

Duchess Wood Local Nature Reserve Committee

Meeting 17 November 2015

Draft Management Plan 1 October 2016 – 30 September 2021

Attached for your interest and comment is a draft of a revised Management Plan for the Duchess Wood LNR. It is closely based on the current MP and has been revised only to take into account changes, developments and fresh perspectives over the last four years. It takes into account comments by Charlie Cairns and Alastair Macbeth on an earlier draft.

However this is still a working draft, so please note:

1. The cover picture will be changed to make it different from the current plan.
2. Photographs and maps have been removed for the moment to make it easier to transmit electronically. They will be restored.
3. Page numbers in the index and cross-reference page numbers and bibliography references etc within the text will be adjusted when the draft is agreed. Section/Paragraph sub-structures, spacing and indents need further adjustment in places – eg para18.
4. The table of objectives, policies and actions at the end of the text has also been removed from this version, but will be restored and edited once the text is agreed.
5. The bibliography is still at the end, but will also be revised and extended later.
6. There may still be some inconsistencies between the Executive Summary and the main text – any comment on these would be particularly appreciated.

Unfortunately, I will miss the 17 November meeting so if anything immediate leaps out, please get in touch before then. I hope it will be possible to set a date for comments at the meeting, and we can then finalise and agree the MP at the following meeting.

Best wishes.

Stewart Campbell

Chair, FODW

4 November 2015



New photo to be inserted here. Removed for the moment to make transmission easier

Duchess Wood Local Nature Reserve Committee

DRAFT MANAGEMENT PLAN

1 October 2016 – 30 September 2021

for the

DUCHESS WOOD LOCAL NATURE RESERVE

Helensburgh

Argyll and Bute

(draft 3 November 2015)

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ABBREVIATIONS USED IN THIS PLAN.

| | | |
|--------|---|--|
| A&B | = | Argyll and Bute |
| A&BC | = | Argyll and Bute Council |
| CWA | = | Community Woodlands Association |
| DW | = | Duchess Wood |
| DWLNRC | = | Argyll and Bute Council Duchess Wood Local Nature Reserve Committee |
| FCS | = | Forestry Commission Scotland |
| FODW | = | Friends of Duchess Wood |
| LBAP | = | Local Biodiversity Action Plan |
| LCG | = | Lower Clyde Greenspace |
| LDP | = | Local Development Plan |
| LE | = | Luss Estates Company |
| LNR | = | Local Nature Reserve |
| MA | = | Management Agreement |
| MP | = | Management Plan 2007-2011 MP (The third plan) 2012-2016 MP (The fourth plan) 1 October 2016 – 30 September 2021 MP (This plan, the fifth) |
| NVC | = | National Vegetation Classification |
| SNH | = | Scottish Natural Heritage |

EXECUTIVE SUMMARY

The Management Plan 1 October 2016 - 30 September 2021

i. This is the fifth consecutive Management Plan for Duchess Wood. It serves three main purposes:

- a. to provide a basis for actions within the five year span;
- b. to provide longer term policy within which the five-year work is set;
- c. to provide the basis for seeking funding to support the actions.

Overall aims of the Management Plan

Duchess Wood will be managed as a semi-natural area, to conserve and enhance its biodiversity and landscape value, to encourage research, and to provide visitors with reasonable access and opportunities for responsible and quiet recreation and education.

Location

ii. Duchess Wood lies at the western edge of Helensburgh, north of Rhu Road Higher and south of the West Highland railway line. It is bounded on the east by a residential area and on the west by semi-improved wet grassland. At the southern edge there are sports pitches and some housing. Further housing is planned adjacent to the south west boundary.

Designation

iii. Duchess Wood is one of only two Local Nature Reserves in Argyll and Bute. Duchess Wood lies within the Green Belt, is a Local Nature Conservation Site, is an Open Space Protection Area, and is part of the proposed Helensburgh Green Network being developed in 2015 as a supplement to the A&BC Local Development Plan (LDP). It is a "Woodland of Long Established Plantation Origin" on the Scottish Natural Heritage Ancient Woodland Inventory.

Value

iv. Duchess Wood is highly valued by the local community and much used by local people and visitors. The importance of Duchess Wood has been recognised in official reports. The "Greenspace Audit and Action Plan" (2006) identified Duchess Wood as one of just four "most valued sites" in the Helensburgh area, and one of only seven designated for priority action. The "Green Belt Landscape Study" (2010, p76) defined Duchess Wood as of high value and described it as "managed well". The main paths in Duchess Wood were designated by A&BC as Core Paths in 2015. The Woodland Trust has described Duchess Wood as "A model nature reserve and community woodland".

Management responsibilities

v. The landowner is Luss Estates Company which in 2010 renewed its Management Agreement with Argyll and Bute Council for the Council to manage the Wood as a Local Nature Reserve for a further ten years, until 31 July 2020. Responsibility has been delegated to the Duchess Wood Local Nature Reserve Committee (DWLNRC), chaired by a councillor, and supported by A&BC officials, to oversee the management of the Wood on behalf of the Council. The DWLNRC has prepared this plan. One of the broad issues that the DWLNRC will keep under review during the currency of this plan is the impact of the Community Empowerment (Scotland) Bill/Act on the management or stewardship of

the Wood and the potential for transfer to a form of community ownership or partnership with A&BC.

Partnership

vi. The DWLNRC is a partnership body and partnership with other organisations is integral to the management of the Wood. The DWLNRC has representatives of Luss Estates, A&BC, Lomond School (as the main neighbour landowner), wider educational interests, Lower Clyde Greenspace (LCG) and Friends of Duchess Wood (FODW). Scottish Natural Heritage maintains an overview of LNRs, including Duchess Wood, and advises and supports as appropriate. Lower Clyde Greenspace acts as the Council's agent over some aspects especially in relation to obtaining and managing major grants for which the Council can apply. The voluntary Scottish charity Friends of Duchess Wood assists with day-to-day safeguarding tasks and carries out certain management and educational tasks delegated to it by the DWLNRC; it also seeks funding related to those tasks. Other official and voluntary organisations assist in different ways and they are listed in the body of this Plan. Duchess Wood is much valued in terms of biodiversity and recreational value by local residents and visitors. Partnership working helps foster a sense of service to the community and brings the community together.

vii. Partnership is the key characteristic, not only in terms of representation, but also in taking action. The Chair and other A&BC members of DWLNRC work with a range of administrative and legal personnel. FODW, representing the local community, has regular contact with police, fire, environmental and other local services on behalf of DWLNRC; with the Community Payback team; press and other public information links; research groups; as well as with local voluntary groups and national and regional organisations. LCG has partnership links to help arrange works in the Wood and to raise the necessary external grants. A number of other groups and organisations may also manage improvement works in the Wood. In brief, cooperative partnership is the essence of DW operations.

viii. The DWLNRC has decided to manage the woodland in a fashion which encourages multipurpose uses and outcomes. Such an approach complements guidance available from organisations such as SNH and Forestry Commission Scotland. The Plan takes into account the primary designation of the Wood as a Local Nature Reserve (and the protection and enhancement of its biodiversity), its function as community woodland with a wide range of users, and the possibility, arising from the management activities, of using timber from the Wood for a variety of purposes. We will do this by working in partnership both with official and with voluntary organisations, and by taking into account the needs of the different users of the Wood.

Long-term objectives

ix. The long term objectives are likely to remain largely unchanged for the foreseeable future, and reflect the aims above:

- a. to manage the Wood so as to maintain and enhance its semi-natural mostly broad-leaved habitat and conserve and improve its biodiversity;
- b. to provide and enhance provisions for public access;
- c. to maintain access ways and other facilities used by visitors;
- d. to encourage and publicise research;
- e. to encourage and promote education, including the use of the Wood for forest nursery or forest school initiatives;
- f. to encourage recreational uses of the Wood, including appropriate sporting and entertainment activities;
- g. to support voluntary involvement.

