

**Enchanted Forest, Loch Dunmore,
Faskally Wood, Pitlochry
Preliminary Ecological Survey, Habitat, Protected Species
And Ecological Impact Assessment Report**

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**Author Emma O'Shea MCIEEM, BSc, PG Dip Env Mgmt.
Ecological Consultant, Tay Ecology Ltd**

Tay Ecology Ltd, Fairway, Golf Course Road, Pitlochry, PH16 5QU
Tel: 07747 883464; Email: info@tayecology.co.uk; Web: www.tayecology.co.uk

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EXECUTIVE SUMMARY

Tay Ecology was commissioned to undertake a preliminary ecological appraisal, and ecological impact assessment of the Enchanted Forest Site. Field surveys were carried out between May to July 2023 to assess habitat, bats, badger, pine martens, red squirrels, otters, beavers, water voles and reptiles. The likelihood of specially protected and rare, species of birds and of any other protected or local biodiversity action plan species of flora and fauna was assessed. There are no national or statutory nature designations on the site. The River Tay SAC is located 200m to the west and this is designated for otter, sea lamprey, brook lamprey, river lamprey and salmon. No further surveys are required regarding designated sites; however, it is essential that best practice working methods and pollution prevention methods are adhered to during the event to safeguard the SAC and adjacent habitats. Around Loch Dunmore is long-established woodland of plantation origin, the combination of woodland and water have potential to be of high value to wildlife, however, the site is already well utilised as an amenity forest. The Enchanted Forest will not negatively impact the existing habitat, all trees will be retained, and the route will use established footpaths, and access roads. There will be an increase in visitor numbers during the event. However, the autumn timing of the event mitigates the risk of disturbance to wildlife as it takes place outside of the breeding season for bats, birds and red squirrels and outside of the season for flowering plants and invertebrates. There is potential to enhance the biodiversity of the site and surrounding woodland by new planting at the understorey layer with native shrubs and woodland meadow wildflower mixes. Although any new planting would be subject to agreement with the landowner Forestry and Land Scotland.

The trees have negligible or low bat roost potential. Common and Soprano pipistrelles were recorded foraging over Loch Dunmore. The Enchanted Forest will have a temporary impact on bat activity as the light and sound show will make the area less favourable for bats, however, the level of bat activity recorded shows that long-term impact is highly unlikely as this event has already been running at the site for a number of years and good numbers of bats were recorded foraging during the surveys showing that bats continue to utilise the area. There is evidence of red squirrels, although no evidence of active dreys was recorded. A pre-event red squirrel survey is recommended to confirm that new dreys have not become occupied, or where any dreys are confirmed exclusion zones are put in place. Otters are highly likely to use the water habitat though no signs were identified during the surveys. It would be unlikely for an otter natal den, holt or resting place to be located at Loch Dunmore due to the existing level of human activity. It is not anticipated that there will be a negative impact to otters from the Enchanted Forest. There were no signs of badgers, pine martens, reptiles, beavers or water voles and there will be negligible impact to these species. There were no Schedule 1 bird species recorded, common breeding birds were recorded, and the trees provide the most likely place to find nesting birds. All birds are protected, and it is an offence to intentionally or recklessly kill, injure or take a wild bird, or to take, damage or destroy its nest or eggs. The Enchanted Forest takes place outside of the breeding season which minimises the impact to breeding birds. However, some birds may not cease activity at nests until into September and it is recommended that the site is checked for active nests before the event set-up commences. The provision of nest boxes for a range of bird species is recommended as part of works. There were no signs of protected or rare species of flora or of invasive non-native species with the exception of rhododendron for which there is a management plan in place by the landowner.

1.0 INTRODUCTION

1.1 Brief from Client

Tay Ecology was commissioned to undertake a preliminary ecological survey, habitat and protected species assessment of the Enchanted Forest Site at Loch Dunmore, Faskally Wood, Pitlochry.

1.2 Site location

The Enchanted Forest Site is located at Loch Dunmore in Faskally Wood. The site is accessed from the B8079 1.5km to the north of Pitlochry. The site grid reference is NN 92067 59054 at an altitude of 110m above sea level. Figure 1 Site Location.

Figure 1 Site Location



1.3 Site description

The site includes the existing access road and car park for Loch Dunmore and Loch Faskally; the existing accessible footpath around Loch Dunmore; and the hardstanding storage area to the north-west of Loch Dunmore. The site is wooded with a mix of predominantly coniferous and some broadleaved species. Figure 2 Aerial View

1.4 Proposed works

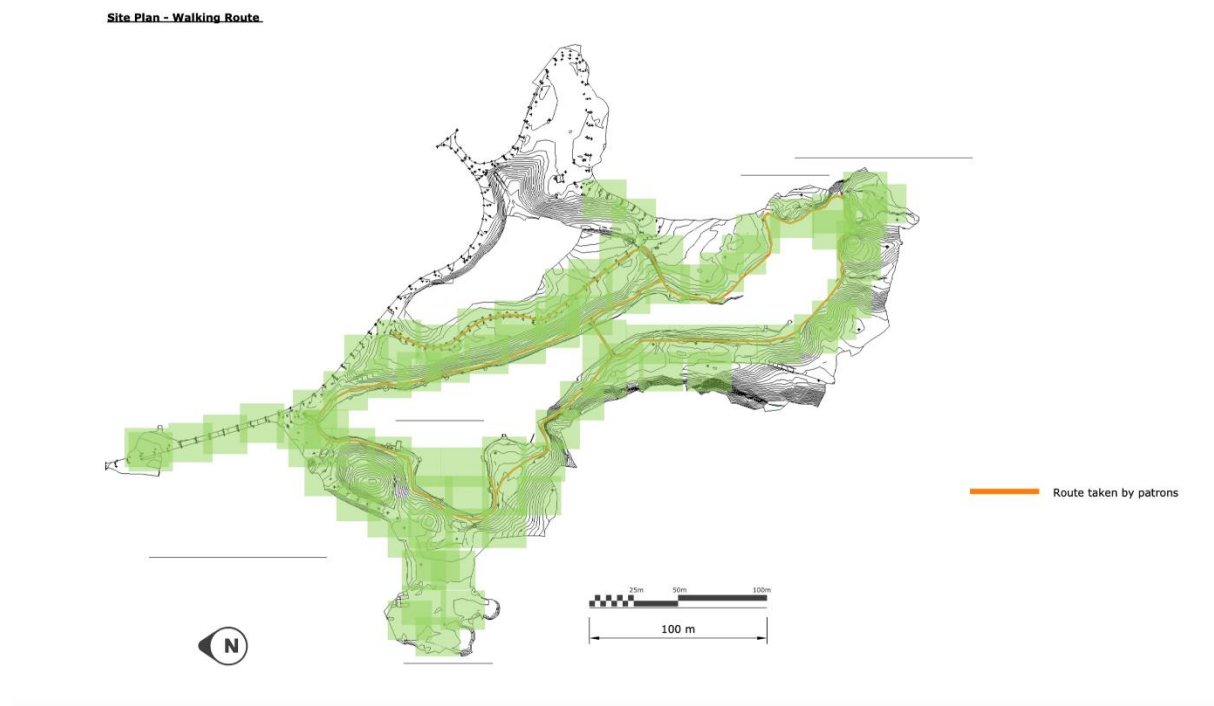
It is proposed to hold the Enchanted Forest Light and Sound Show at the site in the autumn of 2023. Figure 3 Enchanted Forest Site Area

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Figure 2 Aerial View



Figure 3 Enchanted Forest Site Area



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2. SURVEY AND SITE ASSESSMENT

2.1 Objectives

The site was surveyed by a visual ground survey, preliminary ecological appraisal, phase 1 habitat and protected species surveys undertaken. Field surveys were carried out to assess the existing habitat; potential of tree bat roosts; presence/absence of badgers and their setts; red squirrels and their dreys; pine martens and their dens; assess for the presence of otters and water voles. The presence/absence of specially protected, sensitive, or very, rare, species of birds was assessed. The presence/absence of any other protected or local biodiversity action plan species of flora and fauna was surveyed for, and existing habitat assessed. The survey area included the proposed site and up to 250m in the surrounding area.

