



<b>REPORT TITLE:</b>	<b>Parks for Nature – Climate Impact Report</b>
<b>REPORT OF:</b>	<b>Executive Lead Member for Resources, Climate Change and Economy Cllr Michael Hoy</b>

### **REPORT SUMMARY**

This report provides a summary of the Council's Parks for Nature programmes climate impact and the planned increase in carbon sequestration across our managed parks and open spaces.

Rochford District Council has pledged its commitment to be achieve a net zero carbon status for its own managed estate by 2030.

Through the Parks for Nature Public Consultation in May 2021, the Parks for Nature initiative has worked to achieve our resident's interest in nature (managing sites for increased biodiversity) and to provide resource for tree planting and nature conservation.

### **RECOMMENDATIONS**

**Members are asked to recommend to the Executive:**

**R1 - To continue the roll-out of the Parks for Nature scheme, to complete the listed sites;**

*Bedford Close Rayleigh, Brockford Green Rayleigh, Canewdon Village Green, Hullbridge Recreation Ground, Malvern Road Rayleigh, Millview Meadows Rochford, Rawreth Recreation Ground, Rochford Reservoir, Rayleigh Leisure Centre and Sweyne Park;*

**1.0 REASON/S FOR RECOMMENDATIONS**

1.1 This report provides a summary of the positive impact of the Parks for Nature programme introduced in December 2021. This report also provides a summary of the benefits of continuing with the planned list of Parks for Nature sites by providing a breakdown of the planned increase of carbon sequestration at each new site, and the benefits to biodiversity.

**SUPPORTING INFORMATION**

**2.0 INTRODUCTION**

2.1 The decision to undertake the Parks for Nature initiative was agreed by the Executive (July 2021). The Parks for Nature initiative would be rolled out, with the changes to the ground's maintenance regime, resulting in areas of relaxed mowing and tree planting replacing previously formally mown amenity grass,

2.2 The above decision had given consideration to the Council's commitment to achieve a net zero carbon status for its own managed estate by 2030; the benefits to wildlife and biodiversity; and, that the reduced management regime of the Councils Open Spaces would save an estimated annual £100,000.

2.3 The parks for nature programme will increase the carbon sequestration from 11.4 tonnes to 37.7 tonnes annually, an increase of 230% across our managed parks and open spaces if the project is completed. Please refer to Appendix 2 for detailed information.

2.4 Table showing carbon sequestration impact before and after Parks for Nature, the already implemented sites and the sites awaiting approval:

Year	Site Name	Carbon Sequestered (tonne)		Difference (tonne)	Implementation Status
		Before	After		
2023	Ashingdon Recreation Ground	1.7	4.7	3	Implemented
2023	Fairview Recreation Ground	0.6	1.6	1	Implemented
2023	Ferndale Open Space	1.2	3.7	2.5	Implemented
2023	Great Wakering Recreation Ground	1.3	3.5	2.2	Implemented
2023	Grove Woods Recreation Ground	1	3	2	Implemented
2023	Turret House Open Space	0.2	0.5	0.3	Implemented
2023	Woodland Avenue Open Space	0.4	1.1	0.7	Implemented

2023	Kingley Wood Open Space	0.4	1.3	0.9	Implemented
<b>Total</b>		<b>6.9</b>	<b>25.7</b>	<b>12.6</b>	
2024	Bedford Close Open Space	0.001	0.1	0.1	Waiting Approval
2024	Brocksford Open Space	0.001	0.09	0.09	Waiting Approval
2024	Canewdon Village Green	0.04	0.2	0.2	Waiting Approval
2024	Hullbridge Recreation Ground	1	2.5	1.5	Waiting Approval
2024	Lower Lambricks	0.001	0.05	0.05	Not Viable
2024	Malvern Road Open Space	0.001	0.09	0.09	Waiting Approval
2024	Millview Meadows Public Open Space	0.9	1.9	1	Waiting Approval
2024	Rayleigh Leisure Open Space	1.1	3.4	2.3	On Hold due to potential alternate use of site
2024	Rawreth Recreation Ground	1.4	3.5	2.1	Waiting Approval
2024	Rochford Reservoir	0.001	0.1	0.1	Waiting Approval
2024	Sweyne Park	0.04	0.08	0.04	Waiting Approval
<b>Total</b>		<b>4.5</b>	<b>12.01</b>	<b>7.57</b>	

2.5 Ward and Lead members have been consulted on all sites, with site visits conducted at each. Please refer to Appendix 2 for breakdown of site visits, and Appendix 3 for proposed site plan information for each site awaiting approval.

2.6 As sites are approved, the installation of new signage, benches and bins will take place as each site is rolled out to replace existing end of life furniture. The signage will also contain the appropriate Parks for Nature branding and information to the public regarding the new features on each site.

### **3.0 BACKGROUND INFORMATION**

#### **Carbon Absorption**

3.1 It has been calculated that delivery of the Parks for Nature policy will enable the Council to store 22.6 tonnes more Carbon annually in its first year of application. This is through the creation of meadow areas and woodland planting within our Open Spaces, in place of traditional maintained amenity lawns. For more information, please see Appendix 1, which was reported to Overview and Scrutiny Committee as an update on Parks for Nature.

3.2 The districts open spaces are now in total estimated to store 386.6 tonnes of CO2 annually.

3.3 The Parks for Nature project has increased the districts carbon absorption by 3.1% annually by converting 10 hectares of amenity grassland to meadow. The project aims increased the Council's meadow and woodland creation areas to a total of

approximately 55 hectares, which would indicate a 16.7% increase in carbon absorption annually when the proposed project is completed.

