Pollinators and Plants:

the story of Great Ayton's High Street through the eyes of pollinators

Wednesday 10th February 2021 Martin Allen and Caryn Loftus

Notes to accompany slides.

1 Title slide

Welcome to this session on Pollinators and Plants telling the story of Great Ayton's High Street through the eyes of pollinators whatever your background and wherever you live.

The idea for this project came about as a result of Martin looking at old maps of Great Ayton as part of preparing a Pollinator Plan for the village. He spotted that there were lots of orchards showing on the 1853 6" OS map. Martin and I felt we would like to know more. I had also come across a pollinator trail in St David's in Wales and wondered if we could create something here to engage people in finding out more about the importance of pollinators and why the Brighten Up Great Ayton, known as the BUG group were adding more areas of planting to increase the number of pollinators. This led to a successful application by Moor Sustainable CIC to the Heritage Lottery Fund. So a thank you to all National Lottery players.

Due to the Covid-19 restrictions we haven't yet been able to put the trail posts in but hope to do so as soon as restrictions allow us to. We're calling it the Bug Trail as we think that will be more appealing to families. Once the trail is launched there will be a series of 7 rubbing posts in the village, with a booklet and leaflet available from the Tourist Information desk in the Discovery Centre plus an app and webpage to provide more information about each stop on the trail. Six of the posts relate to the categories of pollinators identified by the charity Buglife. We're grateful to Buglife for permission to use some of their material. I then linked each type of pollinator to a spot in the village to help tell our story. There is one additional spot linked to orchards. We're also grateful to Great Ayton Parish Council and Broadacres Housing Association for permission to put in the posts on land they own and/or manage.

We had hoped to be able to have a talk in the Discovery Centre and walk along the trail. In the meantime, we decided that it would be good to share what we have learnt. At some point it might warm up enough for pollinators to surface.

We are going to take you on a walk through the village starting at High Green and finishing at Low Green, looking at the research questions posed at the start of the project and possible answers along with some history, pollinators and plants. We're not recording the session but notes and slides will be sent after.

Using Zoom – Martin and I are going to talk for about an hour then answer questions therefore we will **Mute** you all during the presentation. If any questions occur to you as we go along, please put them in **Chat** which you can find by hovering over the bottom of your screen. You probably want to choose the **Speaker View** option from the View options in the top right hand of your screen to see the detail in the slides.

At the end there will be a short **poll** as it would be great to have some information to share with our funders. We'd also be grateful for any comments you would like to share via the **Chat**.

So, first of all, why the interest in pollinators? According to Buglife:
"One out of every three mouthfuls of our food depends on pollinators. It is almost impossible to over-emphasise the importance of the service pollinators perform for us.

Wild pollinators include bumblebees and other bees, butterflies and moths, flies and various other insects such as beetles and wasps.

Pollinators in trouble

- Half of our 27 bumblebee species are in decline
- Three of these bumblebee species have already gone extinct
- Seven bumblebee species have declined by more than 50% in the last 25 years
- Two-thirds of our moths and 71% of our butterflies are in long term decline.
- Across Europe 38% of bee and hoverfly species are in decline; only 12% are increasing."

During our virtual walk we will look at how planting in and around the village has changed which has contributed to the decline in pollinators and what is being done to help increase the number of pollinators, finishing with how you can help.

2 Pre-1600s

We thought it important to set the scene by looking not just at the High Street but to look at Great Ayton and the surrounding countryside. Great Ayton History Society has produced a wealth of documents which are available on their website so we won't go into the history in great detail.

In The Enclosure of the Open Fields in 1658 by Dan O'Sullivan, October 2009, we learn that:

"*To delve back into the past as far as we can, there must first have been a settlement phase, extending from some unknown prehistoric date, probably until the tenth or eleventh century AD. Towards the end of this phase the shape of the medieval township was becoming established, whilst the surrounding lands were gradually being taken in from forest, marsh and moorland, for permanent farming.*

The Domesday survey comes near the end of this first phase, but there is a complication here because Domesday also records a set-back to the village's development due to William the Conqueror's harrying of the region in revenge for successive revolts. Ayton like most other villages nearby, suffered a major contraction of its arable due to a loss of available field workers after the devastation of 1069."

"The second phase in land-management was the open-field phase, which lasted in Ayton's case until the mid-seventeenth century, but very likely, as was the case with so many villages, reached its climax in the early fourteenth, just before the decline of population resulting from the Black Death.

During these medieval centuries most of the village's farm land would have been managed communally, under the supervision of one or more manorial courts."

We will hear more about the open fields later on when we start looking at maps that exist of the village. This map shows the open fields that existed in Great Ayton until the mid-seventeenth century superimposed on a modern OS map. The information was taken from the Applebridge Field map in 1656.

3 Medieval Great Ayton

To explain how pollinator plants were destroyed when the medieval open fields were Enclosed I have to talk about how the land was used.

First area to be changed is thought to be the area called Woodfield which was a woodland of sorts and converted to arable probably around the beginning of the thirteenth century. Woodfield went from having many tree, shrub, and associated woodland wildflowers available for pollinators to almost none of those plants as it was ploughed.

