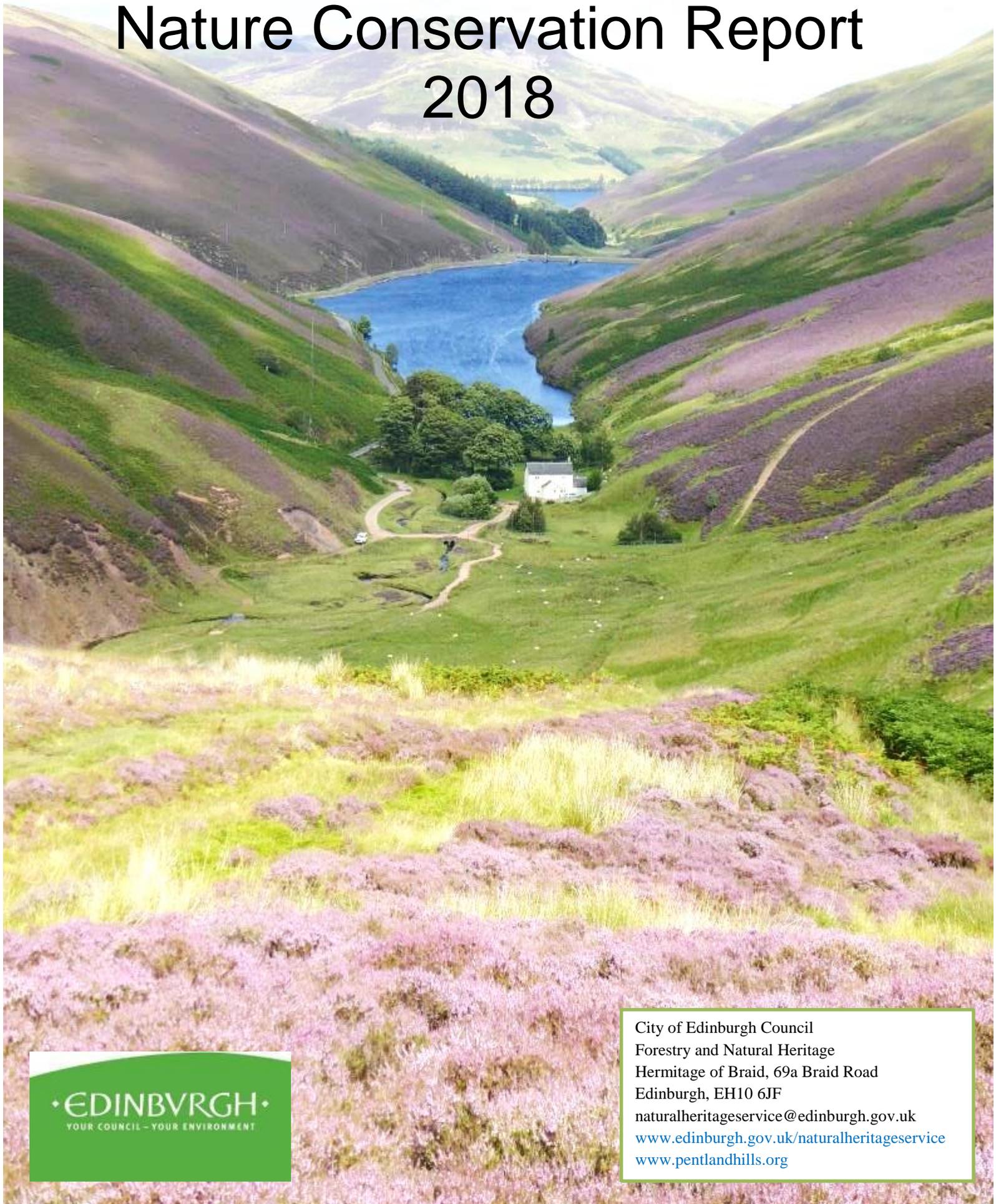


# City of Edinburgh Council Forestry and Natural Heritage Nature Conservation Report 2018



City of Edinburgh Council  
Forestry and Natural Heritage  
Hermitage of Braid, 69a Braid Road  
Edinburgh, EH10 6JF  
[naturalheritageservice@edinburgh.gov.uk](mailto:naturalheritageservice@edinburgh.gov.uk)  
[www.edinburgh.gov.uk/naturalheritageservice](http://www.edinburgh.gov.uk/naturalheritageservice)  
[www.pentlandhills.org](http://www.pentlandhills.org)

