Forestry and Land Scotland
Coilltearachd agus Fearann Alba

Appendix XIII

Plantation on Ancient Woodland Sites (PAWS)

Introduction

Plantations on ancient woodland sites (PAWS) are areas where ancient woodlands were cleared and replaced with non-native, usually commercial woodland.

In 1908 a select committee "recommended that ancient woodland should be recognised and treated as a separate category". In Scotland the category – Ancient – involves woodlands recorded as:

- Semi-natural in origin on either:
    - 1750 Roy maps or
    - 1860 1st Edition Ordnance Survey maps

This ensured that ancient woodland missing from the Roy maps were captured in the 1860 maps. Roy maps tended to detail features in proximity to areas o military interest.
Ancient Woodland Inventory (Scotland) - data.gov.uk

Ancient woodland

NatureScot defines ancient woodland "as land that is currently wooded and has been continually wooded since at least 1750."
"They are important because:

- They include all remnants of Scotland's original woodland; their flora and fauna may preserve elements of the natural composition of the original Atlantic rainforests
- They usually have much richer wildlife than that of more recent woods.
- They preserve the integrity of soil ecological processes and associated biodiversity.
- Some have been managed by traditional methods for centuries and demonstrate an enduring relationship between people and nature.
- Woods and veteran trees are ancient monuments whose value to the local community and historians may be as great as that of the older buildings in a parish.
- Once destroyed, they cannot be recreated."

"The Scottish Government's policy on control of woodland removal states that there is a strong presumption against removing ancient semi-natural woodland or Plantations on ancient woodland sites, amongst other types of woodland.

Other woodlands, hedgerows and individual trees, especially veteran trees, may also have significant biodiversity value and make a significant contribution to landscape character and quality, so should be protected from adverse impacts resulting from development"
A guide to understanding the Scottish Ancient Woodland Inventory (AWI) | NatureScot

Ancient woodland inventory (AWI)

The ancient woodland inventory indicates the location of ancient woodland. It categorises ancient woodland into three categories, all of which have a likelihood of value for biodiversity and for cultural value for their associated antiquity. They are as follows:

- Ancient woodland (1a and 2a)
    - These have been identified on the 1750 Roy maps and the 1860 1st edition OS maps. They include areas where non-native species were planted on ancient woodland sites (PAWS)
- Long established woodlands Of plantation origin (LEPO) (1b and 2b)
    - These have been defined as being plantation woodland on the 1750 or 1860 maps and have been in continuous woodland land use since. These woodlands may have developed semi-natural characteristics as rich as ancient woodlands.
- Other woodlands on Roy woodland sites (3)
    - These are areas defined as wooded in the 1750 maps but unwooded on the 1860 maps. They are areas where there has been a short break in continuous woodland land use and as such may retain ancient woodland features.

Forestry and Land Scotland (FLS) PAWS Policy 2016

There is over 28,000ha of PAWS in Scotland's national forests. The aim of the PAWS policy is to "protect and enhance ancient woodland remnants and embed them into a native woodland network."
PAWS areas are surveyed to validate the ancient woodland inventory indicative areas. This includes checking open areas for ancient woodland features.

FLS is committed to restoring at least 85% of PAWS to native woodland. Restoration is defined as at least 90% native species with up to 10% non-native naturally regenerating species.

The remaining 15% of PAWS areas will undergo enhancing ancient woodland remnants and native woodland features. Here up to 10% of the matrix can be planted with appropriate non-native trees to support objectives. The perpetuity of non-native species can be justified through continuous cover forestry (CCF) management where they do not impact ancient woodland remnants. Justification for enhanced PAWS can include:

- Biodiversity
- Landscape
- Community
- Slope stability

The PAWS areas have been assessed for their ecological potential which determines the expectation that it will develop "a fully functioning native woodland ecosystem that has attributes associated with ancient woodland."

Clunes & Loch Arkaig PAWS

Ancient woodland and native woodland component

The Clunes & Loch Arkaig LMP area covers 3002ha of which around 1156ha is under woodland land use. PAWS designations cover 618ha which is 53% of the wooded area. The combined ancient semi-natural woodland (ASNW), Caledonian pinewood (CPI) core areas and PAWS areas brings the total ancient woodland component to 750ha – 65% of the LMP wooded areas.
There is around a further 125ha of priority semi-natural woodland and young planted native woodland out with these designations bringing the total native woodland habitat to 875ha (76% of the wooded land use).

Ecological connectivity

As described above there is a strong potential woodland habitat within this LMP.
The PAWS, ASNW and CPI areas within Loch Arkaig Forest all connect providing strong potential resilience. In the western most block the non-PAWS areas of Culcharn are Roy designated woodland occupying 90.9ha. There is another 2.6ha of Roy designated woodland in Achnasaul.

The same can be said for the PAWS and ASNW in south and central Clunes Forest. The PAWS areas of north Clunes are disconnected from the rest of the native woodland areas, however, 61.9ha of Roy designated woodland areas does provide a continuous connectivity along the loch shore and along the Allt Glas Dhoire Mor and Allt Glas Dhoire.

These Roy designated areas adds another 155.4ha of ancient woodland designation to the LMP area amounting to 13% of the wooded area. This brings the total potential native woodland area to 89% of the woodland land use area of the LMP.