2.2 Methods

2.2.1 Existing Data Sources

Web-based sources of information were examined, principally the National Biodiversity Network (NBN) Gateway (<http://data.nbn.org.uk/>) where a radius of 5km from the centre of the proposed development was searched to provide suitable coverage of the area. Nature designation classifications were obtained from NatureScot Site Link (<https://sitelink.nature.scot/home>).

The UK Biodiversity Action Plan (<https://jncc.gov.uk/our-work/uk-bap-priority-species/>); Scottish Biodiversity List (<https://www.nature.scot/scottish-biodiversity-list>); Tayside Biodiversity Partnership (<https://www.taysidebiodiversity.co.uk/>) were examined.

Other websites searched include Bat Conservation Trust (<http://www.bats.org.uk/>); Scottish Squirrel Survey (<http://www.scottishsquirrelsurvey.co.uk/>); and The British Trust for Ornithology (<http://www.bto.org/>). Positive records for species present in the survey area can be used to inform the assessment of biodiversity on the site but the lack of records clearly cannot be taken to imply that the species in question is absent.

2.2.2 Survey methodology

A site visit was carried out after receiving project information the Enchanted Forest. A walk over survey was carried out and an overall habitat assessment was made.

2.2.2.1 The main habitats present were surveyed according to the methodology of the Joint Nature Conservation Committee's 'Phase 1 Habitat Survey' (JNCC, 2010). Classification was given to each area according to JNCC (2010). Ground vegetation was then surveyed for the presence of any other rare or protected species by walk-over surveys. Target notes describe the habitats found and any protected or otherwise notable wildlife and any suitable habitats for these species. Nomenclature for higher plants follows Stace (2019) and for mosses and liverworts British Bryological Society (2010). Species abundance is described using DAFOR scale (D – Dominant, A – Abundant, F – Frequent, O – Occasional, R – Rare, where rare refers to local abundance not national scarcity).

2.2.2.2 Bat roost potential was assessed for the building and trees within/adjacent to the proposed site using methodology to identify the possible presence of bats, and potential for bat roosts from Collins, J (2016) 'Bat Surveys for Professional Ecologists: Good Practice

Guidelines' Bat Conservation Trust (3rd edition), Cowan, H (2004) 'Looking out for bats. They could be anywhere!' and NatureScot (2023a) 'Standing Advice for Planning Consultations: Bats'.

2.2.2.3 Evidence of badgers was surveyed for using information from Scottish Badgers (2023), 'Badger surveying' and 'Standing Advice for Planning Consultations: Badgers' (NatureScot, 2023b). The survey was based on the interpretation of field signs (footprints, foraging holes, latrines, and setts or potential setts) and assessment of suitable habitat rather than direct observation of the animals themselves.

2.2.2.4 The potential presence of red squirrels and red squirrel dreys was surveyed using the Forestry Commission Scotland (FCS, 2006a) 'FCS Guidance Note 33: Forest operations and Red squirrels', NatureScot (2023c) 'Standing Advice for Planning Consultations: red squirrels', and UK BAP Mammals: 'Interim Guidance for Survey Methodologies, Impact Assessment and Mitigation' (The Mammal Society, 2012, pp. 13-16). The survey was based on the interpretation of any field signs (feeding signs and dreys) and assessment of suitable habitat.

2.2.2.5 Evidence of pine marten presence was surveyed for using UK BAP Mammals: 'Interim Guidance for Survey Methodologies, Impact Assessment and Mitigation' (The Mammal Society 2012, pp.71-76) and 'Standing Advice for Planning Consultations: Pine Marten' (NatureScot, 2023d). The survey was based on the interpretation of field signs (scats, footprints, and dens or potential dens) and assessment of suitable habitat rather than direct observation of the animals themselves.

2.2.2.6 An otter survey was carried out following the standard otter survey methodology as set out in the 'New Rivers and Wildlife Handbook' (Holmes, Ward and Jose, 2001) and NatureScot (2023e) 'Standing Advice for Planning Consultations: Otters'. The survey was based on the interpretation of any field signs (spraints, footprints, tracks, slides, couches and holts or potential holts) and assessment of suitable habitat rather than direct observation of the animals themselves.

2.2.2.7 Evidence of beaver was surveyed for following NatureScot (2023f) 'Standing Advice for Planning Consultations: Beavers'. The survey was based on the interpretation of field signs (beaver dams, beaver lodges, beaver chewed trees) and assessment of suitable habitat rather than direct observation of the animals themselves.

2.2.2.8 Evidence of water vole was surveyed for using information from NatureScot (2023g) 'Water vole survey methods' and Standing Advice for Planning Consultations: Water vole'. The survey was based on the interpretation of field signs (burrows, runs, tracks, feeding stations, droppings, and latrines) and assessment of suitable habitat rather than direct observation of the animals themselves.

2.2.2.9 A reptile survey was carried out following guidelines adapted from Froglife (2013) and NatureScot (2023h) 'Standing Advice for Planning Consultations: reptiles'. The survey focused on searching for basking animals on banks, piles of wood and edges of woodland. An assessment of suitable habitat was made.

2.2.2.10 The site was surveyed for the presence of any other rare or protected species, guidelines from FCS (2007) FCS Guidance Note 34: Forest operations and European protected species in Scottish forests.

2.2.2.11 The potential of Schedule 1 birds was adapted from BTO (2023), ‘Methodology and survey design for bird surveys’ and NatureScot (2023i) ‘Protected species: birds.’

2.2.3 Survey area

The survey area incorporated the proposed site and up to 250m in the surrounding area.

2.2.4 Timings, types, and weather conditions of field Surveys

The site was surveyed by walk-over, habitat and protected species surveys carried out between May to July 2023 by Tay Ecology. The main habitats present were surveyed according to the methodology of the Joint Nature Conservation Committee’s Phase 1 Habitat Survey (JNCC 1993). Signs of the presence of protected species were sought and habitats were assessed for their potential to host protected species.

11/05/2023 12 degrees Celsius; wind speed 2mph; cloud cover 100%; no precipitation.

25/05/2023 16 degrees Celsius; wind speed 2mph; cloud cover 25%; no precipitation.

08/06/2023 17 degrees Celsius; wind speed 2mph; cloud cover 0%; no precipitation.