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*Front Page Photo – Pentland Hills Regional Park*

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## Introduction

This report is a summary of all the work carried out by the City of Edinburgh Council Forestry and Natural Heritage and our partners in relation to nature conservation for the period January to December 2018 on the sites we manage:

- Burdiehouse Burn Valley Park (BBVP) Local Nature Reserve (LNR)
- Cammo Estate LNR
- Colinton and Craiglockhart Dells
- Corstorphine Hill LNR
- Craigmillar Castle Park
- Easter Craiglockhart Hill LNR
- Wester Craiglockhart Hill
- Cramond Foreshore
- Hermitage of Braid and Blackford Hill (HOB) LNR
- Meadows Yard LNR
- Ravelston Woods Local Nature Reserve LNR
- River Almond Walkway
- Water of Leith Walkway
- Little France

The service also manages land owned by The City of Edinburgh Council and Midlothian Council within the Pentland Hills Regional Park

- Bonaly Country Park
- Hillend Country Park
- Harlaw Reservoir
- Threipmuir Reservoir including Bavelaw Marsh (part of Site of Special Scientific Interest)
- Harperrig Reservoir
- Torphin Quarry

and works with other landowners within the rest of the Regional Park to conserve and enhance habitats.

Nature conservation work for the service is guided by the Local Biodiversity Action Plans (LBAP) for the City of Edinburgh, Midlothian and West Lothian Councils and management plans for individual sites.

The service works in partnership with a range of individuals and organisations including Friends groups for each site, farmers and landowners in the Regional Park, the Pentland Hills Voluntary Ranger Service, voluntary wildlife surveyors, conservation groups and Scottish Natural Heritage (SNH).

Forestry and Natural Heritage (FNH) has undertaken practical habitat management, surveying and monitoring of biodiversity action plan species and wildlife recording during Natural Heritage Officer site inspections. Officers have produced biodiversity-related interpretation at Harlaw visitor centre.

## Actions undertaken in 2018

### Planning & Strategy

- Attended meetings of the Edinburgh Biodiversity Partnership Steering Group and the Local Biodiversity Sites Steering Group
- Attended meetings and inputted into the new Midlothian Biodiversity Action Plan
- Worked with Police Scotland Wildlife Crime Officers on species protection issues
- Responded to planning applications with nature conservation issues
- Natural Heritage Officers have been involved with the planning and implementation of a new Natural Heritage site in the east of the city, Little France Park
- Officers have been involved with the planning of a new Local Nature Reserve and companion management plan for Wester Craiglockhart Hill with close ties to the Friends group

### Survey and monitoring

The City of Edinburgh Biodiversity Action Plan and individual site management plans direct the surveys that are carried out. Surveys are completed by Forestry and Natural Heritage staff or volunteers. Members of the public were invited to help members of staff on ten of the surveys.

### Fungi

- Staff attended a Rust Fungus workshop to aid identification of rust fungi
- A fungal foray was carried out by Royal Botanic Garden Edinburgh and Friends of BBVP in Moredun Woods in September
- The Wester Craiglockhart species list is in a state of continual updating due to regular surveying by the Friends of Wester Craiglockhart

### Plants

- Botanical survey records have been provided by an experienced volunteer at the establishing new Natural Heritage site, Little France Park
- Wildflower meadows were surveyed to monitor the success of habitat management at Hillend Country Park and Bavelaw Marsh Site of Special Scientific Interest (SSSI)
- Wildflower meadows on the banks of the Water of Leith were surveyed by volunteers from the Water of Leith Conservation Trust (WoLCT)
- Regular wildflower and orchid surveys are completed at Craigmillar Castle Park by an experienced volunteer recording all data with the Botanical Society
- Monitoring of vegetation by fixed point photography continued for the 15th year at Bavelaw Marsh SSSI and Redford Wood
- Moonwort was surveyed for on Bonaly Reservoir Dam
- Wester Craiglockhart SSSI had a grassland survey training course carried out by SNH for FNH and Friends of Wester Craiglockhart. This helped in the creation of the new grassland management plan for rare wildflowers and other species found on the site
- Surveys of Hermitage Meadow and BBVP Meadows carried out