### **Biodiversity**

- 3.4 Surveys undertaken by Officers this year have recorded an increase in plant species, 50% higher within Parks for Nature meadow areas than compared to formal grass cutting areas.
- 3.5 Unsurprisingly, Butterfly species richness has also increased, - 61.5% higher in Parks for Nature meadow areas compared to formal grass cutting. It would be expected that further survey work would also reveal increases in on other invertebrate species as well.
- 3.6 The reduced mowing maintenance of meadows compared to formal grass allows the vegetation to mature and grow, which provides food and shelter for wildlife. Pollinators, such as bees, hoverflies, butterflies and moths are vital to sustain life on Earth and rely on habitats like meadows for nectar and pollen. Many other invertebrates rely on the stems, roots, shoots, and leaves found in meadows. Invertebrate life goes on to support bird species such as swallows and skylarks, which feed on these insects from the air. Meadows can also be home to many mammals, especially mice, voles and shrews, which attract birds of prey like owls. Therefore, meadows help to sustain entire food webs.

## **4.0 OTHER OPTIONS CONSIDERED**

### **To revert to formally managed green spaces.**

- 4.1 The option to revert to formally mown areas of open space would require additional resource, at a cost of approximately £110,000 per year to employ additional staff required to undertake the increased workload of formal grass cutting.
- 4.2 By reverting to formally managed grassed areas the Council's carbon footprint would increase and reduce the ability for the Council to use carbon-capture as means of offsetting its carbon emissions. It should be considered that whilst areas of meadow can be reverted relatively easily, it is presumed that the new planted woodland areas would remain.
- 4.3 It is important to note that Cherry Orchard Country Park, Sweyne Park and Turret Meadows have been historically managed for hay meadows and have not formed part of the Parks for Nature project. Any changes to mowing regime to these hay meadows would require further consideration and cost to the Council.
- 4.4 Should members be minded to consider the ceasing, or significant reduction of the parks for nature initiative, it would be advised that a further report is undertaken providing a more detailed study of the impact and costs to the Council.

## **5.0 RELEVANT RISKS**

- 5.1 Given the recent Climate & Biodiversity Emergency that the Council has declared, any reversal of the Parks for Nature policy would risk criticism and reputational

damage, due to the increased carbon footprint and reduction in biodiversity that would follow. It is presumed that the newly planted woodlands that have been planted would remain, and that focus on any policy change would concentrate on the grass cutting.

- 5.2 There has been relatively few negative comments relating to the scheme. There can be a perceived risk by the public that the Open Space are not managed due to the relaxed mowing. New signage and street furniture is planned for installation at these sites to emphasise that the parks and open spaces are still suitably managed.

## **6.0 ENGAGEMENT/CONSULTATION**

- 6.1 The Council has not received any formal complaints regarding the implementation of the Parks for Nature programme. It is noted that there have been two cases for objection received through email.

- 6.2 One complaint relates to Kingley Woods, by a resident who is unhappy with the naturalisation of the glade area adjacent to the Woods.

- 6.3 A further objection was made at Woodland Avenue Open Space regarding the rewilding of an area, as the resident was concerned over the potential to encourage vermin. Officers worked with the resident to relocate the area, and the resident was satisfied with the outcome.

- 6.4 Additional concerns were raised at Fairview Open Spaces and Rayleigh Leisure Centre from football teams who were previously using this area to operate organised football. This was without permission from the Council. Officers sought to engage with the clubs to accommodate their request and the clubs have been asked to follow the Council's procedure for pitch booking and payment. The clubs have presently withdrawn any interest.

## **7.0 FINANCIAL IMPLICATIONS**

- 7.1 Any future increase in the resources for parks and open spaces to implement a reversal of the initiative have not been budgeted for in the current financial year and would represent a growth item in any future medium term financial strategy requiring additional resource to be identified.

## **8.0 LEGAL/GOVERNANCE IMPLICATIONS**

- 8.1 There are no legal implication regarding the content of this report.

## **9.0 EQUALITY & HEALTH IMPLICATIONS**

- 9.1 There are no equality or health implication regarding the content of this report.

## **10.0 ENVIRONMENT & CLIMATE IMPLICATIONS**

- 10.1 Rochford District Council has recently declared a climate and ecological emergency. The Parks for Nature initiative directly contributes towards a reduction in the carbon emissions of the Council for its managed estate, and impacts upon the available carbon absorption for the district.

10.2 Any reduction in the planned meadow areas, or tree planting, would result in a reduction in available carbon stores within the district. Contrary, an increase in meadow land and woodland area would increase the districts carbon absorption at a rate estimated at 3 tonnes of CO2 per hectare.

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**APPENDICES**

- Appendix 1 – Report to Overview and Scrutiny Committee
- Appendix 2 – Carbon Sequestration Report
- Appendix 3 – Proposed draft site plans for sites awaiting **approval**.

**BACKGROUND PAPERS**

None.

**SUBJECT HISTORY (last 3 years)**

<b>Council Meeting</b>	<b>Date</b>
[Insert whether Council, Executive, or name of Committee, where relevant]	[insert date of Council, Executive or Committee meeting]



<b>REPORT TITLE:</b>	Parks for Nature Review
<b>REPORT OF:</b>	Adam Aldridge, Corporate Manager – Green Spaces

## **REPORT SUMMARY**

This report provides a summary of the Council's progress of the Parks for Nature programme introduced in December 2021.

Rochford District Council has pledged its commitment to achieve a net zero carbon status for its own managed estate by 2030. The change in management of the Council's Open Spaces was forecast to achieve a circa £100,000 year on year saving, whilst contributing to the Council's Carbon Neutral 2030 Action Plan.

Through the Parks for Nature Public Consultation in May 2021, the Parks for Nature initiative has worked to achieve our residents' interest in Nature over Neat (managing sites for increased biodiversity) and to spend more time and money on tree planting and nature conservation.