West Moor and Aireyholme/Banks look to be the two grazing pastures of the Medieval township and you can see they are effectively at opposite ends of the township, whilst the arable fields Crabtree Field, Applebridge Field and WoodField were closer…more people walked to the arable fields than to the grazing pasture, so it makes sense for them to be closer to the village where people lived.

The land was owned by the lord of the manor and was farmed communally in an agreed committee-decided way. People might own individual cows or sheep and during the day they were all looked after by a communal shepherd who would collect them from the village farmsteads where they had been safe overnight and then walk them out to either West Moor or Aireyholme/Banks for a days grazing and then bring them all back in the evening. I suspect West Moor was likely to have been species-rich grassland with damper rushy areas, with drier more acid heathery areas up towards the hills in the east. Moors usually had scattered scrub like gorse (which was cut regularly as it burnt at a high temperature and was useful for making bread in the communal bread ovens) but the moors were open land with no hedges and you could walk where you wanted. When the wheat, oats, rye or barley in the open arable fields was harvested, cattle and sheep grazed on the weeds and regrowth, and because the moors weren't being grazed then wildflowers could flower in August and September.

Meadows (meaning grassland cut for hay) used to be found on river floodplains in medieval times and it is likely that Great Ayton had some possibly in Applebridge Field, though I can't find any specific references to it. It was usually very productive land, and so valuable, rich in wildflowers and was managed by cutting for hay followed by grazing and then it often flooded over the winter months. After Enclosure occurred in 1658 bunds of earth were placed next to the river bank to stop it flooding onto the fields and that land where those floodplain meadows were would have been ploughed too, destroying all the meadow wildflowers. With enclosure of the Great Ayton in 1658, hedges were planted around farm boundaries which added spring hawthorn and blackthorn flowers, but the gorse scrub on the moors was pulled out, and any moorland vegetation was likely to have been ploughed and reseeded with grass seeds so destroying the wildflowers in maybe a third of the township. No communal cattle and sheep herding meant that wildflower seeds that would previously have been on or inside the animals couldn't travel around the Parish like before. The wildflowers remaining would now be stuck within the hedges of the new farms. That makes a big difference because not only have a lot of the wildflowers been destroyed, it now becomes almost impossible for the remaining plants to spread their seed as easily or frequently as they had before. Some wildflowers, particularly in the Moor areas would be left on road verges and may still remain.
And so the changes over roughly 600 years resulted in much less habitat for pollinators' lifecycles to be carried out and fewer sources of nectar or pollen.

The photo at the top is of an area of Romania where the land is still without hedges and farmed communally.
More Great Ayton history here http://greatayton.wikidot.com/enclosure

4 1600s – 1700s

As mentioned at the start, the idea for the Bug Trail came about as a result of seeing that in the first OS map of the village a lot of orchards are shown that are no longer there. This led to the discovery that a vicar from Ormesby published a book in 1618 called 'A New Orchard and Garden'. Therefore, the first research question that arose was:

Q. Was early planting of gardens and orchards influenced by the publication of local author William Lawson, in 1618, of 'A New Orchard and Garden'?

The oldest house mentioned in Great Ayton is Ayton Hall which still has an orchard but no records of planting. It seems likely that Ayton Hall, largely in its present form, was built by John Coulson the elder, who died in 1674, or possibly by his son, John (died 1724). However, records suggest there was an older building with garden:
"It remains only to say something of the original Hall which, as mentioned above, was probably demolished and entirely rebuilt by a member of the Coulson family in the seventeenth century. The earliest probable mention of the Hall occurs in 1282. It is from the Inquisition post mortem of Baldwin Wake, the son and heir of Joan de Stutevill: The capital messuage, the buildings of which are badly constructed, together with the garden, curtilege and other easements, is valued by the year at 20s."v (Yorkshire Inquisitions, vol.1, 1892, pp.237-9)

Dan O'Sullivan highlighted that the third phase in the township's history, from 1658 onwards, is that of the private ownership of separate, enclosed farmholds.

"In 1658, twenty-one freeholders of Great Ayton, headed by the lord of the manor, John Coulson, made an agreement to divide up among themselves the village's three ancient open fields, together with the common pastures. The result was the creation of a new landscape of smaller fields surrounded by hawthorn hedges or fences. With this went the change from community control and occupation of the land to a system of private ownership which in turn would lead to improved farming techniques and the building of new farmsteads. Enclosure was therefore an important and dramatic event." The Enclosure of the Open Fields in 1658, Dan O'Sullivan

According to Ian Pearce in his 'Historical Timeline and Periods' "*enclosure brought new wealth to the gentry, and new Georgian country houses are built across Cleveland*." However, you need to remember that not everyone was wealthy. Many lost the right to roam and therefore were no longer able to forage for food and fuel.

The earliest reference we have of the detail of a garden in the area is that in a letter written, by one of the Richardson family, in the early 1700s describing the garden at Old Langbaurgh Hall:
"*a large garden, bounded on two sides by low walls, overgrown by flowers and fruit trees, and on a third side stretching away into an orchard carpeted in spring with snowdrops and daffodils*" but we have not been able to find out any further detail. The gardens and orchards at Langbaurgh Hall are then mentioned again in newspaper adverts in the 1800s.
As of January 2021, we are not able to answer whether there was any influence on local planting by William Lawson.

