PERTH AND KINROSS COUNCIL

Environment Committee – 7 November 2012

BIODIVERSITY IMPROVEMENTS TO PARKS AND OPEN SPACES

Report by the Depute Director (Environment)

This report outlines the result of trial changes to the maintenance of grass in selected parks and open spaces, with the objective of improving biodiversity. It reviews the outcome of the 2010 and 2011 meadow trials and recommends that the long grass areas should be returned to amenity grass, except where wildflower meadows have been created, by sowing wildflower meadow seed mixes, and that further alternative methods of improving biodiversity in parks be introduced where there is no additional resource requirement.

1 RECOMMENDATIONS

1.1 The Committee is asked to:

(i) Note the improvements to biodiversity as a result of changes to grass management, the methods used and cost involved in undertaking the trials.

(ii) Agree to the return of all long grass areas to a two weekly amenity grass cutting regime within parks and open spaces, except where wildflower meadows have been created by sowing wildflower meadow seed mixes or those managed by the community.

(iii) Agree to the assessment of alternative methods of improving biodiversity in parks and open spaces and, where practicable, implement these within available resources.

(iv) Agree to a further report being submitted to the Committee, detailing the outcome of the 3 yearly trials.

2 BACKGROUND

2.1 As a public body, the Council has a duty to further the conservation of biodiversity under the Nature Conservancy (Scotland) Act 2004. As part of the Council's response in endeavouring to fulfil this duty, the Environment Committee approved trials of revised grass management in various parks on 31 March 2010 (Report 10/170).

2.2 In 2009 meadow trials were conducted at Western Edge Park, Viewlands Reservoir Park, Millennium Park and the South Inch in Perth. Following their success, these were expanded in 2010 to include areas of parks in settlements across Perth and Kinross to assess whether changes to grass management could improve the biodiversity of sites, whilst not increasing the costs to the Council of grass management.

2.3 Perth and Kinross Council is not alone in changing grass management regimes by creating meadow areas, as similar meadow grassland management schemes are taking place in other Local Authority areas as a way to improve biodiversity in parks. A summary of some of these activities is shown in Appendix 1.

3. BIODIVERSITY REVIEW OF 2010/11 TRIALS

3.1 The Perth and Kinross trials sought to provide biodiversity improvements in several parks, through changes to grass management. The key objectives of the trials were to monitor changes to the number of species found at each site as a result of the alterations to the grass management regime, and to determine the operational resource requirements associated with meadow management, including the costs, time and machinery used.

3.2 Three types of grass management regimes were undertaken:

(i) Meadow grass areas that would receive a single cut and lift operation in autumn (September)
(ii) Long grass areas which would be cut on a three yearly cycle
(iii) Areas where grass cutting would no longer be undertaken and natural regeneration would be allowed to occur.

3.3 The details of the sites where the three different management regimes were undertaken, are shown in Appendix 2.

3.4 A number of options were considered for carrying out the grass management, these included:

(i) Using existing equipment and manpower
(ii) Hiring in of equipment, for example through the Tay-Forth Machinery Ring and using existing manpower
(iii) Contracting all work to external contractors

3.5 As the extended trial period has only been fully completed over a 2 year period, only the meadow grass regime has been assessed so far, but the other management regimes will continue to be monitored and assessed. On the majority of meadow grass areas the Grounds Maintenance Team employed external contractors to cut and collect the grass. On more restricted sites, such as Greyfriars Cemetery, the Grounds Maintenance Team used their own cutting and collecting equipment.

3.6 The trials have provided an opportunity to monitor the changes that occurred by leaving the grass uncut during the summer. Flora and fauna were recorded and this now provides baseline information against which further surveys can measure changes to biological diversity.

3.7 A number of wildflower species were identified that could not have flowered had these areas continued to be close mown. In addition, a noticeable increase in insect activity was seen, indicating that an ecosystem approach to grass management is beneficial for biodiversity. For details of species see Appendix 3.

3.8 Some of the meadow areas were created as part of park improvement projects, including Larghan Park in Coupar Angus and Kirkgate Park in Kinross, where wildflower meadow seed mixtures were used to form the meadows. These have been particularly successful, as a more diverse flora is present than in the areas where existing grass has been left uncut. This contributed positively to both the appearance and biodiversity of these sites. They were also likely to be more readily accepted by park users being more colourful as a result of the wildflowers present, rather than predominantly just long grass.

3.9 Close mowing still continues alongside the trial areas, including mowing the grass adjacent to surfaced paths. This was to ensure that the areas of long grass are not perceived as 'unmanaged' or abandoned. Signs were erected at all sites, informing the public of the changes that were taking place, and the reasons for there being longer grass. The signs were an essential part of the information process, and should be used in the future for any similar areas.

