option is to cut the smaller younger branches that have grown from fairly recent reductions in order to avoid making more large cuts, which would be counterproductive.
- 6.4 New growth would need to be recut periodically in order to maintain the benefit and it might be possible to phase that in order to avoid removing most of the foliage each time.
- 6.5 Felling the tree would eliminate any risk, but would be a far larger and more complicated operation.

Simon Pryce

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Specification

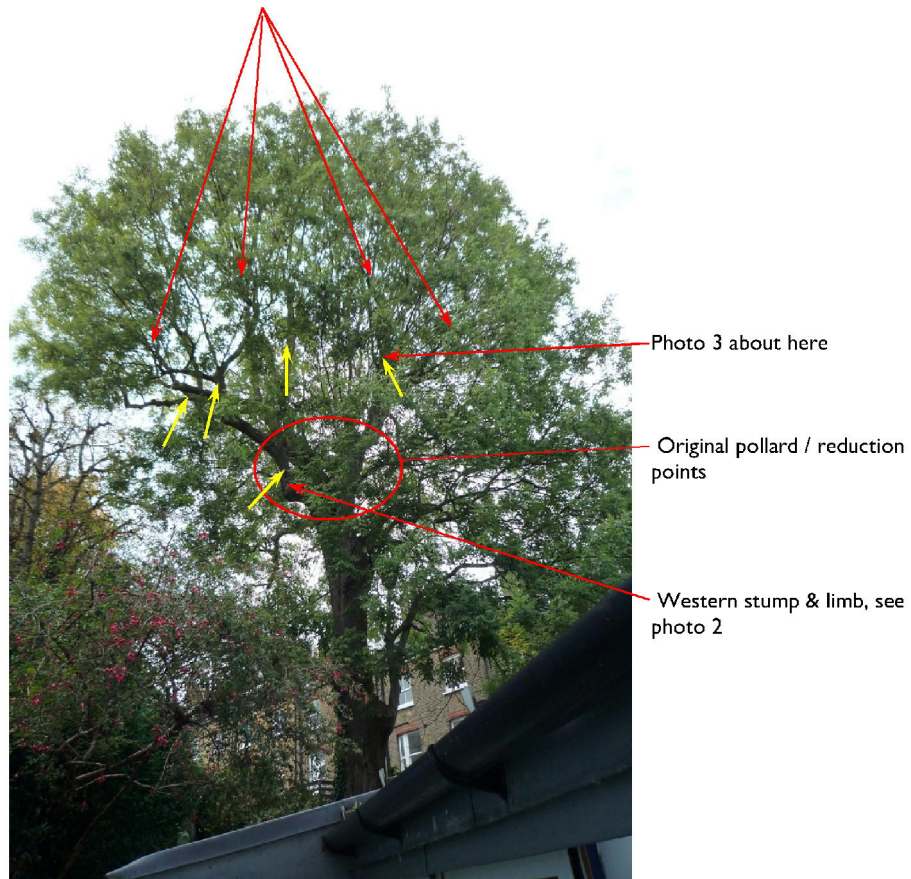
Ash in the rear garden of 27 Pilgrims Way.

1. Reduce crown by up to approximately 6m to about the points indicated by the short yellow / light coloured arrows in photo 1, by cutting the more recent shoots up to about 200mm diameter back to just above the parent limbs. Remove the long low western limb, also indicated by a yellow / light arrow back to the stub from which it grew, show in photo 2.
2. All work is to be carried out in accordance with BS3998:2010, Recommendations for Treework.
3. Cavities should be checked for use by bats or protected birds before any work is undertaken and appropriate measures taken to safeguard them.

Photographs

1) View of the tree from SE near the back of no.27.

Most recent reduction points



Yellow arrows show approximate recommended reduction points.



2) Stub of original western limb showing advanced decay spreading into the base of the branch beyond.

3) Typical cavity in one of the main limbs.





4) Younger shoots growing from near old pollard points. These could be cut back to their bases to achieve a substantial reduction whilst minimising wounding .