Q: Are there any paintings/old photographs of planting in gardens?
We have found a drawing by George Cuit, dated 1788, showing the cottage that was built by Captain James Cook's father and the garden in front of it. The drawing can be seen in the Hepworth Gallery, Wakefield. We were able to access a research paper written by Valerie Hepworth (no connection I'm aware of) that was used to inform the planting of the garden in Melbourne Australia where the cottage was moved in the 1930s. The research paper identifies the plants, with sketch plans, that might have grown in the garden when George Cuit visited and the plants that might have been in the garden in 1914.

We managed to find photographs of the orchard behind High Green (1939/40) and at Hollygarth (1960s) which can be seen in the information relating to the Trail stops for High Green and Hollygarth.

5 1800s to present day - growth of Great Ayton

After the 1685 field map the next map of the village is the tithe map of 1846 showing the fields both around and in what we now regard as the village. The apportionment shows the names for the different fields and what they were used for.

From the 1850s, Great Ayton began to grow quickly due to the development of whinstone and then ironstone mining with plots sold for gardens and housing including the construction of miners' cottages to create the California area of Great Ayton.

Q: Do any residents have old garden planting plans with their house deeds?
Great Ayton History Society had identified newspaper cuttings relating to Great Ayton which we looked at and helped identify some of the houses referred to. Newspaper adverts for houses in the 1800's mention gardens but the only detail of a garden from the period was provided by Ken Taylor, living at The Recess, Newton Road, who shared information from notes written in 1862, about the house he lives in, detailing the stocking of a garden with trees, shrubs and other plants including fruit trees and a letter dated 1864 describing the garden.

"The 'Bard's Recess', or The Recess, as it has now come to be known, is a house standing in its own grounds in Newton Road, in the part of Great Ayton called California. The house was built in 1862 by John Wright, 'Bard of Cleveland' for himself and his family – hence its name."

Thank you to Ken Taylor, who currently lives in The Recess, for providing the following transcript of a letter written in November 1864 by Elizabeth, daughter of John Wright who built The Recess, to her brother who was resident in USA:
"……..*On one half of the land father bought for the house he has built in California [the area of Great Ayton], he grows corn, beans or potatoes for the pigs and themselves. The house stands in one half, 20 yards from the lane [Newton Road]. At the back is a garden of fruit trees, apples, plums, pears etc. They are young yet, but by-and-by will form a nice orchard. In the front is a flower garden and shrubbery, with little plantations of fir, poplar and chestnut trees down by the lane. A good coach road leads up to the front door, and strong iron gates open into the lane. The house has two storeys, curiously formed with 3 gables, east, south and south-east. The door is in at an angle, with the south-east staircase window and gable above it. Three gothic arches form the portico, and there are 7 gothic windows in front and 7 good rooms inside, besides conveniences. We have planted jasmine, woodbine and roses round the portico, and apricots, plums, cherries and pears to grow round the house walls*"

Read more about The Recess in the house history written by Ken Taylor.

6 Change from 1940 onwards

As part of the war effort in the 1940s and afterwards the government encouraged ploughing of old pasture – often the ones with the buttercups or cowslips near farms where perhaps the ploughing horses, steadily being replaced with tractors, had lived and this land was often sown with arable crops or modern varieties of grass which gave higher yields when artificial fertilisers were added.
Hedges that were once left for many years to flower and set fruit before being cut and laid to be made stockproof again, were now cut every year with a flail cutter attached to a tractor giving fewer spring flowers and autumn fruits.

New herbicides were developed to kill arable weeds that were often rich sources of pollen, like poppies.
All of the above reduced yet again the amount of flowers in pasture, in arable fields, and on hedges throughout the parish and the also reduced variety of those flowers. And those changes occur because the economics of farming and land-use change.

In Great Ayton village, gardens were important for vegetables, pot herbs, and orchard fruit – for being at least partly self-sufficient. But as people became wealthier and could afford to buy their food more often, gardens became decorative, they became leisure show-pieces of weed-free moss-free lawns with weed-free summer bedding in the borders and all made easier to achieve with the advent of cheaper push then electric lawnmowers, herbicides, and artificial fertiliser. If you look at old photos from the 50s and 60s the whole village was much less organised and tidy and the scruffiness that it had meant more space for small habitats and for pollinators.
Today one of the current trends in gardening is for low maintenance planting or gravel, impermeable weed-free parking for cars, and plastic lawns which don't ever need cutting, although perhaps less so in Great Ayton.

Each change has resulted in fewer flowers, less diversity in gardens, less habitat, and so less food available for pollinators.

7 Change over the last one thousand years in Great Ayton

From the **E**nclosure of the medieval open-field system right through to modern herbicides and vegetation management methods, you can see that there has been a relentless destruction of the plants that pollinators' need, alongside a destruction in their habitat.
The most pollinator friendly area of each field is now usually the hedge and even in Great Ayton the grass is often short and neat, with only the trees and flower-filled gardens as useful habitat.
Add to that the damage that modern insecticides can cause and it's a bleak prospect in the area now if you are a pollinator compared with 100 years ago and even more so compared with 500 to 1000 years ago.
The top photo there is an area of Romania which gives a pretty good idea of how Great Ayton township would have looked only it doesn't show any arable crops and then compared with a google earth image from the Treebridge looking over towards the hills with Great Ayton village in the middle.