3.10 The meadow areas also provided opportunities to involve communities in their local greenspace. At Mathieson Drive Community Orchard in Tulloch, Perth, the grass was cut by the Grounds Maintenance Team and the local community helped to rake and collect it by hand. This area was quite small and manageable compared to the majority of the trial areas but nonetheless it was important to involve the community in managing their local green space. In 2012 the local community also helped to manage some of the meadow areas in Donaldson Park, Milnathort.

3.11 By creating meadows, new habitats have been created which should enhance the public's experience of parks. The new habitats are also available to schools as an educational resource for use in a variety of subjects. There may also be opportunities to work with organisations such as Woodlands Trust Scotland and members of the public to further their understanding of the natural world through a "citizen science" approach.

3.12 The trials also included areas of steep grass bankings that had been removed from the grounds maintenance programme in 2005 because they are considered excessively steep to safely cut. This has resulted in them becoming overgrown with tussocky grass and tall weeds such as Docken and Thistle, and occasionally colonised by scrub, including broom. As these areas have not been managed for a period of time some can appear untidy but could have some benefit to biodiversity. The appearance and biodiversity value will be kept under review.

3.13 Prior to the trials, when the grass was close mown, plants were restricted in their ability to flower, reducing the opportunities for pollinating insects, such as bumble bees. However, by leaving the grass uncut until autumn it has allowed all the plants present the opportunity to flourish, resulting in flowers which provide pollen and nectar for a variety of insects. Once the flowers have set seed they can also provide food for seed eating birds. An additional benefit of providing suitable habitats for insects to flourish is the knock-on effect of providing food for insect- eating birds and bats. It is clear that the simple act of reducing the frequency of grass cutting to once a year has positive effects on the whole ecosystem.

4. SITE APPRAISALS

4.1 There have been mixed results arising from the different trial areas. The most successful sites have been those sites where wildflower meadows have been created, either by sowing a wildflower meadow seed mixture or planting wildflowers directly into the grass. Some examples of these include:

4.2 **Coupar Angus Larghan Park** – an area of 'Bumble Bee Meadow' was created as part of wider park improvement with a nectar rich flora to attract insects. A wide variety of wildflowers provide a changing landscape through the seasons.

4.3 **Kinross Kirkgate Park** – A wildflower maze was created as part of wider park improvements using a wildflower meadow mix and is an attractive addition to the park producing an ever changing display of wildflowers through the summer.

4.4 **Blairgowrie Piggy Lane Playing Field** – the areas between the pitches and the boundary fence were sown with a meadow mix and planted with trees when the playing fields were being created, providing a variety of habitats for wildlife.

4.5 The majority of the sites where grass cutting was reduced from 16 cuts per season to a single cut and removal of the cuttings have had mixed results, with some successes.

a. Auchterarder Primrose Park was found to have a colony of Northern Marsh Orchids (*Dactylorhiza purpurella*)
b. Viewlands Reservoir Park has at least one species of ground nesting bumblebee living in it on the dry, north facing slope.
c. Western Edge Park has a damp meadow with a range of flowers in amongst a fine grass sward

For more details of changes found at each of the parks see Appendix 4

4.6 In addition to the original trial sites **Donaldson Park in Milnathort** had bulbs and wildflowers planted by the primary school as part of the 'Placecheck' improvements to provide food sources for insects, and an area of derelict land at **Muirton in Perth** has been transformed into a colourful wildflower area with grant aid from the SITA Tayside Biodiversity Action Fund. This is being monitored by the national invertebrate charity, 'Buglife', to assess whether the original derelict 'brownfield' site or the enhanced wildflower area is more attractive to insects. This area will require next to no maintenance as there is no grass included in the seedmix.

5. RESOURCE REVIEW OF THE MEADOW TRIALS

5.1 Another objective of the trials, was to assess the costs of maintaining more biodiverse grass areas in parks and open spaces.

5.2 The cost of employing an external contractor to cut and lift the areas of meadow grass in 2011 was £9,417.00 (£985.08/Ha), however it has been estimated that this could be reduced to £7,160.54 (£749.05/Ha) if it was carried out by the Council's Grounds Maintenance team. This is still higher than the estimated cost of maintaining the same areas as amenity grass by cutting it fortnightly at £5,965.16 (£624.00/Ha). For details of individual site cost comparisons see Appendix 2.

5.3 Whilst it is noted that the areas and techniques used in the Perth and Kinross trials shows an increase in maintenance costs, this contrasts with figures contained in a recent report by The Woodland Trust ('Trees or Turf: Best Value in Managing Urban Green Space' May 2011). Their study assessed the cost comparison of a number of different management regimes indicating that amenity grass is considerably more costly to maintain than meadow grass and it should be possible to reduce the maintenance costs by 64% if meadow grass is adopted instead of the lowest cost amenity grass regime. The following table illustrates the different maintenance costs for the different management regimes by The Woodland Trust:

Regime	Average Annual Cost (£/ha)
Amenity grass 100% gang mown	£1620
Meadow grass	£580

5.4 It is worth noting however that the Woodland Trust's rate for gang mown amenity grass at £1,620 per hectare is almost three times as much as our own costs of £624/ha. As such further more detailed investigation and comparison of these costs with our own would be beneficial in establishing whether some different techniques or machinery could be used to deliver the potential savings and additional biodiversity benefits in terms of grassland maintenance.