22/06/2023 18 degrees Celsius; wind speed 2mph; cloud cover 50%; no precipitation.

06/07/23 15 degrees Celsius; wind speed 5mph; cloud cover 75%; no precipitation.

2.2.5 Limitations

Survey data is accurate when the surveys took place. The curtilage of private property was not entered. It was a ground survey, with no tree climbing element, the surveyors were able to see to the tops of the trees.

2.2.6 Personnel

Emma O'Shea, Ecological Consultant, Tay Ecology. Emma has worked in the environmental sector for nineteen years, during which time she has gained a wealth of experience and expertise. During the last nine years she has worked as an ecological consultant for Tay Ecology with lead responsibility for development projects requiring habitat, protected species, bird, tree surveys and species licensing. Emma has thirteen years of experience surveying breeding birds, is a qualified tree inspector with a background in tree regeneration monitoring and habitat surveys. She has a Postgraduate Diploma in Environmental Management from the Open University and is a member of the Arboricultural Association, CIEEM, and the Institute of Environmental Assessment and Management.

Gary Flynn, Ecologist, Tay Ecology. Gary has been employed in wildlife management and conservation in Aberdeenshire and Tayside for over 20 years. Gary trained with Tay Ecology during 2019 and his specialisms are habitat, bat, tree, and protected species surveys.

Archie Flynn, Bat and Bird Surveyor, Tay Ecology

Archie has a background in environmental education and has worked in land management in Scotland since 2017. Archie trained with Tay Ecology for bat and bird surveys during the 2020 season, he attended a BCT and BTO training courses in 2021 and has experience of surveying a range of sites.

3.0 LEGISLATION AND POLICY GUIDANCE

3.1 Wildlife and Countryside Act, 1981, as amended (WCA)

The WCA sets out the protection offered to various species of plants, birds and animals in England and Wales. Bird species listed in Schedule 1, animal species listed in Schedule 5 and plant species listed in Schedule 8 of the WCA are protected. Under section 14(2) of the WCA it is an offence to “plant or otherwise cause to grow in the wild” any plant listed in Schedule 9, Part II of the Act. Japanese knotweed (*Fallopia japonica*) is a Schedule 9, Part III species. The WCA has since been strengthened and updated by subsequent UK and Scottish legislation (see below).

3.1.1 The Conservation (Natural Habitats &c.) Regulations 1994, as amended (Habitat Regulations)

The provisions of the Habitats Directive were transposed into UK law by the Habitat Regulations. Schedule 2 of the Habitat Regulations lists the European protected species of animals whilst Schedule 4 lists the European protected species of plants. Under the Habitat Regulations, it is illegal to deliberately capture, kill, disturb, or trade in the animals listed in Schedule 2, or pick, collect, cut, uproot, destroy, or trade in the plants listed in Schedule 4 without a licence granted by the appropriate authority. Licences can only be granted for certain purposes and if a set of conditions have been met.

3.2 Nature Conservation (Scotland) Act 2004

Deals with conserving biodiversity by introducing a duty on all public bodies to further the conservation of biodiversity and requires under Section 2(4) publication of a list of habitats and species for conservation action. Amends the 1981 Wildlife & Countryside Act in respect of protecting Sites of Special Scientific Interest, and similarly strengthens protection of certain birds, animals, and plants. Updates the 1992 Protection of Badgers Act.

The Conservation (Natural Habitats, &c.) Amendment (Scotland) Regulations 2004 Amends 1994/ Habitats Regulations to bring provision for protection of European ‘Natura 2000’ sites into line with the protection regime set out in the Nature Conservation (Scotland) Act 2004 and affords protection to European candidate sites. It gives further protection to European protected species, introducing a new offence of ‘reckless disturbance’ in respect of European sites and species.

The Conservation (Natural Habitats, &c.) Amendment (Scotland) Regulations 2007 significantly strengthened the regulations relating to European Protected Species of animals and enacting the requirement to assess developments plans (structure and local plans) with regard to effects on Natura 2000 (EC Directive) sites.

3.3 Wildlife Legislation

3.3.1 Bat

All bat species found in Scotland are classed as European protected species. They receive full protection under the Conservation (Natural Habitats, &c.) Regulations 1994 (as amended). Bats and their roosts are legally protected, whether bats are occupying the roost or not. It is illegal to disturb a bat(s) in their roosts; damage or destroy a bat roosting place, even if there are no bats present at the time; and obstruct access to a bat roost. It is illegal to capture, injure or kill a bat or possess, advertise, sell, or exchange a bat dead or alive.

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3.3.2 Badger

Both badgers and their setts are protected under the Protection of Badgers Act 1992 as amended by the Wildlife and Natural Environment (Scotland) Act 2011. Offences under the Act include: taking, injuring, or killing badgers; cruelty to badgers; interference with badger setts; selling and possession of live badgers and marking and ringing. Exceptions and licences can apply.

3.3.3 Red Squirrel

The red squirrel is protected under schedules 5 and 6 of the Wildlife and Countryside Act 1981, as amended by the Nature Conservation (Scotland) Act 2004. Under this legislation it is illegal to intentionally or recklessly kill, injure or capture a red squirrel; take or damage, destroy, or obstruct access to any structure or place used for shelter or protection such as a drey; or to disturb any red squirrel while it is in a drey.

3.3.4 Pine Marten

Pine martens are protected under schedule 5 of the Wildlife and Countryside Act 1981, as amended by the Nature Conservation (Scotland) Act 2004. It is an offence to intentionally, or recklessly: kill, injure, or take a wild pine marten; damage, destroy or obstruct access to any structure or place which such an animal uses for shelter or protection (den); and to disturb such an animal when it is occupying a place for that purpose.

3.3.5 Otter

As a European protected species, the otter is fully protected under the Conservation (Natural Habitats, &c.) Regulations 1994 (as amended). It is illegal to deliberately or recklessly kill, injure or take (capture) an otter; deliberately or recklessly disturb or harass an otter; damage, destroy or obstruct access to a breeding site or resting place of an otter (ie. an otter shelter). Otter shelters are legally protected whether, or not an otter is present.

3.3.6 Beaver

The beaver is a European protected species, fully protected under the Conservation (Natural Habitats, &c.) Regulations 1994 (as amended). This protection also extends to lodges and burrows used for breeding and can apply to dams.

3.3.7 Water vole

The water vole receives partial protection under schedule 5 of the Wildlife and Countryside Act 1981, as amended by the Nature Conservation (Scotland) Act 2004. It is an offence to intentionally or recklessly: damage, destroy or obstruct access to any structure or place that water voles use for shelter or protection; disturb a water vole while it is using any such place of shelter or protection.

3.3.8 Breeding birds

The main legislation Wildlife and Countryside Act 1981, as amended by the Nature Conservation (Scotland) Act 2004 make it an offence to intentionally or recklessly kill, injure or take any wild bird, or take, damage, destroy, obstruct, or interfere with any wild birds' nest, whilst being built or in use, or their eggs or young.