- In spring it was noted that some areas of blaeberry on White Hill, Bonaly Country Park, had died. Detailed tests were carried out by Forest Research for phytophthora (a plant fungus which can cause serious environmental damage) but it was not found. A reason for the die-back has not been discovered but it has not spread and the blaeberry is slowly recovering



### Invertebrates

- Buglife Workshops were attended to enable the identification and subsequent surveying of the bordered brown lacewing at Hermitage of Braid
- Buglife ran a freshwater invertebrates workshop and survey at Hermitage of Braid
- The Royal Zoological Society of Scotland, Buglife, Scottish Wildlife Trust and Natural Heritage worked together to start on the re-introduction of the rare mud pond snail (*Omphiscola glabra*) at Balerno Common. A snail that is only found in four other sites in Scotland
- Volunteers, trained by Butterfly Conservation and FNH staff re-established the butterfly transect at the Hermitage of Braid Butterfly and Blackford Hill.
- Unfortunately, although a new transect was made for BBVP, volunteers for carrying out the survey were not forthcoming and no surveys were carried out
- Butterfly Transect Survey was carried out by volunteers at Cammo Estate
- Graham Checkley (volunteer) completed the butterfly transect at Craigmillar Castle Park and Meadows Yard LNR
- Good results were obtained on the five butterfly surveys completed in the Pentland Hills Regional Park. Numbers of green hairstreak and the small pearl-bordered fritillary were the highest recorded and a new survey for northern brown argus, confirmed its presence in the Pentland Hills
- Staff attended a Bumblebee Identification Course. Seven species of bee were identified at the Hermitage of Braid Walled Garden –
  - Common carder bee
  - Tree bumblebee
  - Garden bumblebee
  - Red-tailed bumblebee
  - Buff-tailed bumblebee
  - White-tailed bumblebee
  - Gypsy cuckoo bumblebee
- Bee Walk surveys were undertaken on the Water of Leith Walkway/National Cycle Network Route 75 between Currie and Woodhall Millbrae

Why we carry out Butterfly Transect Surveys –  
 As butterflies have a short life-cycle they react to changes in habitat and climate quickly. This helps us see the affect our management is having on our sites. The method used is part of Butterfly Conservation’s national scheme to monitor butterflies and their habitats. A fixed-route walk (transect) is established at a site and butterflies are recorded along the route on a regular (weekly) basis under reasonable weather conditions. Transect routes are chosen to sample evenly the habitat types and management activity on sites.



## Birds

- Breeding Bird Surveys was carried out in April, May and June on Bonaly Country Park Moorland. With good number of red grouse in April and skylarks in June

Why we carry out Breeding Bird Survey –  
 We carry this survey out to monitor the effects of our management on Bonaly Moor, including sheep grazing and muirburn. Run by British Trust for Ornithology, Royal Society for the Protection of Birds and the Joint Nature Conservation Council, this is the major monitoring scheme for land birds. The Breeding Bird Survey is based on around 3,000 1-km squares, within each of which birdwatchers count and record birds in a standardised manner along a 2-km transect. Because the survey squares are chosen randomly, the results are representative of all habitats and regions and provide long-running and ongoing population monitoring for many common birds.

- Wetland Bird Surveys (WeBS) were carried out most months from Cramond to Newhaven Harbour (including sports pitches, golf courses and roughly grazed fields immediately above)

Why we carry out WeBS -  
 The Wetland Bird Survey (WeBS) count takes place from Cramond Foreshore to Newhaven Harbour, taking in some of the large field areas at Silverknowes. The count is done around high tide once per month. The data is collated at a national level giving indications of trends in bird numbers around our coastline. At a more local level, it means there is officer time and attention given across the route once per month in relation to general maintenance but more importantly the activity (roosting and foraging) hotspots are learned and advice can be given to other departments or stakeholders in how best to manage such areas.

