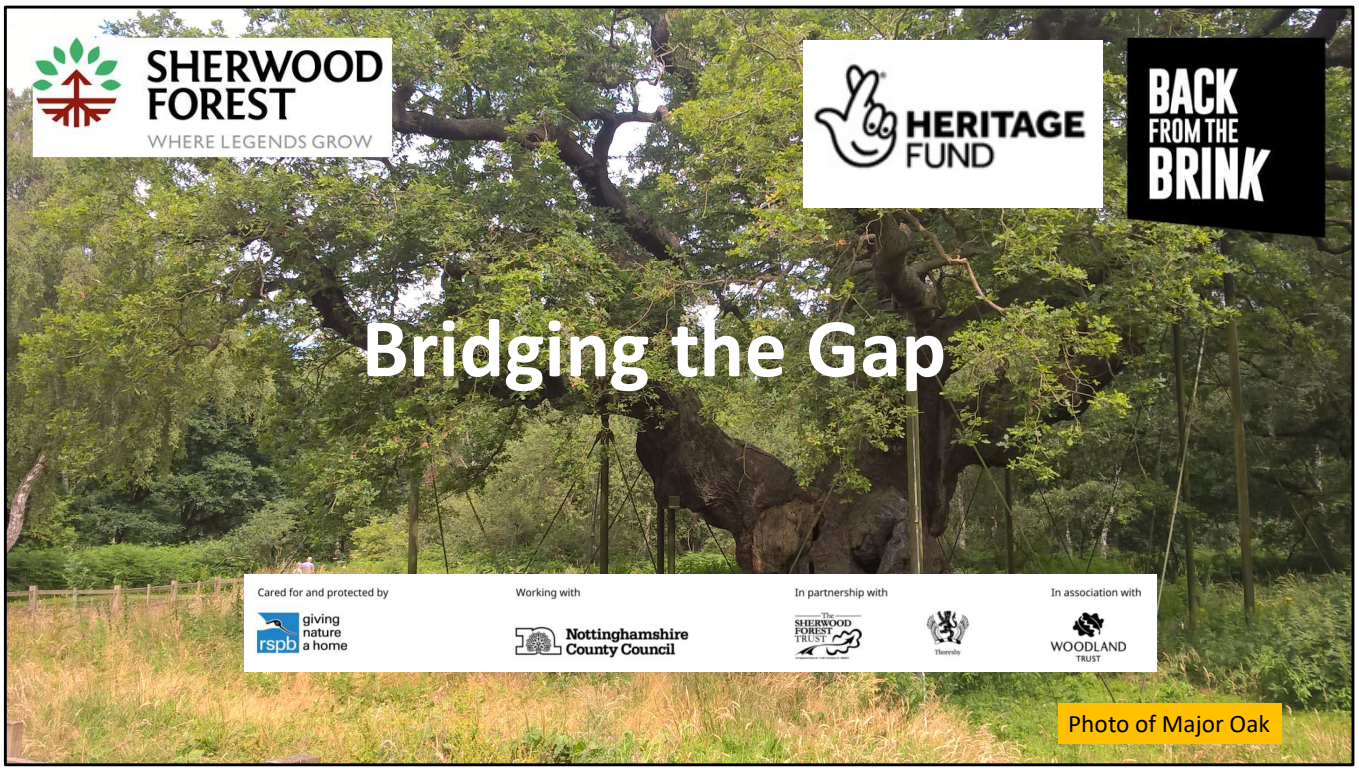
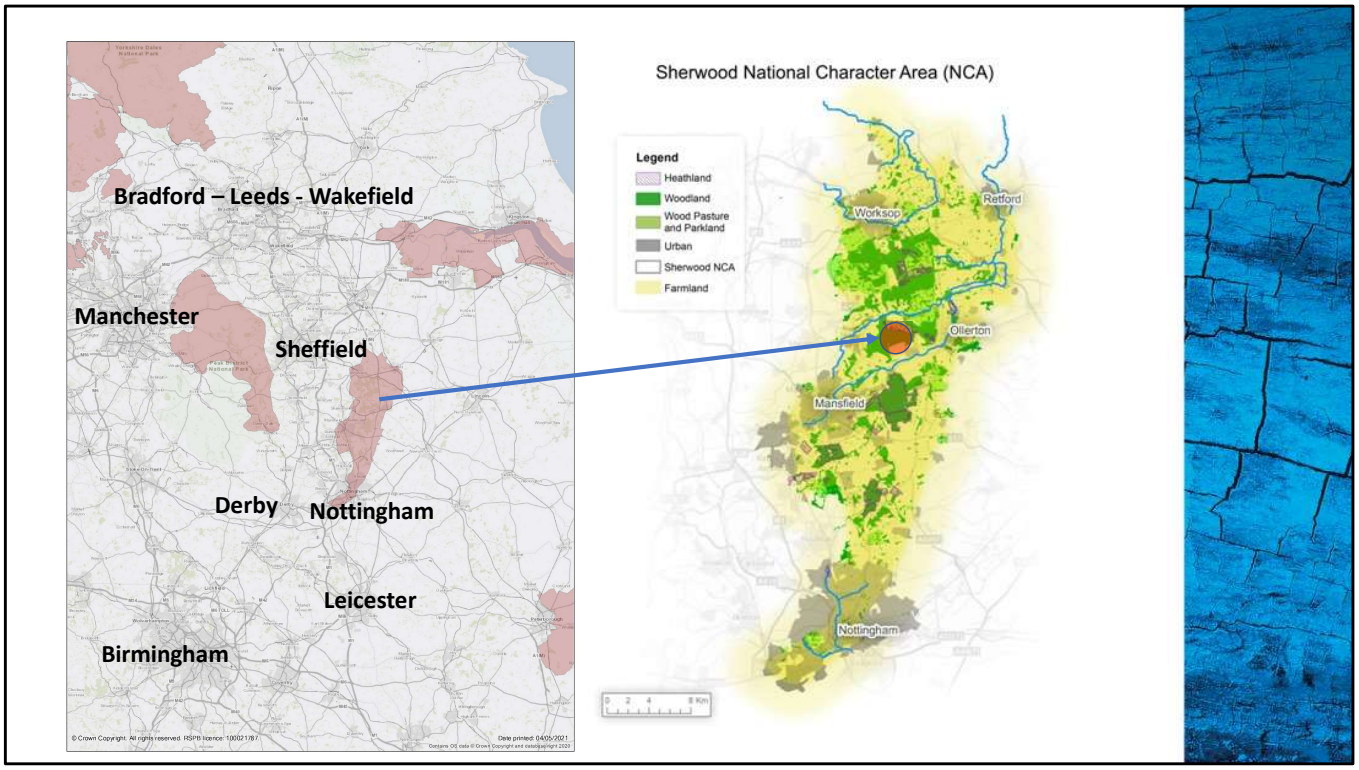
