



Kew Wildlife Zone: In Action

Two local primary schools worked with staff at the Royal Botanic Gardens, Kew, to develop a natural wildlife habitat. This chapter outlines how the project was run. Other chapters in this resource pack give ideas of how you can bring British habitats and wildlife into your teaching, and how your school can enhance your local biodiversity.

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Pack summary

In a recent project at the Royal Botanic Gardens, Kew, children from two local primary schools worked with Kew staff to develop, restore and interpret a natural habitat within the Gardens. This resource pack brings together their experiences, and is based on the concepts and techniques that were tested or stimulated as a result of this project.

This resource pack offers ideas for:

- Developing a wildlife area at your school or within your local community
- Outdoor activities on habitats and wildlife
- Classroom-based activities on habitats and wildlife

In the pack you will find:

- An outline of the case study project at Kew
- Ideas on how to study some natural habitats that you might find locally
- Suggestions on how to create or improve habitats in your school grounds or a nearby site
- Ideas for projects based on your studies of local habitats and wildlife
- Resource material to support your habitat work

Biodiversity and conservation

Kew is a place where researchers hold collections, study and actively conserve plant and fungal biodiversity – but what is ‘biodiversity’ exactly? In its simplest form ‘biodiversity’ is a word to describe the amazing variety of all living things on earth, including animals, plants, fungi and bacteria.

Here are a few definitions of biodiversity and conservation that children from Indigo class (Year 4), Unicorn School came up with:

“Biodiversity means different varieties and species of plants and animals. Conservation means looking after wildlife the way it needs to be looked after.” **Victoria**

“Biodiversity and conservation are very important in protecting nature. Biodiversity means how many different types of life there are in an area. Conservation means stopping things getting wiped out.” **Jacob**

“Biodiversity is all the different kinds of life such as all the different plants and animals but don’t forget the fungi and microscopic life forms. Conservation is looking after the plants and animals by maintaining their habitat and keeping the pollution down.” **Simon**

“Biodiversity is life of all forms such as: plants, animal, microscopic life forms and fungi. If we are to keep biodiversity we must conserve (look after) all these different forms of life in balance with each other. So we must stop all human effects and pollution and maintain all habitats.” **Leo**

“Biodiversity is all different kinds of life. We have to look after all of the varieties. Conservation is looking after the life, not to spoil all of the habitats and not to trample all over the plants!” **Annabel**

What is: Biodiversity

When scientists and conservation workers talk about ‘biodiversity’ they include three levels:

- 1 The variety within each species (e.g. the huge variety in humans – we all belong to the species called *Homo sapiens* - but we are all different from each other!)
- 2 The variety of different species – all the different kinds of living things. Just think of all the thousands of different animals, birds, fish, insects and plants that you know of!
- 3 The many different habitats that all these living things exist in, such as ponds, woods, deserts, oceans, coral reefs, meadows etc.

Our work with the 'Gravel Pit' Wildlife Zone at Kew

The background

The Conservation Area at Kew is a large corner of the Gardens that is already managed for nature. Until recently, visitors have been kept out the area, to protect the wildlife. One part of the Conservation Area, near the River Thames has a big hole in the ground – an old gravel pit.

This pit was created in the late 1960s, when gravel was dug out for the foundations of the Alpine House area. The large hole and scarred landscape had since been neglected as a 'waste' area of the Gardens, but this allowed lots of plants to colonise naturally, closely followed by insects and other creatures. 'Wasteland' is often home to wildlife! The land around the gravel pit had been grassland for many years. It is also next to a deciduous woodland (with trees that lose their leaves in winter) and a hazel coppice (see below). A pond seemed to be the only habitat that this area was missing, so filling the hole with water seemed the obvious thing to do. But it wasn't that easy!

Badgers had built a sett in the side of the gravel pit, so flooding the hole wasn't an option. Botanists and entomologists (people who study plants and insects) also found some interesting and quite rare bog plants in the pit's soggy bottom, and the gravel sides were home to bee colonies. So Kew staff had to think again about where to put a pond.

All this wild habitat was out-of-bounds to the Gardens' visitors. Staff wanted to improve the wildlife value of the area, and develop it so that people could learn about some of the fantastic things here.