Medium term objectives and priorities for action

x. Within each long-term objective are several medium-term objectives, and medium and short term actions, which we anticipate will be met during the life of this plan, **but with the proviso that many of the actions depend on the necessary external funding being found, and this is a major challenge.** The delivery of all of these objectives is supported by a number of agreed operational policies which help determine the approach to be taken. In the context of limited availability of funding it is important to be clear about where the priorities lie; the main elements are summarised below and set out in a comprehensive action table in the MP.

a. Woodland management:

- continue to restructure the woodland to a more native composition and condition and to assess, protect and enhance its biodiversity;
- implement the strategy and action plan for the boundaries;
- support the increase of "woodland corridors" linking Duchess Wood to other local woodlands;
- increase the biodiversity of the Wood by digging and maintaining suitable pond(s) to provide a still-water habitat;
- continue to investigate the use of timber from the Wood which becomes available as the result of action in support of the MP.

Action priorities

- * **secure professional advice on woodland management**
- * **remove selected storm-damaged trees**
- * **thin sycamore and ash in selected areas**
- * **create open glades/fell sycamore near peripheral path**
- * **eradicate Japanese knotweed and rhododendron**
- * **clear fell small coups of sycamore**
- * **plant/replant where opportunities arise**
- * **manage and protect areas of new planting**
- * **dig trial ponds to assess viability**
- * **boundary management**
- * **use of timber from Wood**

b. Public access:

- Support and publicise access policies based on the Scottish Outdoor Access Code and SNH guidelines for LNRs
- provide and maintain clear signage to the Wood and around the main paths;
- create no new paths but improve existing constructed paths, particularly at burn crossing points.

Action priorities

- * **complete an all-abilities loop path and make the car park as suitable as possible for all-abilities use**
- * **new car park sign from Rhu Road Higher**
- * **additional direction and information signs in Wood**
- * **replace three bridges by large culverts**
- * **regularly review access policies.**

c. Maintenance:

- maintain paths and drainage and other facilities to ensure the Wood remains an attractive, diverse and reasonably safe natural woodland through regular inspection, repair and safeguarding;

Action priorities

- * **maintain existing paths, drainage, fencing and signs**
- * **deal with storm damage where it affects access or safety**
- * **clear litter and report problems to fire, police and other services**
- * **work in partnership with official and voluntary organisations.**

d. Research:

- encourage research into the Wood's plants and wildlife and publish the results.

Action priorities

- * **engage with the "Citizen Science" initiative as a framework for further research**
- * **conduct surveys of mammals, other animals (reptiles, amphibians, etc), birds, insects and spiders, and water life**
- * **the surface geology and soils**
- * **maintain and improve existing checklists.**

e. Education:

- enhance the use of the Wood for educational purposes and maintain and improve its educational values and facilities.
- support the use of the Wood for forest nursery or forest school initiatives
- provide information on the Wood's biodiversity for all visitors.

Action priorities

- * **liaise with schools and tertiary education centres**
- * **make information for schools available through website**
- * **evaluate impact of Forest Nursery on Wood environment,**
- * **visitor survey**
- * **maintain website and publish information leaflets**
- * **keep information hub up to date**

f. Recreation and community engagement

- keep under review policies for recreation and community engagement which take account of the different needs of users.

Action priorities

- * **encourage recreational uses of the Wood, including appropriate sporting and entertainment activities;**
- * **monitor recreational and sporting uses of the Wood and where necessary require formal approval (while taking a proportionate approach to small scale events);**
- * **ensure such activities cause no damage to the Wood.**

g Voluntary effort:

- support voluntary effort to protect, maintain and enhance the Wood and its facilities.

Action priorities

- * **support the Friends of Duchess Wood and their coordination of voluntary effort**

xi. Some of the priorities will need substantial funding; some will need limited funding, whereas others can be undertaken by voluntary action. These priorities indicate a balanced and positive approach which should lead to significant improvements in the biodiversity of the Wood and its value to the local and wider communities.

Conclusion

xii. Duchess Wood is a long-established woodland, recognised as an outstanding example of a Local Nature Reserve with a high level of planning protection. It is much used and valued as a local facility which also attracts visitors from afar. It is a good example of partnership working, not just between the Council and the Friends of Duchess Wood, but involving a wide range of other contributors. Its long-term value to the people of Helensburgh, to tourism and to biodiversity close to a major town is exceptional, and it is essential that such a facility is fostered for future generations.

MANAGEMENT PLAN 2016-21

INTRODUCTION

1. Duchess Wood, in the Green Belt to the west of Helensburgh, has been a Local Nature Reserve (LNR) since 1998. It is one of only two LNRs in Argyll and Bute. The landowner is Luss Estates Company (LE) which in 2010 renewed its Management Agreement (MA) with Argyll and Bute Council (A&BC) to manage the Wood as a Local Nature Reserve for a further ten years, until 31 July 2020. This is the fifth Management Plan (MP) for the Wood, although the two earliest plans, dating back to 1994, were of a different nature, and not consecutive.

2. Management of the Wood is the responsibility of A&BC which exercises that responsibility through the Duchess Wood Local Nature Reserve Committee (DWLNRC), a sub-committee of A&BC. In addition to a Councillor (as Chair) and A&BC officials, membership of the DWLNRC includes representatives of Luss Estates Company, Lower Clyde Greenspace (LCG), Friends of Duchess Wood (FODW), Lomond School (one of the main neighbouring landowners), and wider educational and voluntary organisations. LCG acts as agent for A&BC, including in relation to major fund-raising exercises. FODW is a local voluntary Scottish charity set up to support the DWLNRC, and to assist in the Wood's management, safeguarding, education and community liaison. Scottish Natural Heritage (SNH) assists the DWLNRC in an advisory capacity. **The DWLNRC prepared this Plan, which was noted and approved by A&BC's Helensburgh & Lomond Area Committee on XXXX, and where "we" is used in the text it signifies the partnership represented through the DWLNRC.**

3. This combination of interests, working in partnership, has shown itself to be dynamic, and a great deal has been achieved in the span of the 2012-16 MP, especially regarding access (paths, culverts, bridges), fencing (including new fencing along the West Highland railway line), clearing of rhododendron and sycamore, the planting of native trees (including native fruiting trees), the removal of the old railway carriage, biodiversity recording, educational activities, a much increased recreational use of the Wood, and greater community involvement. Duchess Wood is a much valued and used local facility deserving both protection and increased woodland management. It is significant that A&BC continues to support it at a time of financial pressure, but external grants will be essential if the momentum is to be maintained.

4. This Management Plan covering the five years from 1 October 2016 - 30 September 2021 has been drawn up by the DWLNRC, and is an edited and revised version of the MP for 2012-2016. That in turn was based upon the third MP prepared by Erika Luukas of Scottish Origins LLP. The main emphases for this period will be:

- i. Woodland management
- ii. Access
- iii. Maintenance
- iv. Research
- v. Education
- vi. Recreation
- vii. Voluntary effort

5. The Plan covers a wide range of activities, some quite substantial, and actions have generally been expressed in positive language such as "X will be done". **However all of the major "woodland management" and "access" actions, and some less substantial actions, depend on the necessary funding being found, and this will be a challenge.** At the same time, many other actions will continue to be undertaken through voluntary and partnership efforts.

DESCRIPTION

Location / designation of Duchess Wood

6. Duchess Wood lies at the western edge of Helensburgh, north of Rhu Road Higher and south of the West Highland railway line between Glasgow and Fort William. It is bounded on the east by a residential area and on the west by semi-improved wet grassland. At the southern edge there are sports pitches and some housing. Further housing is planned at the lower boundary of the western edge. The Duchess Wood car park access grid reference is NS 2842 8337. A new map showing the location, accessways and facilities of the Wood is on page 10. This map is also included in Annex 6, along with a section of the Ordnance Survey map of 1862, which shows the outline of the Wood much as it is today, and a map taken from the 2007-2011 MP which shows the designated "compartments" which help in subdividing the Wood. The importance of Duchess Wood has been recognised in official reports. The "Greenspace Audit and Action Plan" (2006) identified Duchess Wood as one of just four "most valued sites" out of 59 Helensburgh sites assessed, and one of only seven designated for priority action. The Ironside Farrar Report "Green Belt Landscape Study" (2010, p76) defined Duchess Wood as of high value and described it as "managed well". The Woodland Trust has described Duchess Wood as "A model nature reserve and community woodland".