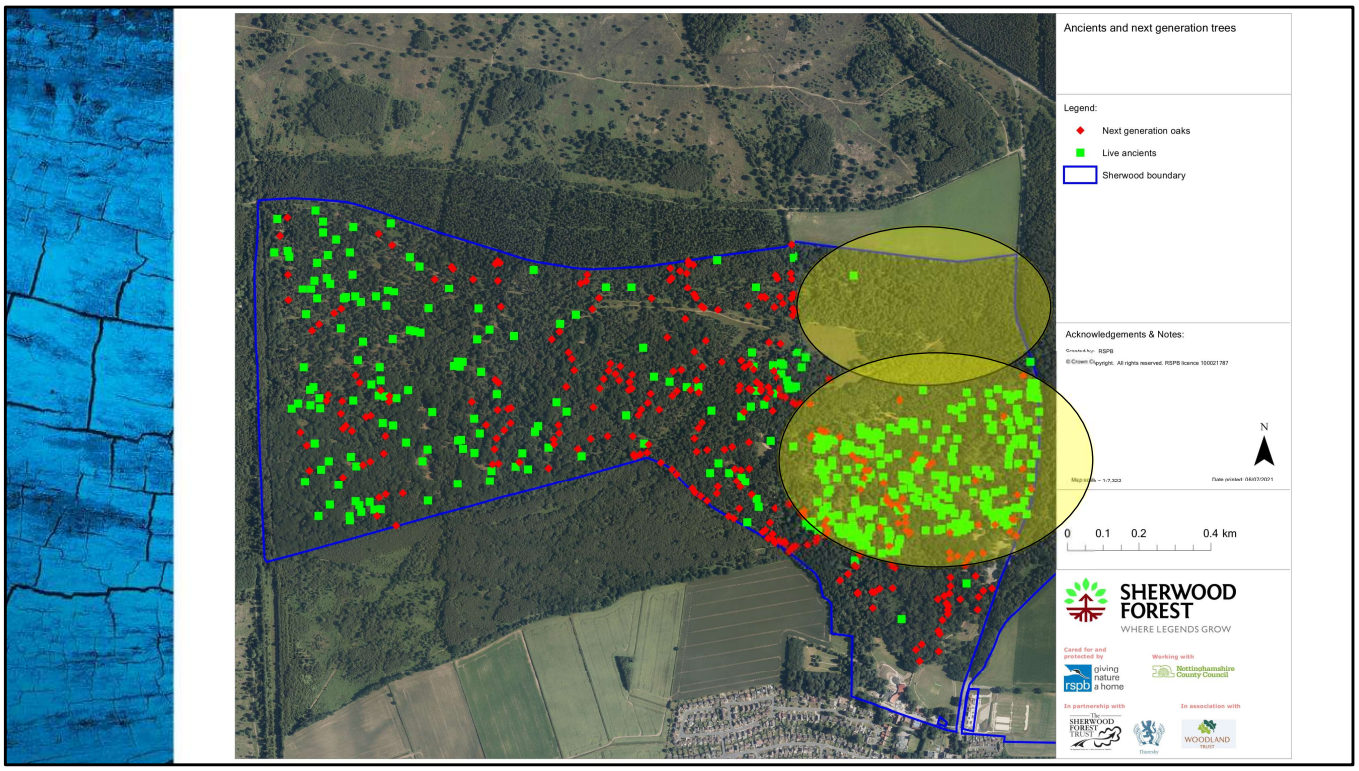