Two local schools expressed an interest in helping with this work. The children researched the habitats and wildlife that were there, or could be if the area were improved; they studied pond design to identify features that were beneficial to wildlife, and also gave ideas for landscape features that would appeal to other schoolchildren or the visiting public. The children were involved in the decision-making process throughout the project's development

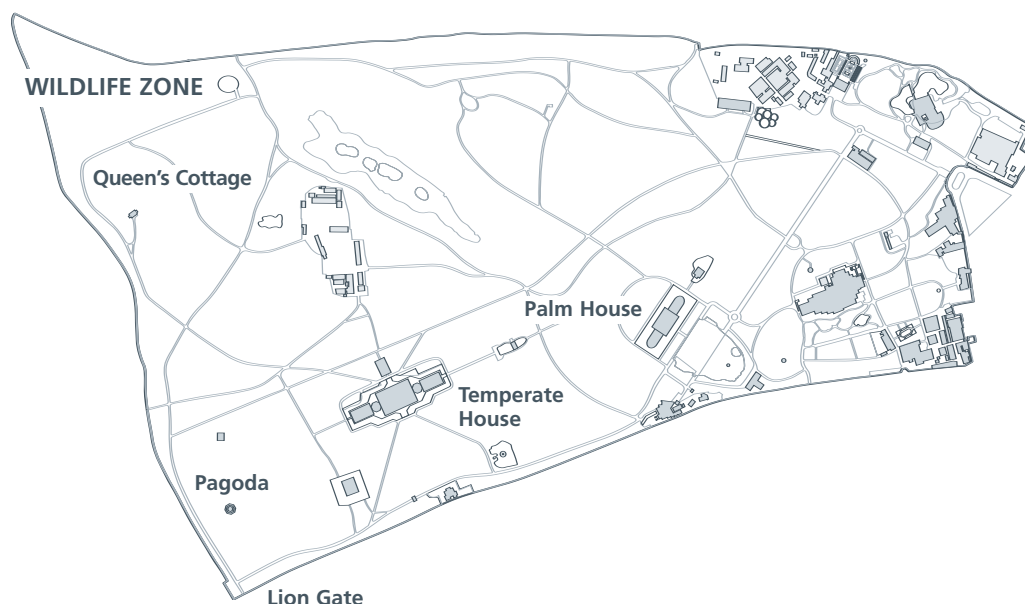
What is: Hazel coppice

This is a stand of hazel shrubs that are cut every few years; they regrow to produce a dense crop of poles that can be used for pea frames and fences. Hazel coppice is good for biodiversity because cutting different patches in different years produces a variety of conditions and habitats.

Map of area

To see a 3D panoramic of the area visit:

www.kew.org/places/tour/wildlifezonekew.html



Getting everyone involved

Kew education and horticulture staff drew up a draft concept and outline programme for the project. We wrote to a number of local schools to see if they would be interested in working with us on the project – a minimum commitment of three years. Two schools, Unicorn School and Queen’s Church of England Primary School accepted the invitation and year 5 classes from each school were chosen to work alongside Kew staff.

How we managed the project

Two Kew staff visited each school and gave an assembly about the project to discuss how they would like the students to be involved. The students were shown maps of the site and were given a brief overview of the habitats, plants and animals found there. They were invited to ask questions and make suggestions about the scope of the project and what this ‘new’ Kew site might include for adult visitors and other schoolchildren who would eventually be using it.

The students made two initial visits to the site and were given guided tours by Kew staff, with question and answer sessions, throughout the whole area. The children were encouraged to draw outline sketches of the area, noting key features and to take photographs for reference.

Back in school, the students brainstormed their ideas about the site. They then split into groups of four or five students to come up with designs and suggestions of what to include in the site development. They produced these as drawn plans, sketches and suggestion lists. This process took several weeks.

The children also explored and designed some potential types of interpretative materials (information boards, for example) and listed the equipment that would be needed on site. The students were given open access to visit the Gravel Pit site over this design phase in case they needed to explore the area further.

Planting up the Wildlife Zone



Brainstorming discussions included H&S issues, seating for elderly people, disabled access, pond dipping platforms and equipment, activities people could do on a visit, walkways, shape and layout of ponds, types of construction materials, what to interpret, activity versus conservation - keeping area 'special' for conservation reasons, types of habitat to explore, costs, high tech or low tech etc.

The students presented their ideas to their schoolmates and teachers, and displayed their project work for parents and visitors. The year groups from the two schools were then invited to present their ideas at Kew. These presentations were formal, and involved visuals as well as talking. They took place during a full day visit, which included another tour of the site to see the clearance preparation for the pond area, and to observe some seasonal biodiversity changes. The children also had a communal picnic.

The children's ideas and presentation materials were later discussed with the pond contractors and other Kew staff. Many of the students' ideas and recommendations were incorporated into the final plans for the Wildlife Zone.

Following the presentation, the students and Kew staff drew up an agreed list, on a whiteboard, of the type of work that the children could develop as inclusions for a 'school's pack' and that could also be selected from for the public display panels or other interpretative materials. This set of suggestions can be seen below and was incorporated as part of the next phase 'briefing' to the schools.

| | Suggestions for public interpretation and schools' briefing pack |
|---|--|
| | 1. Research notes about the plants and animals |
| | 2. Life cycles of animals / pollination information on plants |
| | 3. Drawings and / or photos of plants and animals |
| ● | 4. Poems about selected plants and animals |
| | 5. Models of plants and animals or their shelters – and instructions on how to 'construct' them |
| | 6. Creative story writing |
| | 7. Songs / composition of music to celebrate particular species (on audio tape) |
| | 8. Audio tapes of children's' thoughts and views on working with the whole project |
| | 9. An introductory 'paragraph' about the project (explaining what biodiversity is, why we need to conserve this special area etc) |
| ● | 10. A pond food web (Queens) / Meadow food web (Unicorn) |
| | 11. An instruction sheet from 'children to children' – on how to look after a pond |
| | 12. A list of ideas (headings) of what to put in a 'schools activity pack' on the area for a class of the same age |
| | 13. Reference list |
| | |

Back in school for the spring term of 2004 the students researched different types of plants and animals (see lists) and selected items to work on from their suggestions list. These included illustrations, creative story writing, poems and information booklets on selected wildlife in the zone.