7. The Wood is designated in the A&BC Local Development Plan (2015, map 25) as Green Belt, as a Local Nature Reserve, a Local Nature Conservation Site, and an Open Space Protection Area. It is a "Woodland of Long Established Plantation Origin" (LEPO) on the SNH Ancient Woodland Inventory and is on the A&BC list of Sites of Importance for Nature Conservation. It appears in the Argyll and Bute (A&B) Biodiversity Action Plan. The main paths in Duchess Wood have been designated by A&BC as Core Paths, and the Wood is part of the proposed Green Network for Helensburgh.

8. The Wood's aspect is south-south-westerly, its altitude is between 20 and 65 metres above mean sea level and its gradients range from flat to 30°. No site specific soil survey has been carried out, although general surveys of the area suggest that the soil may include gley soils, and forest brown earth soils. Rainfall is about 60 inches a year. The geology underlying the Wood shows two faults running through the area and they form the boundaries between three main rock groupings: (i) Bullrock Greywacke (a form of sandstone) to the north-west, (ii) Sandstone and red-brown siltstone with nodules of limestone to the south-east, and (iii) Rosneath conglomerate to the south and south-east. Small burns with steep-sided banks / gullies run down the hill. The quality of the burn water is clear. Some web links to explanations of the geology are given in the Bibliography at (1).

9. At 23ha, Duchess Wood LNR is a significant remnant in a largely urban landscape of Semi-Natural Woodland, parts of which are most probably of ancient origin, although its initial extent is currently unknown. Although classed as of Long Established Plantation Origin, this assessment is based on the Roy Maps of 1750 which were prepared for military purposes and thus woodlands not of military importance were often not mapped. The 25 inch Ordnance Survey map from 1862 (See Annex 6) shows the woodland area (which was possibly part of the designed landscape of Ardencaple Castle grounds) almost the same as it is today. A summary of the historical context of the Wood is given in Annex 1. The natural woodland is dominated by oak, ash, birch, alder, Scots pine, rowan, and hazel, but there are also significant stands of sycamore and beech. Local information suggests that the dominance of sycamore in sections of the Wood dates back to the great west of Scotland gale of 1968. Ring counting of a recent fallen Scots Pine in the plantation north of Rhu Road Higher suggests that this dates to the period between the first and second world wars. The understorey trees and shrubs and the groundflora are also varied and interesting. The Wood is home to a wide range of animals (including roe deer, fox, moles and bats); birds (including owls, sparrowhawk,

jay, and bullfinch); and insects (although the types of insect life are not well known at present). In shaping this MP much helpful information has been taken from "Woodland management: a practical guide" and "A handbook of Scotland's trees"; the full references are given in the Bibliography at (2).

10. A full ecological evaluation using the Ratcliffe (1977) Criteria was prepared for the 2007-11 MP, and this (with some revisions and updates) is attached as Annex 1. This emphasises the value of the Wood as an ecological resource and the potential for continuing to protect and develop its biodiversity.

11. The 2007-11 MP also contained a report detailing the results of a survey of the Wood, using the National Vegetation Classification (NVC) framework, and this is attached as Annex 2, with some revisions to make it more readable for a lay audience, and updates. This description remains an important resource and will continue to inform the management of the Wood during the five year period 2012-16 and beyond. It identifies three main woodland types:

- Oak-Birch-Wood sorrel (the most abundant type)
- Alder-Ash-Yellow pimpernel
- Ash-Rowan-Dog's mercury

The report pointed out that the three types occurred in an intricate mosaic with each other throughout the Wood.

Map removed to make electronic transmission easier

Map of Duchess Wood, prepared by Babcock International, 2015, and based on a map by John Dale, A&BC, 6.9.2012

12. The A&B Local Biodiversity Action Plan (LBAP) identifies woodland as a priority habitat and emphasises the vital role that woodlands play in conserving threatened plants, animals and fungi. The LBAP recognises that A&B woodlands hold one of the most diverse ranges of moss, liverwort and lichen communities in the world and are home to many important protected and priority species. Although focused on the opportunities created by the harvesting of commercial forests, the LBAP's vision of increasing woodland habitat networks to help reverse the pattern of habitat fragmentation that has occurred over the centuries is very relevant to the future management of Duchess Wood.

13. The Work Programme in the LBAP includes a number of actions, some of which may have an impact, directly or indirectly, on this MP, such as native woodland expansion and the control of invasive species. The LBAP reference is given in full in the Bibliography at (3) and a fuller summary of the LBAP is given in Annex 3. This 2016-2021 MP aims to address all the biodiversity issues in the LBAP, and seeks to support and learn from the actions envisaged for woodland habitats.

Duchess Wood – what we know already

14. During the period of the 2007-11 MP, the Friends of Duchess Wood arranged the compilation of a number of constantly evolving and updated checklists of species found in the Wood; these now comprise:

- Bryophytes (Mosses and liverworts)
- Ferns
- Fungi
- Trees and shrubs
- Birds
- Flowers and flowering shrubs
- Mammals.

Several of these invaluable checklists (attached in annex 4) were based on longer professional reports – see the Bibliography at (4) and (5). They confirm the diversity of species found in the Wood and the value of the Wood as a haven for a large number of plant and animal species. It will be important during the next period to continue to revise the existing checklists and undertake additional surveys.

15. This description confirms that a great deal is now known about the ecology and biodiversity of Duchess Wood, but that there is much still to be discovered. In essence, we need to know what currently exists. This offers great opportunities for further research and educational work. The development of the "Citizen Science" movement in recent years can shape research which not only aids our understanding of the Wood, but can also contribute nationally to important issues (and see P XX). This updated plan will:

- seek to act on and develop our knowledge,
- integrate the different approaches to classifying the ecology of the Wood,
- identify the biodiversity priorities for the Wood,
- investigate where enhanced protection or support is needed.

MANAGEMENT PRINCIPLES, AIMS AND OBJECTIVES

Overall aims

Duchess Wood will be managed as a semi-natural area, to conserve and enhance its biodiversity and landscape value, to encourage research, and to provide visitors with reasonable access and opportunities for responsible and quiet recreation and education.

16. In line with the views of Scottish Natural Heritage and Forestry Commission Scotland our intention is to manage the Wood as a multipurpose facility - see the web reference at Bibliography (4). The context for its effective management therefore contains a number of strands:

- i. The Management Plan implements the terms of the Management Agreement between Luss Estates Company and Argyll and Bute Council.
- ii. The primary designation of the Wood as a Local Nature Reserve means that we must meet the SNH objectives for such sites (see Bibliography at (5)).
- iii. At the same time we must be conscious of the significant community use of the wood, and while giving priority to the MA and the LNR objectives, take account of the Community Woodland Association objectives for community woodland.
- iv. We will do this by working in partnership with both official and voluntary organisations, and by paying attention to the needs of the different users of the Wood.
- v. A&BC ensures that any legal obligations in relation to public access provisions and health and safety legislation are met.
- vi. A&BC has established the A&BC DWLNRC under the chairmanship of a local councillor to manage the implementation of these objectives, monitor and record all activities, and report to the Council and to the community.
- vii. The DWLNRC delegates authority to FODW to carry out many relevant day-to-day actions

This plan sets out what we hope are achievable objectives and actions, in the short term (over the first two years 2016-18); in the medium term (over the next three years 2018-2021); and in the long term (beyond the end date of this MP (30 September 2021)). These objectives are structured in the context of the overall aims for the Wood. The actions in relation to the objectives are described in general terms and specific actions are related to the compartment structure used in the 2007-11 MP, and illustrated in the map on page 9 and in Annex 6.