## **RECOMMENDATIONS**

**R1 - To note the findings of this report.**

## **SUPPORTING INFORMATION**

### **1.0 INTRODUCTION**

1.1 The decision to undertake the initiative was agreed by the Executive (July 2021), that:

1. *The comments and summary of the Parks for Nature public consultation be noted;*
2. *The Parks for Nature initiative would be rolled out, with the changes to the ground's maintenance regime;*
3. *The members approve to deliver grounds maintenance 'in-house', commencing December 2021.*

1.2 The above decision had given consideration to the Council's commitment to achieve a net zero carbon status for its own managed estate by 2030; the benefits to wildlife and biodiversity; and, that the reduced management regime of the Council's Open Spaces would save an estimated annual £100,000.

**2.0 PARKS FOR NATURE INITIATIVE**

2.1 The below table shows a breakdown of each site where the Parks for Nature initiative has already been implemented, and those considered for this forthcoming season. A study appended to this report provide greater detail (Appendix 1).

Current Sites	Site Area (ha)	Area of Site Converted for Parks for Nature				Number of new Trees
		Meadow (ha)	Woodland (ha)	Wetland (ha)	Total (ha)	
Ashingdon – King George’s Playing Field	6.51	1.24			1.24	855
Brocksford Avenue Open Space	0.17	0.09			0.09	
Fairview Open Space	6.07	0.31	0.33		0.64	320
Ferndale Open Space	1.25	1.25			1.25	
Great Wakering Open Space	6.2	0.89	0.41		1.3	730
Grove Playing Fields	4.4	1			1	
Hullbridge Open Space	3.94	0.58	0.37		0.95	600
Rawreth Lane Open Space	10.51	0.75	0.6		1.35	990
Turret House Open Space	4.5	0.16			0.16	
Woodlands Avenue Open Space	2.23	0.38			0.38	
Kingley Wood	4.21	0.42			0.42	
Cherry Orchard Jubilee Country Park	61.14		0.2		0.2	100
<b>2024 Sites</b>						
Bedford Close Open Space	0.17	0.09			0.09	
Brookland Gardens	1.05			0.24	0.24	
Canewdon Village Green	0.87	0.14			0.14	
Lower Lambricks Open Space	0.43	0.43			0.43	
Malvern Road	0.1	0.1			0.1	
Southend Road Memorial Gardens	0.06	0.06			0.06	
Millview Meadows	4.5		1.31		1.31	2000
Rochford Reservoir	3.44	0.49			0.49	
Ashingdon	6.51			1	1	
<b>Total</b>	<b>121.75</b>	<b>8.38</b>	<b>3.22</b>	<b>1.24</b>	<b>12.84</b>	<b>5595</b>



- 2.2 Of the 121.75 hectares of Open Space set out above, a total of 12.84 ha will have been affected by the Parks for Nature Policy by the end of 2024. It should be noted that Cherry Orchard Country Park, Sweyne Park, and Turret House Meadows have been historically managed for hay meadow and have not formed part of the Parks for Nature project.

#### **Carbon Absorption**

- 2.3 It has been calculated that delivery of the Parks for Nature policy has enabled the Council to store 22.6 tonnes more Carbon annually in its first year of application. This is through the creation of meadow areas and woodland planting within our Open Spaces, in place of traditional maintained amenity lawns.
- 2.4 The districts open spaces are now in total estimated to store 386.6 tonnes of CO<sub>2</sub> annually.
- 2.5 The Parks for Nature project has increased the districts carbon absorption by 3.1% annually by converting 10 hectares of amenity grassland to meadow. The project aims increased the Councils meadow and woodland creation areas to a total of approximately 55 hectares, which would indicate a 16.7% increase in carbon absorption annually, if the project were completed.

#### **Biodiversity**

- 2.6 Surveys undertaken by Officers this year have recorded an increase in plant species, 50% higher within Parks for Nature meadow areas than compared to formal grass cutting areas.
- 2.7 Butterfly species richness has also increased, - 61.5% higher in Parks for Nature meadow areas compared to formal grass cutting. It would be expected that further survey work would also reveal increases in on other invertebrate species.

#### **Financial Savings**

- 2.8 The budget for Parks and Open Spaces in 2021/22, before the implementation of the Parks for Nature Initiative was set at £986,001. The budget for the current year is £741,790 and represents an annual saving of approximately £150,000.

### **3.0 OTHER OPTIONS CONSIDERED**

#### **To revert to formally managed green spaces.**

- 3.1 The option to revert to formally mown areas of open space would require a decision by the Executive to reduce or cease the Parks for Nature initiative.
- 3.2 If this option were to be considered, the Council would in all probability need to employ additional staff at an estimated cost of approximately £110,000 per year.
- 3.3 By reverting to formally managed grassed areas the Councils carbon footprint would increase and reduce the ability for the Council to use carbon-capture as means of offsetting its carbon emissions. It should be considered that whilst areas of meadow can be reverted relatively easily, it is presumed that the new planted woodland areas would remain.

3.4 It is important to note that Cherry Orchard Country Park, Sweyne Park and Turret Meadows have been historically managed for hay meadows and have not formed part of the Parks for Nature project. Any changes to mowing regime to these hay meadows would require further consideration and cost to the Council.

3.5 Should members be minded to consider the ceasing, or significant reduction of the parks for nature initiative, it would be advised that a further report is undertaken providing a more detailed study of the impact and costs to the Council.

#### **4.0 FINANCIAL IMPLICATIONS**

4.1 Any future increase in the resources for parks and open spaces to implement a reversal of the initiative have not been budgeted for in the current financial year, and would represent a growth item in any future medium term financial strategy requiring additional resource to be identified if indeed the changes were to be made.

#### **5.0 LEGAL IMPLICATIONS**

5.1 There are no legal implications arising from this report.

#### **6.0 RESOURCE IMPLICATIONS: STAFFING, ICT AND ASSETS**

6.1 There are no additional resourcing implications linked to continuation of the policy, however any change would require a further report to consider implications.