The students' work was displayed at each school's annual open day. It was then loaned to Kew's interpretation and education staff, who selected items to include in the permanent resource and display material being developed for the newly restored Wildlife Zone.

List of Animals / Plants (Queen's School)

| Plants | Animals |
|------------------------------|------------------------|
| Yellow flag | Owl |
| Reedmace | Heron |
| Nettles | Frogs and toads |
| Bramble | Dragon and damselflies |
| Yellow Waterlily | Water beetles |
| Dandelion | Water snails |
| Water Violet | Grass snakes |
| Plantains | Worm leech |
| Thistles | Water spider |
| Dock | Newts |
| Water milfoil | |
| Exotic plants we don't want! | |

List of Animals / Plants (Unicorn School)

| Plants | Animals |
|--------------------|-------------------|
| Duckweed | Fox |
| Bogbean | Kingfisher |
| Water plantain | Pond skater |
| Watermint | Hoverflies |
| Marestail | Butterflies |
| Watercress | Water fleas |
| Hazel | Whirligig beetles |
| Rosebay willowherb | Bumble bees |
| Sedges | Water boatmen |
| Kingcups | |
| Water crowfoot | |
| Water starwort | |
| Algae in pond | |

The students were all invited to Kew for a further visit to plant up the newly created pond and help restore the surrounding site. Activities included:

- Planting native meadow species
- Clearing aggressive weeds from sensitive areas
- Planting marginal pond plants
- Deciding where to place sculptures
- Deciding which interpretative panels should be used in the visitors' hide
- Suggestions for additional equipment for hide

For more on these activities, and suggestions for other environmental projects, see Chapter 5.

The results

Besides the fantastic designs, models, stories and research materials that were produced for Kew and the schools, there were a number of other benefits that came out of the project, namely:

- The students from both schools mixed and met new colleagues.
- All students, parents and teachers felt that they had real ownership of the project and were delighted to play such an interactive role.
- The students developed presentation skills and learned how to interact with professional staff and visitors, both on and off site.
- Students developed an empathy with the natural environment and were keen to ensure sustainable management of the site.
- Students were exposed to many research techniques and resources within a specialist field.
- Students could see and practice planting, weeding and other horticultural techniques.
- Students recognised the need for long term planning and continuity in project management.
- Students developed self-confidence through having their opinions valued and their own work reproduced professionally.

Curriculum links

Working with the environment in a 'hands-on' activity, such as this project at Kew, offers coverage of many subjects in the Curriculum.

- Exploring the local area links into the Geography curriculum.
- Researching, studying and recording plants and animals in their habitats covers many Science topics.
- Designing, developing and evaluating models of your habitat or your interpretative signage covers many aspects required for the Technology curriculum.
- Citizenship concepts are built into the active discussion and decision making processes during the development of your project
- Maths can be developed through the measuring, levelling and planning aspects of habitat reconstruction or improvement, or in data recording and presentation while studying wildlife and habitat characteristics.
- Creative story writing and poetry can be inspired by wildlife, for the English curriculum.
- Illustrations for the interpretive panels and displays involved Art.

Throughout the chapters that follow in this guide, we have highlighted curriculum links and given some examples of what could be produced.

The habitat project at Kew was targeted at Key Stage 2 students, however the ideas and activities could be easily adapted for able Key Stage 1 students or made more complex for Key Stage 3 students and above.

How the Wildlife Zone project was funded

Hanson Environment Fund and Hanson Plc generously funded the major part of the pond construction and the development of education materials at the Wildlife Zone. Luckily for Kew, Hanson Environmental Fund came forward and offered to pay for the major part of the pond construction and development of education materials. This injection of money was vital to initiate a project that would not otherwise have been a high priority on Kew's budget.

The staff at Kew put many days of their time into constructing the pond and liaising with the schools, and volunteers (parents and formal Kew volunteers) also gave their time freely.

Acknowledgements

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The horticultural conservation team at Kew, headed by Simon Cole, worked hard to create the landscaping and planting in the Wildlife Zone. Kew staff would also like to thank Hanson and all the teachers, helpers and students from Unicorn and Queen's Schools who produced such fantastic results. We hope that all who visit Kew in the future enjoy them too!