During the currency of this plan the DWLNRC may evaluate and review the possible relevance and impact on the management of the Wood of the Community Empowerment (Scotland) Act and its supporting legislation and guidance, and consider the potential for transfer to a form of community ownership or partnership with A&BC. During the period covered by the fourth MP (up to 2016) a number of ideas were put forward for different uses of the Wood. We will evaluate and where appropriate support suggestions for innovative uses of the Wood, for example the establishment of forest nurseries or schools, or the provision of autumn illumination events.

Long-term objectives

17. The following long term objectives are likely to remain unchanged for the foreseeable future, and reflect the aims above:

- i. to manage the Wood so as to maintain and enhance its semi-natural broad-leaved habitat and conserve and improve its biodiversity;
- ii. to provide and enhance provisions for public access;
- iii. to maintain access ways and other facilities used by visitors;
- iv. to encourage and publicise research;
- v. to encourage and promote education including the use of the Wood for forest nursery or forest school initiatives;
- vi. to encourage recreational uses of the Wood, including appropriate sporting and entertainment activities;
- vii. to support voluntary involvement.

Medium-term objectives

18. Within each long-term objective are a number of medium-term objectives, and medium and short term actions which we anticipate will be met during the life of this plan (but with the strong proviso set out in paragraph 5). The delivery of all of these objectives is aided by a number of agreed operational policies which help determine the approach to be taken. The detailed objectives, policies and actions are described in the full text which follows, and are set out in table 1 at the end of the text; the main elements are summarised below:

i. Woodland management:

- a. following the principles of good woodland management and in the context of the available resources, continue to restructure the woodland to a more native composition and condition;
- b. establish a programme of selective thinning of sycamore and beech, both to create additional open glades and to allow the planting or replanting of native species;
- c. identify individual native trees, or groups of trees, which can be managed as a demonstration of good forestry practice to enhance their later value
- d. eradicate rhododendron and Japanese knotweed and reduce other non-native invasive species;
- e. assess the biodiversity of habitats and species in the Wood to improve understanding of how it can be protected and enhanced;
- f. manage and protect the fruiting trees/shrubs and the oak and other trees planted by FODW around the Pony Field and in other areas of the Wood.
- g. increase the biodiversity of the Wood by digging and maintaining suitable pond(s) to provide a still-water habitat;
- h. establish a strategy and action plan for the boundaries which meets the needs of both the woodland and its neighbours;
- i. increase the "woodland corridors" linking Duchess Wood to other nearby woodlands;
- j. encourage the use of timber from the Wood and in the context of the primary management objectives, sell redundant timber for firewood and make timber from the Wood available for craft purposes.

ii. Public access:

- a. Support and publicise access policies based on the Scottish Outdoor Access Code and SNH guidance for LNRs

- b. Provide and maintain clear signing to the Wood and around the main paths;
- c. create no new paths, but improve existing constructed paths particularly at burn crossing points.

iii. Maintenance:

- a. clear litter, maintain paths and drainage and other facilities in the wood, to ensure that the Wood remains an attractive, diverse and reasonably safe natural woodland, through regular inspection, repair, and safeguarding.

iv. Research:

- a. encourage research into the Wood's plants and wildlife and publish the results.

v. Education:

- a. enhance the use of the Wood for educational purposes and maintain and enhance its educational values and facilities;
- b. support the use of the Wood for appropriate childrens' forest nursery or forest school initiatives

vi. Recreation

- a. keep under review policies for recreation which take account of the different needs of users.

vii. Voluntary effort:

- a. support voluntary effort to protect, maintain and enhance the Wood and its facilities.

Woodland management

19. Effective woodland management is potentially the most demanding aspect of protecting and enhancing the Wood and professional advice is likely to be necessary to help plan and undertake this work. Useful source texts which this section draws on are "Woodland management: a practical guide" and "A handbook of Scotland's trees", as well as the FCS, SNH and CWA websites.

20. The management context for the Wood is established firstly by the requirements of the LEC/A&BC Management Agreement which has as its objective to "*preserve and enhance the appearance of the Managed Land, and to promote the enjoyment of the countryside by the public*". The agreement refers to a range of maintenance and access works (which are dealt with later), but also to the proper management of the Wood and the inspection of all trees for obvious signs of disease/damage. FCS guidance supported by SNH emphasises the importance of a multiple use approach, and specific SNH guidance on LNRs concentrates on enhancing recreation, education and biodiversity. The aims of the Community Woodlands Association add economic development, renewable energy and social inclusion to the mix. The A&B Biodiversity Action Plan (see paragraphs 12 and 13) identifies a number of important issues for woodlands which this plan will help address. The overall **policy** is to manage the Wood so as to protect and enhance its biodiversity and its landscape value, while providing suitable public access. At the same time we will examine whether it will be possible to sell, or otherwise make available, unwanted timber from the wood to aid local businesses and craft workers. A

primary important **action** will be to secure professional support and advice on woodland management.

Native trees

21. The Wood has a wide range of native trees, including oak, ash, birch, hazel, alder, rowan, wych elm, willow and others. One main aim of this plan is to conserve and protect the native trees, but also to manage them in a way which gives a variety of age and spacing, and helps encourage greater biodiversity of the understorey, of ground flora and wildlife. **Action** may, in places, involve thinning of native trees and their replacement by the same or different species (see photograph) and while this work is being done, the removal or thinning of any non-native trees – see below.

22. We also propose to identify individual native trees, or groups of trees, which can be managed as a demonstration of good forestry practice, to show what can be done to help produce local timber suitable for a variety of uses, such as furniture, construction, turning and other crafts, woodfuel and charcoal. This approach will also include some of the non-native species discussed below. The establishment of good forestry practice will have a strong educational element and should also help the rural or woodland-based economy.

Dead wood

23. Leaving dead wood standing or lying naturally or in man-made heaps brings a lot of advantages in terms of creating habitats to support a wide variety of bird, animal and insect life. The Wood already has a fair number of standing and fallen trees. "Woodland Management" suggests a minimum ratio of three standing and three fallen trees per hectare, spread throughout the woodland. The Wood probably has this minimum at present, though it tends to be concentrated in certain areas. The storms during the 2011 - 2014 period left a large number of fallen and broken trees which will add to the deadwood in time. Another problem is that there are many dead, diseased or damaged trees close to the peripheral path (mostly sycamore, some ash), and for safety reasons we propose that the more fragile of these should be felled and the timber left to decay, or removed for other uses. It may also be possible to "ring bark" some trees deeper in the Wood to create standing dead wood in areas where there is little at present. This **action** will be covered by the short term work proposed in the section below.

Sycamore and ash

24. **Action** to change the Wood to a more natural woodland will mean gradually removing quite substantial numbers of sycamore. The photograph here shows how little light penetrates the dense sycamore canopy. FODW work parties have observed that extensive areas of the Wood are now dominated by sycamore. It is the greatest arboreal threat to the character of Duchess Wood and much the biggest challenge to the Wood's management. Experience in the Wood suggests that in current conditions, sycamore is self-seeding freely only in localised areas, although there are many saplings perhaps 20-30 years old, and regrowth from old stumps is very vigorous. The variation in re-seeding of sycamore is something that will merit further research and testing to see how re-seeding can best be controlled. Although the sycamore canopy blankets areas of the Wood thus reducing flower and other lower growth, it is thought that mature trees can support a high (although not particularly diverse) population of wildlife. It appears that ash does self-seed successfully around the Wood, and in several areas ash and sycamore grow side by side, and removal of some mature ash with the sycamore will be necessary.

25. The **policy** is therefore that a number of mature sycamores and ash are identified for retention as specimens through the Wood, but that a major part of the workplan for the next five years and beyond should involve the progressive removal of the rest of the

sycamore, and ash where appropriate. FODW has already started a campaign of removing sycamore saplings through its work parties, but there is urgency to obtain funding for professional felling of the larger trees. Discussion with FCS and with felling and woodfuel selling contractors suggests that there may be sufficient value in sycamore and ash in certain areas to at least cover the cost of felling/thinning and this will be factored into any application for funding under the "Woodlands In and Around Towns" (WIAT) grant scheme. While planning this work, tests will be made to identify whether any of the trees are of the "ripple" form of sycamore, which may have significant commercial value. As the more detailed description below suggests, thinning or clear felling may cause significant disruption but should also enable us to begin the restructuring of the Wood into a more natural and biodiverse environment. Without this short-term pain, it will be difficult to achieve the long-term gain that is the main objective of this plan.