#### **7.0 RELEVANT RISKS**

7.1 Given the recent Climate & Biodiversity Emergency declared by the Council, any reversal of the Parks for Nature policy would risk criticism and reputational damage, due to the increased carbon footprint and reduction in biodiversity that would follow. It is presumed that the newly planted woodland would remain, and that focus on any policy change would concentrate on the grass cutting.

7.2 There has been some negative comments relating to the scheme, this is discussed further below. There can be a perceived risk by the public that the Open Space are not managed due to the relaxed mowing. New signage and street furniture is planned for installation at these sites to emphasise that the parks and open spaces are still suitably managed.

#### **8.0 ENGAGEMENT/CONSULTATION AND COMPLAINTS**

8.1 The Council has not received any formal complaints regarding the implementation of the Parks for Nature programme. It is noted that there are two significant cases for objection received through email.

8.2 One on-going complaint is at Kingley Woods, by a resident who is unhappy with the naturalisation of the glade area adjacent to the Woods.

- 8.3 A further objection was made at Woodland Avenue Open Space regarding the rewilding of an area, as the resident was concerned over an ongoing issue with vermin. Officers worked with the resident to relocate the area, and the resident was satisfied with the outcome.
- 8.4 Additional concerns were raised at Fairview Open Spaces and Rayleigh Leisure Centre football teams who were previously using this area to operate organised football. This was without permission from the Council. Officers sought to engage with the clubs to accommodate, however this lost momentum when the clubs were asked to follow the Council’s procedure for pitch booking and payment.
- 8.5 It is recommended that it may be prudent to undertake a public consultation to ascertain a wider view from park users, particularly if any changes are to be considered to the existing management regime.

## **9.0 ENVIRONMENT AND CLIMATE IMPLICATIONS**

- 9.1 Rochford District Council has recently declared a climate emergency. The Parks for Nature initiative directly contributes towards a reduction in the carbon emissions of the Council for its managed estates, and impacts upon the available carbon absorption for the district.
- 9.2 Any reduction in the planned meadow areas, or tree planting, would result in a reduction in available carbon stores within the district. Contrary, an increase in meadow land and woodland area would increase the districts carbon absorption at a rate estimated at 3 tonnes of CO2 per hectare.

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### **SUBJECT HISTORY (last 3 years)**

<b>Council Meeting</b>	<b>Date</b>
<b>Review Committee</b>	<b>7<sup>th</sup> October 2021</b>
<b>Executive</b>	<b>22<sup>nd</sup> July 2021</b>

## Executive Summary

- Parks for Nature management has enabled the Council to sequester 22.8 tonnes more CO<sub>2</sub> annually, this is 2.7 times more carbon than traditional management.
- The district's open spaces are now estimated to store 386.6 tonnes of CO<sub>2</sub> annually.
- Parks for Nature has ensured 3.1% more carbon will be sequestered each year.
- By the end of the Parks for Nature Scheme, it's predicted that 16.7% more carbon will be sequestered annually.
- Carbon sequestration in meadow habitats has increased by 25.8% since Parks for Nature has been implemented.
- Plant biodiversity is 50% higher in Parks for Nature meadow areas compared to formal grass areas.
- Butterfly species richness is 61.5% higher in Parks for Nature meadow areas compared to formal grass areas.

## Definitions:

- Carbon Sequestration – is the process of carbon in the atmosphere becoming stored in plants, soils, geologic formations, and oceans.
- Carbon Neutrality – is a state of net zero carbon dioxide emissions.
- Biodiversity - is a measurement used to determine the variation of species in a given area.

## Introduction

On Wednesday 28th June, Rochford District Council made an official declaration of a Climate and Ecological Emergency. This declaration confirms the Council's commitment to achieve net zero carbon status by 2030 for its own estate, and by 2040 for the Rochford District area. Efforts to protect and enhance biodiversity were agreed within this declaration.

The Council's Carbon Neutral Action Plan includes the objective '*protect, conserve and enhance our District's high quality natural environment and its biodiversity whilst improving our parks and open spaces, public rights of ways and green corridors*'. The approved action for this objective was to implement the Parks for Nature scheme.

Parks for Nature is a scheme run by the Open Spaces team at Rochford District Council to manage the district's green spaces with greater economic, and environmental impact. The project provides a significant benefit to the council with regards to meeting the commitment of carbon neutrality by 2030.

After public consultation in 2021, the consensus from district residents was for the council to do more to mitigate climate change in the local area, with 65% of people setting it as a high priority. 88% also strongly agreed that parks should be managed

with wildlife and biodiversity in mind and 80% believed suitable land should be considered for rewilding and tree planting.

From the conclusions, the council recognised the opportunity to adopt more environmentally sensitive practices in the Council's 315 hectares of open space. Since April 2022, the council had begun to consciously landscape the district's green spaces. These practices benefit the district by reducing carbon dioxide (CO<sub>2</sub>) emissions and effects of extreme weather events, while increasing CO<sub>2</sub> sequestration/storage and developing more resilient habitats to help sustain wildlife.

Parks for Nature allows the Council to meet its targets while aligning with resident's desires for the open spaces.

### **Carbon emissions**

To fulfil Rochford District Council's commitment to achieve net zero carbon status by 2030, Parks for Nature management strategy heavily focuses on methods to reduce the Council's carbon emission output, and increase carbon storage in the district's green spaces.

To reduce CO<sub>2</sub> emitted by the Council, certain practices needed to be revised. The Open Spaces team produce large quantities of greenhouse gases whilst undertaking ground maintenance. A simple strategy to reduce these emissions is to reduce the area of grass requiring regular ground maintenance. This has been achieved by increasing areas of meadow and woodland in the district's green spaces, which require less intensive grass cutting practices. The new habitats replacing formally cut grass also help to sequester more CO<sub>2</sub> from the atmosphere.