6. PROPOSALS

6.1 As a result, it is proposed that the following is undertaken:-

6.2 To avoid incurring additional maintenance costs using the techniques undertaken during the trials at a time when Council's are having to make significant savings, it is proposed that the long grass areas are returned to a fortnightly cut except for nine sites where the biodiversity improvements have been particularly successful (see para 8.2.1). Apart from using contractors or employees, there would be several benefits if some of the meadow management could be undertaken by community groups, such as is happening at Donaldson Park, Milnathort and Mathieson Drive, Perth which should continue to be encouraged.

6.3 In addition, a range of biodiversity improvements other than grass cutting can continue to be implemented on a case by case basis across a range of parks and open spaces. These are detailed in Appendix 5. Many of these incur little or no extra cost and have already been successfully implemented in many of the Council's parks and open spaces.

6.4 A further report will be submitted to Committee detailing the outcome of the 3 yearly trials.

7. CONSULTATION

7.1 The Head of Finance and the Head of Democratic Services have been consulted in the preparation of this report.

8. RESOURCE IMPLICATIONS

8.1 Capital

8.1.1. There are no Capital resource implications arising directly from the recommendations in this report.

8.2 Revenue

8.2.1 There are no additional costs to the revenue budget by returning the long grassed areas to a fortnightly cut. The estimated annual costs for continuing maintenance of the remaining areas will be £2,600 and will be met through the existing Grounds Maintenance Revenue budget. The sites to be retained are:

- Primrose Park, Auchterarder
- Larghan Park, Coupar Angus
- Piggy Lane Playing Fields, Blairgowrie
- Kirkgate Park, Kinross
- Donaldson Park, Milnathort
- Primrose Park, Auchterarder (Damp areas only)
- Millennium Park (Muirhall Road) Perth
- Mathieson Drive Community Orchard, Tulloch, Perth
- Greyfriars Cemetery, Perth

9. COUNCIL CORPORATE PLAN OBJECTIVES 2009-2012

9.1 The Council's Corporate Plan 2009-2012 lays out five Objectives which provide clear strategic direction, inform decisions at a corporate and service level and shape resources allocation. This report impacts on the following:

(i) A Safe, Secure and Welcoming Environment
(ii) Healthy, Caring Communities
(iii) Confident, Active and Inclusive Communities

10. EQUALITIES IMPACT ASSESSMENT (EqIA)

10.1 An equality impact assessment needs to be carried out for functions, policies, procedures or strategies in relation to race, gender and disability and other relevant protected characteristics. This supports the Council's legal requirement to comply with the duty to assess and consult on relevant new and existing policies.

10.2 The function, policy, procedure or strategy presented in this report was considered under the Corporate Equalities Impact Assessment process (EqIA) and found not to be relevant.

11. STRATEGIC ENVIRONMENTAL ASSESSMENT

11.1 Strategic Environmental Assessment (SEA) is a legal requirement under the Environmental Assessment (Scotland) Act 2005 that applies to all qualifying plans, programmes and strategies, including policies (PPS).

11.2 The matters presented in this report were considered under the Environmental Assessment (Scotland) Act 2005 and: screening has determined that there are unlikely to be any environmental effects and as a consequence an environmental assessment is not necessary.

12. CONCLUSION

12.1 The trials were generally successful in demonstrating that changing the grass maintenance regimes could have a beneficial effect on the biological diversity of our parks and open spaces in certain areas. This was particularly true where additional measures were undertaken to enhance the wildflower content of the areas. The operational impacts of the trial however did not demonstrate savings and the required techniques and methods resulted in an increase in costs to maintain grass areas in this way.

12.2 Given that savings have to be made across all areas of grounds maintenance it is not sustainable to continue with these techniques and incur additional annual costs for maintaining long grass areas at all sites. However areas which have been successfully managed by community groups and meadow areas with a higher biodiversity value should continue to be maintained and supported for biodiversity. Further more detailed investigation is also proposed where other authorities and agencies have succeeded in delivering improved biodiversity outcomes without incurring extra costs.

BARBARA RENTON
DEPUTE DIRECTOR (ENVIRONMENT)

NOTE

The following background papers, as defined by Section 50D of the Local Government (Scotland) Act 1973 (and not containing confidential or exempt information) were relied on to a material extent in preparing the above Report; (list papers concerned)

- Report to the Environment Committee on 31 March 2010 entitled Biodiversity Improvements to Parks and Open Spaces, Report Number: 10/170

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ate of Report 28 September 2012

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Appendix 1

Meadow Management in Other Local Authority Areas

- The **City of Edinburgh Council** is creating new meadows by sowing meadow seed mixtures in 15 different sites as part of a 3 year scientific collaboration between universities, city councils and wildlife trusts. The project is part of the UK Insect Pollinators Initiative.

