

Hayes and Keston Local Nature Reserve

The Ravensbourne Trail

How to Get There..

This trail starts at the car park, off Commonside, Keston. Access to the trail is via the following bus routes:-

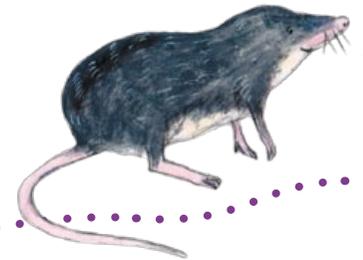
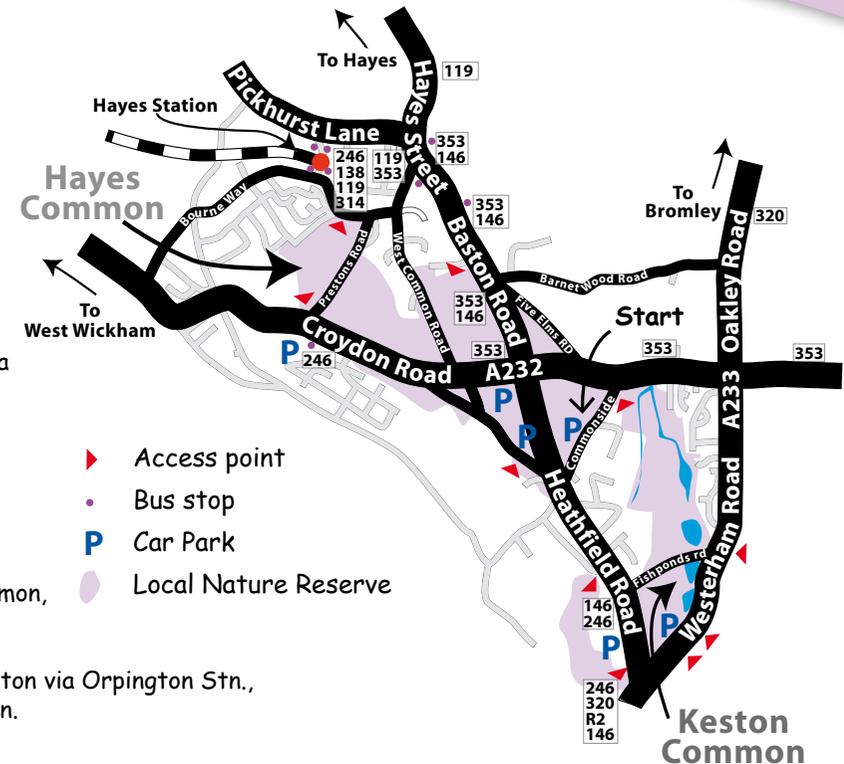
- R2 (Mon-Sat) Petts Wood to Biggin Hill via Orpington Stn. & Keston
- 146 Bromley to Downe via Hayes & Keston
- 246 Bromley to Westerham via Hayes Stn., Keston & Biggin Hill
- 320 Bromley to Biggin Hill via Bromley Common, Keston & Leaves Green
- 353 Orpington (Ramsden Estate) to Addington via Orpington Stn., Locksbottom, Keston Mark & Hayes Stn.

Trains: Nearest Stn: Hayes

Correct at time of going to press. For up-to-date information about train and bus times phone Traveline on 020 7222 1234 or see <http://journeyplanner.tfl.gov.uk>

Darwin studied many wildlife species found within Hayes and Keston LNR. To learn more, try the 'Keston and Holwood' trail or log on to www.darwinslandscape.co.uk. To become involved in caring for the site and its wildlife you could also join the Friends of Keston Common or the Friends of Hayes Common. For more details and up to date information about Bromley's Countryside, including accessibility and nature trails contact **Bromley Countryside Service** on 01689 862815, e-mail countrysideandparks@bromley.gov.uk or see www.bromleybiodiversity.co.uk

EMERGENCY PHONE: 020 8464 4848



What to see along the trail

The trail leads around an area important to mankind for about 5000 years, passing rare bog and wet meadow habitats, heathland, acid grassland and ancient coppiced woodland; all linked to the history of human settlement close to the River Ravensbourne. In part it is a Site of Special Scientific Interest because of the special plants and animals which live here. Some of these are indicated as you follow the trail, others may be difficult to spot and are shown in some of the pictures opposite. Tick the circles and see how many can you find!