26. This policy has a number of important implications:

- i. Such extensive work may, on occasion, necessitate professional support and assistance
- ii. Much of the work can only be carried out with mechanised (or possibly horse-drawn in some places) equipment.
- iii. The main peripheral path and some other parts of the paths network may have to be improved to take small log-handling transporters. Experience suggests that this can be managed in an attractive way, commensurate with the setting. Such improvements would also improve accessibility for some users for example horseriders and those with buggies.
- iv. However, while the work is being carried out some areas of the Wood may have to be closed to users.
- v. Although some of the cut wood will be left in the Wood, most will have to be removed, and arrangements will have to be made for the disposal of the timber, which could involve selling wood for a range of purposes.
- vi. This offers opportunities to work with local arboriculturists, tree surgeons, timber and wood fuel merchants, craft workers and others who can use the timber. Areas may have to be created near the main road access (and possibly rail access) points to enable timber to be stored and removed. Removal may also damage access paths and planning of the operations will need to include provision for restoration of the paths.
- vii. Dealing with the brash from tree felling will also have to be considered and while some can again be left to decay, experience has shown that very large quantities can be produced from some trees. Chipping (which may also have some commercial value, or can be used as a mulch in the Wood) or burning may have to be considered.
- viii. Any extensive removal from the main sycamore-dominant areas (north of the garages and along the northern boundary with the railway) will leave quite bare areas for some years. A policy of progressive thinning of sycamore and ash may be more acceptable in certain areas, particularly the heavily used areas near entrances and there will also be biodiversity and maintenance advantages in identifying and clearing a number of small open glades. The cleared or thinned areas can then be replanted with a native mixture of oak, ash, alder, rowan, hazel and other trees and shrubs, the mix depending on the ground conditions and other factors. Another option may be to allow the open glades to be recolonised naturally and to study over time how the woodland develops compared to the replanted areas – this could be a useful research and education opportunity.
- ix. Volunteer work parties organised by FODW can manage the removal of seedlings, regrowth and small saplings, but not anything more than about 100mm in diameter.

- x. In the short term we propose to seek professional advice and seek funding to begin to create open glades and to thin and remove sycamore and ash from close to the main peripheral path and the south/north path from the eastern Rhu Road Higher and Millig Street entrances; these areas are generally easier to access and maintain. We will also look carefully at standing dead or diseased trees near paths and where appropriate fell or prune. With professional advice we will also use the period to plan for the clearance or thinning of a larger area of sycamore (roughly one third of this section) along the northern boundary, then carry out the works at a suitable time. Depending on the success or otherwise of these works we will then plan for the clearance or thinning of the remaining sycamore-dominated area along the northern boundary at a later stage. The timetabling for this work may also depend on the nature of the grants that might be available to support the work.
- xi. It will also be necessary to consider what to do with the cut stumps – whether to try to kill or remove the stump or to allow it to coppice. This is another area where professional advice will be important.

Beech

27. Beech is more widespread in the Wood than a casual look might suggest. Although not a native tree, it is thought that its natural climatic limit has not yet been reached in the UK, and its presence can be accepted in a sensible way in our natural woodland, contributing to the biodiversity. It is an attractive tree particularly in its spring and autumn colours. There are a number of very large and old mature trees around the boundaries (beech in photograph in NW corner) and it is the **policy** that these should be protected and retained. However, beech seems to regenerate quite successfully in the Wood (better than sycamore) and it needs to be monitored and controlled. Possible **action** is to allow it to regenerate in a managed way in the north west corner compartment where the mature trees are concentrated. In time it is likely that the beech would become the dominant species there. A number of other semi-mature trees would be identified around the Wood for retention and protection, while the remaining trees would be removed at the same time as other operations were being carried out in the area.

Scots Pine plantation

28. The Scots Pine plantation (which possibly has other pines mixed in) between Rhu Road Higher and the Millig Street garages needs to be managed as a separate section. It is narrow and has a long boundary facing the prevailing wind direction, so edge effects will be important. It is also home to a large rookery, with over 80 nests (spring 2015) which needs to be protected. However there is a fairly substantial undergrowth of sycamore and ash in places, and the pine trees are now of such a size that they should be thinned. Much of the undergrowth can be dealt with by volunteer action, but thinning the larger trees and the complexities involving the rookery will need professional advice. There may be timber value in the felled trees which could help fund other work in the Wood.

Other mature trees

29. Around the Wood there are a number of other mature trees including different conifers, several limes, and a few sweet (Spanish) chestnut. We propose a **policy** to protect and retain these trees, with the proviso that if any become unsafe near to paths, **action** will be taken to assess and manage the problem trees.

29A FODW has planted a number of new trees in recent years – for example the group of 100 oak trees in the middle section of the north of the Wood, the group of fruiting trees and shrubs around the boundaries of the Pony Field, and smaller groups where opportunities presented. It is important to look after these trees while they are

still young and subject to deer damage in particular. The **policy** is to continue to look for opportunities to replant, and **action** is to fence and protect, and nurture new plantings. Major opportunities for replanting will occur if any significant sycamore coups are felled.

Other invasive species

30. As well as the sycamore and beech trees, there are a number of other non-native invasive species which have a major impact on the Wood and its biodiversity, and our **policy** is to control and eradicate them. They include:

- Rhododendron. Scattered throughout the Wood, sometimes in substantial clumps. **Action** to continue removing the bushes and control of regrowth is a short-term priority for this plan. Dealing with the brash involves the same considerations as for the trees, but recent experience has shown that it can successfully be burned.
- Japanese Knotweed (see photograph). Present in a number of locations around the Wood and has been regularly attacked. **Action** to remove and to continue control of regrowth is also a short-term and urgent priority.
- Laurel. Only present in a few locations, mainly in the south west corner. Its removal and control of regrowth is a medium term priority for **action**.
- Lamium galeobdolon (Tri-coloured archangel). Present in a number of locations around the eastern boundary of the wood. Will be monitored initially, and consideration given to **action** to remove in the medium term.

31. In addition, two native species will be monitored and action considered:

- Bracken. In open areas mainly in the south half of the Wood. The areas are not extensive but one of the few open areas in the Wood is being taken over and trial action is being undertaken in the short term to examine if the bracken in part of this area can be beaten and bruised and thereby sufficiently weakened to go into decline. Results so far have been encouraging. Care will also be taken to ensure that other ferns are not damaged.
- Brambles are not generally a problem, except that they can erupt and make the ground impassable when a section of woodland is felled – but they can be managed in such circumstances. However there is also a large area of mixed trailing brambles and sub-erect brambles (which are relatively uncommon) at the east end of the pony field, and they are steadily extending their coverage. Professional advice will be sought on how best to control this area.

Boundary issues

32. Many of the issues identified above are more significant near the boundaries of the Wood, particularly where the boundary is with houses. Duchess Wood is bordered on its east side by a number of residential streets. From the north, they are Macleod Crescent, Macleod Drive, Duchess Drive, and Duchess Park; as the eastern boundary continues south, it runs alongside the end property in Millig Street, then after the garages, alongside Strathclyde Court and its lengthy garden. Kathleen Park in the south west corner also borders the Wood, although it is separated from the Wood by the south bank of the burn which runs behind the houses. It is also important to bear in mind that the northern boundary is formed by the West Highland railway line. A more detailed note on boundary issues is attached as Annex 5. In addition a new housing development in and to the north of the old Dobbie's garden centre beyond the south west corner of the Wood has been designated in the LDP for housing. The development will be contiguous with the Wood and there will be access from it to the Wood; it will be important to monitor the detail of the development and the impact it might have on the Wood.