8 Great Ayton's High Street

This shows the changes that took place with building in several phases from the 1800s onwards that we are now going to explore as we make out way along the High Street starting at High Green. This shows the 1913 25" OS map alongside a current map using the National Library of Scotland's side-by-side facility.

9 High Green – history

As mentioned at the start, the question that started this project was:
Q: Why were there a lot of orchards marked on the 19th century OS maps of the village?
For example, in this 6" OS map from 1853

The first thought was that they might have been sold for use by ships sailing from Whitby as there was a story that Captain James Cook used a Yorkshire variety of apple called the Hunt House to take on his voyages to ward against scurvy. However, the story is unfortunately just that - a story and not fact. Cook's three voyages of discovery all set sail from the south of England in July and August, long before any Hunt House apples would have been ripe and ready to pick, not to mention the difficulty of transporting them to the south of England. Chris from the Northern Fruit Group suspects that *"the story came about as a clever marketing ploy to encourage interest in the apple somewhere along the line. It has never been very widely grown (possibly because it is a fairly unremarkable apple!) and the original tree was said to have been found in Goathland*."

We were also asked by a resident Nick Jacott,
"*Have you considered that the village may have been a source of apples for the Whitby whaling industry? I know that there has been research and orchard restoration in the village of Carlton Husthwaite with this history in mind.*"
We could find no record of fruit being sold for use on voyages, but we did find evidence of fruit being sent to be sold in Middlesbrough and also being sold more recently at the garden gate.

The first mention of an orchard in the High Green area is in an advert in the York Herald in 1820. This might have been the orchard that was behind Orchard House. However, the creation of an orchard garden in 1841 for the use of the boys at The Friend's School is mentioned in the 'History of Great Ayton School', published in 1891 and the first trees that were planted didn't survive due to the varieties chosen so had to be re-planted. As well as fruit trees and bushes the boys produced vegetables under the supervision of a gardener. The vegetables were then sold in Middlesbrough where they were taken once a week by horse and cart.

"*Wm. Gray had done us good service by planting a beech hedge down the middle of the orchard which protected the crops on the south side from the north winds, and formed a border which enabled us to get earlier vegetables; and the marketing with Middlesbrough was resumed. About this time a large vinery was put up in which, besides growing grapes and cucumbers, we were able to force rhubarb, plants of early cabbage and other vegetables which from being first in the market yielded a profit*."

High Green in 1936 shows a very different picture from today with very few trees.

Q. Do any residents have memories/remnants of old orchards in the village?

A request, via Facebook, for information about orchards in the village, sparked fond memories for local residents of at least nine small orchards around the village. Jean Allinson said, "*Never thought about how many there was before*."
According to Christine Parker there was a "*small orchard attached to Beech Grove Farm. Once the stable to Beech Grove House*." Beech Grove Farm was across the river where the first phase of Hollygarth was built.
June Marsden (nee Cumbor), can remember in the late 1960s/early 1970s, going to the Hollygarth orchard with her mother. They took a wheelbarrow to collect windfall apples for her father to make wine. June's grandfather had a market garden 'School Gardens' off Station Road growing vegetables and fruit such as gooseberries. Their family then ran Sunnyfield Nurseries, off Easby Lane, selling pot plants, flowers and vegetables. June still grows some of her own fruit and vegetables and has plans to plant apple, pear and cherry trees.
Jan Briggs replied saying "*It was a 2-acre orchard that grew apples, pears, plums, rhubarb, gooseberries and rasps. Then had large greenhouses for tomatoes. It belonged to Everret Wilson, I am his granddaughter, spent hours playing in there*." Several residents then commented there were still some old apple trees on Hollygarth.

Sue Bartram said that there was an orchard up where Green Acre close is "*Got caught orchard raiding*."
Several people remembered that Mr Mitchell had an orchard next to the taxi garages, behind the pig sties, on Monkabeque Street (now called on Romany Road). Wendy Atkinson could remember - "*We used to go there to get a bag of apples for 6p*."

10 High Green – Orchards

Nicholas Jacott had evidence of the old orchard behind High Green seen on the OS map and an aerial photograph was discovered during the research which shows rows of fruit trees behind Orchard House. Nick dated the photograph to approximately 1939/40 due to when his house was built but there was not yet an air raid shelter in the garden.

"I am replying to the leaflet you put through the door yesterday. I have lived at 8, High Green for 32 years and have some information that may interest you. In fact apples and their history have been an interest of mine for many years.

I did know about the existence of an orchard where the house now stands. When we bought the house there were three original trees two of which were sited within the boundary hedges, in a poor state and could not be saved. The tree that was in a decent position was massively overgrown, but I set about restoring it. First of all I sent a sample of the fruit and leaves to the experts at Brogdale in Kent who identified the variety as Allington Pippin (previously called South Lincolnshire Beauty) a variety that was in commercial production until about 1930. This is a dual purpose Apple. I then set about restoring it over a number of years. There were existing trees at No7 but they have now fallen down and there remains an unidentified tree in the garden of No9.