- We continue with our Avian Influenza monitoring at Bavelaw Marsh and Threipmuir Reservoir. This is part of the Department for Environment Food & Rural Affairs (DEFRA) and Animal Health and Veterinary Laboratories Agency (AHVLA) national monitoring programme. 50 patrols were completed as part of the Bird Flu monitoring scheme. Two dead birds found and tested with negative results

## Mammals

- All badger setts on Natural Heritage Sites are monitored
- Bat boxes are checked and the results sent to Lothians Bat Group

Ad hoc wildlife sightings are reported by Natural Heritage Officers while they carry out site inspections. 290 records were made this way, including osprey seen at Harperrig Reservoir and Bavelaw Marsh.



## Summary of survey results

It is not practical to include all the results of the above surveys. Below are extracts of results from some of the surveys. If you would like to see further information, please contact us.

### Plants

#### Wildflower Meadows

Location of wildflower meadow	Number of species of forb (flowering plant excluding grasses sedges and rushes)				
	2014	2015	2016	2017	2018
Burdiehouse Burn Valley Park LNR	25	26	38	Not surveyed	30
Hermitage of Braid and Blackford Hill LNR	22	Not surveyed	26	Not surveyed	22
Hillend Country Park	32	32	39	33	33
Bavelaw Marsh SSSI	18	18	24	22	18

The results show an initial increase in species, this is due to the planned decreasing soil fertility and in some sites planting. The decrease in the number of species in the last two years is likely due to the loss of bare soil, which vigorous plants and annuals (e.g. thistles, nettles, docks) require.

Moonwort

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
<b>Bonaly Reservoir Dam</b>	65	9	8	33	0	1	0	64	0	0

Moonwort dies back at the end of summer; and can frequently lie dormant for several seasons before re-appearing. The cutting of vegetation on the dam at the end of the year continues. This will provide light for the moonwort.

**Insects**

- Three nationally scarce beetles have been found in the Pentland Hills Regional Park, *Bradycellus caucasicus*, *Aphodius fasciatus* and *Oxypoda nigricornis*

Green hairstreak butterfly

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
<b>Castlelaw Enclosure</b>	Not surveyed	3	12	2	0	5	Poor weather	14	2	37
<b>Kirk Burn Enclosure</b>	1	5	3	6	1	1	Poor weather	2	0	2
<b>Bonaly Country Park</b>	50	43	8	8	3	7	6	0	0	17

A very good year for this May-flying butterfly due to the warm, dry summer weather.

Small pearl-bordered fritillary butterfly

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
<b>Bavelaw Marsh</b>	Not surveyed	4	9	0 (poor weather)	1	11	0 (poor weather)	22	39	45
<b>Red Moss</b>	9	18	2	3	3	6	4	8	6	3

The main colony population seems to be increasing, helped by the good weather.



## Butterfly Transect Results

### Craigmillar Castle Park

	2013	2014	2015	2016	2017	2018
<b>Large White</b>	2	4	3	0	0	2
<b>Small White</b>	48	9	19	6	4	14
<b>Green-veined White</b>	18	40	18	17	6	8
<b>Orange Tip</b>	15	22	0	26	8	13
<b>Small Copper</b>	1	2	0	1	2	3
<b>Red Admiral</b>	3	16	5	15	11	7
<b>Painted Lady</b>	0	0	0	3	0	0
<b>Small Tortoiseshell</b>	9	6	8	4	2	3
<b>Peacock</b>	9	19	4	5	3	15
<b>Comma</b>	8	7	2	2	3	7
<b>Speckled Wood</b>	0	0	1	6	7	26
<b>Meadow Brown</b>	26	78	77	14	9	34
<b>Ringlet</b>	83	194	150	24	43	60

### Meadows Yard LNR

	2013	2014	2015	2016	2017	2018
<b>Large White</b>	4	0	1	2	2	3
<b>Small White</b>	88	28	17	16	20	48
<b>Green-veined White</b>	27	27	11	14	4	7
<b>Orange Tip</b>	7	7	8	19	11	14
<b>Small Copper</b>	4	1	4	0	4	2
<b>Red Admiral</b>	0	6	8	5	17	3
<b>Painted Lady</b>	0	0	2	4	0	2
<b>Small Tortoiseshell</b>	5	6	11	16	1	4
<b>Peacock</b>	5	6	4	1	5	3
<b>Comma</b>	3	3	2	0	4	0
<b>Speckled Wood</b>	0	0	3	30	13	54
<b>Meadow Brown</b>	12	12	9	10	17	1
<b>Ringlet</b>	14	31	39	14	6	14