Ecological potential

All of the PAWS areas of Loch Arkaig Forest are deemed to be of high ecological potential. Most of the PAWS within Clunes Forest is also deemed high ecological potential with medium ecological potential areas around Allt Molaich and land either side of the Allt Glas Dhoire Mor catchment.
Overall, 91% of the LMP PAWS is of high ecological potential, with 9% medium ecological potential and less than 1% being low.

Current state

The current state of the PAWS areas within the LMP area is defined in the table below:

PAWS land use	Area (ha)	% of total LMP PAWS
Mature conifer	136.9	22.2
Mature conifer/broadleaf	7.74	1.25
Maturing conifer	118.49	19.2
Pole stage conifer & native regeneration	2.21	0.35
Felled sites	94.99	15.4
Forest road	7.98	1.3
Open (mainly hydro wayleaves)	9.32	1.5
Open native woodland	1.32	0.2
Riparian woodland & open land	1.5	0.25
Establishing native woodland	76.04	12.1
Established native woodland	94.28	15.25
Other	67.23	11
Total	618ha	100%

Current threats

The following issues can threaten the health and resilience of the PAWS designations:

- Loss of veteran trees and associated lichens and woodland flora from overshading and competition from maturing and mature non-native species.
- Non-native regeneration (NNR) of non-native species out competing native regeneration.
- Invasive non-native species (INNS) such as rhododendron, gaultheria shalon and buddleia which outcompetes and shades out native regeneration and woodland flora.
- High herbivore impacts predominantly from deer damaging or total loss native regeneration and woodland flora.

Plan of Action

Approved clearfelling in PAWS areas

Forest	Coupe	Fell phase	Total ha	PAWS Area (ha)
Clunes	61028	**1**	15.4	1.07
Loch Arkaig	62055	**1**	40.02	34.62
Loch Arkaig	62069	**1**	13.13	0.55
Loch Arkaig	62079	**1**	0.82	0.61
Loch Arkaig	62087	**1**	25.78	17.8
Loch Arkaig	62096	**1**	3.3	3.3
Loch Arkaig	62102	**1**	0.32	0.32
Clunes	61048	**2**	2.91	2.91
Clunes	61049	**2**	3.44	3.44
Clunes	61054	**2**	20	19.1
Clunes	61068	**2**	6.88	5.83
Loch Arkaig	62103	**2**	1.06	1.06
Total			**133.06**	**90.61**

Halo thinning

Coupes	Area (ha gross)	Critical	Threatened	Low priority
62015/62016	20.55	0	20.55	0
62047/62044/62045	3.6	0	3.6	0
62049/62054	7.03	7.03	0	0
62089/62090	3.76	3.76	0	0
61065/61066/61068/61071	6.95	6.95	0	0

Coupes	Area (ha gross)	Critical	Threatened	Low priority
61000/61036/61037/61038/61039	7.6	0	7.6	0
62026/62027/62028/62029	3.01	0	3.01	0
Totals	**52.5**	**17.74**	**34.76**	**0**

Non-native regeneration removal

Coupes	Area (ha gross)	Critical	Threatened	Low priority
62001	19.05	19.05	0	0
62011	7.8	7.8	0	0
62015/62016	20.55	0	20.55	0
62015/62016/62018	16.3	16.3	0	0
62037/62039/62040/62041/62042	36.22	0	36.22	0
62043/62044	12.04	1.26	0	10.78
62050	17.5	17.5	0	0
62049/62052/62054	8.24	0	8.24	0
62084/62085/62093-62096/62099/62100	30.96	0	30.96	0
62079/62080/62082/62083/62084/62085	7.7	7.7	0	0
62089/62090/62092	4.28	0	4.28	0
61071/61072	11.3	11.3	0	0
61065/61066	0.83	0.83	0	0
61052/61053/61058/61059/61060	7.19	0	7.19	0
61053/61054/61057	9.92	9.92	0	0
61048	2.91	2.91	0	0
61039/61040/61042/61044/61045	9.01	9.01	0	0

Coupes	Area (ha gross)	Critical	Threatened	Low priority
61038/61043	0.7	0.7	0	0
61039/61040/61042	0.94	0	0.94	0
61000/61036/61037/61038/61039	7.6	0	7.6	0
61020/61032/61033/61034/61035	29.61	0	29.61	0
Total	**260.65**	**104.28**	**145.59**	**10.78**

Invasive non-native species removal

Coupes	Area (ha gross)	Critical	Threatened	Low priority
62037/62041	1.67	0	1.67	0
64043/64044	10.78	0	10.78	0
62050	19.46	0	19.46	0
62049/62052/62054	8.24	0	8.24	0
62088/62097/62098	6.09	0	6.09	0
62093/62094/62095/62096/62099/62100	30.96	30.96	0	0
62079/62082/62083/62084/62085	20.1	0	20.1	0
62089/62090	4.28	0	0	4.28
61064/61065/61066/61068/61071/61072	19.52	0	319.52	0
61058/61059/61060	7.19	0	7.19	0
61053/61057	9.92	0	9.92	0
61053/61054/61055	36.29	36.29	0	0
61047/61048/61049	43.6	0	43.6	0
61044	3.1	0	3.1	0
61039/61040/61042/61045	6	0	0	6

Coupes	Area (ha gross)	Critical	Threatened	Low priority
61038/61039/61042/61043	1.64	0	1.64	0
61000/61036/61037/61038/61039	7.6	0	7.6	0
61020/61032/61033/61034/61035	29.61	0	29.61	0
61005/61022	1.48	0	1.48	0
Total	**267.53**	**67.25**	**186.9**	**10.28**