- The **City of Edinburgh Council** and Biodiversity Partnership have produced a guide 'Biodiversity in Parks and Greenspaces' to provide information to residents on how parks can be improved.

- The **City of Edinburgh Council** has 13 sites that are managed principally for their Natural Heritage.

- **Stirling Council** has set up the 'On the Verge' campaign to help bees, all at the instigation of a local resident. This is the creation of wildflower rich road verges by sowing wildflower meadow seed mixtures.

- **South Lanarkshire Council** created 18 community wildflower meadows in 2003 and 2004 by sowing meadow seed mixtures under the banner of Biodiversity Banks with the help of 1000 volunteers.

- **South Lanarkshire Council** has also produced a 50 page Wildflower information pack to inform the public of the benefits of wildflower meadows.

- For 2012 **South Lanarkshire Council** has selected 10 sites to test different approaches to creating wildflower rich grassland, including 2 sites with sterile soil and 8 sites where grass cutting will only take place once a season. Each site involves monitoring by community groups to identify species present and will provide a cost/benefit analysis.

- In **East Lothian Council**, meadows have been created in parks in Musselburgh, Haddington and Dunbar and on roundabouts by sowing wildflower meadow seed mixtures. Where possible, areas of parks and open space in towns are being converted to a wildlife friendly landscape. Native trees, shrubs and wildflowers are being incorporated into urban spaces to encourage urban wildlife.

- **Falkirk Council** recently opened the Lionthorn Community Woodland which has received £209,000 of improvements to transform a neglected area of greenspace over a two year period including woodland, wetland and meadow creation.

- **Fife Council** has a range of sites that have some meadow management, including Riverside Park, Glenrothes; Kennoway Den; Dunnikier Park, Kirkcaldy; Beveridge Park, Kirkcaldy; St Andrews Botanic Gardens; Lochore Meadows; Pittencrieff Park, Dunfermline including areas where wildflower seeds have been sown. Each park has a Management Plan highlighting where biodiversity improvements can occur.

- **Glasgow City Council** has produced management plans for 7 major green spaces within the city, which all have wildflower meadows, and plans to increase these meadow areas by sowing meadow seed mixtures. In addition, Glasgow City Council is enhancing 'stalled spaces' on brownfield sites where development has been temporarily been halted.

- In Inverness, **Highland Council** has created a new 3.5 ha park to the south of the City at Culduthel which includes meadow areas sown with meadow seed mixture, which the Councillors have publicly welcomed for encouraging greater biodiversity.

- **Midlothian Council** put out to consultation the proposal to change over 250,000 square metres of amenity grass to meadow grass. Pupils at a Penicuik school have created a 3,500 square metre meadow in their school grounds by sowing wildflower meadow seed mixture. In 2009 a former mill site was transformed into a park with a variety of habitats, including the creation of a wildflower meadow by sowing a meadow seed mixture.

- **North Ayrshire Council** has created the Irvine Bay Green Network where improvements have included wildflower planting.

- Cumbernauld Community Park, in **North Lanarkshire**, is an 89 ha park including wildflower meadows. The Council held a "B in the Park" event at Dalzell Estate and Baron's Haugh near Motherwell where the public could get involved in planting wildlife friendly hedgerows and meadows, or build bird boxes.

- **Orkney Islands Council** supplied schools with wildflower plants to support the 'Great Yellow Bumblebee' project for planting in school grounds.

- Public realm works in Erskine Town Centre, **Renfrewshire**, created wetland habitats and extensive wildflower meadow planting.

- In **Scottish Borders Council** there is an annual programme of creating wildflower areas in parks and along roadsides. Locally sourced seed is sown of annual and fast growing perennial flowers to provide an eyecatching habitat for butterflies and bumblebees.

Appendix 2

Perth and Kinross Site Trial Results

Settlement	Ward	Site	Grass Cutting Regime	Assessment	Area of Meadow Grass	Actual Contractor Meadow Grass Annual Costs	Estimated in house Meadow Grass Annual Costs	Estimated in house Amenity Grass Annual Costs	Proposal
Aberfeldy	4	Victoria Park	Type (i) - 1 'cut and lift' to peripheral area beyond cricket outfield and below trees	The area between the cricket pitch and the road was left uncut in 2011 with low species diversity recorded.	324.16m^2	£38.89	£22.96	£20.23	Resume amenity grass cutting
Alyth	2	Market Muir	Type (i) – 1 'cut and lift' in central areas and Type (ii) – 1 cut every 3 years to peripheral areas	This was removed from the trial following community consultation					Removed from trial