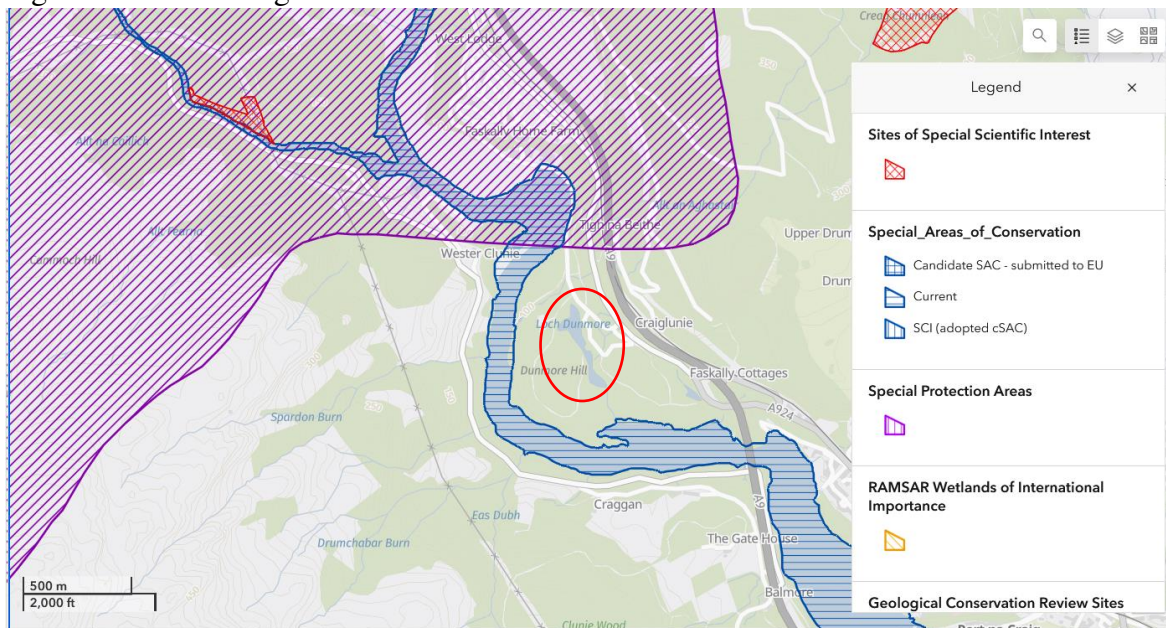
4.0 RESULTS

4.1 Existing data search

4.1.1 Nature designations

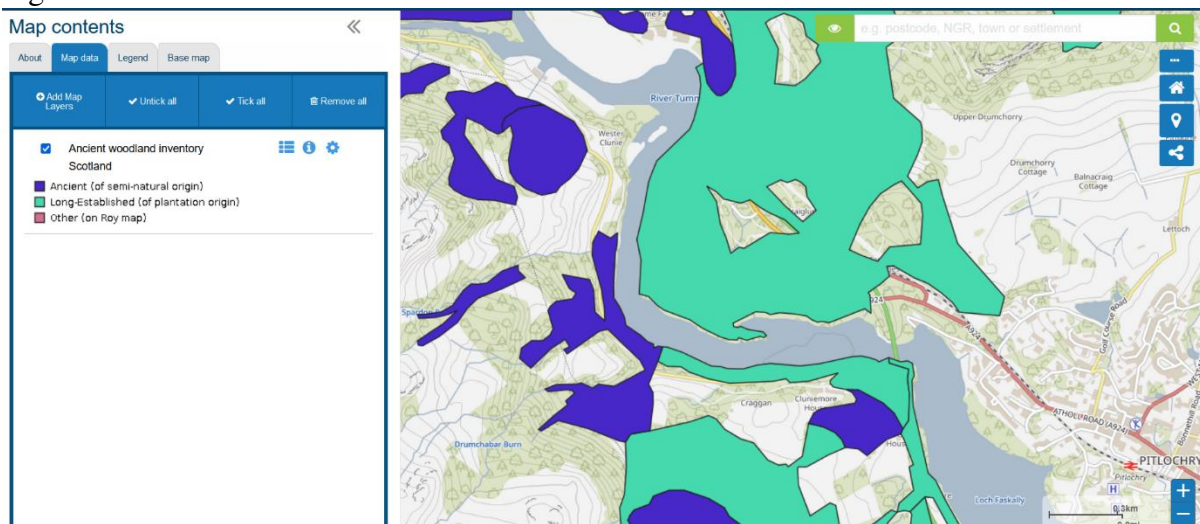
There are no national or statutory nature designations on the proposed site. The site is located 200m to the east of the River Tay Special Area of Conservation SAC. The River Tay SAC is designated for otters *Lutra lutra*, sea lamprey *Petromyzon marinus*, brook lamprey *Lampetra planeri*, river lamprey *Lampetra fluviatilis* and salmon *Salmo salar*. It is also important for fresh-water pearl mussels *Margaritifera margaritifera*. The Loch Tummel National Scenic Area NSA is located 200m to the north. There are no other designated sites within 1km of the location.

Figure 4 Nature Designations



The Ancient Woodland Inventory (NatureScot, 2023j) indicates that the trees are classed as long-established woodland of plantation origin. Perth and Kinross Council (2023) shows that there are no tree protection orders, and it is not classed as a Conservation Area.

Figure 5 Ancient Woodland



4.1.2 Protected Species

The National Biodiversity Network confirmed presence of the following protected/vulnerable species within 5km radius: Water Vole *Arvicola amphibius* (1); Beaver *Castor fiber* (1027); Hedgehog *Erinaceus europeus* (83); Wildcat *Felix sylvestris* (14); Otter *Lutra lutra* (51); Pine marten *Martes martes* (17); Badger *Meles meles* (20); Daubenton's bat *Myotis daubentonii* (30); Natterer's bat (6); Common pipistrelle *Pipistrellus pipistrellus* (12); Soprano pipistrelle (13); Brown Long eared bat (18); and Red squirrel *Sciurus vulgaris* (1235).

Within 2km hedgehog (18); otter (32); pine marten (2); badger (5); Daubenton's bat (1); Common pipistrelle (2); Soprano pipistrelle (7); Red Squirrel (525) have been recorded. Within 1km there are 6 hedgehog, 10 otter, 1 Common pipistrelle, 1 Soprano pipistrelle, 175 red squirrel records.

National Biodiversity Network confirmed presence of the following Schedule 1 birds within 5km: Kingfisher *Alcedo atthis* (15); Corncrake (2); Merlin *Falco columbarius* (2); Peregrine *Falco peregrinus* (16); Brambling *Fringilla montifringilla* (16); Crossbill *Loxia curvirostra* (25); Scottish crossbill *Loxia scotica* (6); Capercaillie *Tetrao urogallus* (13); Redwing *Turdus iliacus* (34); Fieldfare *Turdus pilaris* (34); Barn owl *Tyto alba* (10).

Within 2km kingfisher (8); and crossbill (5) have been recorded. Within 1km kingfisher (2); and crossbill (2) have been recorded.