Score: 10-20 Busy Bee, 20-30 Super Shrew, over 30 Amazing Adder

Looking back to the past

Excavations close by have found pottery dating back to 2700BC and evidence of people making flint tools here at least 4000 years ago. 1000-700BC Bronze Age people were grinding corn and weaving sheeps' wool on Hayes Common, while about 700BC an Iron Age settlement was built just south-west of Keston Common (at Warbank). Abandoned about 200BC, when a hill fort was built to the east (at Holwood), Warbank was later used by Romans who occupied a villa farm here until the 4th century. Anglo-Saxons used the old villa site from 450-550 AD.

People changed the landscape, removing woodland, grazing animals and growing crops. Without trees, nutrients in the free-draining soils derived from the underlying sands and gravels of the Blackheath beds drained away, leaving poor soil dominated by heathland vegetation on the higher ground. Gorse and heather were harvested from the heath and where trees remained, wood was cut for many uses, including charcoal making. When population pressure increased the value of crops and livestock, fields were cut out of the woodlands forming wet meadows along the River Ravensbourne. In the early 20th century wood became a valuable crop again and pines were planted on parts of Keston Common, while in other areas birch/oak woodland has been developing since grazing stopped in the 1930s. During World War II anti aircraft guns were stationed on Hayes Common and since these were removed, the landscape has reverted to heathland and grassland once again.

How to get around

The trail is about 2.5 miles long and shown by numbered or marked posts. It may be muddy at times, with steps and some gradients of more than 10% (1:10). It can be shortened using public footpaths or other marked tracks (see map, centre page). Please take care crossing roads, follow the Countryside Code, keep to footpaths and remove your dog waste. Horse riding and cycling allowed on bridleways only. Bromley's Parks and Open Spaces/Commons By-laws apply.

SOME OF THE PLANTS AND ANIMALS THAT MAKE THIS AREA SPECIAL



A The water moss (*Fontinalis antipyretica*): lives in the top pond where it provides cover for many small animals including dragonfly nymphs and young fish.

B Hard Fern: has two different types of frond; the upright one has reproductive structures which produce millions of dust-like spores.

C Dwarf Gorse: a native plant found mainly in south and east UK. Smaller than the non-native Common Gorse, it flowers in summer.

D Harebell: look for it in areas of infertile, dry grassland.

E Adder: protected by law. Very rare in the Greater London area. Generally secretive, you are very lucky if you see one.

F Water Shrew: dives underwater to catch water slaters, caddis larvae etc. Also eats earthworms, snails and beetles.

LOOK FOR HOLES DUG BY SOLITARY BEES AND DIGGER WASPS

Bare patches of well-drained soil on the commons provide ideal warm, dry nesting sites for solitary bees and digger wasps. They dig out underground nests in which they lay eggs in separate chambers, each supplied with a foodstore for which they may forage up to 1 mile away.

Solitary bees collect pollen and nectar for their larvae.



G Tawny Mining Bee: an important pollinator of early flowering plants. Digs nest burrows in early spring, leaving excavated soil in small volcano-like mounds.



H *Colletes succinctus*: collects and stores only heather pollen to feed its larvae, so look for it in August when heather is flowering.

Solitary digger wasps catch insects which they leave paralysed in the burrow for their young. Paralysing their prey helps to ensure that the meat will not rot before the developing larva can eat it.



I *Astata boops*: stocks its underground nest chambers with shield bug nymphs.

J The Sand Tailed Digger Wasp stocks its nest burrow with weevils.



DRAGONFLIES AND DAMSELFLIES

Look for adults flying May - September. 16 of the 40 UK species can be seen at Keston Ponds. The larvae are fierce predators and live in ponds for 1-2 years, (up to 3 years in some hawk dragonflies). As they grow, they shed their skin 8-18 times. Look for exuviae (the skins from which the adults finally emerge) on plants and wood around the ponds.



