

Kenwith Valley Local Nature Reserve Assessment and Advice Report



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NORTH DEVON BIOSPHERE

**NORTH
DEVON
BIOSPHERE**



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Summary

This report provides a pictorial overview of the current conditions of habitat management at Kenwith Valley Local Nature Reserve (LNR). The aim of this report is to: (a) provide an understanding of where the current/previous management has both succeeded and fallen short of expectations in terms of the defined goals specified upon its creation; (b) highlight where civil engineering and flood events have altered the reserves habitat structure and; (c) presents advice and recommendations for the next group to be awarded caretaking duties of the reserve. Following each brief analysis of the site features are recommendations drawn from the original and amended management plans provided by Mike Towns and The Devon Bird Watching and Preservation Society (DBWPS) along with options for forward management highlighted during the undertaking of this report. These recommendations are tabulated in Appendix A and should provide initial guidance and enable the new group to transition into their new role aware of near term requirements and develop a more comprehensive set of management objectives moving forward.

Introduction

LNR Remit

The primary role of a LNR is to protect and enhance locally important wildlife and geology and provide education and enjoyment for the public. There is no formal requirement that a LNR is open to public use but government guidance encourages local community access to at least some parts of a LNR. Consideration must be given to limiting the disturbance to wildlife and this will largely influence the design and management of a reserve.



View of the Kenwith Valley Flood Detention Dam and the New Wetland habitat beyond.

History of Kenwith Valley LNR

Kenwith Valley LNR was borne out of the creation of the Kenwith Valley Flood Detention Dam constructed in 1980, leading to the fortuitous availability of land for environmental regeneration in Bideford. The dam was deemed a necessary flood prevention project following a series of flood events that occurred throughout the mid-20th century threatening the historic town and its people. The site was little more than compacted fields with remnant meadow and hedgerows after construction of the dam was completed, but in 1986 Torridge District Council (TDC) allocated DBWPS caretaking duties of the land. The site was designated as a LNR and began a transformative journey

with the creation of a mosaic of habitats through the planting of thousands of trees and extensive sowing of wildflower. The work was directed and undertaken by Mike Towns and the DBWPS and also saw the creation of two lakes with a hide viewing out over the more secluded waterbody known as the sanctuary lake. As a result of this considerable work the reserve was for many years home to a variety of notable wildlife including birds such as the dusky warbler, bittern and numerous wildfowl communities and mammals including otter, roe deer and several species of bat were also recorded. The sowing of wildflower seed and succession of marginal water plants led to rich floristic diversity, in turn attracting many species of butterfly and other invertebrates.

Major Changes to the Kenwith LNR

A major flood event breached the dam in 1993 prompting the Environment Agency (EA) to further raise the height of the dam and introduce several new drains and an impoundment lagoon on the reserve. This activity significantly altered the hydrology of the site and led to many of the lower lying areas becoming wetter than they previously were. The evidence of this activity can be seen today with sedge and rush widespread across these once drier meadows and grasslands. The flooding also introduced fish, critically carp, into the sanctuary lake which, owing to their feeding habits, disturbed and destroyed the lake bed plant community with cascading effects leading to a complete alteration of the lake ecosystem and the ultimate displacement of most of the bird community. These changes have caused a number of challenges to the management of the reserve and require the revision of several of the management objectives. The reserve remains a highly attractive place for wildlife and keen naturalists with kingfisher, great spotted woodpecker, heron and a whole host of other birdlife on offer. The woodland plantations have matured and the draining of the lower lake to form an expansive marshland with scrub islands compliment the reserves aesthetic and environmental attributes greatly.