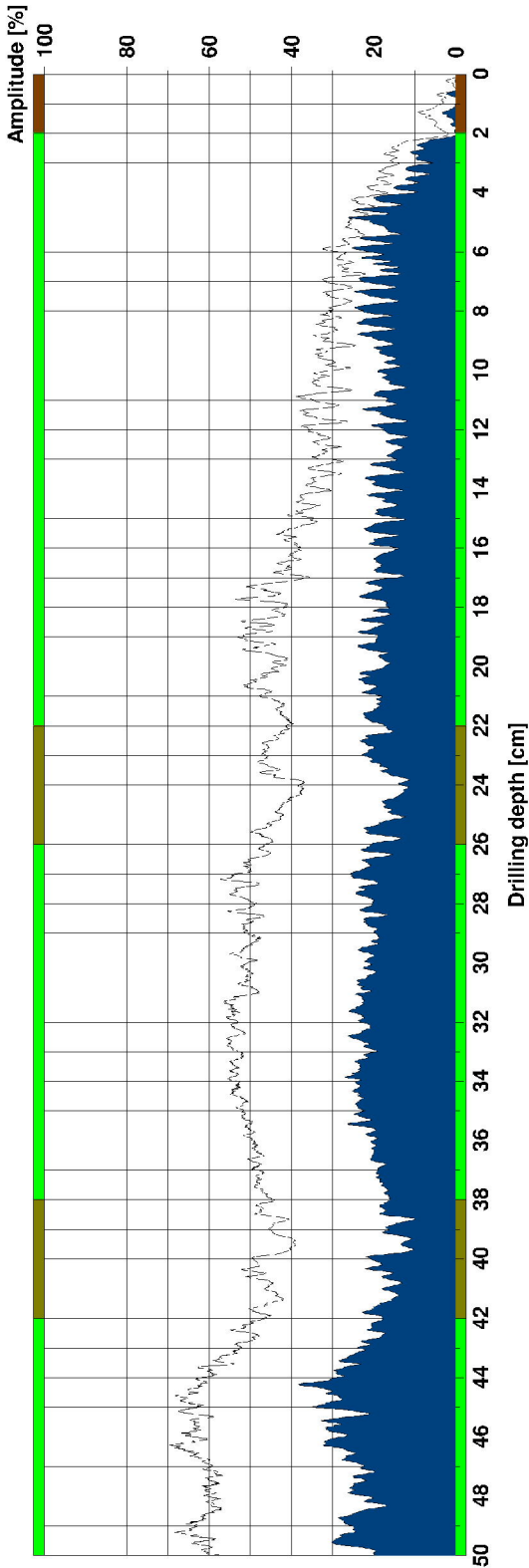
Inonotus hispidus bracket

5) Old wound on the SE side of the lower trunk. No signs of physical damage to the exposed wood.



Measuring / object data

Measurement no.	: 1	Needle speed	: 2500 r/min	Diameter	: 90.0 cm
ID number	: 15/092	Needle state	: ---	Level	: 100.0 cm
Drilling depth	: 50.00 cm	Tilt	: ---	Direction	: From S (L of wound)
Date	: 08.10.2015	Offset	: 114/362	Species	: Ash
Time	: 15:05:11	Avg. curve	: off	Location	: 27 Pilgrims Lane
Feed speed	: 100 cm/min			Name	: Zucchi



Assessment

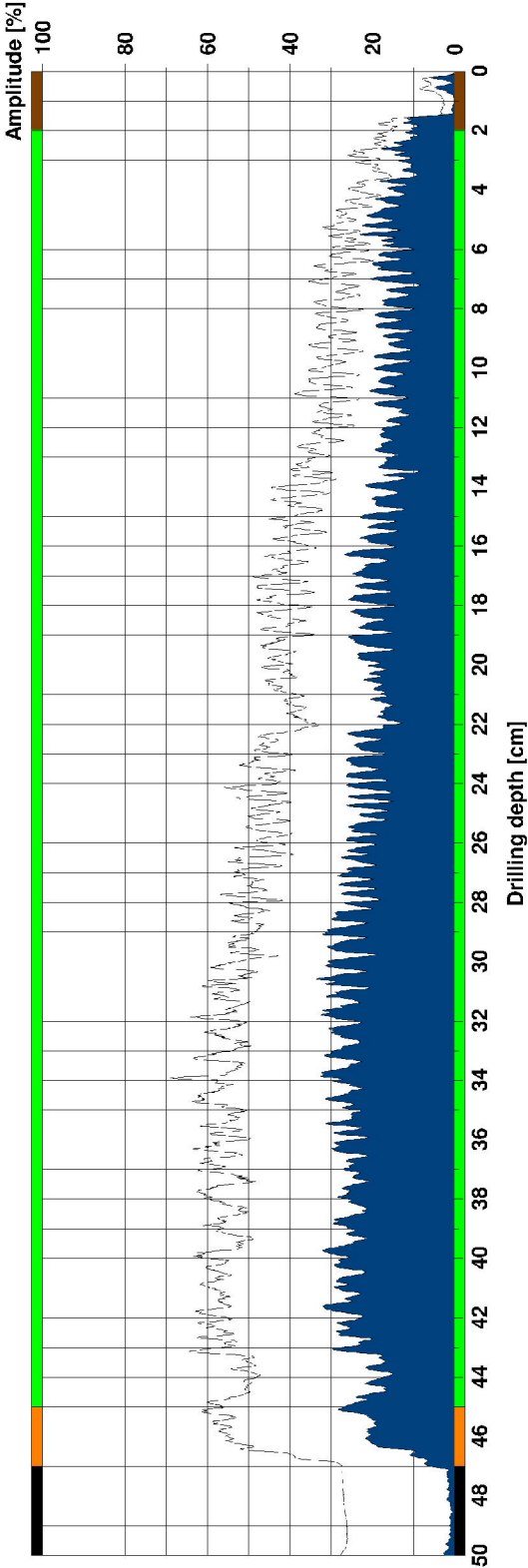
From	0.0 cm	to	2.0 cm	: Bark
From	2.0 cm	to	22.0 cm	: Sound wood
From	22.0 cm	to	26.0 cm	: Suspected decay
From	26.0 cm	to	38.0 cm	: Sound wood
From	38.0 cm	to	42.0 cm	: Suspected decay
From	42.0 cm	to	50.0 cm	: Sound wood