Settlement	Ward	Site	Grass Cutting Regime	Assessment	Area of Meadow Grass	Actual Contractor Meadow Grass Annual Costs	Estimated in house Meadow Grass Annual Costs	Estimated in house Amenity Grass Annual Costs	Proposal
Auchterarder	7	Auchterarder (Primrose) Park	Type (i) - 1 'cut and lift' to peripheral areas	The perimeter areas of the park, some of which were permanently damp, were allowed to grow through the summers and were a succession of wildflowers including Cuckoo Flower, Harebell, Yarrow and Oxeye Daisy. The damp areas produced 2 spikes of Northern Marsh Orchids in 2010, which increased to 11 spikes in 2011	6523.63m^2	£782.82	£475.76	£407.07	Continue to manage the damp areas to allow the Northern Marsh Orchids to flourish.

Settlement	Ward	Site	Grass Cutting Regime	Assessment	Area of Meadow Grass	Actual Contractor Meadow Grass Annual Costs	Estimated in house Meadow Grass Annual Costs	Estimated in house Amenity Grass Annual Costs	Proposal
Auchterarder	7	Kincardine Road Play Area	Type (i) - 1 'cut and lift' to selected areas	Only where the orchard has been planted is left as long grass	Not calculated	Not calculated	Not calculated	Not calculated	Resume amenity grass cutting
Blairgowrie	3	Piggy Lane Playing field	Type (i) - 1 'cut and lift' to selected areas. Type (iii) – no grass cutting in new tree planting areas	Wildflowers were sown during the creation of the playing fields.	7558.16m^2	£906.97	£502.77	£471.63	Continue with meadow cut and ensure grass is lifted after cutting

Settlement	Ward	Site	Grass Cutting Regime	Assessment	Area of Meadow Grass	Actual Contractor Meadow Grass Annual Costs	Estimated in house Meadow Grass Annual Costs	Estimated in house Amenity Grass Annual Costs	Proposal
Coupar Angus	2	Larghan Park	Type (i) - 1 'cut and lift' to existing Bumble bee meadow Type (iii) – cease cutting at tree areas	A Bumble Bee Meadow was created as part of wider improvements with funding from the Tayside Biodiversity Action Fund for a seed mix specifically designed to attract Bees, Butterflies and Birds. This has been a success with a continuous display of wildflowers throughout the summer.	4332.57m^2	£519.90	£307.53	£270.35	Continue with meadow cut. Provide information about the meadow.

Settlement	Ward	Site	Grass Cutting Regime	Assessment	Area of Meadow Grass	Actual Contractor Meadow Grass Annual Costs	Estimated in house Meadow Grass Annual Costs	Estimated in house Amenity Grass Annual Costs	Proposal
Crieff	6	Maxton Road	Type (i) – 1 'cut and lift' to peripheral areas	This area was removed from the trial as it was subject to a Planning Application for social housing					Removed from trial
Kinross	8	Kirkgate Park	Type (i) - 1 'cut and lift' at existing meadow areas. Type (iii) – cease cutting on steep bankings and tree areas	Wildflower planting took place as part of a wider improvement project. A wildflower maze was created which has produced an attractive display of wildflowers each summer.	1386.15m^2	£166.34	£98.68	£86.50	Continue with meadow cut. Provide interpretation/ information regarding the meadow.

Settlement	Ward	Site	Grass Cutting Regime	Assessment	Area of Meadow Grass	Actual Contractor Meadow Grass Annual Costs	Estimated in house Meadow Grass Annual Costs	Estimated in house Amenity Grass Annual Costs	Proposal
Perth	10	Viewlands Reservoir Park	Type (i) - 1 'cut and lift' in areas as 2009	The north facing slope which has some areas of bare soil and the vegetation is short has been more successful than the damp area, with a more varied flora and fauna. There is also evidence of ground nesting bees resident in this area.	11261.63m^2	£1351.40	£871.29	£702.73	Resume amenity grass cutting

Settlement	Ward	Site	Grass Cutting Regime	Assessment	Area of Meadow Grass	Actual Contractor Meadow Grass Annual Costs	Estimated in house Meadow Grass Annual Costs	Estimated in house Amenity Grass Annual Costs	Proposal
Perth	11	Western Edge Park	Type (i) - 1 'cut and lift' in areas as 2009	The eastern area of the park, which amounts to approximately 20% of the total meadow area, is damp with no weeds and a wide variety of wild flowers present, flowering between May and September. The remainder is long grass and some weeds.	7152.68m^2	£858.32	£521.67	£446.33	Resume amenity grass cutting