Nature and the Community

Urbanisations in the UK often have areas of parkland set aside within them to provide the community with a place to enjoy nature, but are seldom home to protected nature reserves that are managed specifically to cater for a wide a range of wildlife. Kenwith LNR is a pertinent example of how an urban wildlife amenity can co-exist harmoniously within a growing town supplying the opportunity to observe



nature in a 'wild' setting and to escape from the fast pace of modern life. It is important to remember that these opportunities are the result of the hard work and collaboration of the local community, organisations and local government which must be emulated by future generations so that together we do our very best for the natural world. The 2013 'State of Nature' Report highlighted the dramatic reduction in the abundance and distribution of UK wildlife in recent times and demonstrates how the intensification of agricultural practices and

the increasing reclamation of green spaces for commercial and domestic development is systematically evicting nature from its home. Therefore, local and national nature reserves are vital in the fight to halt this trend. Kenwith LNR was founded in accordance with the core LNR requirements set out by government legislation and is highly suitable for its location in close proximity to both the North Devon coast and the Torridge estuary, attracting a rich array of coastal, estuarine and terrestrial species. Furthermore, the complex mosaic of reserve features from varied wetland habitats to mixed specious woodland ensure there are a wide range of opportunities for wildlife.

Moving Forward

Endowed with the knowledge that nature is in a declining state in the UK it is of timely relevance that Kenwith LNR retains its status as a nature reserve, maintains its value for wildlife and where possible, be improved to once again cater for large aggregations of wetland avifauna and rich invertebrate and plant communities. This report highlights a number of new approaches to improve the ecological value of the reserve and address the solutions required to ameliorate some of the management obstacles resulting from the altered hydrology and subsequent perturbations to the lake ecosystems. Issues pertaining to access within the reserve are also addressed and if resolved should ensure that educational and community benefits are vastly improved by these undertakings. All additional works proposed by the newly appointed management group should be reviewed annually by TDC and the North Devon Biosphere (NDB) to ensure compliance with LNR regulations.

Report Structure

The named LNR habitat elements outlined and described within the original DBWPS management plan (1992) were retained for this report and commented on with the understanding that some 24 years have passed since this plan was envisaged and owing to major engineering projects and climatological events certain aspects of these descriptions are now redundant. However, for ease of analysis the format of the original plan remains the clearest way to demonstrate management effectiveness and forms a structure for suggestions to improve the LNR. A map highlighting the boundary of the reserve, reserve access, reserve features (as described in the original DBWPS management plan) and the location and orientation of photographs of the reserve features can be found at the end of this document (Appendix B).

Management Assessment and Advice

1. 1G Wildflower Meadow

AIM: Create flower rich grassland.



- Grassland has been maintained (no encroachment of scrub).
- Area is wet and at present unfavourable to original wildflower meadow mixture and may therefore prove difficult to cut according to original management plan (1993 EA works changed hydrology of the site).

ADVICE: Consider new management options e.g sowing wet meadow flower mix or low cost drainage ditches to minimise overall wetness and improve value to wildlife.

2. J Pethericks Plantation

AIM: Create small copse to add variety to landscape.



- Plantation has been thinned and trees are maturing.
- Bramble at foot of plantation.

ADVICE: Bramble should be managed before it encroaches further into grassland (pertaining to original management plan). Ideally bramble will be reduced to a small 'island' or set of 'islands' within the grassland setting to retain benefit to scrub nesting birds - Volunteer job.

3. H Kingsley Plantation

AIM: Create band of low-growing trees to soften visual impact of houses and provide nesting habitat.



- Trees are a good height ensuring adequate screening of houses beyond and provide excellent nesting/roosting opportunities.
- Bramble at foot of plantation.

ADVICE: Bramble should be managed before it encroaches further into grassland (pertaining to original management plan). Bramble should be reduced to a small 'island' or set of 'islands' within the grassland setting to retain benefit to scrub nesting birds - Volunteer job.

Start rotational coppicing regime on willows to increase density and side trim road side lime trees to raise crowns – Volunteer/Contractor job.

4. K Alexandra Plantation

AIM: Create band of low-growing trees to soften visual impact of houses and provide nesting habitat.



