

Botany Bay Community Interest Group 2020 Newsletter

Increasing Biodiversity

In this strange year, one positive has been the time that we have had to appreciate the wild spaces around us. Although we haven't been able to invite as many visitors into Botany Bay, we have had a lot of help from local volunteers and students. Matthew Sennitt has done much of the management of the site this year as you will see from his reports. We're also very fortunate to have Will Morris (on placement from Bath University) who will be working with us until August 2021 on various projects focussing on increasing the biodiversity of the site.

The Wildflower Meadow (Matthew Sennitt)



Marbled White

The first Lockdown period was a time when many people made a connection with nature in their own gardens, but with Botany Bay on my doorstep, a visit became a joyful part of my daily routine. This meant that I was able to watch closely the development of the wildflower meadow and see more of the wildlife it attracted. The late October 2019 sowing of the meadow's grass and wildflower mix was a concern as less grass than expected had germinated



Meadow dominated by flowering Wild Carrot

in the autumn, but as spring dawned the sward began to develop and by mid-April it had its first cut. Thereafter the focus moved to finding germinating wildflowers. The easiest to see initially being Wild Carrot and Ox-eye Daisy, which flowered prolifically later in the year. Soon many others became recognisable such as Ribwort Plantain, Salad Burnet and Yarrow though none of these flowered in their first year. Plants grown from seed or cuttings were added to the meadow later and included Wild Marjoram, Harebell and Small Scabious all of which flowered during the year.

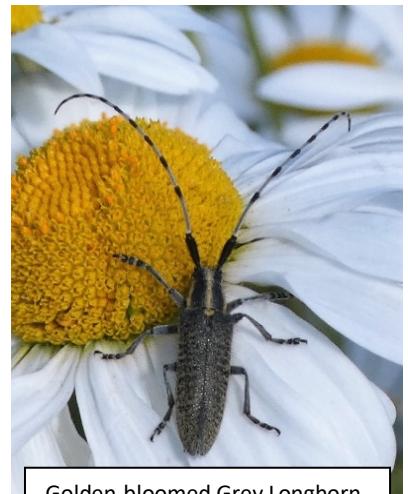


Black-headed Cardinal

The presence of this large flush of wildflowers, together with those on the southern bank of the lake, meant there was a new banquet of pollen and nectar for insects in the reserve and they were quick to take advantage. Common Blue and Meadow Brown have been regular here in recent years and were seen frequently, but Marbled Whites, up to 8 at a time, were a new breeding species for the site. During the year Brown Argus, Small Copper and Chalkhill Blue were also added to the list. Beetles were also found to be using the new flowering buffet. Swollen-thighed beetles were frequently found on Ox-eye Daisy flowers, while some beetles whose larvae are found in deadwood were also present such as the uncommon Black-headed Cardinal beetle and the even less common Golden-bloomed Grey Longhorn.



Scarce Chaser



Golden-bloomed Grey Longhorn

The meadow also attracted species whose adult needs are extremely different from those of their underwater nymphs, the dragonflies and damselflies. Both stages are voracious predators; the lake provides habitat for the nymphs, and the meadow now

provides good hunting for the aerial adults. The most notable dragonfly seen in the meadow was the Scarce Chaser. This species was a new record for the site and it may now be helped by having a richer variety of prey species close to hand.

The wildflower part of the meadow has been surrounded all year by a 2-metre-wide path for ease of access. This has been expanded twice during the year so that it acts as a buffer zone between the area of fine grasses and plants and the coarser grasses of the remaining meadow. The whole frequently managed area now occupies about one third of the meadow. The frequent mowing of the path has altered the structure of the sward from coarse grass to include finer grasses. We are now adding plants such as Selfheal and Common Daisy, able to withstand frequent mowing, to this widened path to further boost the pollen and nectar available in the meadow.