33. The management of the Wood should take into account the safety (and to an extent the amenity) of neighbouring residents. Branches and trees have fallen into gardens and onto garages in recent years and particularly during the severe storms between 2011 and 2014. Action has been taken by A&BC and FODW to deal with emergency issues that have arisen. An informal survey of the state of the trees close to boundaries was carried out in December 2011, but this preceded the gale of 3 January 2012 when there was a great deal of tree damage. Further informal surveys have since been carried out. In the short term, occasional boundary surveys will be needed. It will then be necessary to consider how to maintain a safe and suitable boundary or transition zone. In carrying out work in the transition zone around the boundary (which could be perhaps 5m wide) we should follow the principles set out in paragraphs 21-31 in relation to particular species and retain native mature trees where they are safe, retain other native trees and some non-native mature trees, but remove and thin drastically other non-native trees (while remembering edge effect issues). Lower, fruiting and flowering native trees such as rowan, hazel, hawthorn and blackthorn could then be planted in the transition zone to create a food-rich environment for birds, animals and insects.

34. At the same time, one of the broader aims of the MP is to ensure that neighbouring residents gain a greater understanding of the management needs of the Wood. There is no strict boundary as far as the wildlife is concerned and gardens are in essence an extension of the Wood. Residents can help protect and improve wildlife in the Wood, particularly the bird life. Boundary residents will also be encouraged to respect the needs of the Wood and not dump inappropriate garden waste (especially where there is a risk of spreading non-native invasive species).

Pond provision

34A In terms of enhancing the biodiversity of the Wood, one of the main habitats which is lacking at present is a still water pond, which could provide a habitat for frogs, toads and newts, but also be a resource for animals, birds and insects. Although there are numerous relatively fast-flowing burns in the Wood, which provide a special habitat, a still-water pond would help attract a wider range of wildlife. The pond or ponds would need to be a fair size and in a relatively open area so that it can warm up, and a number of possible sites have been identified. The first priority will be to test the ground to check whether it is sufficiently impermeable to sustain a pond, or whether some form of lined pond might be necessary.

Public access

35A Access to Duchess Wood will take into account both the Scottish Outdoor Access Code and the SNH Guidelines for LNRs.

The Outdoor Access Code is based upon three key principles:

- Respect the interests of other people. Visitors to the Wood should act with courtesy, consideration and awareness and should respect the needs of other people enjoying the outdoors.
- Care for the environment. The DWLNRC's role is to help maintain the natural and cultural features which make the Wood attractive to visit; visitors are expected to look after the Wood and leave the land as they find it.
- Take responsibility for your own actions. The DWLNRC, on behalf of A&BC will act with care at all times for people's safety. Visitors must remember that the outdoors cannot be made risk-free and should act with care at all times for their own safety and that of others.

The Code allows access for example by cyclists, horse riders, dog walkers, etc., but emphasises the importance of responsible access which takes account of other users of the Wood.

The Guidelines for LNRs draw attention to the general objectives of LNRs and explain that access is necessary to:

- maintain and improve biodiversity
- provide opportunities for environmental research and education
- enable people can become involved in nature conservation activities
- quietly enjoy their natural heritage.

The principles in the Access Code and the LNR guidelines are compatible with one another and are built in to the objectives of this management plan.

Paths

35. The paths network has been steadily improved since the first Management Agreement was signed, and particularly so since 2002. There are now a number of "constructed" paths, most of which are now designated by A&BC as Core Paths. There are four recognised access points (and the north-west access links the Wood to the round-Helensburgh footpath network and routes to the National Park), a well-laid peripheral path, an all abilities path at the flat, lower part of the Wood (which has been made a circular path thanks to cooperation with the Cricket and Rugby Club when they were carrying out other work), and two subsidiary paths. A small car park is available at the Kathleen Park entrance. In addition, a number of informal or "desire line" paths exist throughout the Wood which are used much less frequently and give access to the more central parts of the Wood. Discussion between local residents and A&BC has been initiated to examine options for new footpaths associated with the possible housing development next to the south west corner of the Wood.

36. There are five main **policies** which will inform future actions in relation to the paths network:

- To help provide and maintain relatively undisturbed "refuges" for wildlife (within the peripheral path, the south-west corner, and the "hammerhead" between Duchess Park and MacLeod Drive), general visitors should be encouraged to use the existing "constructed" paths network. This plan does not envisage the creation of any new paths other than temporary paths to facilitate access for the removal of timber or woodland management, and perhaps paths associated with any new housing beyond the south west corner.
- The paths should be as natural as possible, and support the semi-wild nature of the Wood. This means that any fencing will be limited to narrow bridges, and when the fencing which is currently installed on one side of the Victorian stone bridge on the eastern path, and on part of the steep bank to the south, rots or is damaged, it will not be replaced. A similar approach will be taken to the small section to the south of the Strathclyde Court garages. However, the section of fencing at the bottom of the Scots Pine plantation on Rhu Road Higher should be maintained as it provides an effective barrier to visitors, particularly children and dogs, running onto a busy road.
- The main paths may need to be improved to allow small timber-handling and maintenance vehicles access around the Wood (although any contractor involved would have experience of dealing with such terrain). It may also be necessary to create some temporary paths into other areas of the Wood. The planning for any such use will take into account the need for path restoration. Such improvements/changes may also have benefits for horse riders and others. Clearances over and around paths will also have to be checked and improved to allow vehicles or horses to pass freely.
- The "constructed" paths should be well made, well drained and mud-free, and easy to maintain.

- The “informal” paths should be left as they are, with no attempt at improvement, or management, but should be monitored to check for over-use, and appropriate action taken if this appears to be a problem.

37. The short term priority for action is to resurface, and in places regrade, the all-abilities path which has deteriorated over the last decade. This will restore the smoothness of that path to its state ten years ago to make it more suitable for wheel-chairs and push-chairs. In addition, if any substantial removal of trees is undertaken (as envisaged above), the main paths may need to be improved, and in places widened, to allow access for tree handling equipment. Even if such major works are not carried out, most of the peripheral path will need some maintenance in the medium term as some of the edges are deteriorating and some wash-away of the path covering has occurred. Although drainage has been much improved, (following a survey and report by the Paths for All Partnership, commissioned by FODW – see Bibliography at (6)), there are still some areas where paths are damaged by rain and spate erosion, and crisis action will be needed to maintain the paths.

Burn crossings and drainage

38. Apart from the Victorian stone bridge on the eastern path, the bridges are wooden; three were constructed around 20 years ago and one about ten years ago. They are showing signs of wear. The three older bridges have been repaired regularly, but their life-span is limited. They are also relatively narrow, and two of the three are in awkward positions which do not lend themselves to substantial improvement. The newer bridge (the “Thurgood Bridge”) is in good condition, but the steps down to it are exceptionally steep, and maintaining the fill of the steps is a problem. The steps were improved and refilled during 2014, but they remain a problem for the longer term. By contrast, two large culverts and a number of small culverts installed over the last ten years have so far proved easier to maintain (although the smaller culverts can block easily). The pathways over the larger culverts are also wide enough to take tree-handling equipment if this is brought in, and horses.

39. Many of the drainage culverts and ditches were installed and dug on the basis of a detailed report by the Paths for All Partnership in 2009 commissioned by the Friends of Duchess Wood. Of the 37 recommendations in that report, those rated as “High priority” and most of those designated as “Medium priority” have been implemented, much of the work having been done by the A&BC Employability Team. This is a good example of how partnership working also furthers the social inclusion potential of work in the Wood. The ditching needs regular maintenance, and the upstream and downstream stonework on the smaller culverts needs occasional maintenance, all of which can largely be carried out by voluntary effort. Other drainage improvements have taken place in the last five years (for example around the information boards on the pony field), and we will continue to monitor and improve areas of the paths which do not drain freely.