National Biodiversity Network confirmed presence of the following red list birds within 5km: Skylark *Alauda arvensis* (18); Tree pipit *Anthus trivialis* (58); Swift *Apus apus* (132); Pochard *Aythya alpina* (28); Dunlin *Calidris aplina* (1); Hawfinch *Coccothraustes coccothraustes* (4); Cuckoo *Cuculus canorus* (41); Yellowhammer *Emberiza citrinella* (39); Linnet *Linaria cannabina* (9); Twite *Linaria flavirostris* (6); Grasshopper warbler *Locustella naevia* (1); Smew *Mergellus albellus* (1); Curlew *Numenius arquata* (41); House sparrow *Passer domesticus* (342); Tree sparrow *Passer montanus* (4); Willow warbler *Phylloscopus trochilus* (170); Whinchat *Saxicola rubetra* (21); Mistle thrush *Turdus viscivorus* (133); Lapwing *Vanellus vanellus* (16).

Within 2km tree pipit (3); swift (20); pochard (3); cuckoo (3); yellowhammer (18); linnet (2); curlew (3); house sparrow (109); wood warbler (14); mistle thrush (56) have been recorded. Within 1km tree pipit (2); pochard (1); cuckoo (1); house sparrow (1); wood warbler (5); mistle thrush (6) have been recorded.

4.2 Habitat description

Around Loch Dunmore is long-established woodland of plantation origin. Conifers include dominant Scots pine *Pinus sylvestris* and Douglas fir *Pseudotsuga menziesii*. Broadleaved species include dominant Silver birch *Betula pendula* with abundant Beech *Fagus sylvatica*. There are man-made footpaths, a timber bridge, car parking and access roads. The woodland extends in the surrounding area towards Loch Faskally.

4.2.1 Site Photographs

a. Across loch to south



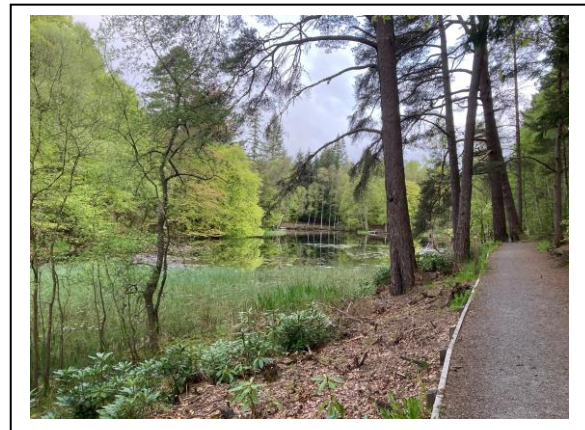
b. Across loch to north-east



c. Across loch to east



d. Lochside and footpath round loch



e. Bridge across Loch Dunmore



f. Lochside and footpath round loch



g. Mixed woodland to south of loch



h. Existing footpath towards loch



i. Existing footpath towards loch



j. Area of plantation conifers



k. Hardstanding storage area to NW



l. Hardstanding storage area to NW



4.2.2 Description of Habitats of potential value to wildlife

The woodland, loch and surrounding area are of high potential value to wildlife.

4.2.3 Trees

Around Loch Dunmore is long-established woodland of plantation origin. Conifers include dominant Scots pine *Pinus sylvestris* and Douglas fir *Pseudotsuga menziesii*. Broadleaved species include dominant Silver birch *Betula pendula* with abundant Beech *Fagus sylvatica*. Other species recorded include Sycamore *Acer pseudoplatanus*; Cypress sp. *Cupressaceae spp.*; Ash *Fraxinus excelsior*; Holly *Ilex aquifolium*; Larch *Larix decidua*; Norway spruce *Picea abies*; Pedunculate oak *Quercus rober*; Elder *Sambucus nigra*; Western hemlock *Tsuga heterophylla*. There is limited ground flora with large areas of bare ground underneath the conifers; where light penetrates Broad buckler fern *Dryopteris dilata* and nettles *Urtica dioica* are dominant.

4.3 Protected species

4.3.1 Bat Survey

4.3.1.1 Preliminary Tree Bat Roost Assessment

A tree preliminary bat roost assessment was carried out to assess for the likelihood of the trees in the area to have bat roosts. The assessment indicated that 100% of trees have negligible or low bat roost potential. Negligible bat roost potential is 'negligible habitat features likely to be used by roosting bats' (Collins, 2016, p.35). These trees do not display any cracks, crevices, ivy cover, deadwood in canopy or stem or decay cavities or hollows in stem (Andrews & Gardner, 2016). No further surveys are required for trees with negligible bat roost potential (Collins, 2016, p.52). Low bat roost potential is 'a tree of sufficient size and age to contain potential roosting features (PRFs) but with none seen from the ground or features with only very, limited roosting potential' (Collins, 2016, p.35). No further surveys are required for trees with low bat roost potential (Collins, 2016, p.52).

4.3.1.2 Bat Activity Surveys

Bat activity surveys were carried out in May and June. Common and Soprano pipistrelles were recorded foraging over Loch Dunmore and in the surrounding woodland. On the May dusk survey on 25th May approximately thirty pipistrelles were recorded in total foraging over the loch. The majority of bats were Common pipistrelles, with approximately five Soprano pipistrelles also recorded. The main area of foraging was the northern end of Loch Dunmore with activity also concentrated at the southern end of the loch aswell. On the June dusk survey on 8th June foraging patterns were similar with a lower total of bats, with approximately nine Common pipistrelles and five Soprano pipistrelles recorded. On the June dawn survey on 22nd June bat activity was highest at the north and south ends of the loch with approximately twelve Common pipistrelles and four Soprano pipistrelles recorded.

4.3.2 Badger Survey

Badger activity and badger signs were surveyed for. Badgers are known to be in the wider local area and there are 5 records within 2km. There is suitable habitat on site which is favourable habitat for badgers.

Species recorded No badgers recorded.

Signs recorded No badger latrines, pathways or setts recorded.

4.3.3 Red Squirrel Survey

Red squirrel activity and red squirrel signs were surveyed for. The Scots pine and conifer trees are favourable for red squirrels. There are 175 red squirrel records within 1km of the site and 2 records within 0.5km.

Species recorded Four red squirrels recorded during the surveys on the west side of the loch.

Signs recorded No dreys were recorded in the trees on the site or within 5m of the site.

There were chewed pinecones recorded at the bases of the conifer trees around the loch.

4.3.4 Pine marten Survey

Pine marten activity and pine marten signs were surveyed for. The trees and woodland provide a favourable habitat for pine marten. There are 2 pine marten records within 2km of the site.

Species recorded No pine martens recorded.

Signs recorded No pine marten dens or scats recorded.

4.3.5 Otter Survey

Loch Faskally forms part of the The River Tay SAC which provides a highly favourable habitat for otters, and otters are one of its designated species. It is anticipated that otters will be found in Loch Faskally and there is potential for otters to utilise Loch Dunmore at times for feeding. Although it is expected that Loch Dunmore is too frequented by members of the public to make it suitable for an otter holt or couch to be present. There are 10 records for otters within 1km.

Species recorded No otters recorded.

Signs recorded No holts, footprints, tracks, and slides, recorded.

4.3.6 Beaver Survey

The River Tay SAC is highly favourable for beavers and there are 1027 records within 5km of the site. At this time there are no known beavers recorded upstream of Pitlochry Dam.

Species recorded No beavers recorded.

Signs recorded No lodges, dams, footprints, or tracks recorded. Beaver chewed sticks visible on riverbank where they have washed up.

4.3.7 Water vole Survey

Loch Dunmore provides a favourable habitat for water voles, there is 1 record within 5km.