Turf-stripping

An increase in the biodiversity of the meadow is an ongoing part of the venture. This has been addressed this autumn by the necessity to straighten part of the original outline of the wildflower meadow where it was proving awkward to mow the surrounding path. Furthermore, this gave an opportunity for our Bath University student to strip turf and prepare a seedbed for wild flowers. The result was a long triangular area of some 40 square metres, which was sown with a customised mix of grass and wildflower seed. The grass seed chosen was Sheep's Fescue. The wildflower species chosen were aimed at producing show of a colour in 2021 (Common Poppy), a patch of nectar rich flowers in 2022 (Viper's Bugloss), the introduction of a new early flowering species (Crosswort) and a boost to the existing populations of Cowslip and Lady's Bedstraw. The seeds were sown at the beginning of October and the grass seeds as well as some dicotyledons are currently germinating.



Selfheal

Poppy), a patch of nectar rich flowers in 2022 (Viper's Bugloss), the introduction of a new early flowering species (Crosswort) and a boost to the existing populations of Cowslip and Lady's Bedstraw. The seeds were sown at the beginning of October and the grass seeds as well as some dicotyledons are currently germinating.

The Three Ponds

The Three still ponds that are found to the west of the meadow were originally created in the 1970s to house fish fry and as such had vertical sides and were about five feet deep. In 2018 they were modified by machine to produce ponds with sloping sides; the material removed to do this being placed into the ponds to reduce their water levels. This produced ponds of different depths, deep, medium and shallow, the latter about two feet. In



addition, some material was removed between the ponds so that movement for small creatures between the ponds was easier. This year Common Toads used the deepest pond to spawn and the produced a large mass of tadpoles.

Unfortunately, the pond was commandeered by a large family of Mallards and the tadpoles disappeared.

It was decided to increase the floristic biodiversity of these ponds by introducing additional species. These included Water Mint and Yellow Flag from elsewhere on the site. Brooklime and Water Forget-me-not were transplanted from another local pond. To

further increase the diversity of the flowering plants a number of species were planted having been grown from seed. These included Marsh Marigold, Purple Loosestrife and Sneezewort. As the edges of the pond are still fairly steep most of the planting was done in the cuttings between the ponds. The bare areas produced by the earth movement has allowed some plants to colonise naturally. These include Water Figwort, Wild Angelica, and Hemp Agrimony; a single Common Spotted Orchid was also found.



Marsh Marigold



Water Figwort

The bare banks have also allowed the development of the native invasive plants Horsetail, Hemlock Water Dropwort, and Pendulous Sedge. During the year Horsetail was routinely removed by hand, Hemlock Water Dropwort was cut down to prevent seeding and Pendulous Sedge dug out by hand. These three species will require routine removal until they no longer threaten the biodiversity of the ponds.

Kingfishers have bred in the most westerly of the three ponds in the past and are frequently seen in the area utilising the lake, stream and ponds. However, the natural nest site has eroded and grown over, so it was decided to introduce two artificial nest boxes to the site this winter. They will be placed in the bank under the large willow where nesting took place in the past.

Nearby on the stream, boxes have been placed under the two bridges to attract nesting by Grey Wagtails. This species is often seen along the stream and takes well to artificial nest sites.



Grey Wagtail nest box

Trees and Hedges

Ash tree dieback is now rife in West Sussex as can be seen by the large-scale felling of trees along the A285 and South Downs Way. Botany Bay also had its casualties and a number of trees have now been removed to make the paths safe. The South Downs National Park Authority helped us to replace some of these by giving us saplings, which included Small Leaved Lime and the Dutch Elm disease resistant Elm clones Fiorente and Lutece. After the last ice age Small Leaved Lime was one of the commonest trees found in southern lowland woodlands, but now it is very rare. Its blossom produces a sweet scent that attracts pollinators,



Single Elm planted above the meadow

particularly bees, and its leaves are the foodplant of the caterpillars of moths such as Lime Hawk, Peppered moth and Vapourer. The leaves are also attractive to aphids that are a food source for many other creatures. Mistletoe is seen in lime trees of Lavington Park and will eventually colonise the Small Leaved Limes in Botany Bay. English Elm was a valuable resource for invertebrates hosting, for example, 56 species of large moths and also the caterpillars of the White Letter Hairstreak butterfly, a species entirely reliant on Elm. It was decimated in Britain in the 1970s by a fungal disease spread by wood boring beetles. Since then a number of disease resistant clones have been developed with the hope of restoring the fortunes of insects that are dependent on it.