- Good habitat for scrub nesting species with adequate coverage to partially screen adjacent buildings (summer).
- Certain trees within stand are leaning excessively and/or exceeding desired height.

ADVICE: Coppicing and pollarding of the tallest trees should begin on a rotational basis and initial selection would see trees which are leaning considerably (as evident in the picture) cut first (pertaining to original management plan) – Contractor job.

5. E Kenwith Ditch/Northam Rd Plantation

AIM: Create mixed band of tall and low growing willow to provide screening for the rush grassland/reedbed and help soften the engineered features of the site.

(a)



(b)



- Well established stands of willow providing required screening services.
- Willow encroaching upon and within the rush grassland and reedbed in areas (a).
- Road side plantation in need of thinning and remedial crown treatment (b).

ADVICE

'Kenwith Ditch' willows (a) along the edges of the of impoundment lagoon should be sided to bring them away from the rush and reedbed maintaining these important habitats – Contractor job.

Willow along Northam Rd (b) should be coppiced and thinned (trees to be removed will be indicated by a fluorescent marker) and remaining standing trees sided to increase crown height (pertaining to original management plan) – Contractor/Volunteer job.

6. G Hawthorn Triangle

AIM: Create thick block of scrub between entrance and bungalow beyond the border of the site comprised of hawthorn and other tree/shrub species.



- Dense cover has been achieved through the initial planting creating desired screening of adjacent buildings.
- Hawthorn and other original trees present but dominated by Atlantic ivy and budleja spp.

ADVICE: Thin/remove Atlantic ivy and budleja where possible to allow hawthorn, alder buckthorn, dogwood and guelder rose to re-establish and provide an aesthetically pleasing entrance to the reserve – Volunteer job.

7. 1D Recreation Grassland

AIM: Maintain grassland for recreation use and wildlife.



- Grassland has been maintained with the potential for limited recreational use.
- Due to the areas poor drainage (1993 EA works changed hydrology of the site) large areas of the grassland are extremely wet eliminating its use for recreation.

ADVICE: Consider new management options e.g sowing wet meadow flower mix or low cost drainage ditches to minimise overall wetness and enable recreational use once again.

8. F Picnic Plantation

AIM: Create sub canopy picnic area beneath trees to compliment the reserves recreational use.



- Plantation is well established with wood interior hosting a range of tall species.
- Due to the plantation being very wet (1993 EA works changed hydrology of the site) the original intended use as a picnic area is no longer viable.

ADVICE: The interior of the plantation is secluded and is an ideal location to install a number of nest boxes. These should be sited high enough to be above any ensuing flood waters e.g >3 m above ground – Volunteer job.

The area should be left to succession.

9. 2 Lower Lake/New Wetland

AIM: Create areas of shallow water with reed and also deeper reed-free water to provide variety of wetland habitats for wildlife.

(a)



(b)



(c)



(d)



(e)



Lower Lake/New Wetland - Interior.

- Lower lake water level is lower than when original management plan was written (1993 EA works changed hydrology of the site) and the 'New Wetland' now supports reedbed and rushes (Devon Biodiversity Action Plan (BAP) habitat) providing ideal habitat for migratory breeding birds such as reed and sedge warbler and the resident reed bunting and water rail.
- Islands have dense scrub and tree cover forming ideal nesting habitat for other species.
- Willow are occurring within the interior of the New Wetland outside of the intended planted islands potentially diminishing sites overall wetland attributes.

ADVICE: Willow located outside of island plantations should be cut and the remaining stumps killed to prevent regrowth and the possibility of reverting areas to scrub – Contractor job.

Selective coppicing/thinning of island trees/scrub should be undertaken to improve quality for wildlife (pertaining to 2015 management proposal) – Contractor Job.

Lower Lake/New Marshland - Margins.

- Good community of grasses and 'weeds' are present providing good habitat for invertebrate wildlife.

- Patches of more woody species are occurring and in cases dominating lower lying plant community.