40. The **policy** is to continue to review and repair the remaining wooden bridges and maintain other crossings and drainage ditches and as the bridges approach the end of their usefulness and/or become unsafe, to replace them with wider, large diameter culverts (see photograph). The Thurgood Bridge, being only ever likely to be used for pedestrian access, will be maintained as a bridge.

41. A range of **actions** is envisaged in the short and medium term. Depending on other action, in the short term, the bridge to the west of the Pony Field, and in the medium term the north-east bridge, will be replaced by culverts. The south east bridge is likely to remain in reasonable repair in the short term. It is not essential for vehicular access to the peripheral path that it is replaced, but for ease of maintenance, a culvert will be advantageous in the longer term. Access into and out of the burn on the west side of the south east bridge has been graded to allow horses to cross easily, and this

approach may be necessary at the other crossings, depending on when culverts can be provided. The Thurgood Bridge will remain, but the gradient of the access steps will be reviewed.

Signposting

42. There are seven categories of signage in the Wood at present:

- Main Information Boards at the Pony Field
- LNR biodiversity information notices
- Duchess Wood LNR signs
- Finger signposts, mostly at entry points
- Map boards at each entry point
- A stone marking the establishment of the Wood as a LNR
- Waymarkers for the spring flower walk/all-abilities path (green arrows) and main peripheral path (red arrows).

The main Information Boards installed in 2015 give many useful facts and illustrations of the management, history and wildlife of the Wood. The robust Duchess Wood LNR signs installed by Lower Clyde Greenspace remain in good condition and have been supplemented by the new mapboards. The finger signposts and biodiversity information signs are starting to deteriorate and some have broken and been repaired. The car park is not signposted.

43. The **policy** is to maintain the existing signage, and develop additional clear, helpful guidance to users of the Wood.

44. The **action** planned in the short term is to maintain, repair and where necessary replace all deteriorated signs and to confirm the request for a brown tourist sign from Rhu Road Higher to the car park.

Horse riding route

45. Horse riding is permitted in the Wood and follows the Scottish Outdoor Access Code. A preferred horse trail has been discussed in the past, but it has not been possible to provide this facility. Given the relatively small size of the Wood, and the need to maintain the "refuge" nature of the central part of the Wood, a separate horse trail raises problems. Equally, mixing horseriders, walkers and dogs on paths which have not been designed for horse riding also brings potential difficulties. The recent regrading of the burn crossing by the south-east bridge has been welcomed by riders, and some of the proposed access developments (such as the provision of culverts rather than bridges) should make riding around the wood easier. No clear **policy** on this issue has emerged, and at present the **action** planned is to consult further to try to determine the best way ahead which balances the needs of all users.

Maintenance

46. The **policy** in relation to maintenance is to make sure that the Wood as a whole is kept in a safe condition for users, while respecting the semi-wild character of the LNR, and that access ways and equipment provided in the Wood are kept in good condition. Many aspects of the maintenance function have been mentioned above, which can be divided into two broad categories: emergency rectification and safety, and routine maintenance.

47. Emergencies, some minor, some significant, arise for a number of reasons. Recent examples have included path erosion due to excessive rain, damage to fencing and bridges, vandalism and wind damage from storms. Responsibility for the

management of the Wood rests with A&BC and safety is a fundamental part of that duty. The major crisis maintenance is carried out by A&BC and LCG, while minor work is undertaken by FODW. FODW regularly liaises with the police, fire and other services, and provides a safeguarding function, rectifying what is within its capacity and reporting to the appropriate authority anything that is not.

48. A routine maintenance schedule, attached as Annex 7, has been approved by A&BC and the local environment services section of the Council has the responsibility to apply it. The schedule recognises that routine maintenance is very much a partnership activity. A&BC regularly empties the litter bins placed at all four entry points to the Wood. FODW not only carries out daily clearance of litter beside paths, but periodically holds a litter sweep deeper into the Wood. A&BC then arranges to collect the findings. Bins are generally well-used by the public, including scooping by most dog-owners. However there are continuing problems with dog scoop bags being left for later collection by some owners and then forgotten. Other maintenance includes strimming beside the picnic benches and cutting back undergrowth (especially over and around paths), and clearing culverts to protect paths, especially at the leaf fall in the autumn. FODW has been greatly assisted in these activities by the local Community Payback team and other voluntary effort.

49. In general the **action** envisaged for the 2016-2021 MP will focus on dealing with any emergencies that arise, continuing the present level of regular maintenance in line with the agreed schedule, and undertaking specific action identified in earlier sections; these specific actions are brought together in the Action table below.

Research

50. The earlier MPs and the research undertaken so far (summarised in paragraph 14) help to understand the diversity of life in the Wood. Since the MP 2012-16 was drawn up, the concept of Citizen Science has developed, and the **policy** for the next four years will be to participate in relevant Citizen Science projects and to encourage and undertake further research in the Wood to help understanding of:

- Which species might need protection
- Which species might need to be controlled
- How greater biodiversity can be encouraged
- How the Wood relates to the local community and to tourism

51. Citizen Science is defined as "scientific work undertaken by members of the general public, often in collaboration with or under the direction of professional scientists and scientific institutions" and SNH leads and coordinates much of the activity in Scotland. The SNH website gives access to the report on an important workshop in May 2015. Amongst the topics which could usefully be pursued in Duchess Wood are

- The use of "camera traps" to help identify mammals, birds, amphibians and reptiles and other wildlife present in the wood
- Air quality surveys through the monitoring of lichen and tar spot on sycamore
- Tree health
- Soil and earthworm surveys
- Pond and flowing water surveys.

The development of Citizen Science in the Wood could involve schools and families in a coordinated way and contribute not only to research specific to the Wood, but also to help build the national picture in those areas of interest.

52. Paragraph 14 above refers to the research already carried out within Duchess Wood and to the seven checklists already prepared by FODW (see Annex 4). In addition, we will continue to monitor the rookery population and we will seek help in surveying

- mammals
- other animals (reptiles, amphibians, etc)
- insects and spiders
- water-living species
- the surface geology and soils
- and we will continue to update and extend the existing species checklists.

The short term priorities will be the rookery, mammals, particularly bats, and butterflies/moths. Bats are a European Protected Species, and like the other priorities for surveys, will have to be considered in the context of adjacent woodland and other habitats. Bat surveys during the 2012-2016 period have shown Pipistrelle and Soprano Pipistrelle bats at least, using the Wood for feeding; where their roosts are remain unclear though guidance suggests that houses and other buildings around the Wood may be their hosts. It is difficult to predict at this stage what the most appropriate priorities might be in the medium term.

53. It is likely that specialist advice or support will be necessary to help plan and undertake some of this work, and contact has been made with the Buglife, Plantlife, the Bat Conservation Trust, Butterfly Conservation, and the Amphibians and Reptiles Conservation Trust, all of whom have been supportive of this work. We hope that this essential research can involve local schools and colleges and volunteer groups, and significantly enhance the educational value of the Wood.

Education

54. The educational value of the Wood has been long appreciated and the **policy** over the five years of this plan will be to develop further both the support which the Wood can give to education and the support that education can give to the Wood. It is important for the long-term management and use of the Wood that children become involved and interested in the Wood from an early age. It should be noted that "education" does not refer only to children since information for adults is as important (see para 57).

55. An Education Pack aimed at primary schools was developed some years ago by the Forestry Commission Scotland but consultation during the period of the 2012-2016 MP has confirmed that in the context of the new curriculum, this is now of limited value. FODW will continue to make the material available on the website, with a suitable warning that parts may be obsolescent and that it needs read in the context of the new curriculum. Primary schools visit the Wood for a range of activities including classroom-linked learning, activities working towards the John Muir award, and Citizen Science related projects. Primary schools also participated during 2014 in a guided visit to the Wood by the Buglife Project Officer and this kind of activity will be pursued further. A more interactive approach to schools' use of the Wood will be developed which will allow activities and information to be shared. One of the two local secondary schools uses the Wood regularly for small-scale sporting and developmental activities such as orienteering and team-building, and discussions have taken place with the other secondary school to identify how their pupils could also benefit from the resources offered by the LNR. One of the schools has also liaised with the National Park Service to refurbish bat boxes installed some years ago, and this activity will be helpful in understanding the bat and bird population. Local colleges and universities have used the Wood for project work. There should also be opportunities to use the Wood in rural skills courses, and in the art and science parts of the curriculum.

