WATER PLANTS

- Planting into a layer of soil on the pool base can encourage excessive spread. Instead, plant into mesh type containers which reduce the amount of soil in the pool and reduce excessive levels of nutrients. The containers may assist the control of vigorous plants.
- Choose fine mesh containers large enough to cope with the chosen plant. Most need something bigger than the temporary containers they are sold in. Tall plants blow over in small containers. Line containers with hessian to retain fine particles. Plant firmly into well dampened subsoil, untreated topsoil, or bagged aquatic soil. Avoid excess nutrients; do not use fertilizers; ‘dilute’ topsoil with rinsed play-pit sand. A finishing layer of lime-free pea shingle/gravel or small cobbles can help to reduce excess reed spread, especially if fish are present. Soak the containers in a tub of water before lowering them into the pond.
- Native plants are likely to attract the most species of wildlife. Be careful to avoid the larger growing or more invasive types unless you are able to manage them. Some more colourful or variegated ornamental varieties could also be included to make the pond more attractive in the garden. Remember to keep all ornamental plants in your garden. Dispose of excess in your compost or green bin - never in the wild (for more information on invasive species and their correct disposal, please visit the ‘The Plant Wise’ website at http://beplantwise.direct.gov.uk). Some rushes, reeds and sedges can puncture pond liners. Plant them in solid sided containers. Plant aquatics in their growing season (late March – September); specialist suppliers hold their widest stocks from May to August. Obtain plants from the wild only with the landowner’s permission. Some plants and wildlife are protected by law.
- Use sufficient plants for the size of your pond. Select from the full range of submersed; marginal; floating; and lily-type plants to provide habitats for the widest range of wildlife. Plants take time to establish. Lower young water lilies gradually to their final depths. Position marginals with the appropriate water cover. Specialist suppliers and guidebooks give valuable advice on the varieties/ quantities to choose.

MAINTENANCE

Top up the pond as necessary using stored rainwater or treated tap water, probably once a week during summer.

Expect new ponds to turn green, this is natural. They will start to clear once plants and micro-organisms establish. Avoid algacides. Remove thread-algae/blanketweed by hand, with a net, or plastic rake.

Net out excess floating aquatics. In autumn trim plants as they die back and net over the pond to keep out leaves. A few leaves provide useful cover & food for pond life, but too many can pollute a pond.

Melt a hole in persistent ice to allow waste gases out and fresh air in. Use protective felt & food for pond life, but too many can pollute a pond. Consider an electric supply if you want pumps or lighting.

CONSTRUCTION WITH POND LINERS

- Pond liners are a convenient material for wildlife pond construction. They are widely available, easy to install, and allow great flexibility in design. The best types include synthetic rubber (e.g. EPDM which is very flexible and reparable if punctured; choose a thickness of 0.75 – 1.00mm. Cheaper alternatives include PVC and modified polyethenes. Only buy lines specifically stated as pond use, from a reputable source, and with a dependable guarantee.
- When preparing the site every care must be taken to prevent liner damage. It is essential to remove all sharp rocks and stones from the excavation. Sift all surfaces and level the edges. Provide a protective layer under the liner using sand or sieved soil if necessary, topped with a good grade of pond ‘geotextile’ underlay felt. Follow the instructions carefully to ensure you do not overstretch the material, and camouflage the liner edge to hide it and protect it from sunlight and animal damage. See the diagram overleaf or the alternatives shown on the right.

OTHER CONSTRUCTION METHODS

- Pre-formed ponds are generally more expensive than liners but offer more variety. They are less prone to puncturing than liners but must be the correct size; the base is one of the most expensive materials, and cheaper moulded plastics are available in the smaller sizes. Choose one with a deep area 45cm or more if possible, and ensure that it is set absolutely level. Some types include marginal planting pockets, others have shelves.
- Concrete is less commonly used. It is less prone to accidental damage and vandalism and can be used in conjunction with liners to overcome possible problems of leaks caused by cracking. Whenever using concrete for the pond, or for mortar-work in the pond or at the pool edge, use a waterproofing additive. Seal surfaces with an appropriate pool paint, or alternatively fill the pool for a week or more, drain and brush down the cement/mortar surfaces and rinse to ensure that excess lime and cement debris is washed away. Check the pool after a few days and repeat the drain/rinse if the pH is high (e.g. over 8.5).
- Puddled clay, and bentonite matting, are generally only feasible when used on clay soils, for large ponds with very gently sloping sides. Such ponds may need more frequent topping up in summer.

WILDLIFE PLANTS

Creating a pond for wildlife is a great way of contributing to the conservation of some of Britain’s rarest organisms. Such ponds form a refuge for many animals, ranging from news and frogs to invertebrates such as caddis flies and dragonflies.

SITE AND SITUATION

- Try to position ponds away from overhanging trees or dense shade. Excessive leaf litter can be a major source of pollution. Many water plants and fish can obtain light for photosynthesis directly sunlight. Larger ponds provide more stable conditions for wildlife, although any size pond is of benefit.
- Incorporate the pond in the overall landscape. A pond isolated in the middle of a grass lawn is less accessible and fish far less likely to venture into the wild. Ideally, one or more sides of the pond should back onto well planted areas. Trees, hedges and fences provide cover to birds and shelter to the pond, but these should not be so close as to cut out all sunlight.
- Make the pond visible from a distance or from a window so that you can view wildlife without disturbing it. Most ponds will need occasional topping up. Clean rainwater (filtered if monochromatic) in the best for wildlife and low in unwanted nutrients. Tap water (with a conditioner to reduce chlorine/ chloramines and metals) is a convenient back up, but any pond is better than no pond. Consider an electric supply if you want pumps or lighting.