For meadows to be optimal carbon sinks, they must feature a diverse number of plant species, as increased biomass leads to larger carbon storage capacity. Diverse meadows have the potential to store 3 tonnes of CO<sub>2</sub> per hectare per year. Whilst British woodlands can store between 1-4 tonnes of CO<sub>2</sub> through carbon sequestration and have the ability to transfer carbon to the soil via leaf litter breakdown. In comparison, formal grass can only store up to 1 tonne of CO<sub>2</sub> per hectare per year.

As urban communities are disproportionately affected by pollution-related sickness, incorporating more woodlands and meadows into urban areas is crucial. Improved grazing management and biodiversity restoration can also provide low-cost and high-carbon-gain options for natural climate solutions.

2023 is the baseline year for the Parks for Nature scheme. It has been calculated that Parks for Nature has enabled Rochford District Council to sequester 22.8 more tonnes of CO<sub>2</sub> than traditional management would permit, see table 1. Currently 4 tonnes of CO<sub>2</sub> has been emitted through maintaining formal grass areas (see table 2), this can be reduced further by increasing meadow and woodland areas. At present, 2000 trees have been planted and an estimated 1600 more will be planted over winter 2023.

Parks for Nature has increased the Council’s meadow and woodland areas to 176.9 hectares, this now stores 386.6 tonnes of CO<sub>2</sub>, see table 3. The Parks for Nature scheme has ensured the Council’s commitment to become carbon neutral by 2030, increasing carbon sequestration in the district’s green spaces by 3.1% annually, see table 3. In particular, the meadow areas have increased their carbon sequestration by 25.8% since the Parks for Nature project has been implemented, see table 3. These habitats are of high value to biodiversity and are highly effective carbon stores. Meadows that are cut and collected annually continue absorbing CO<sub>2</sub> with new growth, creating a rich soil full of carbon. In addition, meadow and woodland habitats support a variety of organisms, including pollinators, birds, reptiles, and mammals due to the range of vegetation structures they provide.

The land area used by Parks for Nature previously sequestered 10.4 tonnes of carbon when it was formal grass (see table 1). Under jurisdiction of Parks for Nature these grass areas have been transformed into various habitats, and currently sequester 22.8 tonnes of carbon. Once the Parks for Nature scheme is complete, with 43.2 hectares of previous formal grass transformed, it will sequester 118 tonnes of carbon (see table 1). This is 2.7 times more carbon than was previously sequestered by the land.

Land Area (ha)	Carbon Sequestered (tonne)	
	Traditional Management	Parks for Nature
10.4	10.4	22.8
43.2	43.2	118

*Table 1: Compares carbon sequestered by traditional management and the Parks for Nature scheme. Data is provided for current land area used by Parks for Nature and an estimation for the predicted land area used by the end of the scheme. The estimation uses the land area provided in the initial report.*

Month	Baseline CO <sub>2</sub> Emissions (tonnes)
January	0
February	0.25
March	0.15
April	0.61
May	1.25
June	1.07
July	0.67
<b>Total</b>	<b>4</b>

*Table 2: Displays the monthly CO<sub>2</sub> emissions of large-scale grass cuts since Parks for Nature has been implemented.*

Land Use	Traditional Management	PfN Management	Predicted PfN Management	Annual Percentage +/-	Predicted Annual Percentage +/- of
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	Land Area (ha)	Carbon Sequestration (tonne)	Land Area (ha)	Carbon Sequestration (tonne)	Land Area (ha)	Carbon Sequestration (tonne)	in Carbon Sequestration	Carbon Sequestration by end of PfN Management
<b>Formal Grass</b>	136.4	136.4	126.6	126.6	83.6	83.6	<b>-7.2%</b>	<b>-38%</b>
<b>Hay Cut</b>	11.5	34.6	11.5	34.6	11.5	34.6	<b>0%</b>	<b>0%</b>
<b>Meadow</b>	26.0	78.1	32.8	98.3	62	186.1	<b>25.8%</b>	<b>138%</b>
<b>Woodland</b>	141.1	282.2	144.1	288.3	156.1	312.2	<b>2.2%</b>	<b>10%</b>
<b>Wetland</b>	0	0	0	0	1	2	<b>0%</b>	<b>0%</b>
<b>Orchard</b>	0.54	1.04	0.74	1.48	0.74	1.48	<b>0%</b>	<b>0%</b>
<b>Total</b>	<b>315</b>	<b>531</b>	<b>315</b>	<b>548</b>	<b>315</b>	<b>620</b>	<b>3.1%</b>	<b>16.7%</b>

## Biodiversity

Biodiversity is a measurement used to determine the variation of species in a given area. High biodiversity is where there is a diverse population consisting of many species that are evenly distributed across an area. Whereas low biodiversity occurs when there is a low number of species that are distributed unevenly. High biodiverse habitats can better adapt to changes in the environment, and therefore are better able to withstand climate change.

*Table 3: Displays a comparison between traditional management and Parks for Nature (PfN) management with regards to land area usage and carbon sequestration. Indicates predictions of carbon sequestration by the end of the programme.*

Simpson's Index of Diversity has been used to measure the biodiversity of the district's green spaces as it considers both species richness and evenness of abundance among the species present. The highest possible defined value of the index is 1, with a higher value corresponding with higher species diversity.

The baseline survey was conducted in 2023 over the months of June and July, on sites involved in Parks for Nature. Both vegetation and butterfly surveys were conducted at each site on. A comparison was established between site under Parks for Nature management and sites that were traditionally managed, providing an evaluation of how biodiversity has altered within the district since the programme began.

A survey was also conducted at Cherry Orchard Jubilee Country Park, which for over 10 years has been managed for biodiversity. This survey has been used to illustrate our target for how the Parks for Nature sites would develop after long-term management.

From the results of the vegetation surveys, evidence shows on average there is greater biodiversity and species richness on sites following Parks for Nature management compared to traditional management, see table 4. In fact, plant biodiversity is 50% higher in Parks for Nature meadow areas compared to formal grass areas.