Species recorded No water voles recorded.

Signs recorded No water vole signs i.e., burrows, runs, tracks, feeding stations, droppings, and latrines recorded.

4.3.8 Reptile Survey

The woodland provides a favourable habitat for reptiles, and adder and common lizard have been recorded within 5km.

Species recorded No reptiles recorded.

Signs recorded No reptile signs recorded.

4.3.9 Other Protected Species Survey

Other protected species activity and signs were surveyed for. Species included amphibians, invertebrates, and small mammals.

Species recorded No other protected species was recorded.

Signs recorded No other protected species signs were recorded.

4.3.10 Schedule 1 and Bird Activity Survey

Schedule 1 and bird activity surveys were carried out. No specially protected, sensitive, or very, rare, species of bird was recorded at the site. Common bird species were identified either by visual sighting or by bird call. Species within the site boundary include blackbird, blue tit, chaffinch, great tit, grey heron, robin, woodpigeon, and wren. There is good cover, food, and nesting sites for a variety of birds in the area. There are numerous places for nesting birds, and the trees provide the most likely place to find nesting birds.

Table 4.3 Bird Records

Common Name	Latin Name	Recorded on site	Nesting confirmed	Recorded within 250m of site
Common sandpiper	<i>Actitis hypoleucos</i>	Yes	No	Yes
Long-tailed tit	<i>Aegithalos caudatus</i>	Yes	Yes	Yes
Mallard	<i>Anas platyrhynchos</i>	Yes	Yes	Yes
Grey heron	<i>Ardea cinerea</i>	Yes	No	Yes
Goldfinch	<i>Carduelis carduelis</i>	Yes	Yes	Yes
Treecreeper	<i>Certhia familiaris</i>	Yes	Yes	Yes
Greenfinch	<i>Chloris chloris</i>	No	No	Yes
Jackdaw	<i>Coloelus monedula</i>	Yes	No	Yes
Woodpigeon	<i>Columba palumbus</i>	Yes	Yes	Yes
Crow	<i>Corvus corone</i>	Yes	No	Yes
Blue tit	<i>Cyanistes caeruleus</i>	Yes	Yes	Yes
Mute swan	<i>Cygnus olar</i>	Yes	No	Yes
Great spotted woodpecker	<i>Dendrocopos major</i>	Yes	No	Yes
Robin	<i>Erithacus rebecca</i>	Yes	Yes	Yes
Chaffinch	<i>Fringilla coelebs</i>	Yes	Yes	Yes
Moorhen	<i>Gallinula chloropus</i>	Yes	Yes	Yes
Oystercatcher	<i>Haematopus ostralegus</i>	No	No	Yes
Swallow	<i>Hirundo rustica</i>	Yes	No	Yes
Herring gull	<i>Larus argentatus</i>	No	No	Yes
Common gull	<i>Larus canus</i>	Yes	No	Yes
Goosander	<i>Mergus merganser</i>	No	No	Yes
Great tit	<i>Parus major</i>	Yes	Yes	Yes
House sparrow	<i>Passer domesticus</i>	No	No	Yes
Coal tit	<i>Periparus ater</i>	Yes	Yes	Yes
Pheasant	<i>Phasianus colchicus</i>	Yes	No	Yes
Duncock	<i>Prunella modularis</i>	Yes	Yes	Yes
Woodcock	<i>Scolopax rusticola</i>	No	No	Yes
Nuthatch	<i>Sitta europaea</i>	No	No	Yes
Siskin	<i>Spinus spinus</i>	Yes	No	Yes
Tawny owl	<i>Strix aluco</i>	Yes	No	Yes
Wren	<i>Troglodytes troglodytes</i>	Yes	Yes	Yes
Blackbird	<i>Turdus merula</i>	Yes	Yes	Yes
Song thrush	<i>Turdus philomelos</i>	Yes	No	Yes

4.3.11 Flora and INNS survey

Protected and rare species of flora were surveyed for. Invasive non-native species were surveyed for including Japanese knotweed *Fallopica japonica*, Himalayan balsam *Impatiens glandularis* and Giant Hogweed *Heracleum mantegazzianum*.

Species recorded No protected, rare or INNS species were recorded with the exception of Rhododendron *Rhododendron ponticum* for which there is a Forestry and Land Scotland Management Plan and rhododendron removal has taken place.

Tay Ecology Ltd, Fairway, Golf Course Road, Pitlochry, PH16 5QU
Tel: 07747 883464; Email: info@tayecology.co.uk; Web: www.tayecology.co.uk

4.4 Summary

There are no national or statutory nature designations on the proposed site. The River Tay SAC is located 200m to the west of the site and this is designated for otter, sea lamprey, brook lamprey, river lamprey and salmon. The Loch Tummel NSA is located 200m north. There are no other designated sites within close proximity. The woodland is listed on the Ancient Woodland Inventory as Long-Established Woodland of Plantation Origin. Around Loch Dunmore is long-established woodland of plantation origin. Conifers are dominant with a selection of broadleaved trees also present. Scots pine and Douglas fir are the main conifer species; with birch and beech the main broadleaved species. There are man-made footpaths, a timber bridge, car parking and access roads. The woodland extends in the surrounding area towards Loch Faskally.

The trees have negligible or low bat roost potential. Common and Soprano pipistrelles were recorded foraging over Loch Dunmore and in the surrounding woodland. The main area of foraging was the northern end of Loch Dunmore with activity also concentrated at the southern end of the loch as well with a peak count of approximately 30 individual bats recorded. Red squirrels were recorded on site and there is evidence of red squirrels feeding in the Scots pine trees but there is no evidence of dreys in close proximity to the site. There were no signs of pine martens, badgers or reptiles at the site though the habitat is favourable. Otters are highly likely to use Loch Faskally and the River Tay SAC, although no signs of otter were recorded at Loch Dunmore. It would be unlikely for an otter holt or resting place to be located at Loch Dunmore due to the existing level of human activity. No signs of beavers were recorded. There is potential for water voles around the loch, although no signs were recorded. There is good cover, food, and nesting sites for a variety of birds. The trees provide the most likely place to find nesting birds, and multiple species were recorded feeding and nesting on the site during the surveys. No evidence of any other protected species or protected or rare species of flora. No signs of the presence of invasive non-native species were identified with the exception of rhododendron for which a separate management plan exists which is in place by the landowner.

5.0 ASSESSMENT

5.1 Limitations

Survey data is accurate when the surveys took place. The curtilage of private property was not entered. It was a ground survey, with no tree climbing element, the surveyors were able to see to the tops of the trees.

5.2 Habitat

5.2.1 Designated Sites

There are no national or statutory nature designations on the proposed site. The River Tay SAC is located 200m to the west of the site and this is designated for otter, sea lamprey, brook lamprey, river lamprey and salmon, clear-water lakes or lochs with aquatic vegetation and poor to moderate nutrient levels. The River Tay SAC is considered to be of International Value and is also important for fresh-water pearl mussels. It is not anticipated that there will be a direct impact to the SAC from the Enchanted Forest. However, unmitigated sedimentation / pollution incidents during the period of works have the potential to result in ecologically significant high negative impacts on the sensitive water habitat. Therefore, it is

recommended that during the event works are undertaken according to a Construction Environmental Management Plan (CEMP).