Settlement	Ward	Site	Grass Cutting Regime	Assessment	Area of Meadow Grass	Actual Contractor Meadow Grass Annual Costs	Estimated in house Meadow Grass Annual Costs	Estimated in house Amenity Grass Annual Costs	Proposal
Perth	12	South Inch	Type (i) - 1 'cut and lift' in areas as 2009 with areas below trees added	This site has a problem of flooding with nutrient rich sewage leading to tall weeds such as Broad-leaved Dock.	6682.96m^2	£801.96	£1814.36	£1552.47	Resume amenity grass cutting
Perth	12	Millennium Park	Type (i) - 1 'cut and lift' in areas as 2009. Type (ii) 1 cut every 3 years to peripheral area	Large areas of Millennium Park were not cut in previous years, which meant it had areas of dense long grass. Soil was spread from Murray Royal Hospital opposite and this was sown with a wildflower seed mix.	17157.39m^2	£2058.89	£1446.02	£1070.62	Continue with meadow cut. Provide interpretation/information regarding the meadow.

Settlement	Ward	Site	Grass Cutting Regime	Assessment	Area of Meadow Grass	Actual Contractor Meadow Grass Annual Costs	Estimated in house Meadow Grass Annual Costs	Estimated in house Amenity Grass Annual Costs	Proposal
Perth	11	Mathieson Drive	Type (i) - 1 'cut and lift' to area between football pitch and Lade	An area of wildflower meadow was created at the same time as the Community Orchard was planted, with the wildflowers attracting pollinating insects to the orchard. This was cut by Grounds Maintenance Team and the grass raked up by the local community.	1788.90m^2	£214.67 (Cut by Grounds Maintenance Team and collected by Community)	£246.85	£111.63	Continue with meadow cut. Provide interpretation/information regarding the meadow.

Settlement	Ward	Site	Grass Cutting Regime	Assessment	Area of Meadow Grass	Actual Contractor Meadow Grass Annual Costs	Estimated in house Meadow Grass Annual Costs	Estimated in house Amenity Grass Annual Costs	Proposal
Perth	12	Greyfriars Cemetery	Type (i) - 1 'cut and lift' at existing meadow areas	Greyfriars Cemetery has been managed as a long grass area since 2005 and has had wildflower plants added to the long grass areas. It has been used a school resource, with ecological surveys being undertaken by students.	4495.92m^2	£539.50 Cut and collected by Grounds Maintenance Team	£387.74	£280.55	Continue with meadow cut. Provide interpretation/information regarding the meadow.

Settlement	Ward	Site	Grass Cutting Regime	Assessment	Area of Meadow Grass	Actual Contractor Meadow Grass Annual Costs	Estimated in house Meadow Grass Annual Costs	Estimated in house Amenity Grass Annual Costs	Proposal
Perth	11	Jeanfield Park	Type (i) - 1 'cut and lift' on high ground adjacent to cemetery, Type (ii) - 1 cut every 3 years to peripheral areas	This was removed from the trial following community consultation					Removed from trial
Perth	12	North Inch	Type (i) - 1 'cut and lift' in area between riverside trees and riverbank, Type (ii) - 1 cut every 3 years at 'barrier' strip along riverbank.	The strip between the footpath and the River Tay has a low growing sward. There is not a huge variety of flora here, but this has attracted bees throughout the summer	8734.98m^2	£1048.20	£637.04	£545.06	Resume amenity grass cutting

Settlement	Ward	Site	Grass Cutting Regime	Assessment	Area of Meadow Grass	Actual Contractor Meadow Grass Annual Costs	Estimated in house Meadow Grass Annual Costs	Estimated in house Amenity Grass Annual Costs	Proposal
Perth	12	Bute Drive/St. Johnstone's Club, North Muirton	Type (ii) - 1 cut every 3 years with close mowing continuing along path	Full of weeds and is not worth keeping in the trial					Removed from trial
Perth	11	Almond Riverside Path	Type (ii) - 1 cut every 3 years with close mowing continuing along path	This has not been assessed as it is yet to be cut					Continue with cut every third year
Perth	10	Broxden Flood Prevention	Type (ii) - 1 cut every 3 years with close mowing continuing along path	This has not been assessed as it is yet to be cut					Continue with cut every third year

Settlement	Ward	Site	Grass Cutting Regime	Assessment	Area of Meadow Grass	Actual Contractor Meadow Grass Annual Costs	Estimated in house Meadow Grass Annual Costs	Estimated in house Amenity Grass Annual Costs	Proposal
Perth	10	St Magdalene's Hill	Type (iii) – no grass cutting in naturalising woodland areas, with close mowing continuing along paths	This has not been assessed as it is yet to be cut					Continue with current management
Pitlochry	4	Atholl Road/East Moulin Road	Type (i) - 1 'cut and lift' on banking	This area is managed by Pitlochry in Bloom and has been sown with Yellow Rattle to reduce the vigour of grass allowing wildflowers to thrive.					Very successful use of Yellow Rattle has suppressed the grasses and allowed other flowers to thrive