Old orchards were tall fruit trees, mainly apple, planted in permanent pasture in which wildflowers were present. Lambs, or a ram, often grazed underneath them or sometimes the grass was left to grow long and cut for hay before the apples were ready to harvest. The apples were collected by someone climbing up a ladder with a woven willow basket. Fallen apples may have been fed to the pig.
Honey-bee hives were kept nearby to pollinate the flowers in May as without pollination the apples wouldn't form, but it would also have been a good spot to keep the hives so the bees would be able to forage elsewhere in the village at other times. Plums, damsons, and cooking pears would also have been planted and sometimes you can find plums and damsons growing in hedgerows along with crab apples.

11 High Green - plants

Currently on High Green you can find a few trees and a lot of grass – grass with very few wildflowers. In the strip under the trees on the eastern side are crocus and winter aconites – flowering now - good for early bumble bees.
What can we change for the future? Well we've got to be practical and the centre of the green needs to be hard-wearing for village events but we can certainly add more wildflowers like cowslips (such as these at Albert Park in Middlesbrough) or buttercups into the grassland at the edges, perhaps more bulbs for a spring display to go with those wildflowers such that when the bulb leaves have died down the whole stretch can be cut and removed then mown normally for the summer?
If we think about new trees here; do we need larger shade-generating trees for the warmer summers to come, or more quicker-growing decorative blossom trees as nod towards those orchards that used to grow in the area?

12 Waterfall Park

If you look into the field behind Waterfall Park you might be able to spot evidence of the ridge and furrow pattern left by the way fields used to be ploughed before tractors. This field was part of the Applebridge Field, one of the three old open fields. The Lidar image on the right shows clearly the old ridge and furrow in what was part of Applebridge field.

The 25" OS map from 1913 shows Waterfall Park, stepping stones over the river and the course of the old mill race. To find out more about the park then either look at the interpretation board there or visit Great Ayton's Captain Cook trail website. Soon there will be a new bridge to make it easier to visit the park.

Waterfall Park now has a lot of trees of a variety of ages. In a recent project we asked if people wanted fewer trees as many are quite crowded but the majority wanted those there kept to provide shade.

13 Waterfall Park - beetles

Beetles are a surprising pollinator, but most of them can fly and they do eat pollen or drink nectar and so act as pollinators travelling from flower to flower including having their own preferred plant species to visit. Tiny black pollen beetles here pictured on a dandelion have become much more common in recent years mainly because of the increased planting of oil-seed rape on which they feed on the flowers - a classic case of providing more food and habitat and seeing an increase in numbers … although not intentionally in this case. They are particularly attracted to yellow flowers though if you grow sweet peas in the garden you'll know that they sometimes are found in the keel petals, only to fly out once you have them in the house. You might also spot the shiny green Dock beetle, the larvae of which eat dock or sorrels and tend to hang around near wet places. They are more common in the west of the country at the moment, but climate change may affect their distribution in the future.
And a quick mention for the common red soldier beetle which, because it is famously seen for being very errr … very friendly in pairs on Hogweed flowers in July and so is also named the Hogweed bonking beetle.

14 Waterfall Park - plants

As we are in Waterfall Park – a mention for the survey we did of the wildflowers present; 48 different species of flowers, 23 different trees and shrubs, plus 17 grasses, sedges and ferns - most of which are native. We also planted wild daffodils, of which a few flowered in their first year, flag iris and the marsh marigold amongst others that are good for pollinators.

I've added a photo of a 22 spot Ladybird, yes they are beetles, eating the mildew on great burnet which we didn't plant in Waterfall Park but it also eats the mildew on meadowsweet which we did. Also, if you ever take photos of beetles to identify later when you get home … this is usually what they look like – take several photos so maybe at least one is nearly in focus.

15 Village Hall - Butterflies and moths

Funny isn't it that when we think of butterflies in gardens our first thought is for Buddleia, which isn't a native – but it does have lots of nectar. Another garden favourite is the Ice Plant or *Sedum spectable*. These late-flowering nectar-dense flowers are great for butterflies especially when placed in a warm sun-trap But we also need nectar for butterflies emerging from hibernation like this Peacock butterfly on a Dames Violet/Sweet rocket flower at the end of May – a plant which is also good for orange tip butterfly and for moths given it is evening-scented and so, as you can imagine, Honeysuckle another evening scented flower is a good plant to have too climbing up a fence or hedge.

But pollinators also need food plants for their larvae – the caterpillars. Keeping nettles in the garden (here with seething mass of peacock caterpillars) is the plant we are familiar with, but long grasses are needed for the caterpillars of meadow brown butterflies and many moths and micromoths so you could just leave your lawn longer in places for the summer and that would help too.

The Magpie moth feeds on the leaves of currants and so you can grow red or white currants for yourself but also feed some moths at the same time. And it's got to be worth growing fuchsias on the off-chance an elephant hawk-moth caterpillar takes a shine to it, or you could just let some willowherbs grow here and there as they eat them too.

And in the near future with warmer average temperatures we can expect perhaps painted lady butterflies and the fabulous humming bird hawkmoth on red valerian, which Caryn has already seen in the area.

16 Village Hall - plants

In 2019, Martin was asked to develop a plan for Great Ayton to help the Parish Council and Brighten Up Great Ayton (BUG) group of volunteers to improve the open spaces in the village for people and wildlife.