<b>Management Type</b>	<b>Average Simpson’s Index of Diversity</b>	<b>Average Species Richness</b>
<b>PfN Management</b>	0.63	4.6
<b>Traditional management</b>	0.42	3.9
<b>Target</b>	0.88	14

*Table 4: Displays the average biodiversity and species richness of vegetation for each management type, with a comparison to the target.*

There is a correlation between more diverse vegetation and greater diversity of butterfly species. The butterfly survey results indicate the sites under Parks for Nature management had an average species richness of 2.1, while traditionally managed sites only had a species richness of 1.3, see table 5. Butterfly species richness was found to be 61.5% higher in Parks for Nature meadow areas compared to formal grass areas.

<b>Management Type</b>	<b>Average Species Richness</b>
<b>PfN Management</b>	2.1
<b>Traditional Management</b>	1.3
<b>Target</b>	6

*Table 5: Displays the average species richness of butterfly populations for each management type, with a comparison to the target.*

### **Future Plans - Ponds and Wetlands**

Predicted changes in rainfall patterns will mean ponds may dry out partially or in full when weather conditions are hot and dry. Floods may also become more frequent in wetter periods. This means there is a greater need for new ponds and wetland areas to add to sustainable local drainage and widen the species of flora and fauna.

As climate change puts more pressure on biodiversity there will be more need for ponds and associated wetlands to build local habitat networks. Well-designed ponds and wetlands are excellent for biodiversity in parks.

Wet woodlands occur on poorly drained or seasonally wet soils, often on flood plains. They tend to be dominated by alder, birch, and willow trees. Trees near waterbodies can be useful flood defences, as trees reduce the amount of rainwater entering watercourses. Therefore, trees lower the likelihood of rivers bursting their banks and causing floods.

Parks for Nature intend to landscape wetland habitats around the district’s areas prone to poor drainage in future years.



## Conclusion

Parks for Nature is ensuring the Council will attain its commitment to carbon neutrality by 2030 and address the climate emergency. The Parks for Nature project has currently used 10.4 hectares of land. This is only 13.2% of Council owned land currently being used as formal grass. This land will now sequester 22.6 tonnes of carbon emissions every year, which increases the carbon stored by the district's open spaces by 3.1% annually. By the end of the Parks for Nature scheme, it is predicted that meadows will cover 32ha, woodland will cover 10ha, and miscellaneous habitats will cover the remaining land. It is estimated that 16.7% carbon will be sequestered annually at the end of Parks for Nature relandscaping.

The green spaces managed under Parks for Nature has 50% greater plant biodiversity and 61.5% greater butterfly species richness. The meadow's diverse plant species will continue to attract greater numbers of pollinators, invertebrates, birds, and mammals. This will increase the local food webs complexity, and in turn will increase the stability of the local ecosystem.

From public consultation it has been made evident that local residents wish for parks and open spaces to be managed for wildlife and nature. The improvements made by Parks for Nature will increase public enjoyment of the parks and will provide health benefits to local residents.

The table below indicates the area of each open space that has been transformed as part of Parks for Nature. The areas converted for Parks for Nature have been separated by habitat type. The table includes the predictions for 2024, suggesting the chosen sites and their predicted area coverage.

Current Pfn Sites	Site Area (ha)	Area of Site Converted for Pfn				Number of Trees
		Meadow (ha)	Woodland (ha)	Wetland (ha)	Total (ha)	
Ashingdon – King George's Playing Field	6.51	1.24			1.24	855
Brocksford Avenue Open Space	0.17	0.09			0.09	
Fairview Open Space	6.07	0.31	0.33		0.64	320
Ferndale Open Space	1.25	1.25			1.25	
Great Wakering Open Space	6.2	0.89	0.41		1.3	730
Grove Playing Fields	4.4	1			1	
Hullbridge Open Space	3.94	0.58	0.37		0.95	600
Rawreth Lane Open Space	10.51	0.75	0.6		1.35	990
Turret House Open Space	4.5	0.16			0.16	

Woodlands Avenue Open Space	2.23	0.38			0.38	
Kingley Wood	4.21	0.42			0.42	
Cherry Orchard Jubilee Country Park	61.14		0.2		0.2	100
<b>2024 PfN Sites</b>						
Bedford Close Open Space	0.17	0.09			0.09	
Brookland Gardens	1.05			0.24	0.24	
Canewdon Village Green	0.87	0.14			0.14	
Lower Lambricks Open Space	0.43	0.43			0.43	
Malvern Road	0.1	0.1			0.1	
Southend Road Memorial Gardens	0.06	0.06			0.06	
Millview Meadows	4.5		1.31		1.31	2000
Rochford Reservoir	3.44	0.49			0.49	
Ashingdon	6.51			1	1	
<b>Total</b>	<b>121.75</b>	<b>8.38</b>	<b>3.22</b>	<b>1.24</b>	<b>12.84</b>	<b>5595</b>

## **Carbon Sequestration Report**

On Wednesday 28th June 2023, Rochford District Council officially declared a Climate and Ecological Emergency. This declaration confirms the Council's commitment to achieve net zero carbon status by 2030 for its own estate, and by 2040 for the Rochford District area. Efforts to protect and enhance biodiversity were agreed within this declaration.

The Council's Carbon Neutral Action Plan includes the objective '*protect, conserve and enhance our District's high quality natural environment and its biodiversity whilst improving our parks and open spaces, public rights of ways and green corridors*'. The approved action for this objective was to implement the Parks for Nature scheme.

Parks for Nature is a scheme run by the Open Spaces team at Rochford District Council to manage the district's green spaces with greater economic, and environmental impact. The project provides a significant benefit to the Council, allowing it to meet commitments for net zero by 2030, whilst aligning with resident's desires to mitigate climate change and increase biodiversity.