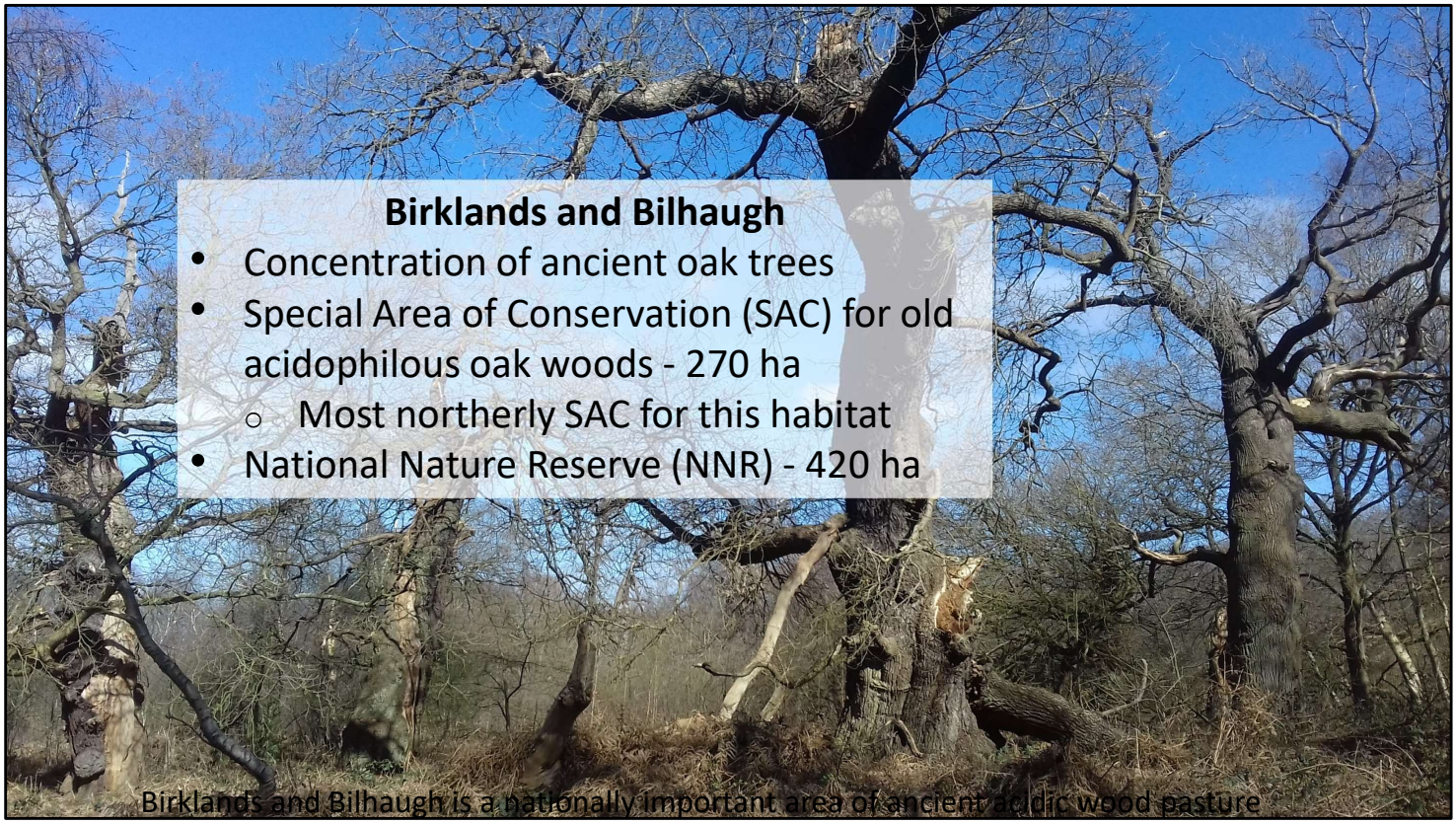
Hello and welcome to Sherwood Forest.
I'm Carl Cornish, RSPB Conservation Officer and lead for the RSPB's Sherwood Priority Landscape.
I've prepared the presentation with Izi Banton, RSPB Sherwood Reserve Conservation Manager, who will be joining for the Q and A session.
I'm going to give some background information to the site and its management, and how the Back from the Brink's Ancients of the Future Project has helped augment management interventions to secure continuity of decaying wood habitat.