K Black-tailed Skimmer: within the UK occurs only in south-east England



L Banded Demoiselle



M Large Red Damselfly



N Exuvia of Emperor Dragonfly



The Ravensbourne Trail



2 In 1942 the War Department moved heavy anti-aircraft guns here and calcium leaching from the guns' concrete bases (now removed) probably accounts for the increased soil alkalinity compared to around Post 1. This has allowed different plants to thrive here such as pyramidal orchids and the poisonous black bryony. Look for the shimmering leaves of aspen trees at the edge of the glade: these trees are important for over 90 species of insects and are food for caterpillars of 40 UK moth species, including the Red Underwing which flies Aug-Oct.

Black Bryony ▼



Aspen



▼ Pyramidal Orchid Red Underwing Moth ▼



3 The area on your right was levelled in 1939 and anti aircraft guns were positioned here, forming part of an encircling screen of guns around London. After the war the site was cleared, leaving gravels of the Blackheath Beds exposed which were colonized by lichens forming a special habitat known as lichen heath. As the lichens have died and added humus to the gravel, soil has formed allowing heather to invade. Lichens are small and do not survive trampling (see below). Please help us look after them by not walking on this area and keeping your dog on a lead or under close control.

▼ *Cladonia portentosa*



▼ *Cladonia diversa*



▼ *Cladonia ramulosa*



▼ *Cetraria aculeata*



▼ Tawny Grisette



▼ Buff-tip Moth



4 Look for birch trees. Buff-tip moths lay their eggs on these trees from May-July when you may find adults resting on the ground during the day. In summer and autumn look for mycorrhizal fungi such as tawny grisette which lives in association with birch tree roots. The trees provide the fungi with sugars while the fungi supply the trees with phosphates and water obtained through the large network of fungal threads in the soil.



▲ *Bombus hortorum*



▲ Buff-tailed Bumblebee



Red Clover (single Flower)



White Clover (single Flower)



Spider cocoon

5 Italian prisoners of war stayed in a camp here during World War II, then people whose homes had been destroyed by bombs lived here till 1956. Look for red and white clover. Both have flower heads of many individual flowers but red clover flowers are much longer than white. Charles Darwin showed that red clover needs to be cross pollinated to produce healthy seed, so it needs pollinators with long tongues such as the bumblebee *Bombus hortorum*. White clover is pollinated by short-tongued bumblebees such as the buff-tailed bumble bee (*Bombus terrestris*). On grass in July you may find cocoons of silk covered with a mud casing, built by female hunting spiders (*Agroeca* sp.).

When you reach the barway, cross the green.



In 1937 the drinking fountain was moved here from The Bell in Bromley. Many of the houses you can see were built in the 19th century when Keston was a popular place for Londoners to visit for a day out. Some of them, including the Greyhound, had tearooms which catered for visitors. On Whit Monday 1930 31 000 people arrived at Hayes Station bound for a day on the commons or by the lakes.



Cross Commonside and follow the road past the garage.

The Fox public house on your right was rebuilt in 1889 but originates from much earlier. Turn left down Lakes Road. Houses were built here in the early 1900s but some were destroyed in 1944 when a flying bomb killed 4 people.



Take the Public footpath alongside Keston Primary School.



▲ Marsh Pennywort



▲ Sphagnum Moss



▲ Cross-leaved Heath

6 In front of you is Keston Bog, the only 'valley mire' in Greater London and home of many rare plants. In the wettest parts *Sphagnum* mosses and marsh pennywort grow. Where the soil is slightly better drained, the gold of bog asphodel flowers can be seen in July and above them the pale pink of cross-leaved heath which grows in damper places than the other heathers. Charles Darwin collected sundew here for experiments which provided evidence that some plants could digest animals and resulted in the publication of his book 'Insectivorous Plants' (1875). Sundew has been extinct here since 1987 but work is underway to restore this important habitat. Please help by not walking on it and keeping your dog on a lead or under close control.



▲ Bog Asphodel

Continue up the valley, crossing Fishponds Road on the way.

▼ Toad



7 At its northern end this valley connects with an Iron Age ditch and bank. Scots pine trees were planted here in the early 20th century. Stop and look at dead wood which is gradually being broken down by fungi and minibeasts for which it provides food and shelter. These in turn are food for birds such as jays and animals including shrews and toads.