Comment

Black line is resistance to drill rotation and increases with depth (drilling curve). Solid blue line is direct resistance to penetration (feed curve).
Resistance drops in two places, possibly very early decay.

Measuring / object data

Measurement no.	: 2	Needle speed	: 2500 r/min	Diameter	: 90.0 cm
ID number	: 15/092	Needle state	: ---	Level	: 1.3 cm
Drilling depth	: 50.00 cm	Tilt	: ---	Direction	: from WNW (rear)
Date	: 08.10.2015	Offset	: 86/290	Species	: Ash
Time	: 15:18:37	Avg. curve	: off	Location	: 27 Pilgrims Lane
Feed speed	: 100 cm/min			Name	: Zucchi



Assessment

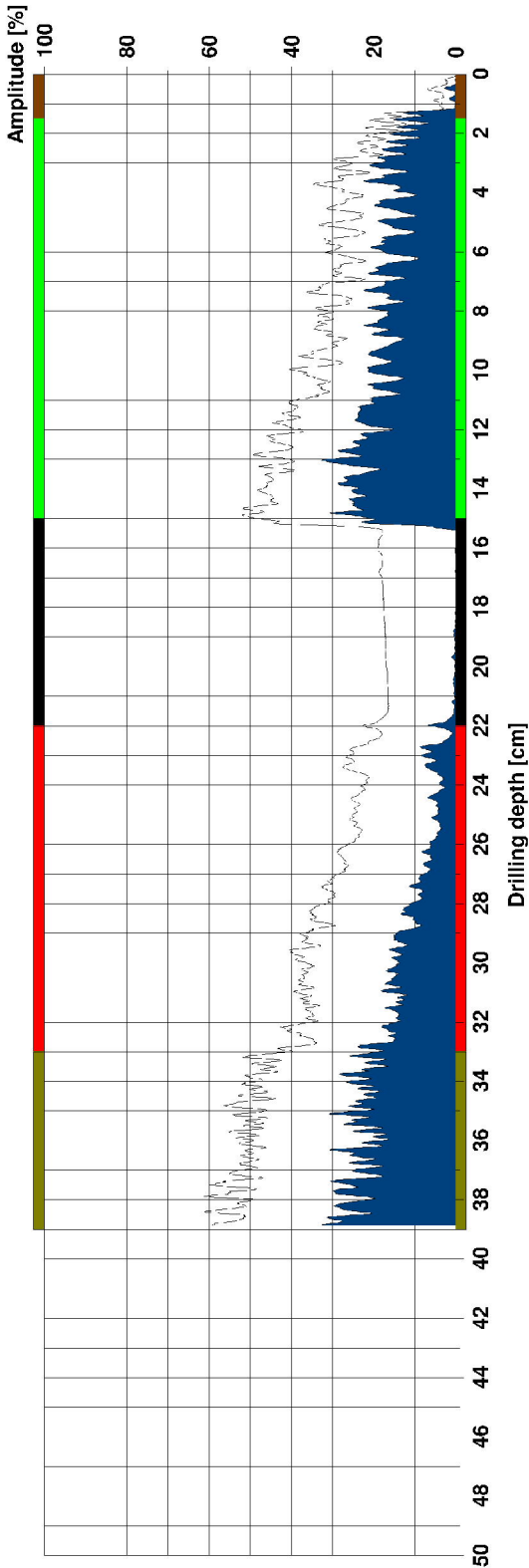
From	0.0 cm	to	2.0 cm	: Bark
From	2.0 cm	to	45.0 cm	: Sound wood
From	45.0 cm	to	47.0 cm	: Decay
From	47.0 cm	to	50.0 cm	: Cavity
From	0.0 cm	to	0.0 cm	:
From	0.0 cm	to	0.0 cm	:

Comment

Far side from the wound, 50cm drill goes just beyond the centre of the trunk. Regular serrated pattern is typical of sound wood, indicating that the decay has not spread right through the trunk

Measuring / object data

Measurement no.	: 3	Needle speed	: 2500 r/min	Diameter	: 90.0 cm
ID number	: 15/092	Needle state	: ---	Level	: 100.0 cm
Drilling depth	: 38.86 cm	Tilt	: ---	Direction	: from E (R of wound)
Date	: 08.10.2015	Offset	: 101/295	Species	: Ash
Time	: 15:12:36	Avg. curve	: off	Location	: 27 Pilgrims Lane
Feed speed	: 100 cm/min			Name	: Zucchi



Assessment

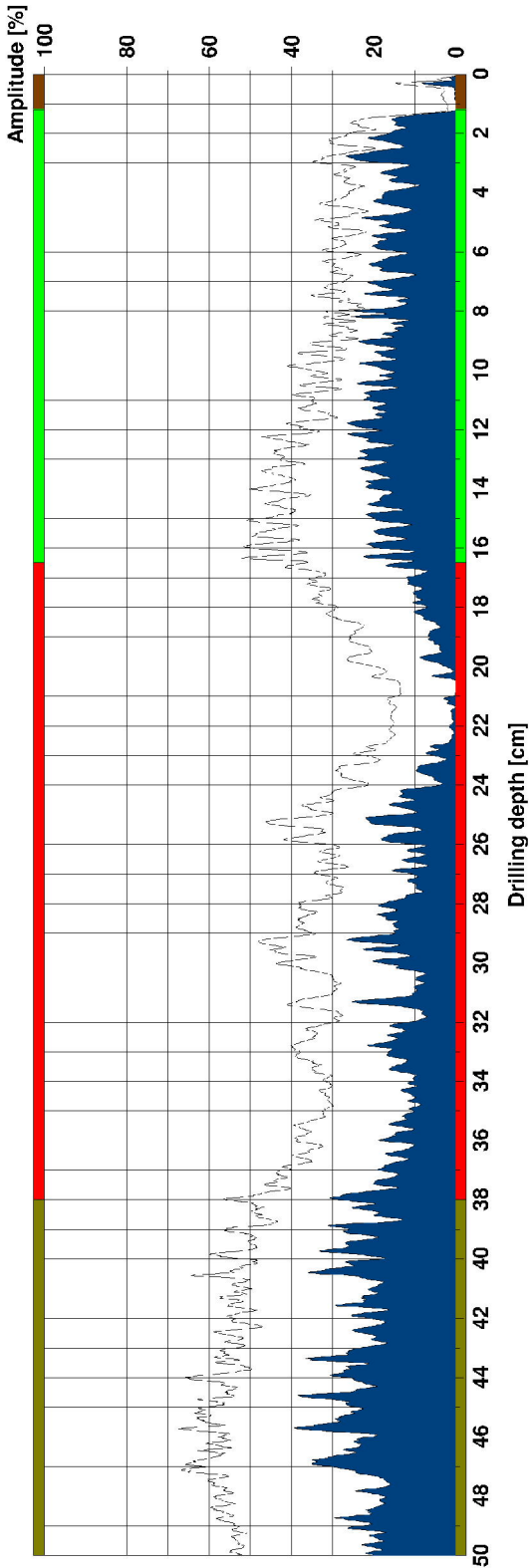
From	0.0 cm	to	1.5 cm	: Bark
From	1.5 cm	to	15.0 cm	: Sound wood
From	15.0 cm	to	22.0 cm	: Cavity
From	22.0 cm	to	33.0 cm	: Advanced decay
From	33.0 cm	to	39.0 cm	: Suspected decay
From	0.0 cm	to	0.0 cm	:

Comment

Instrument stopped at 39, possibly on embedded object. Abrupt transition from sound wood to decay shows that the tree is actively resisting it. This outer layer probably grew after the wound, inner wood appears to become better from about 33cm.