ALTERNATIVE DESIGNS

The design below is nearest to a natural pond and will encourage good plant growth and rapid colonisation. It is the easiest to maintain and is better suited to ponds covering a large area (over 40m²). If built on a small scale these types of pond can become quickly over-run by stronger growing plants. The design overleaf is a more practical option for all sizes of pond.

ORNAMENTAL AQUATIC TRADE ASSOCIATION

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A GARDEN POND FOR WILDLIFE

Practical Advantages

Wildlife Advantages

Construction Hints

ADJOINING PLANTED AREAS
Provide a link to other habitats. Shelter for birds and amphibians, hedgehogs and voles etc.

MOIST AREA
Allows a wide variety of plants to be grown. These help to attract insects and provide cover for other wildlife.

BEACH AREA
Makes it easier for amphibians to enter and leave the pond. Birds can drink and bathe in the shallows. An especially rich habitat for microscopic aquatic life, with cover in amongst the stones for insect larvae and young frogs.

MARGINAL PLANTS
Provide shelter from excessive wind and sunlight, and cover for wildlife. Aquatic life lives in amongst the roots. Insects can leave the water by clambering up the stems.

LILIES, LILY-LIKE PLANTS, and FLOATING PLANTS
Provide valuable shade during summer, keeping the water cool and reducing excessive growths of green water and thread algae. They also provide a foothold for aquatic life and visiting insects.

FREE SURFACE
Aim to keep some of the surface free of plants, to allow light to reach the submerged aquatics, and gases to exchange at the water surface.

SHALLOW COBBLE BEACH AREA
A large area provides lots of cover for aquatic life, but even a tenth of the pool edge in beach form is valuable. A small inner lip prevents cobbles rolling into the pond. The cobbles also protect the liner from sunlight and reduce capillary seepage of water from the pond - a problem with soil edges.

TOUGH PONDLINER with protective underlay. See details overleaf.

FAIRLY STEEP SIDES
A 20º to 40º slope from the vertical in the section below the marginal shelf gives a good volume of water for the given surface area, helping to create balanced conditions with less risk of green water. This can also reduce the spread and ease the control of more vigorous marginal plants.

BASE CLEAR OF SOIL OR GRAVEL PLANTS IN MESH CONTAINERS.

SUBMERGED AQUATICS
Use up excess nutrients in the water, helping to keep the pond healthy and clear. They provide food and shelter for aquatic life, and microscopic organisms live on the plant surfaces. They oxygenate the water during daylight hours.

SUBMERGED PLANTS

WATERLILIES

FLOATING PLANTS

MARGINAL PLANTS

DUCKS AND WATERFOWL
Can be very messy and disruptive. They should not be encouraged except perhaps in the very largest of ponds or lakes and then only in moderate numbers.

ADJOINING AREA OF SHRUBS/PLANTING or HEDGEROW
Use low maintenance plants with a layer of chopped bark if weeds are problematic.

MOIST AREA FOR MOISTURE LOVING PLANTS
Separate moisture areas are much more easy to maintain than in-pool bog areas and reduce the risk of pond liner puncturing and water loss.

MOIST AREA SET UP
Line an area 35-45cm deep with liner off-cuts, polythene or old plastic sacks. Puncture intact sheets 10-15cm up from the base to prevent excessive water logging.

A perforated sub-soil water pipe allows efficient watering of plant roots during dry spells. Fill the area with excavated soil enriched with moisture retaining compost and top with chopped bark.

A wide paving slab or overhanging deck is ideal. Bed slabs onto mortar if necessary with 3 parts sand to 1 part cement. (See the notes about concrete overleaf).

Ensure shelves are sufficiently wide, 20cm min., to support planting containers. The shelves need not extend around all the pond edge.

In small and medium ponds a single shelf of around 20cm depth will suffice, leaving room for a deep area of 45-60cm.

In larger ponds, deeper and wider shelves can accommodate the bigger planting containers. Shelves 20-30cm deep for marginals; 30-45cm deep for deep marginals and lily-like aquatics; 60-75cm deep for larger lilies; and the base at 60-90cm as a deeper refuge. Depths over 90cm are less easy to maintain (e.g. in waders) and only necessary in very large ponds and lakes.

Slope paving fractionally away from the pond to reduce runoff into the pond.

A natural layer of detritus and silt will soon form. Gravel on the base merely traps dirt and is difficult to clean at any future clearout. By planting into containers the amount of soil used in the pool is less than where an overall soil layer is used. This reduces pollution from excess nutrients, lessening the likelihood of pea soup algae. It also reduces the spread of more vigorous plants and makes maintenance easier. See planting hints overleaf.

Aim to keep some of the surface free of plants, to allow light to reach the submerged aquatics, and gases to exchange at the water surface.

These provide suitable conditions for a wide range of water plants.

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