Settlement	Ward	Site	Grass Cutting Regime	Assessment	Area of Meadow Grass	Actual Contractor Meadow Grass Annual Costs	Estimated in house Meadow Grass Annual Costs	Estimated in house Amenity Grass Annual Costs	Proposal
St. Madoes	1	Sidlaw Park	Type (i) - 1 ‘cut and lift’, with existing 'desire line' routes mown 5 times.	This has not been assessed as it is yet to be cut					Continue with cut every third year

Appendix 3

REVIEW OF SPECIES IDENTIFIED DURING THE 2010/11 MEADOW TRIALS

During the assessment of the flora and fauna the following species were identified:-

Common Name	**Latin Name**
Eyebright	*Euphrasia confuse*
Field Forget-me-not	*Myosotis arvensis*
Ivy-leaved Speedwell	*Veronica hederifolia*
Smooth Hawk's-beard	*Crepis capillaries*
Clustered Bellflower	*Campanula glomerata*
Giant Bellflower	*Campanula latifolia*
Harebell	*Campanula rotundifolia*
Northern Marsh-orchid	*Dactylohyza purpurella*
Cowslip	*Primula versi*
Germander Speedwell	*Veronica chamaedrys*
Lady's Mantle	*Alchemilla glabra*
Meadow Buttercup	*Ranunculus acris*
Meadowsweet	*Filipendula ulmaria*
Oxeye Daisy	*Leucanthemum vulgare*
White Dead-nettle	*Lamium album*
Yarrow	*Achillea millefolium*
Autumn Hawkbit	*Leontodon autumnalis*
Bladder Campion	*Silene vulgaris*
Bloody Crane's-bill	*Geranium sanguineum*
Brood-leaved Dock	*Rumex obtusifolius*
Chickweed-wintergreen	*Trientalis europaea*
Common Bird's-foot Trefoil	*Lotus corniculatus*
Common Knapweed	*Centaurea nigra*
Common nettle	*Urtica dioca*
Cow Parsley	*Anthriscus sylvestris*
Goat's-beard	*Tragopogon pratensis*
Goldenrod	*Solidago virgaurea*
Ragged-Robin	*Lychnis flos-cuculli*
Red Campion	*Silene dioica*
Red Clover	*Trifolium pratense*
Silverweed	*Potentilla anserine*
Slender St. John's-wort	*Hypericum pulchrum*
Tormentil	*Potentilla erecta*
Tufted Vetch	*Vicia cracca*
White Campion	*Silene latifolia*

Common Name	Latin Name
Invertebrates	
Buff-tailed bumblebee	*Bombus terrestris*
Common Carder Bee	*Bombus pascuorum*
White-tailed bumblebee	*Bombus lucorum*
Red tailed bee	*Bombus lapidarius*
Honey bee	*Apis mellifera*
Early bee	*Bombus pratorum*
Orange-tip	*Anthocharis cardamines*
Northern Brown Argus	*Aricia artaxerxes*
Red Admiral	*Vanessa atalanta*
Painted Lady	*Vanessa cardui*
Small Tortoiseshell	*Aglais urtica*
Large white butterfly	*Pieris brassicae*
Tiger hoverfly	*Helophilus pendulus*
Marmalade hoverfly	*Epysyrphus balteatus*
Hoverfly	*Syrphus ribesii*
Hoverfly	*Scaeva pyrastri*
Black garden ant	*Lasius niger*
Rove beetle	*Stenus species*
Common wasp	*Vespula vulgaris*
Sawfly	*Tenthredo species*
Hoverfly	*Platycheirus species*

Appendix 4

Perth and Kinross Site Appraisals

1. **Blairgowrie Piggy Lane Playing Field** – the areas between the pitches and the boundary fence were sown with a meadow mix and planted with trees when the playing fields were being created, however the meadow strip was cut in August and the grass needs to be removed to prevent smothering of the wildflowers.

2. **Coupar Angus Larghan Park** – an area of 'Bumble Bee Meadow' was created as part of wider park improvement with a nectar rich flora to attract insects. A wide variety of wildflowers provide a changing landscape through the seasons. No weeds have needed to be treated although there is the occasional broad-leaved Dock and Ragwort, but these both add to the biodiversity potential of the meadow.

3. **Kinross Kirkgate Park** – A wildflower maze was created as part of wider park improvements using a wildflower meadow mix and is an attractive addition to the park producing an ever changing display of wildflowers through the summer.

4. **Perth Millennium Park** - – One of the original trial sites in 2009 this was inherited from the Community Council. The soil appears to be very fertile here leading to lush grass growth, however in 2011 subsoil from the adjacent Murray Royal Hospital was spread over an area of the park and then sown with a wildflower seed mix. This has produced a much more interesting and diverse flora and produces a much more colourful 'meadow' than previously. While there are some weeds here, none have required treatment.