Measuring / object data

Measurement no.	: 4	Needle speed	: 2500 r/min	Diameter	: 90.0 cm
ID number	: 15/092	Needle state	: ---	Level	: 130.0 cm
Drilling depth	: 50.00 cm	Tilt	: ---	Direction	: SE (just L of wound)
Date	: 08.10.2015	Offset	: 107/309	Species	: Ash
Time	: 15:10:22	Avg. curve	: off	Location	: 27 Pilgrims Lane
Feed speed	: 100 cm/min			Name	: Zucchi



Assessment

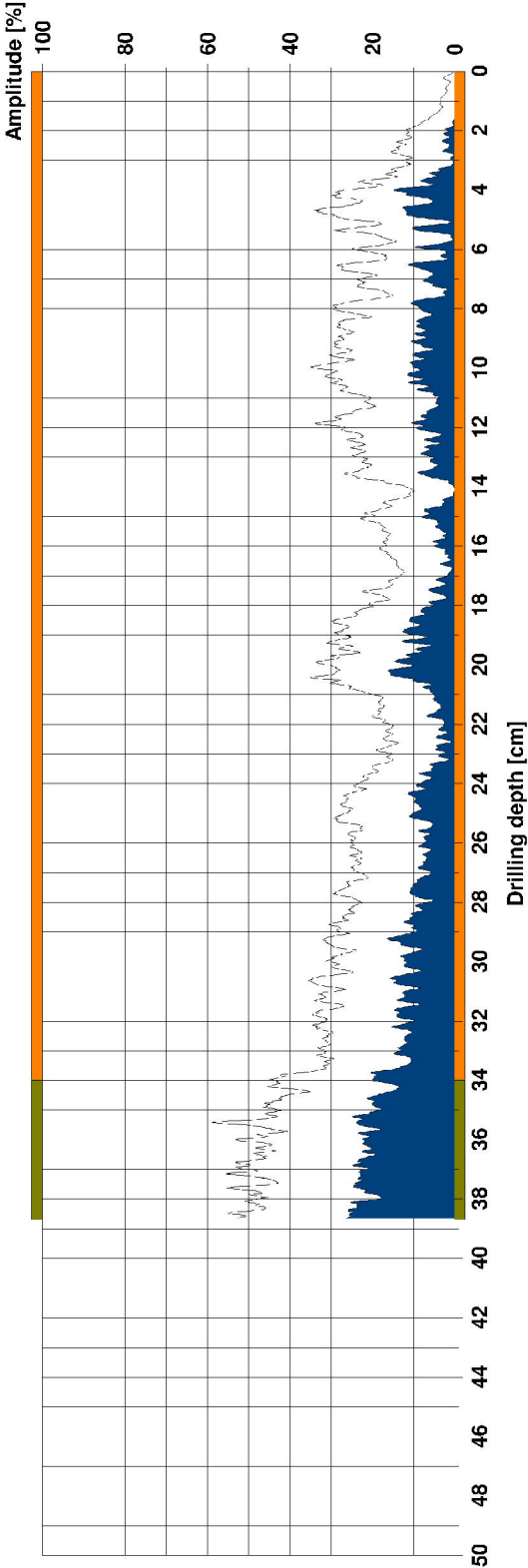
From	0.0 cm	to	1.2 cm	: Bark
From	1.2 cm	to	16.5 cm	: Sound wood
From	16.5 cm	to	38.0 cm	: Advanced decay
From	38.0 cm	to	50.0 cm	: Suspected decay
From	0.0 cm	to	0.0 cm	:
From	0.0 cm	to	0.0 cm	:

Comment

Outer layers formed after the wound are sound, but transition is less apparent than in reading 3. Resistance starts to increase from about 21 cm and serrated pattern is present but is irregular and resistance is lower than in reading 2, suggesting possible early decay.

Measuring / object data

Measurement no.	: 5	Needle speed	: 2500 r/min	Diameter	: 90.0 cm
ID number	: 15/092	Needle state	: ---	Level	: 80.0 cm
Drilling depth	: 38.65 cm	Tilt	: --	Direction	: from SE (into wound)
Date	: 08.10.2015	Offset	: 116/316	Species	: Ash
Time	: 15:07:34	Avg. curve	: off	Location	: 27 Pilgrims Lane
Feed speed	: 100 cm/min			Name	: Zucchi



Assessment

From	0.0 cm	to	34.0 cm	: Decay
From	34.0 cm	to	38.7 cm	: Suspected decay
From	0.0 cm	to	0.0 cm	:
From	0.0 cm	to	0.0 cm	:
From	0.0 cm	to	0.0 cm	:

Comment

Directly into wound. Irregular serration indicates decay but wood has not degraded completely. resistance increases and serration becomes more even from about 34cm. Drill stopped automatically at 38.7cm, probably on the same obstruction as measurement 3