Sherwood Forest is in the East Midlands and the RSPB Sherwood reserve sits within the much larger Sherwood National Character Area of 54,000 ha, which is also the RSPB's Sherwood Priority Landscape.



Focusing in further, this is the part of an area called the Birklands and Bilhaugh and shows the area managed by the RSPB. The RSPB has been managing this 197 ha site since August 2018, but Izi has been involved for longer as site manager when the site was managed previously by Nottinghamshire County Council.
The green squares show the location of ancient oak trees and the red diamonds the location of the next generation veterans.
(Click) Note the concentration of ancient and veteran oaks in the east of the site.
Scattered distribution across the rest of the site with **(click)** few in north east part of site.

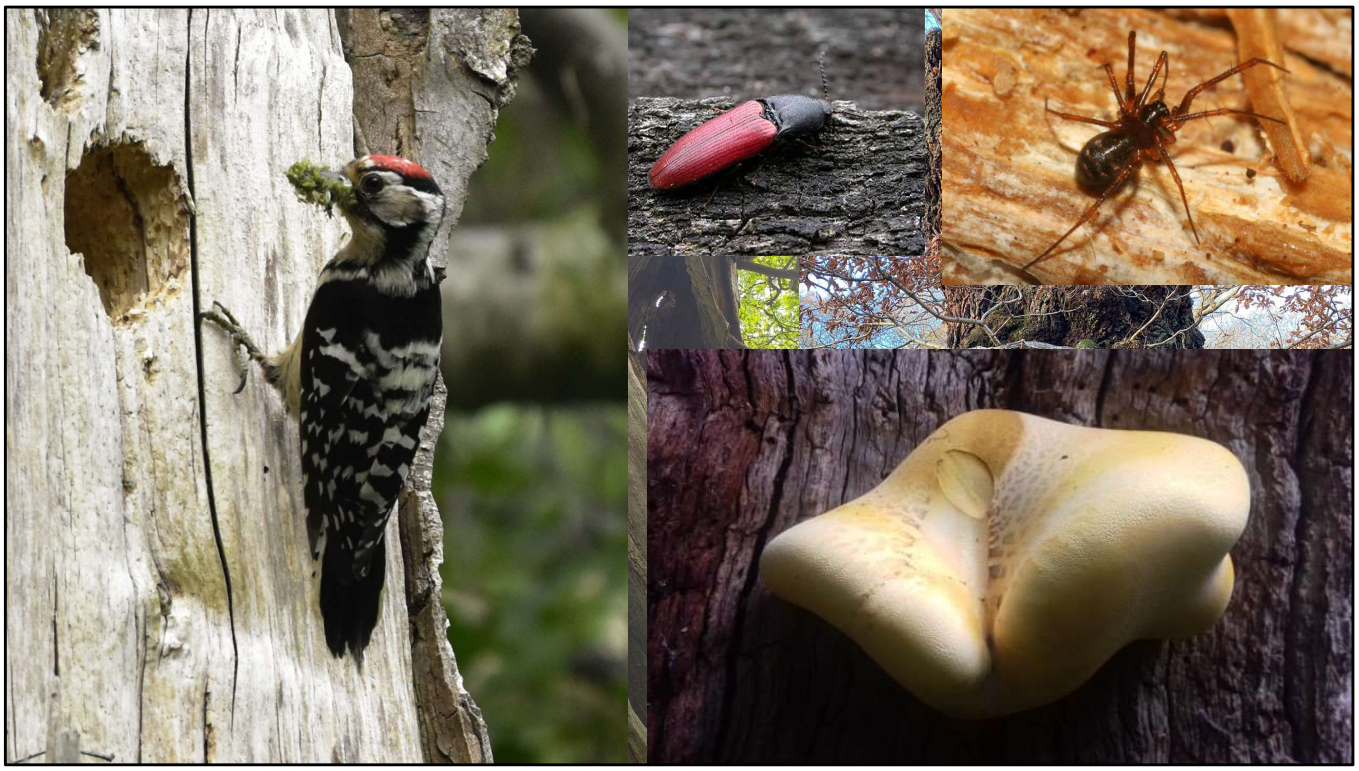


Birklands and Bilhaugh is a nationally important area of ancient acidic wood pasture with a concentration of ancient oaks. Most of the ancient oak trees are 300 to 400 years old. They have a characteristic shape with retrenched and stag-headed crowns, few lower limbs, often twisted trunks, dead limbs and hollow cavities,and bosses on the trunks. It is a Special Area of Conservation and a National Nature Reserve.

Why is the site important?

- 396 living ancient oaks within a larger population of ancient and veteran oaks across the landscape
- A favourable and nationally important Saproxylic Quality Index (SQI) and Index of Ecological Continuity (IEC) for saproxylic invertebrates
- It is in the top 12 sites in UK and the most important site outside southern counties
- Is the richest site in UK for the combination of coleoptera species at the northern and southern edges of their respective ranges

RSPB Sherwood reserve is of European and national importance for its population of ancient and veteran oak trees and their fauna associated with decaying wood. With surrounding areas, it has one of the largest populations of ancient and veteran oaks in the UK. These oaks support nationally rare invertebrate species that depend on decaying wood, known as saproxylic invertebrates. The site has both a favourable and nationally important Saproxylic Quality Index (SQI) and Index of Ecological Continuity (IEC) for saproxylic invertebrate assemblages. It is in the top 12 sites in the UK for saproxylic invertebrates and, being in the East Midlands, has species at the northern and southern limits of their ranges.



This shows some more of Sherwood's amazing ancient oaks and a selection of its special species that depend on them, including some of the Back from the Brink's target species - **(click)** oak polypore fungus, **(click)** cardinal click beetle, **(click)** Midia midas, the tree weaver spider, and **(click)** Lesser Spotted Woodpecker.

Why did we get involved with Back from the Brink's Ancients of the Future?

To help close the gaps in space and time in continuity of decaying wood features. Gaps caused by the scattered distribution of ancients and veterans across the site and the age difference between the ancients and future ancients.

But first some management context…

This presentation is about why we got involved with the Back from the Brink Ancients of the Future project and an introduction to the techniques used. More detail will be covered later in Vikki's presentation.

We got involved because the project offered us additional funding to help close the gaps in space and time in continuity of decaying wood features. Gaps caused by the scattered distribution of ancients and veterans across the site and the age difference between the current ancients and future generations of ancients. How we went about that is first set in some site management context as the work is complimentary to interventions undertaken for several years.

Some management context…

- Loss of wood-pasture structure both through natural regeneration and plantings within open spaces
- Ancient trees suffering high levels of canopy and ground competition from surrounding vegetation
- Limited abundance of 200-300 year old stock to form next-generation ancient trees/decaying wood habitat

- Abundance of dense bracken with thick litter layer
- Ongoing effects of public recreation over the decades

As custodians of Sherwood our primary role is to ensure the long term continuity of favourable habitat condition for key species. Our work is to keep what we have and create conditions for the future continuity of habitat. This requires a high level of management intervention to ensure the structural stability and biological vitality of the ancient trees, and managing the wood pasture habitat for future generations of open grown oaks.

The issues that influence management are:

Loss of wood-pasture structure both through natural regeneration and plantings within open spaces.

Ancient trees suffering high levels of canopy and ground competition from surrounding vegetation.

Limited abundance of 200-300 year old stock to form next-generation ancient trees/decaying wood habitat.

Ground vegetation management by cutting and cattle grazing, and mitigating and minimising visitor impacts.

We do this through a collaborative approach working with Natural England and other organisations, such as the Ancient Tree Forum, together with specialists in different disciplines to maximise both funding opportunities and innovative ways of working, often trialling new techniques.