Hedge along The Drive

Along the boundaries of Botany Bay, we have implemented a plan of hedge laying (thanks to help from Graham West), and hedge planting which has been largely dependent on the Woodland Trust's 'Free trees for schools and communities' scheme'. This year with help from Will Morris and Seaford's Countryside Management students, we have planted Hazel, Crab Apple, Downy Birch, Hawthorn, Goat Willow, Rowan, Blackthorn and Dog Rose along The Drive. In order to further extend the range of species we have also purchased Common Box, Common Buckthorn, Wild Privet, and Spindle. The latter group of trees will be planted in areas that have been coppiced or the canopy opened up in order to produce areas that are species rich, it will help to expand the range of wildlife able to utilise Botany Bay.

Bath University Biology Student (Will Morris).

I'm Will Morris. I'm an undergraduate on placement here at Botany Bay. I have been studying Biology at the University of Bath for two years. For the next academic year, until August 2021, I will be working on three long-term projects in addition to assisting with the maintenance tasks on the site. This placement appealed to me due to the unique nature of the area, as well as my enthusiasm for conservation. Botany Bay is a wetland area with a chalk stream running through it, one of just a few hundred in the world. Therefore, it is a site of great importance in the world of conservation, hosting a unique array of wildlife and ecosystems. A chance to work and study here as well as help improve the biodiversity of the area was an



opportunity that I could not resist. With growing numbers of species being lost due to pollution, global warming and habitat destruction, conservation is something I am extremely passionate about.

Seaford College Countryside Management (Julian Hart)



My year 12 Countryside Management BTEC group have, under the tutelage of Paul Spiers, enjoyed working in Botany Bay this term. In September we completed a bat survey using both a static bat detector, which we set up near the bridge, and a handheld 'Echo Meter'. The evenings were still warm and the insects abundant – we recorded 9 species of bat, including Serotine and Barbastelle, both listed as vulnerable on the Red List for England's Mammals.

Our work on monitoring wildlife populations continued with a small mammal survey in the long grass and hedgerows that border Botany Bay and the grounds of Seaford College. We set up 10 small mammal tunnels which we 'baited' with peanut butter and ink pads to record footprints of passing mammals. The heavy rain in October didn't help us but we still managed to record a lot of activity; mainly mice species as well as evidence of badgers, foxes and deer.

The next step of our work is to consider how careful management can further enhance this wonderful habitat for our 'target species' - we have chosen bats. With Anne's permission we began work to coppice 8 hazel trees in order to allow more light into the woodland. We are also aiming to build and install a bat box at some point over the winter.

Stream Monitoring (Anne Dennig)



Riverfly monitoring

In July we had a visit from Ses Wright, Project Officer for Arun and Rother Rivers Trust (ARRT) who coordinates the ARRT Riverfly monitors. Alfie Dudley-Warde, Jo Amin and I have been surveying for The Riverfly Partnership this year and are now part of the new WhatsApp Group for Riverfly Monitors surveying the Western Rother.



Our kick samples have generally shown good scores of Caddisflies (Cased and Caseless), Upwing flies (Olives, Blue-winged Olives, Mayflies and Flat-bodied Upwings) and Freshwater Shrimps. In August when the level of the stream was low we had a survey showing lower numbers of the indicator species and a large numbers of small leeches. Thankfully, as the water level rose in autumn and the temperature dropped, the survey scores have returned to their usual levels. We are now surveying two areas of the stream from March until the end of September.

During autumn, Charles Winchester (SDNPA) organised for The Environment Agency to survey the stream and lake. The electrofishing in October showed that we have a healthy population of wild brown trout and bullheads along the



A wild brown trout

whole stretch of the stream and placement of crayfish refuges showed no signs of crayfish (signal or native) present. A night time torch survey of the lake and stream also showed this large eel approximately 3 ft long. YSI probe readings taken by the EA in situ of the stream on the 23rd October are shown here.