## Hermitage of Braid and Blackford Hill LNR

With the help of volunteers and officers, the survey resumed in 2018

	2013	2014	2015	2016	2018
<b>Large White</b>	5	8	7	4	42
<b>Small White</b>	3	6	13	4	29
<b>Green-veined White</b>	16	7	18	16	34
<b>Orange Tip</b>	0	4	19	17	17
<b>Small Copper</b>	0	5	0	3	26
<b>Red Admiral</b>	0	1	0	0	5
<b>Small Tortoiseshell</b>	15	22	35	16	11
<b>Peacock</b>	4	7	20	12	4
<b>Comma</b>	0	0	9	4	1
<b>Grayling</b>	3	0	0	0	7
<b>Small Heath</b>	3	0	0	0	4
<b>Meadow Brown</b>	39	96	27	3	3
<b>Ringlet</b>	91	144	6	14	37

Generally, a good year for butterflies, some species doing better than others and some just recovering from last year's poor weather. Five years ago, the speckled wood was absent on our sites, now it is becoming one of the most popular species. The first speckled wood was seen in the Pentland Hills Regional Park this year.

### **Birds**

- Osprey were seen fishing at many of the reservoirs in the Pentland Hills Regional Park
- Sparrowhawk, kestrel and buzzards were all seen at Little France Park during 2018
- The Friends of the Hermitage of Braid and Blackford Hill social media was brimming with pictures sent in of sightings on the pond, especially the resident swans, teal, pochard, cormorant, ring necked duck, goosander, kingfisher, mandarin drake and redwing

### Summary from Wetland Bird Surveys (WeBS)

The tables below show the peak counts per month for Cramond to Newhaven Harbour between January and March 2018.

Species (number of visits)	12 Jan, 2018	15 Feb, 2018	16 Mar, 2018
Black-headed Gull (3)	170	484	584
Common Gull (1)	-	6	-
Cormorant (2)	7	2	-
Curlew (3)	243	458	320
Dunlin (2)	482	-	116
Eider (3)	308	178	6
Goldeneye (1)	-	61	-
Great Black-backed Gull (2)	-	3	6
Great Crested Grebe (1)	29	-	-
Herring Gull (3)	97	306	747
Knot (2)	285	195	-
Lapwing (1)	51	-	-
Lesser Black-backed Gull (2)	1	-	103
Little Grebe (1)	-	1	-
Long-tailed Duck (1)	1	-	-
Mallard (2)	1	-	2
Oystercatcher (3)	121	227	9
Red-breasted Merganser (2)	1	16	-
Redshank (3)	141	146	120
Ringed Plover (2)	90	40	-
Shelduck (1)	-	-	2
Turnstone (3)	88	41	30
<b>Total species: 22</b>	<b>17</b>	<b>15</b>	<b>12</b>

### **Mammals**

- Otter continue to be spotted on the Water of Leith and at many of the reservoirs in the Pentland Hills
- 6 bat boxes along the Water of Leith contained guano and one had 6 pipistrelle bats in
- In the Dells, 3 bat boxes contained guano and one had a male pipistrelle
- At Harlaw, 9 contained guano and one had a pair of pipistrelles
- Four bat boxes are on site at Ravelston Woods LNR but they have not been surveyed this year
- Roe deer have been seen regularly at Craigmillar Castle Park and at Bonaly Country Park
- University of Edinburgh have undertaken surveys of wood mice at Craigmillar Castle Park, Little France Park and Corstorphine Hill during 2018. Researchers at School of Biological Sciences are involved with an on-going project surveying the small mammal populations (mice and voles) that live in the woodlands around the Lothians. These on-going surveys provide invaluable information on the health of these animals, and their

woodland habitats, and give an idea of what might cause their numbers to increase or decline

## Wildlife Recording

The data from our wildlife records is exchanged with The Wildlife Information Centre (TWIC), who collate it and pass it onto interested parties.