5. **Perth Mathieson Drive** – A community orchard was planted in part of the playing field at Matheison Drive, and undersown with a wildflower meadow mix. While there are Broad-leaved Dock here, no weeds have been treated here. This site is cut by the Council while the community have helped to rake up the grass for collection and removal. To date this has been successful and is something that should be considered elsewhere if local communities are amenable.

6. **Perth Greyfriars Cemetery** – This has been managed as a long grass areas since 2005. Some wildflowers were planted in 2007 and these are gradually becoming established and provide more interest to the graveyard. Greyfriars has occasionally been used by schools to undertake ecological surveys.

7. **Aberfeldy Victoria Park** - the area between Taybridge Terrace and under the trees to the west of the Cricket field has been left uncut during the main growing period with yarrow, ox-eye daisy and meadow buttercup the main species on display. No weeds have needed to be treated but the grounds maintenance team have indicated that this site is too steep to cut with anything other than strimmers. Continued meadow maintenance should allow greater diversity over time.

8. **Auchterarder Public (Primrose) Park** – The perimeter areas of the park, where cutting is difficult due to the wet conditions, were left uncut in 2010 and 2011. A range of flowers were apparent including Cuckoo flower, Yarrow, Ox-eye daisy and Harebell, however the mains success was finding Northern Marsh Orchids growing between the path and the Civic Amenity Site. There were two flower spikes in 2010 and twelve in 2011. There is also an area of naturally regenerating woodland at the south end of the park.

9. **Auchterarder Kincardine Road Play Area** – as part of the new play area design, an orchard was planted with the grass left to grow between the trees and around the perimeter of the park. To date there has not been a noticeable improvement in flora and it is difficult justifying the continuation of the perimeter areas, although the long grass under the orchard is worth keeping as there is likely to be a longer term increase in insect fauna which will help to pollinate the fruit.

10. **Perth Viewlands Reservoir Park** – One of the original trial sites in 2009 which has two very different areas. The 'bowl' of the old reservoir is damp creating very lush grass with very little diversity of species although bats and swallows have been observed feeding here. The dry north facing slope, on the other hand, has a reasonably wide range of flora that is attracting insects. A colony of ground nesting bumble bees has been observed here. It is noted that an additional area of 3500m2 has also been left uncut this summer. No weeds have needed to be treated here. It is worth keeping the north facing slope, but the bowl area, and the additional area could revert to amenity grass.

11. **Perth Western Edge Park** – One of the original trail sites in 2009, a strip round the perimeter where there is a belt of trees and an area in the centre were left as uncut with varying success. The central area is very lush grass with patches of problem weeds, the treatment of which has led to large patches of dead grass which will only result in more weeds appearing. The eastern area, to the north of the car park has been developing nicely with an interesting mix of flora becoming evident, this area is worth keeping as a wildflower meadow, but the remaining areas could possibly revert to amenity grass.

12. **Perth South Inch** - One of the original trial sites in 2009 this has had problems due to high fertility and regular flooding, with a large number of problem weeds the treatment of which has led to large patches of dead grass which will only result in more weeds appearing. While it has shown to have a moderate diversity of flora, it would be better returned to amenity grass due to its high profile location and repeated flooding.

13. **Perth North Inch** - A strip of grass between the path and the River Tay has been left as longer grass as a water safety measure with the result that it has produced a relatively short grass sward with short growing flora that is attractive to bees and butterflies. The areas between the trees could be returned to amenity grass and the long grass areas left along the riverbank itself.

14. A number of other sites were recommended for cutting every third year, but these have not been assessed fully as they are not due to be cut until October 2012. These are:
    - Bute Drive behind St Johnstone Club, Perth
    - Almond Riverside Path, Perth
    - Broxden Flood Alleviation Ponds, Perth
    - St Magdalene's Hill, Perth
    - Sidlaw Park, St Madoes

Appendix 5

Alternative Methods to Increase Biological Diversity in Parks

1. Create additional new woodlands linking areas of existing woodland. These could incorporate suitable trees species such as Willow and Alder which will make a valuable contribution to the creation of wetland areas.

2. Construct habitat piles with deadwood and other woodland debris to encourage wildlife and habitats for mammals and bird life.

3. Expand transitional grassland around boundaries of existing woodland.

4. Plant native species including Scots Pine, Oak and Ash.

5. Locate Bird and Bat boxes throughout woodland areas.

6. Initiate a programme of work to eradicate Japanese knotweed from all Council Parks.

7. Develop areas of natural water ponding to encourage wetland areas. Concentrate on creating shallow areas to encourage frogs and small mammals and invertebrate species such as dragonflies, etc

8. Investigate potential to amend buildings to encouraging wildlife.

9. Create areas of annual pictorial meadows to increase diversity of plant species and encourage insect population.

10. Implement a programme for removal of non-native species such as Rhododendron Ponticum, Japanese Knotweed and Himalayan Balsam.

11. Plant fruiting shrubs and trees.