Parks for Nature takes into consideration each sites unique habitat composition and topography, designing areas which aid in absorbing carbon dioxide (CO<sub>2</sub>) emissions and reducing effects of extreme weather events, while increasing CO<sub>2</sub> sequestration and developing more resilient habitats to help sustain wildlife.

District, Town and Parish Councillors were invited to attend site visits to discuss future plans for Parks for Nature sites, see Table 1. Members were given the option to vote for various dates and times, and were also provided with the option to suggest their own. Parks for Nature plans were discussed at the sites, and agreed with whomever was in attendance. RDC then designed maps to reflect the agreed discussions from the site visit. These were scheduled to be released to the public via the RDC website, however this has been halted.

**Table 1. Summary of site visits for Parks for Nature**

<b>Ward</b>	<b>Site Name</b>	<b>Date of Site Visit</b>	<b>Invited Members</b>
<b>Downhall &amp; Rawreth</b>	Ferndale Open Space	22 <sup>nd</sup> November 2022	Cllr J Cripps, Cllr C Stanley, Cllr J Newport, Cllr V Wilson, Rayleigh TC and Rawreth PC.
	Rawreth Recreation Ground		
	Rayleigh Leisure		
	Sweyne Park	27 <sup>th</sup> November 2023	
<b>Foulness &amp; The Wakerings</b>	Great Wakering Recreation Ground	<b>Unknown</b>	
<b>Hockley &amp; Ashingdon</b>	Ashingdon Recreation Ground	<b>Unknown</b>	Cllr D Belton, Cllr M Carter, Cllr R Constable, Cllr C Stanley, Cllr V Wilson, Hockley PC and Ashingdon PC.

	Malvern Road Open Space	7 <sup>th</sup> December 2023	
<b>Hullbridge</b>	Hullbridge Recreation Ground	8 <sup>th</sup> November 2022	Cllr S Wilson, Cllr M Hoy, Cllr T Knight, Cllr D Sperring and Hullbridge PC.
<b>Lodge</b>	Brocksford Open Space	<b>No Official Site Visit</b>	Consulted Cllr I Ward and local residents.
	Grove Woods Open Space	25 <sup>th</sup> November 2022	Cllr R Lambourne, Cllr B Milne, Cllr I Ward, Cllr D Sperring, Rayleigh TC.
	Woodlands Open Space		
<b>Roche North &amp; Rural</b>	Canewdon Village Green	7 <sup>th</sup> December	Cllr I Foster, Cllr L Shaw, Cllr S Wootton, Cllr C Stanley, Cllr V Wilson and Canewdon PC.
<b>Roche South</b>	Millview Meadows Public Open Space	8 <sup>th</sup> December	Cllr J Gooding, Cllr M Steptoe, Cllr A Williams, Cllr C Stanley, Cllr V Wilson and Rochford PC.
	Rochford Reservoir		
<b>Trinity</b>	Fairview Recreation Ground	<b>Unknown</b>	
	Lower Lambricks	27 <sup>th</sup> November 2023	Cllr D Sharp, Cllr D Sperring, Cllr S J Page, Cllr C Stanley, Cllr V Wilson and Rayleigh TC.
	Turret House Open Space	5 <sup>th</sup> December 2022	Cllr C Roe, Cllr D Sharp, Cllr D Sperring and Rayleigh TC
<b>Wheatley</b>	Bedford Close Open Space	27 <sup>th</sup> November 2023	Cllr A Cross, Cllr J Lawmon, Cllr R Linden, Cllr C Stanley, Cllr V Wilson and Rayleigh TC.

Grasslands and woodlands are very important habitats in regard to carbon storage. Grassland soil stores more than one third of the UK's terrestrial top-soil carbon, whilst mature broadleaf woodlands (that are over 100 years in age) are the UK's largest carbon store (*Grasslands as a carbon store - plantlife.org.uk* 2023). Research indicates that grasslands are the safest carbon sink due to the majority of carbon being sequestered in the soil. Therefore, the Council aims to increase both habitats coverage across the district, with a particular focus to increase land cover of grassland.

From the agreed plans, Parks for Nature has managed to increase carbon sequestration of the open space sites from 11.4 tonnes to 37.7 tonnes, this is a 230.7% increase. These figures, shown in Table 2, demonstrate how the change in land use from formal grass to meadow and woodland areas drastically improve the quantity of carbon that can be stored within the same area of land. Increasing the amount of carbon that can be stored within an area plays a prominent role in ensuring the Council meets its target of net zero by 2030. Furthermore, this is a cost-efficient approach compared to alternatives such as carbon credits.

Table 2. Summary of sites included in Parks for Nature listed by year, with a comparison against the amount of carbon sequestered before and after Parks for Nature was implemented. Note: sequestration was only calculated for the designated Parks for Nature areas within each site, not the entire site. **Items highlighted are currently under review.**

Year	Site Name	Carbon Sequestered (tonne)		Difference (tonne)	Implementation Status
		Before	After		
2023	Ashington Recreation Ground	1.7	4.7	3	Implemented
2023	Fairview Recreation Ground	0.6	1.6	1	Implemented
2023	Ferndale Open Space	1.2	3.7	2.5	Implemented
2023	Great Wakering Recreation Ground	1.3	3.5	2.2	Implemented
2023	Grove Woods Recreation Ground	1	3	2	Implemented
2023	Turret House Open Space	0.2	0.5	0.3	Implemented
2023	Woodland Avenue Open Space	0.4	1.1	0.7	Implemented
2023	Kingley Wood Open Space	0.4	1.3	0.9	Implemented
<b>Total</b>		<b>6.9</b>	<b>25.7</b>	<b>12.6</b>	
2024	Bedford Close Open Space	0.001	0.1	0.1	Waiting Approval
2024	Brocksford Open Space	0.001	0.09	0.09	Waiting Approval
2024	Canewdon Village Green	0.04	0.2	0.2	Waiting Approval
2024	<b>Hullbridge Recreation Ground</b>	<b>1</b>	<b>2.5</b>	<b>1.5</b>	Waiting Approval
2024	Lower Lambricks	0.001	0.05	0.05	Not Viable
2024	Malvern Road Open Space	0.001	0.09	0.09	Waiting Approval
2024	Millview Meadows Public Open Space	0.9	1.9	1	Waiting Approval
2024	Rayleigh Leisure Open Space	1.1	3.4	2.3	On Hold
2024	<b>Rawreth Recreation Ground</b>	<b>1.4</b>	<b>3.5</b>	<b>2.1</b>	Waiting Approval
2024	Rochford Reservoir	0.001	0.1	0.1	Waiting Approval
2024	Sweyne Park	0.04	0.08	0.04	Waiting Approval
<b>Total</b>		<b>4.5</b>	<b>12.01</b>	<b>7.57</b>	