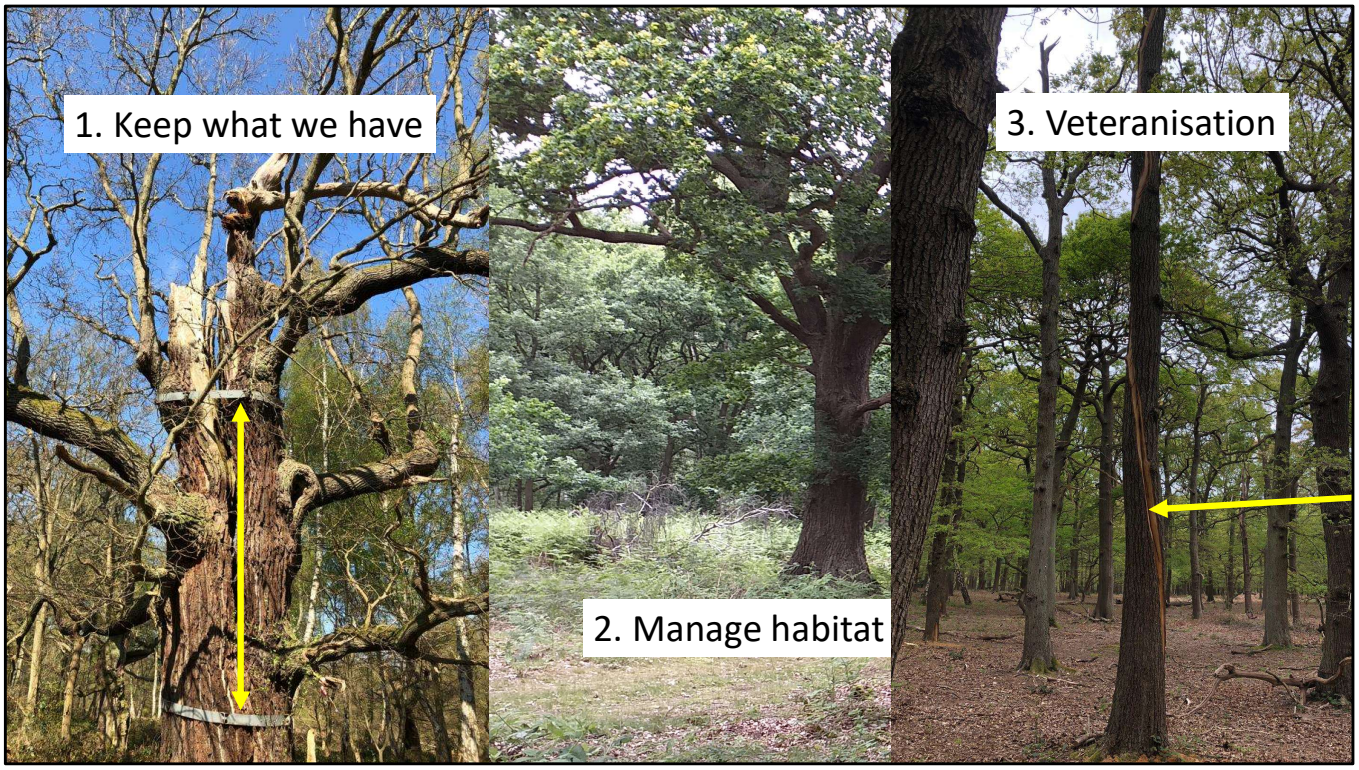
Veteranisation is just one of these and is being used alongside our other management

techniques that are working successfully.

The slide lists why we intervene at Sherwood. A common question is why don't we just let the ancients do their own thing and collapse. At Sherwood like other site across the country, the ancient oaks are a finite resource. There is an average loss of 1.77 ancient trees per year so the existing cohort and associated habitat here could be lost by twenty two forty three. There is also the risk of the rate loss increasing with climate change if we have more extreme weather events. Keeping them alive or standing for as long as possible whilst the next generation plays habitat catch up is our main focus for management intervention. Without that we risk losing the site's special wildlife. Sherwood is important as even though we are missing a generation of trees following past clearances, we are able to identify and recruit trees to follow the ancients and, in time, become ancients of the future.

Veteranisation is complimenting, not replacing, the work we are doing with the ancients and next generation trees by accelerating the formation of decay features in the younger generation of trees following on behind these two age cohorts to ensure there will be a continuity of old trees to support the nationally important saproxylic invertebrate assemblage.

The photo shows a failure in an ancient oak with the collapse of standing red rot, the important habitat within decaying trees for saproxylic invertebrates.



The three complimentary approaches to management are:

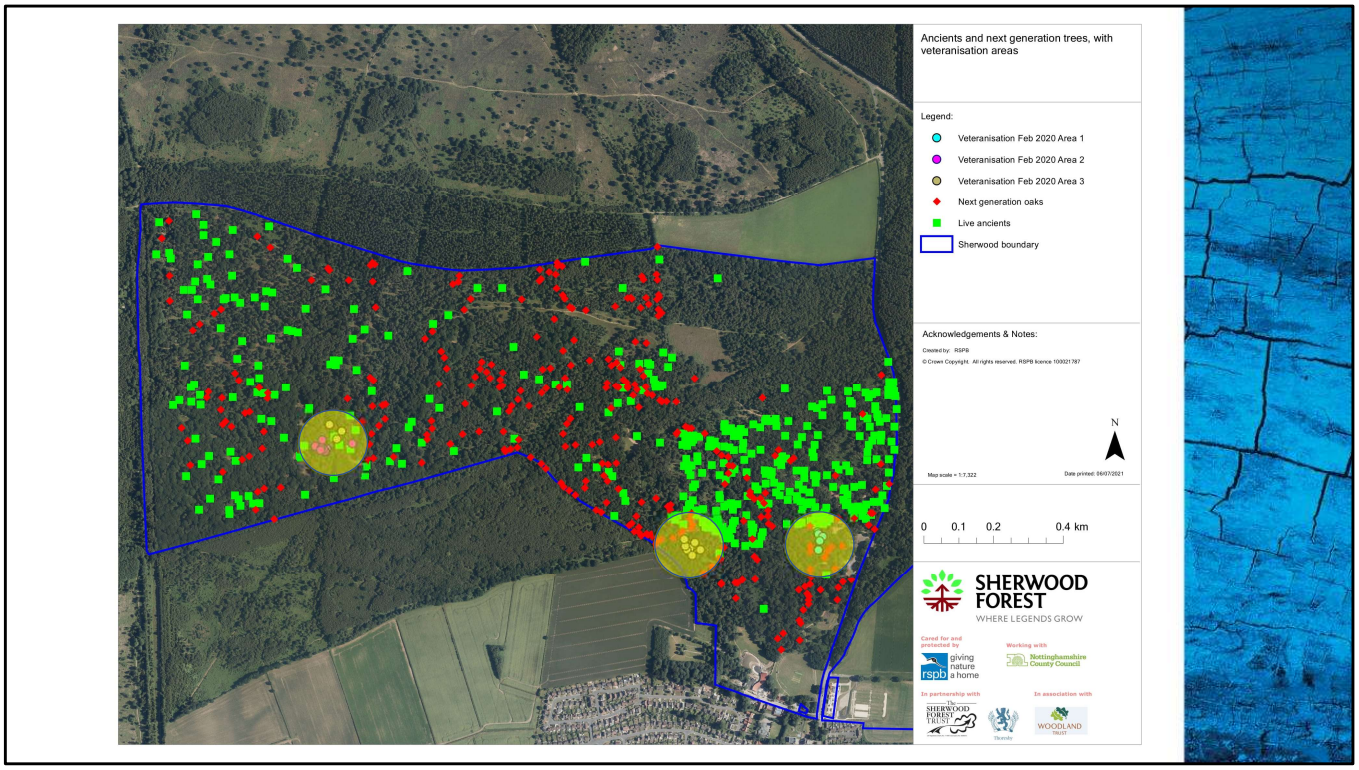
1. Keep what we have through interventions to ensure the survival of standing ancients. This photo shows two bands to stop the trunk splitting and loss of standing red rot;
2. Manging the habitat to create the space for ancients of the future to develop over time. This shows an open oak in a grazing compartment;
3. (**Click twice**) Veteranistion – using tools to speed up natural processes. (**Click**) This photo shows a lightning strike.

What is veteranisation?

- Nature conservation tool
- Creating decaying wood habitats on live young trees
- Mimics what happens in nature

- NEVER on VETERAN trees

Veteranisation is a nature conservation tool which can be used on sites with age gaps and fragmentation. It accelerates the formation of microhabitats and decay features in young trees, without killing them, using tools to replace time. Such features are usually only found on older trees as part of natural processes that can take decades or longer to develop. The techniques mimic the damage caused by animals (for example horse kicks and woodpecker holes) or weather events (for example lightning strikes). These features are liable to fungal colonisation and the creation of decaying wood habitats. They also create cavities used by bats, birds and invertebrates.
An important message is that veteranisation should never be carried out on trees that are already veterans.

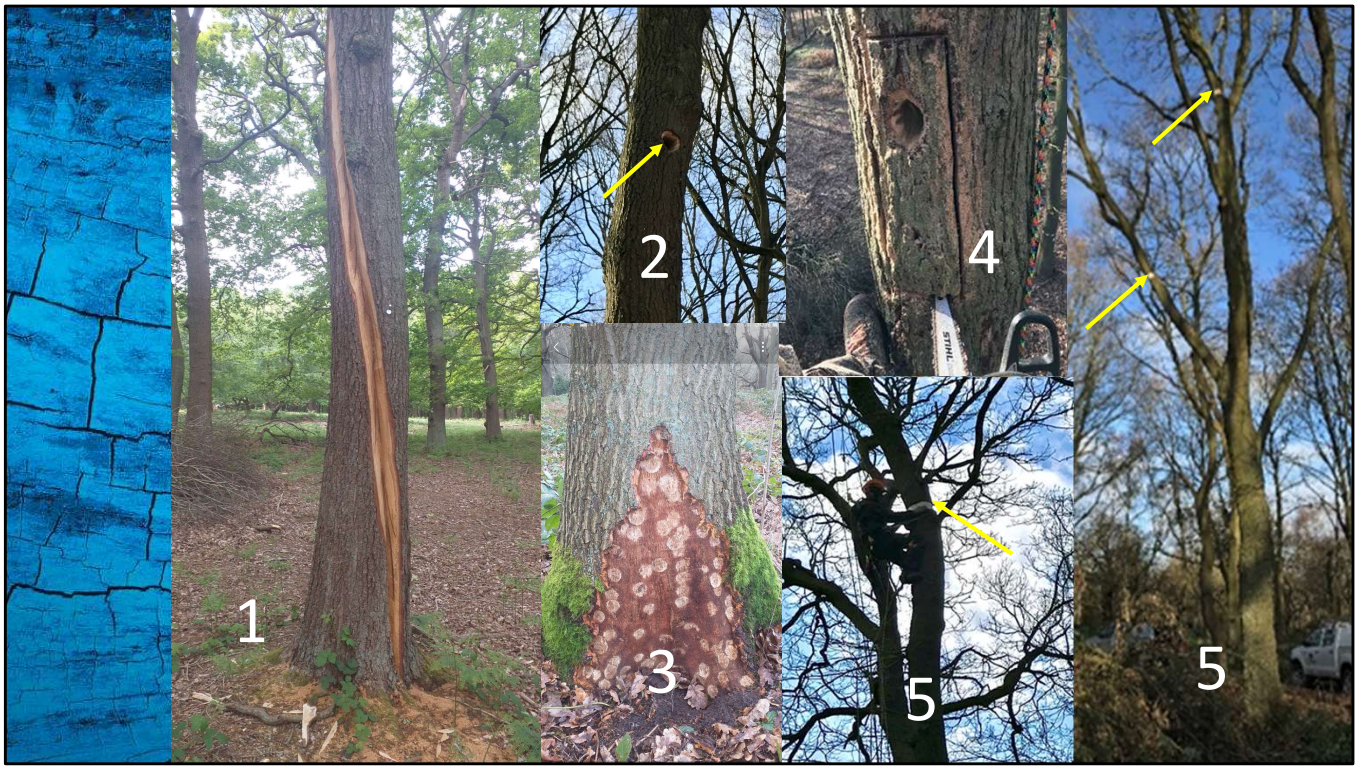


We attended Vikki's excellent veteranisation course held at the nearby National Trust's Clumber Park. The course was funded by Louise Hackett, Woodland Trust, who we work closely with as well. It was invaluable in helping us identify suitable trees for veteranisation at Sherwood.