ADVICE: Marginal area should be strimmed on a 2 to 3 year rotational basis to cut back sections of vegetation leading to the promotion of annual and perennial weeds. In turn creating structural and species plant diversity beneficial to butterflies and other invertebrates (pertaining to original management plan) – Volunteer Job.

Willow growing along the margin of the New Wetland should be cut back to preserve the New Wetland reedbed and rushes.

The New Wetland habitat provides the opportunity to explore design ideas for a 20 – 30m walkway into the reedbed/rushes with a viewing platform at the end. This would allow visitors to the reserve the chance to immerse themselves in the wetland habitat and gain a closer look at the wildlife that lives within it. Additionally this feature would predictably increase the appeal of the reserve to visitors raising its overall status as an attraction in the area.

10. 1H Raleigh Strip Grassland

AIM: Maintain herb-rich wet-meadow flora and promote development of woodland beyond.

(a) Raleigh Strip Plantation



(b) French drain facing east



(c) French drain facing west



- Woodland strip along former railway line is well established (a).
- Scrub species are encroaching on the French drain (b,c).

ADVICE: EA works are underway (at time of report) investigating sections of the dam forward of the Raleigh strip. These works will consist of the area being drained and dried to assess the dams permeability and may also include the renewing of the French drain which is believed to be blocked at present. Management of this area should be re-examined once these works are completed.

11. 1 Sanctuary Lake

AIM: Create a secluded area of water for secretive water birds to use with the construction of a hide to allow for bird watching.



- The lake remains an open body of water with no significant incursions from reed or rush species.
- High densities of carp have altered the ecology of the lake increasing turbidity and significantly reducing the benefit to wider wildlife. The hide is beyond repair.

ADVICE: Flooding events of the last few decades have led to the introduction of carp which has had a deleterious effect on the lake ecosystem. The introduction of controlled numbers of carnivorous fish such as perch and pike would introduce heavy predation of the carp within the lake, reducing benthic feeding and allow the aquatic plant community to regrow restoring the lake ecosystem from the bottom up. This mechanism of restoration could result in the return of the wildfowl and wetland birds that were once numerous here.

With plans to reform the path leading down from the dam to the old hide there is the option to clear the vegetation from this area and construct a viewing platform offering an expansive view of the Sanctuary Lake to visitors.

12. 1A Loafing Area

AIM: Provide a grassy area for ducks when moulting or roosting.



- Loafing area remains largely free from scrub encroachment maintaining open to resting/moulting wildfowl.
- Neighbouring trees are crowded in places.

ADVICE: Scrub blocks may need some selective thinning and coppicing (pertaining to original management plan) – Contractor/Volunteer Job.

13. A Sanctuary Lake Plantations

AIM: Provide cover and nesting opportunities for birds.

(a) North east extent



- Trees have matured providing sight line screening and are good habitat for nesting birds.
- Crowding of trees in places.

ADVICE: Scrub blocks may need some selective thinning and coppicing (pertaining to original management plan) – Contractor/Volunteer Job.

(b) North west extent



- Trees have matured providing sight line screening for lake wildlife and are a good habitat for nesting birds.
- Crowding of trees in places.

ADVICE: Scrub blocks may need some selective thinning and coppicing (pertaining to original management plan) – Contractor/Volunteer Job.

14. 1B The Plateau

AIM: A wild area to be left largely to succession and provide habitat for scrub-nesting birds and water birds.

(a) Scots pine



- Scots pine have matured well with a dense sub canopy beneficial to a variety of wildlife.
- Crowding of mature trees in places.

ADVICE: Selective thinning of Scots pine (trees to be removed will be indicated by a fluorescent marker) to ensure remaining trees continue to grow freely (pertaining to original management plan) – Contractor/Volunteer Job.

(b) Plateau scrub/wood



- Mixed woodland has matured well and with dense scrub intermixed.
- Knotweed occurring in sporadic patches.