Included in the 'Great Ayton – Action for Pollinators' plan is the following vision for public open space within the village.

"*Aim to create resilient planting that is easy/simple to manage and diverse, such that there is always have something flowering no matter the future climate conditions, and to increase the available nectar and pollen resources from the present level.*

To show how fruit and perennial vegetables can be grown comfortably with garden plants and wildflowers in a modern cottage garden style in keeping with Great Ayton's current picturesque reputation.

Planting that will prove attractive to local people and visitors alike and provide inspiration and ideas for local people to use within their own gardens."
The plan recommended that the garden at Great Ayton's village hall should be developed as a showcase for how you can manage a small public garden area growing fruit/perennial vegetables or herbs alongside perennial (or self-sowing annuals) flowers for pollinators, with an emphasis on looking good during the summer season when the village is most visited.

The garden is a showcase for people to see how they can do something similar including plants like mahonia for nectar in the winter, raspberries to eat and we've left a wild area with nettles, ivy, brambles.

The BUG group has worked hard to create the community garden around the village hall, and two benches were added for people to enjoy the lovely spot, including watching all the pollinators that are now visiting.

Work was funded by North Yorkshire County Council's Locality Budget.

17 Beech Close

1853 6" OS map showing orchards in the area of Beech Close.

Just along from Beech Close, towards Low Green, is no. 47 High Street, built in 1875 by two brothers William and Thomas Hutton, both shoemakers. In the house history for no. 47 High Street, written by Dan O'Sullivan, resident and local historian, Dan says that the brothers, "*had bought a property on this site from Williamson Thomas in 1874. It included a dwellinghouse and yard and an orchard adjoining it, plus two cottages, a stable, granary and carthouse in yard and a pump."* In 1958 the property was sold to Arthur Simpson and at some stage he sold most of the orchard for the development of Beech Close sheltered housing.

Just along from Beech Close, towards High Green, is the house Beech Grove built in 1779. According to the Great Ayton History Society, the house mentioned in Lot 3 in the advert in the Leeds Mercury would be Beech Grove. If you look in the garden of Beech Grove house today you will see lots of plants that have flowers attractive to pollinating insects.

Q. What new planting of fruit trees has taken place/is planned in the village?
In 2019, a new mini-orchard was created to provide fruit for local residents and a stopping off place for honeybees and other pollinators. Records show an old orchard was here before the bungalows.

The trees chosen for the mini-orchard are a mixture of heritage varieties (Bramley and Ribston Pippin apples plus Victoria plum) and modern varieties (Core Blimey and Scrumptious apples) to cope with a changing climate.

During one of the sessions on pruning and grafting trees, the person who grafted and planted the trees in the orchard at Yatton House called in and gave permission for the group to prune the trees as he was no longer able to do so. He was pleased that the method he used for grafting trees was that being demonstrated by the trainer. We await to see if any of the grafts have taken.

Several residents commented on the fruit trees they have planted or are planning to plant and another expressed interest in finding out about heritage varieties that he could plant.

Nick Jacott told us:
"I have planted many fruit trees. There are another 10 in my garden, mainly old varieties on dwarf or semi dwarf rootstock. I have also planted another 16 on my allotment (10 apple and 6 pear, again old varieties) as cordons."

Slide 18 Beech Close - Honey and solitary bees

Honey bees aren't actually native - if you think about it that's not too surprising as they are very rarely found as self-sustaining colonies in the wild. https://jeffollerton.co.uk/2013/07/12/are-honey-bees-native-to-britain-and-does-it-matter/

We have a lot less now than we used to; there were around 400,000 colonies and about 80,000 beekeepers at the end of the 2nd World War and in 2013 an estimated 210-275,000 colonies with approx. 40-46,000 beekeepers. In population terms currently in the UK, there are around 5 billion honeybees in winter (20,000 per colony), rising to some 16 billion in the summer (60,000 per colony).
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/210926/pb13981-bees-pollinators-review.pdf

Plantlife have a very good project every year where you count the flowers on part of your lawn and use that information into to work out how much nectar your lawn produces. If you want a high score then having lots of white clover is a good idea as it produces loads of nectar and there is some great advice on how to manage your lawn too. https://www.plantlife.org.uk/everyflowercounts/2019-results/
The Botanic garden of Wales has been carrying out some work with DNA barcoding of pollen in honey and microscope assessment of pollen shape to see how the floral landscape has changed over the last 65 years and one of the main findings has been a substantial decrease of white clover nationally but that has been compensated partly by an increase in bramble which flowers at about the same time as white clover. There has been a big increase in use of oil seed rape nectar for honey – which won't surprise any of you who can still remember what shock it was to first see such bright yellow fields in the landscape.
https://botanicgarden.wales/honeybees-tell-the-story-of-the-uks-changing-landscape-over-the-last-65-years/

19 Beech Close - plants

225 species of bee in the UK are solitary bees which is a lot and they really must feel like the Cinderella of bees given the amount of time and money spent on honey bees. Bless them.
Leaf cutter bees like to use rose leaves for their nests and so perhaps the bungalow gardens in Beech Close can supply those – and it doesn't hurt the roses which will still flower. If anything, an excuse to plant more roses.