## Species and Habitat Management

### Moorland Management

Heather burning was carried out on Bonaly Moor

Why we carry out heather burning -

If done at the correct time of year and under the right conditions, heather will re-grow after being burnt. Setting fire to different patches of moor each year creates a variety of ages of plant. Animals particularly red grouse prefer the mosaic of habitat this produces.

### Meadow Management

The following actions were carried out on our wildflower meadows:

- Cammo Estate LNR: grassland managed for biodiversity through enrichment planting/seeding and cutting
- Craigmillar Castle Park: approximately 20 hectares of grassland annually cut
- Grassland areas with limited species variety in Craigmillar have had a dispersal of *Rhinanthus minor* (Yellow Rattle) in several areas with good establishment. Further collecting of yellow rattle seed and dispersal at key areas will continue in 2019. This will open-up semi rank grassland areas to allow further wildflower species to be encouraged to established.
- An area at Craigmillar Castle Park was identified for monitoring and future enrichment as part of Butterfly Conservation Urban Butterfly Project. Work was undertaken with volunteers to scarify and plant native grassland species. CEC FNH assisted in mechanical ground preparation and arranging planting days, and will provide an early cut to the area in 2019 to allow the plants to establish early season growth
- Grayling butterfly habitat extension has been considered for Craigmillar Castle Park (the species is found in nearby Historic Environment Scotland site). Two areas have been identified as potentially suitable and grounds maintenance adjustments were piloted in 2018 by Forestry and Natural Heritage with commitment from community volunteers to include the area for additional surveys in 2018 continuing into 2019. Area will continue to be targeted by F&NH Estates Team as part of a grounds maintenance adjustment
- Ravelston Woods corporate group assisted the site manager in turf stripping sections of grassland at the glade to diversify the area and enrich it with native wildflower seed
- Blackford Hill: a concerted effort to cut back gorse monoculture and increase diversity including planting blackthorn and hawthorn throughout 2018 outside nesting season was undertaken
- Easter Craiglockhart Hill saw the creation of a new wildflower meadow after ground works carried out replacing sections of gorse
- Hermitage of Braid and Blackford Hill LNR, Burdiehouse Burn Valley Park LNR, Easter Craiglockhart Hill LNR and Wester Craiglockhart Hill all had their grasslands cut and raked in March and October
- Meadow management of Wester Craiglockhart SSSI will be stepped up to be 3 cuts per year in 2019. Other management regimes are being explored to increase diversity and

propagation of rarer wildflowers. Maiden Pink and Rockrose planted on site. Bi-annual surveying will be carried out

- Meadows Yard Local Nature Reserve (LNR) – An area of the LNR is being managed as a wildflower meadow
- Water of Leith Conservation Trust with the help of many volunteers manage the wildflower meadows along the river. This included collecting seed from the meadows, sowing them into trays which were taken home by volunteers and grown on until the correct size for re-planting into species-poor areas. Additional planting was also undertaken, plugs of species that were missing or scarce such as sneezewort and birds foot trefoil. These came from the Granton Hub or were spare plants from the Hermitage of Braid Walled Garden. Some plants were transplanted between different Water of Leith meadows, such as meadowsweet where there was a surplus in one site and a lack in the other
- Bavelaw Marsh Meadow – October cut and raked and the cuttings removed with help from the Pentland Hills Voluntary Rangers
- Hillend Country Park Wildflower Meadow– this was enlarged by cutting a larger area, from 1700m<sup>2</sup> to 2440m<sup>2</sup>

## Wetland Management

- A new technical fish pass was constructed on the River Almond, Cramond at Fair-A-Far replacing an older pass that was not now fit for purpose. This was constructed through partnership with Scottish Environmental Protection Agency, Forth Rivers Trust, City of Edinburgh Council and AECOM as part of the Water Environment Fund and Removal of Barriers to Fish Migration Programme



Photos courtesy Forth Rivers Trust

- Cammo canal: in and outflow maintenance carried out aimed at maintaining water level
- Willow spiling employed in Burdiehouse Burn Valley Park with help from Edinburgh and Lothians Greenspace Trust (ELGT) to reduce bank erosion. This is also being considered for Easter Craiglockhart pond

### What is willow spiling?

It is a traditional soft engineering technique used to stabilise eroding banks. It consists of weaving live willow rods between live willow stakes set into the affected bank at regular intervals. The space behind the willow wall to the existing bank is then filled with soil to provide an area for the willow roots to grow.