ADVICE: Begin process to eradicate knotweed at first available opportunity (pertaining to 2015 management proposal) – Contractor Job.

Other vegetation should be left to natural succession with further management considerations addressed at a later date.

15. 3 Tadpole Pond

AIM: Create a small pond that incorporates an alternate range of water habitat features to the larger water bodies on the site.



- The pond area remains open water.
- Rushes and bramble have colonised the margin of the pond reducing the diversity of other waterside plant species.

ADVICE: Marginal rushes should be pulled in places to encourage other pond side flora and pond weed should be managed to prevent too much growth (pertaining to original management plan) – Volunteer job.

Bramble patch to the west should be cut back to prevent further incursion along pond margin – Volunteer job.

Pond side willow needs siding to bring it back from overshadowing the ponds marginal vegetation and aquatic invertebrates – Contractor/Volunteer job.

Dense stand of alder at the northern end would benefit from selective thinning (trees to be removed will be indicated by a fluorescent marker) – Contractor/Volunteer job.

16. 1C Middleton Meadow

AIM: Maintain wet grassland from previous old meadow site.



- Wet/rough grassland has been retained in large parts providing good habitat for a range of invertebrates.
- Some scrub encroachment is occurring reducing the habitat quality.
- Area is much wetter than when original management plan was written (1993 EA works changed hydrology of the site) and it is no longer possible to mow.

ADVICE: Scrub and trees should be sided/cut back where necessary to maintain a now suitable wet herb meadow (pertaining to original management plan) – Contractor/Volunteer Job.

The informal path leading east along the meadow toward the poplar/willow plantation should be periodically checked to ensure the route is clear of fallen branches/trees/scrub – Volunteer Job.

17. B Middleton Plantation

AIM: Create thick block of woodland from houses along Northview Avenue to just beyond National Rivers Authority access track.

(a) South side of Rivers Authority access track



- Wood is comprised of a good variety of maturing trees.
- There are patches of brambles and slight overcrowding of trees is occurring in places.

(b) North Side of Rivers Authority access track



- Woodland is well established providing ample foraging and nesting habitat for a variety of wildlife.

ADVICE: Bramble should be managed to prevent too much growth – Volunteer Job

Selective thinning of trees (pertaining to original management plan) should be undertaken with ash trees favoured for removal as potential ash die back would see these trees eliminated from the plantation in time. Field maple, oak and wild cherry will be left untouched where possible to ensure future woodland cover remains – Contractor/Volunteer Job.

18. D Northview Avenue Plantation

AIM: Create belt of tall growing trees to screen rush grassland and housing beyond site.



- Mature stand providing good screening of houses on Northview Avenue.
- Sporadic patches of bramble are dominating further east into the plantation.

ADVICE: Bramble should be reduced to small islands within the grassland to the east creating a mosaic of habitats for wildlife and cut on long rotation ensuring vigorous growth of plant life - Volunteer Job.

Willows running parallel to Copps close at the far eastern end of the plantation should be coppiced on a long rotation to encourage dense growth and maintain screening of urban area beyond – Contractor/Volunteer job.

19. 1F Rush Grassland

AIM: Create wet wildflower/rush grassland.

(a)



- Well established rush grassland providing ideal habitat for wetland birds and other wildlife.
- Incursion of sporadic willow along margin and within rush grassland will alter wetland habitat in time.

(b)



- Well established rush grassland providing ideal habitat for wetland birds and other wildlife.
- Incursion of sporadic willow along margin and within rush grassland will alter wetland habitat in time.

ADVICE: Cut willows along western and southern margin and within rush grassland (pertaining to 2015 management proposal) and kill stumps to prevent regrowth maintaining wetland habitat quality for wildlife – Contractor/Volunteer Job.

20. 1E Impoundment Lagoon

AIM: Create reedbed area providing good habitat for wetland species.

(a)



- Well established reedbed providing ideal habitat for wetland birds and other wildlife.
- Incursion of several willow within reedbed and along western and northern margins may diminish ecological value for birds.