The CEMP should detail the proposed methods of working and measures to ensure protection of all habitats on and adjacent to the site, especially in association to the watercourses. All works with the potential to negatively impact (e.g. windblown dust, run-off, sediment, pollution) should be undertaken with due regard to the relevant SEPA Pollution Prevention Guideline (PPG) and/or Guidance for Pollution Prevention (GPP). It is considered that provision of the above mitigation measures will ensure that there will be No Likely Significant Effect on the qualifying features of the River Tay SAC as a result of the proposed development. There are no other designated sites within close proximity.

5.2.2 Habitat

Around Loch Dunmore is long-established woodland of plantation origin which is shown on the Ancient Woodland Inventory. Conifers are dominant with a selection of broadleaved trees also present. Scots pine and Douglas fir are the main species with larch and Norway spruce; birch and beech are the main broadleaved species. There are man-made footpaths, a timber bridge, car parking and access roads. The woodland extends in the surrounding area towards Loch Faskally. The combination of woodland and water have potential to be of high value to wildlife, however, the site is already utilised as an amenity forest and is popular with locals and visitors to the area. The Enchanted Forest will not negatively impact the existing habitat, all trees will be retained, and the route will use established footpaths, access roads, car parking and existing areas of hardstanding. There will be an increase in visitor numbers during the event. However, the autumn timing of the event mitigates the risk of disturbance as it takes place outside of the breeding season for bats, birds and red squirrels and outside of the season for flowering plants and invertebrates. There is potential to enhance the biodiversity of the site and surrounding woodland by new planting at the understorey layer with native shrubs and woodland meadow wildflower mixes. For example, shrub species from a selection of field maple, alder, dogwood, hazel, hawthorn, holly, and rowan; and wildflowers such as devil's bit scabious, herb bennet, herb robert, ragged robin, red campion, primrose and wild garlic. Although any new planting would be subject to agreement with the landowner Forestry and Land Scotland.

5.3 Protected species

5.3.1 Bat surveys

The trees have negligible or low bat roost potential. Common and Soprano pipistrelles were recorded foraging over Loch Dunmore and in the surrounding woodland. The main area of foraging was the northern end of Loch Dunmore with activity also concentrated at the southern end of the loch as well with a peak count of approximately 30 individual bats recorded. The Enchanted Forest will have a temporary impact on bat activity as the light and sound show will make the area less favourable for bats during the evenings when the event is setting up and running. The level of bat activity recorded during the summer months shows that long-term impact is unlikely as this event has already been running at the site for a number of years and good numbers of bats were recorded foraging at the site showing that bats continue to utilise the area. There is capacity to further increase the provision of bat boxes, Enchanted Forest installed thirty bat boxes in the surrounding woodland in 2017, to increase the number of local roosting opportunities. It is recommended that these are installed on different facing aspects to provide a range of temperature environments for bats and at greater than 3m in height, bat

boxes should be positioned more than 30m from the boundaries of the event to avoid potential disturbance to roosting bats.

5.3.2 Badger surveys

Badgers are known to be in the wider local area, there are local records and there is suitable habitat on site which is favourable habitat for badgers. However, no signs of badgers were recorded within 30m of the site and it is not anticipated that there will be any negative impact to badgers.

5.3.3 Red squirrel surveys

Red squirrels were recorded on site and there is evidence of red squirrels feeding in the Scots pine trees but there is no evidence of active dreys within close proximity to the site. The Enchanted Forest event takes place outside of the red squirrel breeding season which is classed as being between February to September. During the non-breeding season (October to January) any active dreys are protected by a 5m exclusion zone; during the breeding season active dreys are protected by a 50m exclusion zone. Where exclusion zones of the required distance are not possible a licence is required from Nature Scot.

It is not anticipated that the Enchanted Forest will have any long-term negative impact on red squirrels, as it will not impact red squirrel mortality or breeding at a scale which would affect the viability of the population. It will not fragment the red squirrel population and it will not lead to an increased risk of local extinction or increased mortality as a result of forced dispersal over unsuitable habitat or areas with no or limited cover because the habitat on and around the site will continue to remain favourable for red squirrels (Mammal Society, 2012, pp. 16-19). A dependable long-term food supply from a mixture of deciduous and coniferous trees will remain in the wider area.

As red squirrels are able to construct new dreys within a few days, it is recommended that a pre-event red squirrel survey is undertaken by a suitably experienced ecologist. This will determine if there are any active dreys which have become established between the time of the surveys and the event, and the distance these dreys are from the site. For any active dreys within 5m of the site a licence will be required.

5.3.4 Pine marten surveys

There is suitable habitat for pine martens on the site and in the adjacent woodland. No pine martens, dens or scats were recorded during the surveys, though there are local records for pine martens and pine martens are known to inhabit the local area. Pine martens are tolerant of most forms of human disturbance (Mammal Society 2012, p.76-77), and the Enchanted Forest is unlikely to have an adverse impact on any pine marten potentially moving closer to the site; and the event timing is outside the pine marten breeding season.

5.3.5 Otter surveys

Otters are highly likely to use Loch Faskally and the River Tay SAC, although no signs of otter were recorded at Loch Dunmore. It would be unlikely for an otter natal den, holt or resting place to be located at Loch Dunmore due to the existing level of human activity. It is not anticipated that there will be a negative impact to otters from the Enchanted Forest. However, it is recommended that there is a pre-works contractor brief on otters and that in the event that there are any open pipe systems these will be capped when contractors are off

site and any holes or trenches will be covered or ramped overnight to prevent otters becoming trapped.

5.3.6 Beaver surveys

Beavers are known to be in the River Tay catchment, although there was no indication of beavers being present at or close to this locality. The Enchanted Forest will not have any impact on beavers.

5.3.7 Water vole surveys

There is a suitable habitat around Loch Dunmore for water voles although no signs were recorded during the surveys. It is not anticipated that the Enchanted Forest will have any significant negative impact on water voles should they be present in the locality.

5.3.8 Reptile surveys

There is potential for reptiles to utilise the site, though there were no signs of reptiles recorded during the surveys and there is a lack of vegetation cover. It is not anticipated that the proposed development would negatively impact reptiles.

5.3.9 Other protected species surveys

There was no evidence of any other rare or protected species such as amphibians, invertebrates, and small mammals. It is expected that a range of common invertebrates use the site and retaining deadwood in the woodland is recommended.

5.3.10 Schedule 1 and bird activity surveys

There were no Schedule 1 bird species recorded at the time of the surveys. Common breeding birds were recorded at the site and there is good cover, food, and nesting sites for a variety of birds. The trees provide the most likely place to find nesting birds, and nesting birds of multiple species was recorded during the surveys. All birds are protected, and it is an offence to intentionally or recklessly kill, injure or take a wild bird, or to take, damage or destroy its nest or eggs.

The Enchanted Forest takes place outside of the breeding season which is classed as being from March to August inclusive which minimises the impact to breeding birds. However, some birds may not cease activity at nests until into September and it is recommended that the site is checked for active nests before the event set-up commences. If found, the active nest should be suitably protected until the young birds have fledged. It is recommended that a range of nest boxes are provided which are suitable for different species of birds including open fronted boxes and smaller and larger boxes with entrance holes.