And a brief mention for the wool carder bee that you can sometimes find collecting hairs from the plant lamb's ears to line her nest sites and plug the holes to make the eggs safe, much like the leaf cutter bee does with the rose leaves.

20 Hollygarth

The first mention of the name Hollygarth was in 1846. There has been an orchard in this area since at least 1846 as the apportionment (1846) relating to the 1847 tithe map of the village refers to an orchard in field 313 called Hollygarth.

The orchard is clearly shown in this extract from the OS 6" map surveyed in 1853 (Reproduced with the permission of the National Library of Scotland

1858 August 21st YORK HERALD
STOKESLEY PETTY SESSIONS - On Saturday, before Jas W. Pennyman, and George Marwood Esqrs. - Anthony Pearson, of Stokesley, was charged by John Lowther, Great Ayton, with opening his house for the sale of beer before 12:30 clock a.m., on Sunday, the 8th inst. Fined 6d and costs -- William Eccles of Great Ayton, was charged by Elizabeth Cail, of the same place, with wilfully damaging some apples in her orchard. Fined 4d and costs
-- Humphrey Sanderson, of Great Ayton, is charged by the said Elizabeth Taylor, with the like offence. Fined 4d and costs.

- Was it this orchard where some apples were damaged in 1858 or was it one of the other orchards in the village? In the 1851 census we can find Humphrey Sanderson – age 10 scholar and a Humphrey Sanderson age 50 shoemaker. Who do you think damaged the apples?
- The only Elizabeth Taylor in Great Ayton around that time can be found in the 1861 census was age 41, a housekeeper living in George Street. Is this the Elizabeth Taylor who charged Humphrey Sanderson?

Remember back to peoples' recollections of the orchard in the Hollygarth area. It would appear that the orchard remained there in some form until the 1970s when the second phase of the Hollygarth estate was built. There is still at least one old apple tree to be found in Hollygarth.

Aerial view showing greenhouse for tomatoes where part of Hollygarth estate now stands (1960s based on cars in photo)

21 Hollygarth – Bumblebees

We have 24 bumblebee species in the UK
When studying Bumblebee (*Bombus terrestris*) colony numbers in rural areas researchers found that they were affected by nectar availability in September and proportional cover of gardens in the area – so grow flowers in your garden that flower in Sept. (ivy flowers were also a help) And that makes sense if we think about each pollinator's lifecycle – find out what is the limiting resource affecting numbers or population in the area and change that if possible. https://besjournals.onlinelibrary.wiley.com/doi/10.1111/1365-2664.13826

It's interesting to note that September is often when the wildflowers on the grazing moor would have been flower – and of course gorse is always flowering.
Also dandelions are good for early queens and willow flowers for early pollen.

22 Hollygarth - plants

This graph just to show that different plants can deliver different amounts of pollen and that can be quantified and the same can happen with nectar. This particular example is a science paper where they were comparing those pretty annual flower mixes with a perennial mix and then just general weeds knocking around. There wasn't a huge variation though I notice poppy does well – there were some stronger differences with nectar where creeping thistle and ragwort where very high producers. And a quick comment on plant identification and how difficult it can be. The photo of *Centaurea nigra*, Common knapweed is in fact Greater knapweed, *Centaurea scabiosa* – it's easy to make mistakes when identifying wildflowers.
Food for Pollinators: Quantifying the Nectar and Pollen Resources of Urban Flower Meadows
https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0158117

23 Cook Garden – history

Captain Cook's father, James Cook senior, after retiring from farm work in 1755, built a pair of cottages in the village on Goat Lane (now called Easby Lane). James Cook senior left the village in 1772. Remember this drawing by George Cuit, held in the Gott Collection in the Hepworth Wakefield art museum, showing the cottage as it was about 1788. This drawing, maps and other historical documents helped Valerie Hepworth undertake research into the plants that might have grown in the garden when George Cuit visited and the plants that might have been in the garden in 1914.

You can learn more about the history of the cottage from the interpretation board in the garden or from the Captain Cook's Trail website.

24 Cook Family Memorial Garden - Hoverflies and other flies

Adult hoverflies can be attracted to the garden with flat flowers where pollen and nectar is easily available - the daisy flowers like asters and also umbellifers like erm… ground elder… which is a good excuse if you have it in the garden but haven't been able to weed it out.
The fly on the brick wall is a Bee Fly, and for flies it's massive and very distinctive so worth looking out for. It has a long proboscis or mouthpart which it uses for drinking nectar. Lifecycle-wise it's a parasite of bees or it lays its eggs near bee larvae and its larvae eat the bee larvae. The more bees you have around the more bee-flies there are.

25 Cook Family Memorial Garden - plants

Anne Press recently donated a Staithes cabbage to the garden – it's a perennial cabbage of which the leaves are eaten like kale.
Shrubs like elder and there is one of the dark leaved forms in there or privet (you can see a gold leaved version there) if allowed to flower.
Ivy when it grows up into its adult flowering form is attractive to both flies and hoverflies – it's a surprisingly good all round wildlife plant.

The gardening group have a policy on weeds – if they look good then leave them be which makes sense to me and is a lot less work.