Temp 11.4c
Dissolved Oxygen 91.7% or 9.91 mg/l
Conductivity 512 us/cm;
Salinity 0.25 psu
PH 7.95
NH4-N 0.16 mg/l
NH3-N 0.00 mg/l

Wilding (Fran Southgate)



Recently Dr Chris Sandom, a Lecturer in Wilding at Sussex University, and a staunch advocate of youth engagement in the Wilding and conservation movement invited key workers in the conservation world to contribute to the creation of 13 short videos to engage 11-18 year olds in rewilding. [Sussex Wildlife Trust](#) was asked to contribute and Fran Southgate chose Botany Bay for her film footage to speak about her passion for Wilding. She wrote this piece for us.

"Since I first set foot in this enchanting little valley years ago, it has held a special place in my heart. Something about its quasi-prehistoric vegetation and the sound of the bubbling chalk stream wending its way through

lush fern and vine draped slopes gives me a sense of wild nature that I experience in few other places in Sussex. It is one of the wilder places in Sussex that I am grateful exists, and even more grateful is in the hands of owners who are working tirelessly to restore and regenerate it. Botany Bay already supports young people as trainee ecologists on the site. Annie, one of the owners, was also gracious enough to let us head into the valley to film footage for Chris and the kids in July."

Conservation Multitasking (Matthew Sennitt)

A fallen Oak, Ash dieback, Rhododendron and Bamboo clearance, together with the construction of a scallop and a Hibernaculum. All these projects came together in a small area on the northern bank of the lake. The Rhododendron had slowly been spreading for many years and as a potential invasive species was cut back in the early part of 2020, then dug out. Similarly, and next to the Rhododendron, an area of Bamboo was dug out. A small Oak tree fell across a path in one of the spring storms and was cleared away. A small number of large Ash trees were felled close by to make the area safe. All these activities produced large piles of wood and an area resembling a battlefield. The soil level of this area, being close to the lake, is not much above the winter water level, so it was decided to initiate a programme of scalloping parts of the bank to increase waterside vegetation.



Hibernaculum construction

The plan included building a large hibernaculum for amphibians and reptiles close by. This utilised much of the wood from the tree clearance and would be covered by the earth dug out to produce the scallop. Construction of the hibernaculum was started by digging a pit of about two spades depth, then filling this with wood, twigs, and leaves. Three pieces of drainpipe were carefully placed under flat pieces of Oak to allow entrance and then the whole was covered in a thick layer of soil from the scallop.

The scallop was dug five metres wide along the lake by three metres into the bank and dug deep enough to reach the winter water level of the lake. The edges were bevelled to allow easy

passage of small animals. The floor of the scallop will be planted with Water Mint and Yellow Flag, both obtained from the side of the stream nearby. Once the scallop and the hibernaculum have been completed, the remainder of the Rhododendron will be dug up and the whole area levelled. A seedbed will be created and seeds of wildflowers of wetlands sown. The seedbed will be augmented by plants grown from seed or obtained from elsewhere on site.



Rhododendron cut back



Scallop completed

Message from the Chair (Clive Lightfoot)

While there have been many who have suffered from COVID 19, fortunately our Conservancy continues to flourish. We've benefitted from the huge amount of work that Matthew, Jude, and Anne have put into Botany Bay as is very obvious from our newsletter; though I suspect benefits flowed in both directions. As always, we also benefit greatly from the many helpers and advisors that spend their time with us. This year especially from Will Morris our Bath University student placement; Alfie Dudley-Warde and Josef Amin our Riverfly monitors; Julian Hart and the BTEC team from Seaford; Charles Winchester with his rangers and volunteers from SDNPA; Damon Block from the Environment Agency, Fran Southgate from Sussex Wildlife Trust; Robin Bray and Steve Batten from PSFFA ; Jim Kirke from Graffham Downs Trust; John Bentley from Arun Trees; and our CIG member Graham West from Weald Woodsman.

We look forward to seeing you all again in 2021.

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