We worked as a team with RSPB ecologists, our external arb consultant Luke Steer, and the wonderful arb contractor Reg Harris and his team from Urban Forestry to select three suitable trial locations (as shown on the map by the yellow circles).

Sites were selected because:

1. they had suitable trees for veteranisation, which were younger trees under 100 years old with no or few existing veteran features;
2. they were areas where there were fewer ancients/veterans so increasing the extent of decaying wood habitat; and
3. were visible from visitor paths so we can plan for a future decaying wood walk.



This slide shows the 5 standardised techniques that were replicated in three trial sites.

The 5 standardised techniques are 1. lightning strike – a cut through the bark and into the heart wood from the top of the trunk spiralling down to the ground. 2. woodpecker hole – a small cavity , 3. horse damage - removing the bark from part of the base of a trunk. 4. nest box – a deeper cavity, and 5. aerial ringbarking to create aerial decaying wood. All are created by an arb contractor working at height with a chainsaw, except the horse kick damage which was created using a sledge hammer. As mentioned earlier, these veteranisation techniques mimic the impacts of animals and weather, which create microhabitats, cavities and features liable to fungal infection and wood decay.

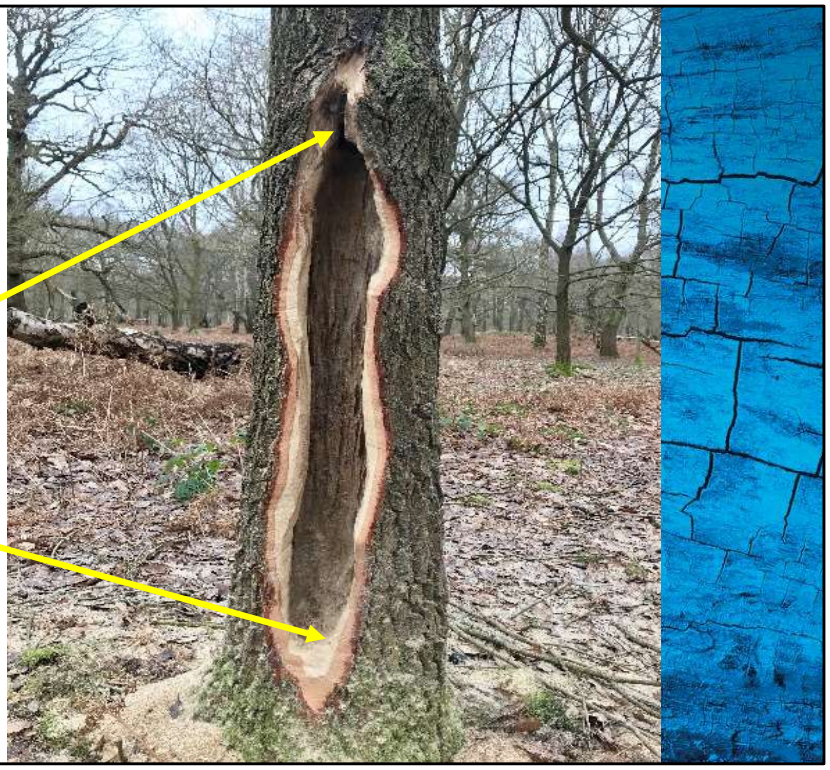
We are not part of the official veteranisation trial programme which Vikki will talk about later. Therefore, we were able to let the arbs unleash their inner creativity.

This slide shows three of the non standard techniques:
1. This is called the Eiffel Tower. The base of the trunk has been cut out leaving the tree standing on buttresses. This is mimicking an effect sometimes caused by the oak bracket fungus, Inonotus dryadeus, which has sometimes been called the Eiffel tower fungus.
2. Erecting an aerial cavity and water pocket on a standing monolith. The monolith was created as part of the high competition pruning work around one of the ancient oaks so we're combining veteranisation with other management interventions.
3. Whole trunk aerial cavity
Obviously many of these techniques require specialist skills and can be expensive making them beyond the scope of most site managers' budgets. But thanks to innovative projects, such as Back from the Brink, funding streams can provide opportunities to trial techniques and hopefully provide inspiration to others of what is possible…