26 Low Green

Facing onto Low Green is **Ayton Hall.** Map is the 1913 25" OS.
The Ayton Hall house history produced by the Great Ayton History Society, says
"*The Hall is a grade II* listed building, and the author of its list entry description estimates that it may have been built in about 1690. However, the description adds that certain alterations and extensions seem to have been made since that time. It also states that the rear wing of the Hall is clearly the oldest part, and mentions certain features which appear even to precede the seventeenth century, such as a 'flattened Tudor-arched north doorway'.*"

According to the House History, John Coulson senior "is recorded as living in the largest house in the village in successive hearth tax assessments between 1662 and 1673, and the annual Manorial Court, of which some records survive from the mid- century, was held in his name between 1647 and 1661. He was responsible, along with other local landowners, for the enclosure of the village's open fields and commons in 1658." See Waterfall Park stop for more information about the village's open fields.

In 1820, a house was for sale in Great Ayton and the advert said:
1820 July 1st NEWCASTLE COURANT AYTON in CLEVELAND; TO BE SOLD by private contract,
A Commodious FREEHOLD MANSION HOUSE, Situate in Great Ayton in the North Riding of Yorkshire, consisting of a Dining Room twenty-six feet by eighteen, and twenty –four in the Bow, a Drawing Room of the same dimensions, a Hall, two Parlours, a good Kitchen, Servants' Hall, and other offices on the ground floor; seven Bed chambers with Closets, and five Garrets. A Coach House, Stables, Barn, and other Out-offices, necessary for a Gentleman's Family. A Pleasure and Kitchen Garden, with good Walls and Fruit Trees together with about eighty acres of good Land of which a considerable proportion is of the first Quality, and all Freehold, contiguous to the House, and free of Hay Tythe. Ayton is a pleasant healthy and dry Situation, in a fine sporting Country, is two miles distant from the Market Town of Stokesley, five from Guisborough, ten from Stockton and Yarm, and twelve from the Sea, and is in the centre of a genteel Neighbourhood and accessible by excellent Roads.

By deduction, members of the History Society believe this house refers to Ayton Hall. A few old apple and plum trees still grow in the walled garden. Manor House, further along Low Green, also has an old orchard within a walled garden which is mentioned in an advert from 1827.
1827 October 6th NEWCASTLE COURANT TO BE LET a neat DWELLING HOUSE, situate at Great Ayton in Cleveland, with a Barn, Stable, and other conveniences, and an Orchard adjoining now in the occupation of William Proctor Esq.

27 Low Green – wasps

Adult wasps feed only on sugars, sometimes those in apples but also either nectar or aphid honeydew…which we often find on trees especially Sycamore as you will know if you have ever parked under one in the street. So Low green is good habitat for feeding wasps well it is now the trees have been planted here. The adults also kill other insects to feed their larvae, but not for themselves they just survive on sugars.

The fabulously glittery Ruby-tailed wasp is parasitic on Mason Bee larvae (which are laid in holes between bricks or blocks of stone in walls) of which there are many around Low Green and other solitary bees – they pollinate plants too using yarrow, ground elder and angelica as well as aphid honeydew, but also do require other pollinators to be around in order to complete their life-cycle. The more solitary bees you have in an area, the more ruby-tailed wasps can survive. I should say the ruby-tailed wasp is tiny so you will need your reading glasses to see it – about a third of an inch or less than a centimetre.

28 Additional areas of interest

The station garden is contributing towards making corridors of pollinator-friendly plants by planting alder-buckthorn the food plant of caterpillars of the Brimstone butterfly which is steadily moving northwards along the Esk Valley Railway line. And you can see there a bug hotel which acts as a space for hibernation and also nest sites for solitary bees.

Part of the cemetery already had a surprisingly rich grassland flora of 48 species including greater bird's-foot-trefoil and the locally rare fern adder's-tongue, both plants of damp ground. All it needed was managing to allow the wildflowers and grasses flower in the summer and then cut the grass and remove it like we would do with hay. In the future we hope to use the seeds from here to help create new areas of native wildflowers in Great Ayton.

29 What next

We have covered quite a lot of ground: the science of ecology is really complicated and decisions made often have unforeseen consequences and frankly there is such a lot we just don't know.
With that in mind we can still make some broad generalisations about how we can create a more resilient future for pollinators within Great Ayton.
Two things we can do:

- within public areas we can increase the numbers of the existing native plants from seeds of those found in the Parish or adjacent Parishes, and then manage those plants more appropriately so they get to flower.
- within our gardens we can increase the range of flowering plants (both native and non-native), so that we have more flowers and for a longer period through the year including the winter months (and stop using herbicides & pesticides).

Both of these things maximise the amount of nectar and pollen available to pollinators, and more native plants ensures more habitat and food plants for larvae too.

30 Thanks and Bug Trail next steps

Thanks to:
Heritage Lottery Fund, Great Ayton Parish Council, Broadacres, Hambleton District Council
Great Ayton History Society, Great Ayton Tourist Information
Brighten Up Great Ayton group
Daniel Van der Toorn of Toorn Designs, Studio Botez, Yatton House
Martin and all of you

Will email the notes and slides/ link to documents ad project launch date. Get in touch if you would like to join the BUG group in their work in the village e.g. future floodplain meadow project.