Many-zoned Polypore



8 Look for common gorse ahead, smelling of coconut. Imported from Spain, it was planted here long ago, harvested and sold as fuel for use in bakers' ovens. Boys used to collect young gorse, make it into bundles and beat it to soften the spines. It was then fed to horses and cattle because a chemical in it kept them free from worms. On warm summer days listen for the popping noise as the pods explode to release seeds. These are spread further from the plant by red ants which carry the seeds back to their nests to feed to their larvae, but discard the embryos which may later germinate.



▲ Common Gorse with pods



▲ Bilberry with berry



▲ Heath Bedstraw

9 The ditch and bank in front of you were built about 200BC, during the Iron Age, and are a Scheduled Ancient Monument. In summer look out for the white starry flowers of heath bedstraw and throughout the year spot the square green stems of bilberry whose flowers are an important nectar source in spring, and whose fruit are rich in Vitamins C and D. Both plants are typical of poor acid soils. Please help us to take care of this ancient landmark and the heathland plants by keeping to the path.



10 Notice how small and stunted the Scot's pine trees are. The sands and gravels of the Blackheath Beds are very close to the surface here and the poor leached soils provide few nutrients. Many small invertebrates live in the ponds. They are food for fish such as rudd and roach which shelter beneath white and yellow water lilies. The backswimmer in the photo eats other minibeasts in the water, or even tadpoles, and can disperse to other ponds by flying.



Rudd

Where the pond meets Fishponds Road, cross with care and walk down to the third pond.



▲ Backswimmer



▲ White Water Lily

11 Look for hornwort in the pond, and in summer, dragonflies skimming over the water. If you are very lucky you may see a kingfisher perching on low tree branches, searching for fish which it swallows headfirst so that fins and scales are flattened and do not scratch its throat.



Kingfisher

Hortwort

Cross the dam.



▲ Painted Lady Butterfly



▲ *Melitta tricincta*



12 You have just crossed the River Ravensbourne and are now in a meadow purple with knapweed in summer. These nectar-rich flowers attract many minibeasts. How many can you spot? Some insects are associated with particular plants, such as the solitary mining bee *Melitta tricincta* which is only found where red bartisia (a semi-parasite of grass) is present.

13 This path between wet meadows is bright with marsh marigold in spring and ragged robin in summer.



Turn right towards the river, then follow the trail posts north through woodland.



▲ Mole



▲ Leopard Slug

14 Look for molehills. Moles live in underground tunnels into which prey such as earthworms fall. They are only seen above ground when collecting grass for nest building, when young leave the nest, or if dry weather forces them to search for food at the surface. Leopard slugs live in the leaf litter, feeding on snails, worms and rotting plant matter. When mating, these hermaphrodite animals climb up a tree, twine together, then lower themselves on a thick string of mucus before laying hundreds of eggs.

15 There was a building here, but scrub has invaded on either side of the concrete base, which now forms a path. The bramble attracts butterflies such as the gatekeeper and skippers while cocksfoot grass provides food and shelter for large skipper, Essex skipper and gatekeeper caterpillars.



Gatekeeper Butterfly



▲ Cocksfoot Grass



▲ Small Skipper Butterfly on Bramble

Walk downhill- the woodbank on your left is the ancient boundary of Padmall Wood.



▲ Yellow Pimpernel



▲ Wood Sage



▲ Water Mint



Lily of the Valley

16 Sweet chestnut coppice for centuries, there is also reference to a watermill (Pad mylle) in this wood in 1257. On the dry banks beneath the trees look for native lily of the valley in spring. Along the sides of the track see if you can spot yellow pimpernel or water mint in the damp areas, wild strawberry and wood sage where the drainage is better.



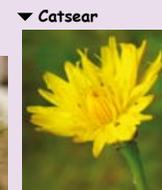
Pipistrelle bat



Common Lizard



▼ Teasel



▼ Catsear



▼ St John's-wort

17 You have reached the old timber yard, now a warm, sunny clearing where many flowers bloom in summer and a great variety of insects feed. Move quietly and you may spot lizards basking in areas still bare of vegetation, while at night toads and slow worms hunt for ground dwelling minibeasts and pipistrelle bats hunt for midges and moths.



We hope you enjoyed the trail, come again soon.