(b)



- Well established reedbed providing ideal habitat for wetland birds and other wildlife.
- Incursion of several trees within reedbed and along western and northern margins may diminish ecological value for birds.

ADVICE: Cut willows in reedbed and along western and northern margins (pertaining to 2015 management proposal) and kill stumps to prevent regrowth maintaining wetland habitat quality for wildlife– Contractor/Volunteer Job.

The willows running along the old stream course embankment should be cut back to keep the area clear – Contractor/Volunteer job.

21. C Poplar/willow Plantation

AIM: Create willow group to soften dam outline and add white poplar to compliment and replace the original poplar on the reserve.

(a)



(b)



- Willow are well established and provide ideal softening to hard engineering.
- Poplar plantation has matured causing potential overcrowding issues in places.

ADVICE: Poplars could be thinned in places but emphasis should be placed on retaining an adequate amount of standing and fallen dead wood with the former providing ideal nesting opportunities for woodpeckers and all forms of dead wood important for the life cycle of saproxylic invertebrates – Contractor/Volunteer job.

The informal path entering the area from the adjacent Middleton meadow should be periodically checked to ensure the route is clear of fallen branches/trees/scrub – Volunteer job.

The plantation provides a second area within the reserve to possibly site a number of nest boxes.

Site Access

A1. Old Hide Access



- Access between New Marshland and Sanctuary lake is covered in a thick layer of silt and mud from previous flooding episodes proving extremely difficult for all abilities of visitor to use.

- Hedge between access track and Sanctuary Lake has grown out occupying parts of the path (EA plan to side path hedges at time of report).

ADVICE: There is a substantial sub base beneath the silt mud which, once cleared, will provide suitable access for able and less able reserve visitors – Volunteer job.

The hedgebank either side of the old hide and running parallel to the Sanctuary lake could be steeped using Devon hedging techniques to improve its quality to hedge nesting birds – Hedging group/Contractor/Volunteer Job.

A2. Access around the New Marshland



A3. Access around the New Marshland



- Area around the lake is very difficult to navigate (A2, A3).

ADVICE: A path should be designed and created to allow for ease of access around the New Marshland and Sanctuary Lake with consideration given to installing low impact elements in keeping with the understated nature of the reserve – Contractor/Volunteer Job.

It is advised that all actions should be undertaken when new management is implemented with a timetable for seasonal/annual works established and authorised by TDC in full thereafter.

Picture ID	Nature Reserve Feature	Management Required	Advisor	Operator
11	1 Sanctuary Lake	Discuss feasibility of introducing controlled numbers of carnivorous fish such as perch and pike to restore former lake ecosystem	NDB/Steering Group/Practitioner	N/A
		Restore/construct old hide area to form a new viewing platform for the lake	Steering Group/Practitioner	Contractor/Volunteer
9	2 New Wetland	Interior: Selectively coppice/thin island trees/scrub	Steering group/Practitioner	Contractor / volunteer
		Interior: Cut and kill willows in amongst the reedbed (outside of island plantation)	Steering group/Practitioner	Contractor
		Margin: Cut and kill willows along wetland margin	N/A	Contractor/Volunteer
		Margin: Trim/cut marginal vegetation on a rotational basis	Steering group/Practitioner	Volunteer
		Discuss feasibility of creating a 20 – 30m walkway that would project into the wetland habitat	NDB/Steering Group/Practitioner	N/A
15	3 Tadpole Pond	Pull/clear marginal rushes	N/A	Volunteer
		Cutback areas of bramble on the western fringe of the pond	N/A	Volunteer
		Trim/side pondside willow	N/A	Contractor
		Selectively thin alder stand at the northern end of the pond	Steering group/Practitioner	Contractor/Volunteer
13	A Sanctuary Lake Plantation	Selectively coppice/thin lakeside trees/scrub	Practitioner/steering group	Contractor / volunteer