Alongside carbon offsetting, Parks for Nature also helps to increase our local biodiversity, improve air quality, and reduce effects of extreme weather. From public consultation in 2021, it was made clear from district residents that our parks should be managed with wildlife and biodiversity in mind. We are delivering on this request by creating meadow and woodland areas within the open spaces. These areas increase plant species richness and in turn provide greater habitat for reptiles, mammals, birds and invertebrates. Previously, when open spaces were formal grass, they had on average 4 plant species per m<sup>2</sup>, whereas after Parks for Nature was introduced, the meadow areas increased this average to 5 plant species per m<sup>2</sup>. This is expected to steadily increase in future years as the meadow areas mature and develop, with anticipation that they will reflect the biodiversity found in the meadows at Cherry Orchard Jubilee Country Park, which have on average 14 plant species per m<sup>2</sup>.

The reduced mowing maintenance of meadows compared to formal grass allows the vegetation to mature and grow, which provides food and shelter for wildlife. Pollinators, such as bees, hoverflies, butterflies and moths are vital to sustain life on Earth and rely on habitats like meadows for nectar and pollen. Many other invertebrates rely on the stems, roots, shoots, and leaves found in meadows. Invertebrate life goes on to support bird species such as swallows and skylarks, which feed on these insects from the air. Meadows can also be home to a large number of mammals, especially mice, voles and shrews, which attract birds of prey like owls. Therefore, meadows help to sustain entire food webs.

Woodlands are also rich in wildlife, with the English oak alone supporting huge numbers of invertebrates, birds, and mammals. Woodlands offer a unique and diverse habitat that thousands of species inhabit. From the tree canopy to the vast network of underground roots, woodlands provide safe refuge for mammals, birds, invertebrates, plants, lichens, and fungi. However, trees not only support wildlife – they help sustain healthy ecosystems, maintain climate regulation, and protect soils from erosion.

Parks for Nature aims for all sites to have a suitable mixture of meadow and woodland, as this provides the most beneficial habitat for our local wildlife, whilst also sequestering large quantities of CO<sub>2</sub>. The scheme enables the Council to meet its commitments whilst also supporting the public's wishes to promote biodiversity in our open spaces.

**References:**

- Grasslands as a carbon store - plantlife.org.uk. (2023). Retrieved from <https://www.plantlife.org.uk/wp-content/uploads/2023/08/Grasslands-as-a-Carbon-Store.pdf>

Bedford Close



**Brocksford Close**





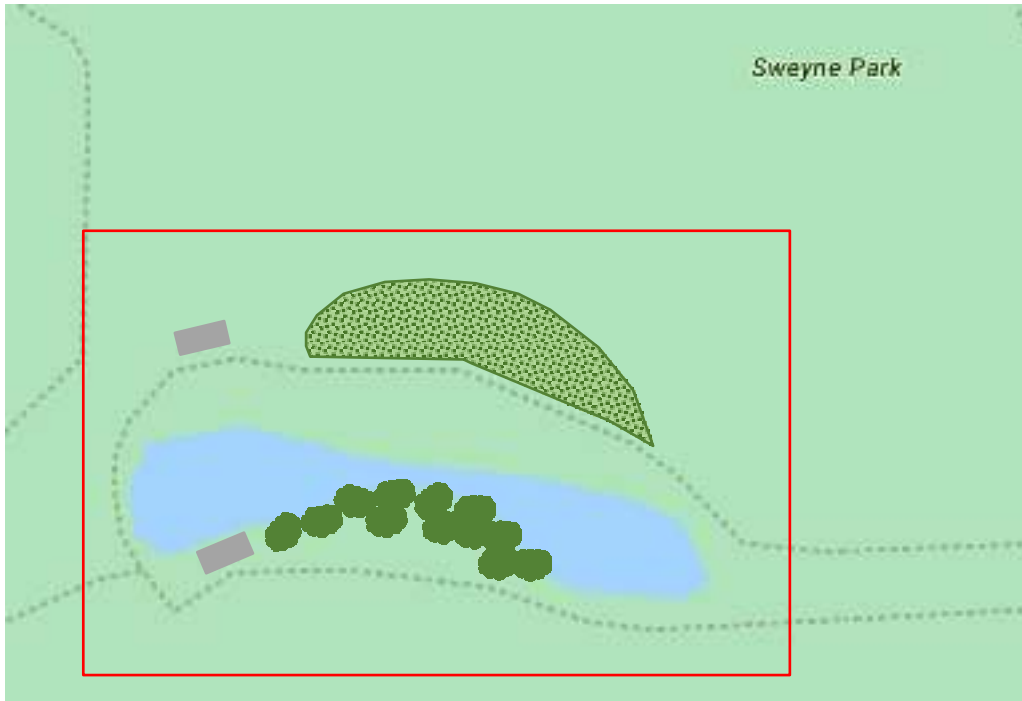
## Canewdon Village Green



## Lower Lambricks



### Sweyne Park Pond



Malvern Road



**Millview Meadows**



## Rayleigh Leisure



## Rochford Reservoir