5.4.11 Flora and INNS surveys

There were no signs of protected or rare species of flora or of any invasive non-native species plant species with the exclusion of rhododendron for which a FLS management plan exists.

5.4 Conclusion

Tay Ecology was commissioned to undertake a preliminary ecological appraisal, and ecological impact assessment of the Enchanted Forest Site. Field surveys were carried out between May to July 2023 to assess habitat, bats, badger, pine martens, red squirrels, otters,

beavers, water voles and reptiles. The likelihood of specially protected and rare, species of birds and of any other protected or local biodiversity action plan species of flora and fauna was assessed. There are no national or statutory nature designations on the site. The River Tay SAC is located 200m to the west and this is designated for otter, sea lamprey, brook lamprey, river lamprey and salmon. No further surveys are required regarding designated sites; however, it is essential that best practice working methods and pollution prevention methods are adhered to during the event to safeguard the SAC and adjacent habitats.

Around Loch Dunmore is long-established woodland of plantation origin, the combination of woodland and water have potential to be of high value to wildlife, however, the site is already well utilised as an amenity forest. The Enchanted Forest will not negatively impact the existing habitat, all trees will be retained, and the route will use established footpaths, and access roads. There will be an increase in visitor numbers during the event. However, the autumn timing of the event mitigates the risk of disturbance to wildlife as it takes place outside of the breeding season for bats, birds and red squirrels and outside of the season for flowering plants and invertebrates. There is potential to enhance the biodiversity of the site and surrounding woodland by new planting at the understorey layer with native shrubs and woodland meadow wildflower mixes. Although any new planting would be subject to agreement with the landowner Forestry and Land Scotland.

The trees have negligible or low bat roost potential. Common and Soprano pipistrelles were recorded foraging over Loch Dunmore. The Enchanted Forest will have a temporary impact on bat activity as the light and sound show will make the area less favourable for bats, however, the level of bat activity recorded shows that long-term impact is highly unlikely as this event has already been running at the site for a number of years and good numbers of bats were recorded foraging during the surveys showing that bats continue to utilise the area. There is evidence of red squirrels, although no evidence of active dreys was recorded. A pre-event red squirrel survey is recommended to confirm that new dreys have not become occupied, or where any dreys are confirmed exclusion zones are put in place. Otters are highly likely to use the water habitat though no signs were identified during the surveys. It would be unlikely for an otter natal den, holt or resting place to be located at Loch Dunmore due to the existing level of human activity. It is not anticipated that there will be a negative impact to otters from the Enchanted Forest. There were no signs of badgers, pine martens, reptiles, beavers or water voles and there will be negligible impact to these species.

There were no Schedule 1 bird species recorded, common breeding birds were recorded, and the trees provide the most likely place to find nesting birds. All birds are protected, and it is an offence to intentionally or recklessly kill, injure or take a wild bird, or to take, damage or destroy its nest or eggs. The Enchanted Forest takes place outside of the breeding season which minimises the impact to breeding birds. However, some birds may not cease activity at nests until into September and it is recommended that the site is checked for active nests before the event set-up commences. The provision of nest boxes for a range of bird species is recommended as part of works. There were no signs of protected or rare species of flora or of invasive non-native species with the exception of rhododendron for which there is a management plan in place by the landowner.

6.0 RECOMMENDATIONS and MITIGATION

To minimize impact to habitat it is recommended that:

6.1 River Tay SAC

- CEMP detailing proposed methods of working and measures to ensure protection of all habitats on and adjacent to the proposed development, especially in association to the waterbodies.

- Follow SEPA Pollution Prevention Guideline (PPG) and/or Guidance for Pollution Prevention (GPP). Including:
GPP 2: Above ground oil storage tanks
PPG 6: Working at construction and demolition sites
GPP 21: Pollution incident response planning
GPP 22: Dealing with spills

To minimise disturbance or damage to protected species prior to work starting on site it is recommended that:

6.2 Bats

- Workers to be fully briefed regarding the possibility of bats in mature trees on site, their legal status and that of their roosts. Discovery of a suspected bat roost should be reported immediately to the Site Manager.

6.3 Red squirrels

- Pre-event red squirrel survey to check for any newly constructed active squirrel dreys.
- In the event any active dreys are subsequently identified appropriate steps must be taken to protect the dreys with suitable exclusion zones or a red squirrel licence in place if exclusion zones are smaller than those required by Nature Scot (5m for non-breeding drey, 50m for a breeding drey).
- Workers to be fully briefed regarding the possibility of red squirrels on site, the legal status of the animal and their dreys. Any sightings of red squirrel or discovery of a drey should be reported immediately to the Site Manager.

6.4 Otters

- Workers to be fully briefed regarding the possibility of otter on the site, the legal status of the animal, their shelters, and resting places. Any sightings of otter or discovery of a new holt or resting place should be reported immediately to the Site Manager
- During the event there will be no obstruction for otters moving between the bank and open water.
- In the event that there are any open pipe systems these will be capped when the site is not operational. Any holes or trenches will be covered or ramped overnight to prevent otters becoming trapped.

6.5 Breeding birds

- The Enchanted Forest takes place outside of the breeding season which is classed as being from March to August inclusive which minimises the impact to breeding birds. However, some birds may not cease activity at nests until into September and it is recommended that the site is checked for active nests before the event set-up commences. If found, the active nest should be suitably protected until the young birds have fledged. ground nesting birds, felling must be delayed until chicks have fledged.

To increase biodiversity, it is recommended that:

6.6 Trees and shrubs

- A selection of native species would enhance biodiversity such as field maple, alder, dogwood, hazel, hawthorn, holly, and rowan. Although any new planting would be subject to agreement with the landowner Forestry and Land Scotland.

6.7 Woodland wildflowers

- Potential to enhance woodland floor by sowing wildflower such as a woodland wildflower meadow mix which includes for example wild garlic, giant bellflower, enchanters' nightshade, pignut, foxglove, meadowsweet, wild strawberry, herb Robert, herb bennet, bluebell, primrose, red campion, ragged robin, hedge woundwort, devils-bit scabious, wood sage, upright hedge parsley, bush vetch, common dog violet, common bent, crested dog's tail, red fescue, wood meadow grass, smooth-stalked meadow grass. Although any new planting would be subject to agreement with the landowner Forestry and Land Scotland.

6.8 Bat Boxes

- Increase the previous bat box provision from 2017 by installing bat boxes on trees, woodcrete bat boxes are more durable. Group two to three bat boxes on a single large tree, or on neighbouring smaller trees with boxes facing different aspects, positioned three or more metres in height.

6.9 Bird boxes

- Provide woodcrete nest boxes for woodland birds on trees. Bird boxes to include a range of entrance hole sizes: 25 mm for blue and coal tits; 28 mm for great tits; 32 mm for house sparrows; 45 mm for starlings; a 100 mm high open front for robins; 140 mm high front panel for wrens; and a tawny owl box. Position of bird boxes 3-4m up a tree, utilise nearby trees for shade and tilt box slightly forward.

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Tay Ecology Ltd, Fairway, Golf Course Road, Pitlochry, PH16 5QU,
Tel: 07747 883464, Email: info@tayecology.co.uk; Web: www.tayecology.co.uk