Trunk cavity

Slits cut into interior roof for bats

Bowl cut into base to hold water

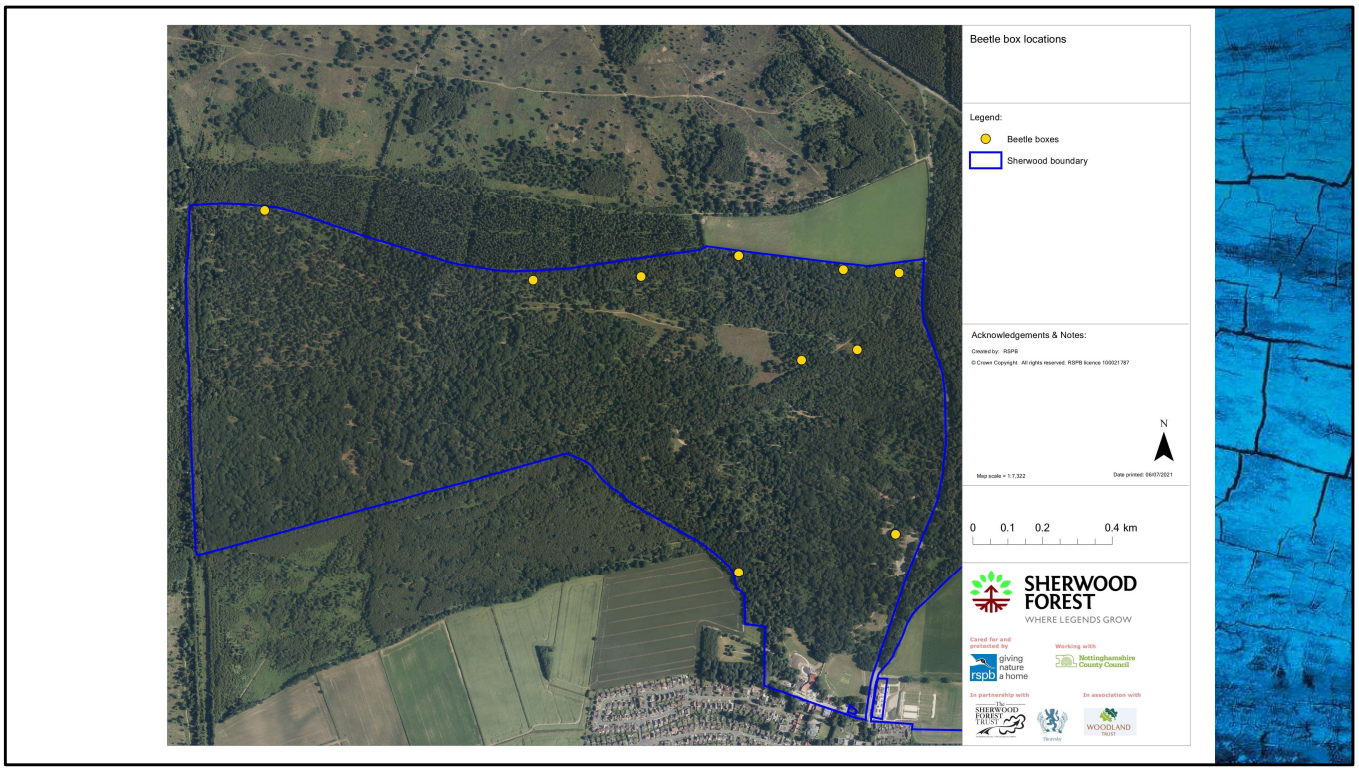


A trunk cavity near the base of a tree. This also has other features incorporated – slits cut into the interior roof as bat resting or roost sites and the base of the cavity cut into a bowl to hold water. Some flies associated with veteran trees have an aquatic larval stage.

Each of the treated trees has like our ancients and next gens been tagged and GPSed and will form part of the reserve's monitoring programme. This is Izi with our arb contractor Reg Harris.
On an initial look at some of the veteranized trees a couple of weeks ago with a beetle expert we found a saproxylic beetle Dryocoetes villosus on one of the lightning strike trees. (**click twice**) Here is the beetle on a hand to give an idea of scale. It's not rare but shows the created features are already being visited.

This shows a nest box created a chest height. The newly created nestbox is on the left and the same nest box after 14 months is on the right. See how wound wood has grown along the vertical sides of the cut out front.

Another habitat creation technique being trialled as part of the BftB project is the installation of 10 beetle boxes to act as artificial standing decaying wood for saproxylic invertebrates. Steph Skipp will talk more about beetle boxes in her later presentation.
We discussed our ideas with Nicklas Jansson, who has undertaken research on beetle boxes, and Ted Green, who pioneered their use at Windsor Great Park for violet click beetle, a species that does not occur at Sherwood (we're north of its UK range).
With our high number of visitors, we felt that using hollowed out trunks would blend in more than the timber boxes used on other sites and be more robust.
These hollowed out trunks will be filled with a mix of sawdust and organic chicken poo.
We will monitor the contents of the boxes to see if they need refilling.
Again the boxes will be tagged and location recorded on gps for monitoring. One will be installed near to the Visitor Centre in our nature garden with a Perspex viewing screen in the lid as part of the interpretation for the project.



Map shows the location of beetle boxes in areas where there are few ancient oaks to see if they can:

1. Help with providing habitat for saproxylic invertebrates;
2. Help provide habitat continuity across the site and out to neighbouring areas.

Next steps

- Invertebrate surveys
- Demonstration site – decaying wood walk
- Interpretation
- Work in wider landscape

Our next steps are:
Invertebrate surveys - we plan to start some vane trap surveys next year on the veteranized trees to find out what and to develop and undertake sampling of the beetle boxes.
Demonstration site - the RSPB reserve is a key demonstration site for the Sherwood Priority Landscape, and beyond, to demonstrate management of ancient wood pasture and interventions to provide continuity of standing decaying wood habitat. We are also developing a decaying wood walk along one of the existing visitor routes.
We have BftB funded interpretation to install on site to explain the work we've undertaken. The interpretation will use logs showing some of the veteranisation techniques. They will be installed close to the main visitor path next to an interpretation panel to illustrate what we are trying to achieve and why.
Together with the beetle boxes and a decaying wood trail we are hoping to actively engage with visitors and introduce them to the hidden world of Sherwood.
We will be working with land managers and partners, especially Woodland Trust, to improve our knowledge of the distribution of ancient trees across the Sherwood landscape and undertake measures to improve connectivity between key sites. Louise Hackett at Woodland Trust has commissioned guidance from Vikki on how to undertake and monitor veteranisation at a landscape scale in Sherwood.

Thank you for listening.
Thank you to the National Lottery Heritage Funding and Back from the Brink for funding work at RSPB Sherwood, and to Buglife for their support with the Ancients of the Future Project.