55A One of the main developments during the 2012-16 MP period was the introduction of the Lomond School Forest Nursery for pre-primary children in the north west of the Wood. It will be interesting to see how this develops, and the DWLNRC will monitor progress and developments.

56. The other side of the coin is the contribution that pupils and students can make to the maintenance and development of the Wood. For example, primary school pupils have assisted in gully clearance, litter sweeps, and tree mulching. A secondary pupil has assisted in the preparation of the FODW Flowers checklist, and university students have carried out mapping activities. There are many ways in which teachers, pupils and students of all ages could assist further, particularly in relation to survey work, identifying species in need of protection, building nest boxes, preparing signs and maps, IT developments, and general environmental improvement work. These kinds of activities can also contribute to the "Volunteering" element of the Duke of Edinburgh's Award Scheme. The Wood has also been regularly used by scouts, guides, cubs and brownies and this should continue.

57. Education and lifelong learning for adults of all ages are also important. The checklists have attracted broad interest and the development of the Spring Flower Walk, and the guide leaflet, have also proved attractive. Similar leaflets giving guidance on other things to be seen in the Wood will also be considered. A range of local groups use the Wood. Tuition sessions have been organised by FODW about topics including edible fungi, plant identification and foraging, while others value the Wood to hone interests such as ornithology or painting.

58. **Action** will be taken over the five years of the plan to help improve the educational value of the Wood for teachers, pupils, students and adults of all ages. Further leaflets to help visitors understand the biodiversity of the Wood will be developed. Steps will also be taken to encourage greater involvement by local schools and colleges in supporting the work to improve the woodland described in this Plan.

Recreation

59. It is important to emphasise that the Management Agreement requires A&BC to "preserve and enhance the appearance of the Managed Land, and to promote the enjoyment of the countryside by the public". The Wood has been enjoyed and used for recreation by local residents and visitors for many years. As a recreational facility, the Wood is very successful, and FODW have received many complimentary comments on the attractiveness of the Wood. Earlier work suggested a minimum figure for visits of around 100,000 a year and this figure does not seem too fanciful. Most visitors come simply to walk (especially with dogs), but running, cycling, horseriding, bird watching, foraging, painting, photography and general appreciation of the environment are enjoyed by many visitors. Children enjoy a range of more vigorous activities, such as den and dam building, tree climbing, paddling and leaping burns, and collecting cones and leaves. An increasing number of tourists use the Wood and its paths are now linked to the round-Helensburgh footpaths network, and the 50km Three Lochs Way from the south to the north of Loch Lomond via Helensburgh. A&BC's proposed new Green Network includes Duchess Wood.

60. In terms of **policy**, this Plan expects that activities will generally be small-scale, involving individuals, families or other small groups, and that organised activities, other than those involving schools, will be kept to a minimum and cleared through the DWLNRC and see para 61A below). It is also intended that recreational facilities such as tables, benches and information signage will be confined to the vicinity of the main paths and the Pony Field area.

61. The Pony Field is the focus for information in the Wood and in view of its open, level nature, and its proximity to the car park and rugby pitches it may offer an opportunity to create a small recreational area with enhanced facilities, such as a form of shelter and some natural play facilities (perhaps supported by a mobile phone application, an "App") and current species records (for example of bird sightings). It is recognised that such facilities might be difficult to guard against vandalism, but we think

it appropriate to consider them. The edges of the Pony Field are now being treated as an extension of the boundary transition zones discussed earlier and appropriate flowering and fruiting trees such as crab apple, rowan, wild cherry, blackthorn, hawthorn and a small selection of Scottish fruit trees have been planted to provide additional food sources for birds and animals and better opportunities to observe wildlife. As mentioned earlier some sensitive improvements to the area will be necessary if the pony field is to develop in this way, such as limited levelling of the site, and control of the extensive bramble patch on the east side. We will also consider encouraging photography, painting and wood sculpture and displaying the results. Fixed point photography to record the changing seasons and changes in habitats may be valuable both artistically and from a diversity management point of view.

61A During the period of the 2012-2016 MP, a number of more substantial proposals for recreational use of the Wood were made, including cross-country relay competitions, major orienteering events, several well-attended performances by the Walking Theatre Company and a major night-time "horror" run. Other initiatives were considered – for example a fantasy light show, similar to that mounted successfully near Pitlochry for several years. The DWLNRC has viewed these developments positively as long as they have been properly planned and controlled and any unintended damage quickly rectified. We have developed an Events Policy which should help promoters of such events understand the special circumstances of the Wood and the processes which must be gone through before the Wood can be used in this way.

61B The DWLNRC Events Policy distinguishes between small-scale informal events (such as scout group outings) and larger events involving large numbers of people. The latter must obtain permission from A&BC which has an events pack to guide applicants. Where organisations seek to derive income from an event (e.g. commercial events, Rugby Club, etc.) it may be appropriate for a donation to be made to FODW in recognition of the fact that FODW carries out the day-to-day maintenance of the Wood. Practical requirements for larger events include advance notices at the four entry points to the Wood a week prior to the event alerting the public, clearing up the Wood after the event, and forbidding use of shoes with spikes or metal studs that might damage wooden bridges.

62. The "promotional" aspect of the Management Agreement is also important, particularly in terms of reaching those who might benefit from the recreational and educational opportunities presented by the Wood. FODW produce regular newsletters, publish a number of leaflets, and maintain a website (www.duchesswood.org.uk) which give a lot of background information on the Wood, and information on activities. Good relationships have been established with the local media who have given excellent coverage to activities in the Wood.

63. In the short term **action** will focus on encouraging the use of the Wood for appropriate sporting and recreational activities, and monitoring such use, so that no damage is caused to the Wood. Ensuring that organisers understand the need where necessary for formal approval will also be important. We will also maintain the existing facilities and examining the possibility of developing the Pony Field area further (while completing hawthorn hedging work begun earlier), which could be pursued in the medium term. In relation to promotion, the existing sources of information will be used to try to reach a bigger audience and publicity through the local media and national organisations enhanced.

In the end

64. A suggestion has been made that a small part of the Wood might be set aside for interring cremation ashes. This has philosophical attractions, recognising the circle of life in an environment where life is constantly being renewed. It might also have

mercenary attractions if donations or fees could help offset other costs in the Wood. However the Wood is relatively small and well used and local residents and visitors might be sensitive to such use. In the short term, informal consultation will take place to gauge reaction to the idea.

Voluntary effort

65. While the primary management responsibility rests with A&BC, much of the progress which has been made in the Wood in the past has depended on a wide range of voluntary effort, and it will be essential to support and encourage this over the period of this MP, and beyond. Many of the earlier paragraphs of the MP describe the work that volunteers have undertaken much of which has been led and organised by FODW, supported by several other local volunteer groups. We are committed to working closely with voluntary groups, particularly FODW, on the delivery of this MP and we will continue to take **action** on behalf of A&BC to support the work of FODW and other local voluntary groups. Direct support for insurance costs of FODW will continue to be covered by A&BC. FODW will represent the local community on the DWLNRC and will coordinate volunteer input to the Committee. More generally, local groups will, where necessary, coordinate their activities and priorities so as to make as efficient and effective use of resources as possible. We will alert groups to opportunities to secure funding and for training and development.

Conclusion

Duchess Wood is a long-established woodland, recognised as an outstanding example of a Local Nature Reserve with a high level of planning protection. It is much used and valued as a local facility which also attracts visitors from afar. It is a good example of partnership working, not just between the Council and the Friends of Duchess Wood, but involving a wide range of other contributors. Its long-term value to the people of Helensburgh, to tourism and to biodiversity close to a major town is exceptional, and it is essential that such a facility is fostered for future generations.

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