17	B Middleton Plantation	Selectively thin plantation cutting ash where possible and leaving oak, wild cherry and field maple	Practitioner/steering group	Contractor/Volunteer
		Cut back bramble at foot of plantation	N/A	Volunteer
21	C Poplar/Willow Plantation	Thin poplars ensuring adequate dead standing and fallen wood remains	Practitioner/steering group	Contractor/Volunteer
		Periodically maintain informal path running through plantation	N/A	Volunteer
		Discuss installation of nest boxes	NDB/Steering Group/Practitioner	N/A
18	D Northview Avenue Plantation	Cutback bramble to form small islands on a rotational basis	N/A	Volunteer
		Coppice willows along Copps close on a long rotation	Practitioner/steering group	Contractor / volunteer
5	E Kenwith Ditch/Northam Rd Plantation	Kenwith Ditch: Trim/side willows along margin of Impoundment Lagoon and Rush Grassland	Practitioner/steering group	Contractor / volunteer
		Northam Rd: Coppice and thin willows parallel to the road	Practitioner/steering group	Contractor / volunteer
8	F Picnic Plantation	Discuss installation of nest boxes	NDB/Steering Group/Practitioner	N/A
		Leave are to succesion	N/A	N/A
6	G Hawthorne Triangle	Thin/clear Atlantic ivy/buddleia	N/A	Volunteer
3	H Kingsley Plantation	Cutback bramble to form small islands on a rotational basis	N/A	Volunteer
		Coppice willows on a long rotation	Practitioner/steering group	Contractor / volunteer
		Side/trim roadside limes	Practitioner/steering group	Contractor / volunteer

2	J Petherick's Plantation	Cutback bramble to form small islands on a rotational basis	N/A	Volunteer
4	K Alexandra Plantation	Selectively coppice/pollard tall/unstable plantation trees	Practitioner/steering group	Contractor/Volunteer
12	1A Loafing Area	Selectively coppice/thin neighbouring trees/scrub	Practitioner/steering group	Contractor/Volunteer
14	1B The Plateau	Scotts pine: Selectively thin plantation trees	Practitioner/steering group	Contractor/Volunteer
		Plateau wood/scrub: Eradicate knotweed	N/A	Contractor
		Plateau wood/scrub: Leave remaining area to succession	N/A	N/A
16	1C Middleton Meadow	Side/cut back neighbouring trees	Practitioner/steering group	Contractor/Volunteer
		Periodically maintain informal path running through meadow	N/A	Volunteer
7	1D Recreation Grassland	Discuss sowing wet meadow flower mix or low cost drainage ditches	NDB/Steering Group/Practitioner	N/A
20	1E Impoundment Lagoon	Cut willows in reedbed and along western and northern margins and kill stumps	Practitioner/steering group	Contractor/Volunteer
		Cut willow running along the old stream course embankment	Practitioner/steering group	Contractor/Volunteer
19	1F Rush Grassland	Cut willows along western and southern margin and within rush grassland and kill stumps	Practitioner/steering group	Contractor
1	1G Wildflower Meadow	Discuss sowing wet meadow flower mix or low cost drainage ditches	NDB/Steering Group/Practitioner	N/A
A	A1 Old Hide Access	Clear mud/silt from hardcore path	N/A	Volunteer
		Steep hedge using Devon hedging techniques	NDB/Steering Group/Practitioner	Devon hedging group/Volunteer

B	A2 Lower Lake/New Marshland	Create new path with consideration given both to less able visitors and retaining low impact features within the reserve	Practitioner/steering group	Contractor / volunteer
C	A3 Lower Lake/New Marshland	Create new path with consideration given both to less able visitors and retaining low impact features within the reserve	Practitioner/steering group	Contractor / volunteer



1	Sanctuary Lake
2	Lower Lake / New Wetland
3	Tadpole Pond

A1	Old Hide Access
A2	Lower Lake / New Wetland Access
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