## Woodland Management

- Woodlands In and Around Towns (WIAT) application is in progress for delivery during 2019 at Craigmillar Castle Park including extensive woodland management recommendations on juvenile woodlands / millennium planting. Some management of poor condition mature woodland also costed within the WIAT application
- Annual clearance of vegetation around juvenile and establishing single trees and two small stands near Craigmillar Castle with mulching around the base of approximately 40 single specimens of ash, oak and cherry
- Little France Park has had several ash trees suffering from ash die back removed and prepared for chipping, where dense stands have been identified on the site, by corporate volunteers.
- Little France Park has had 7,000 native trees planted by communities through a successful Trees for Cities grant application.
- Little France Park has had 82 tree standards planted as part of the phase 2 green infrastructure element of the active travel route installed during 2018
- Little France Park has had 400 whips planted into a hedge to define a boundary at the South-East boundary of the site through OVO (Energy) trees and The Conservation Volunteers partnership
- Castlelaw Scouts planted 300 trees at Harperrig Reservoir. They donated another 100 to be planted at Swanston Farm
- The Friends of the Pentlands continue to manage their five Arboreta
- Considerable effort was made to remove three roe deer from one of the new woodland plantings on White Hill at Bonaly. It took three attempts and approximately 40 volunteers from ELGT, Pentland Hills Voluntary Rangers and Friends of the Pentlands to get the deer (who would have caused considerable damage to the newly planted trees) out of the deer-fenced enclosure
- Friends of the River Almond Walkway along with Cramond Scouts have been improving access to and around the Community Woodland
- The Cramond Association and Woods Group have been improving access with path refurbishment, tree and hedge planting and wildflower sowing
- New Caledonian woodlands carried out extensive management of Burdiehouse Burn Valley Park Millennium woodlands alongside Tiphereth
- The laid hedge at Harlaw was managed throughout the year, weeding, pruning and re-laying new growth.

### What is hedge laying?

Hedge laying is a traditional method of managing a hedge as a stock-proof barrier. The trees and shrubs that make up the hedge are partly cut in a way that they can be laid-down, but still live and grow. Because laid hedges tend to have less open space at their base, they provide better habitat for birds to nest in.

## Juniper

- The juniper that has been planted in the Regional park over the last eight years has been monitored. Most of the plants are doing well
- 20 more plants were put in at Hillend Country Park

## Sticky Catchfly

- Sticky Catchfly plants were planted on the Water of Leith

## Invasive Species

- Corstorphine Hill LNR: salmonberry and Japanese knotweed treated with herbicide
- The Conservation Volunteers (TCV) continue to tackle INNS at Cramond Foreshore with several days of practical conservation targeting removal of *Rosa rugosa*, Japanese rose. This year several corporate volunteer groups also worked on this project
- Dirty Weekenders have been engaged to deliver 3 days removal of INNS *Rosa rugosa*, Japanese Rose on the Foreshore during 2019
- Botanic Gardens Shoreline project have a couple of days planned to work with Forestry and Natural Heritage in 2019 to assist in *Rosa rugosa* removal while also creating compartments to restore ground vegetation in areas affected by significant erosion at the Foreshore area
- Ravelston: Yellow archangel, *Lamium galeobdolon*, corporate volunteers and Green Team contributed several days towards the removal of rhizomes spreading from margins and verges of part of the site most affected by the ground cover plant
- Craigmillar Castle Park: spraying of seed bed of giant hogweed and stem injection of Japanese knotweed with herbicide
- Giant Hogweed dominates an area in Little France Park but has been put on the spraying schedule during 2018 to suppress the seed bed and will continue to be targeted for removal by CEC specialist grounds maintenance team
- Hermitage of Braid: Himalayan balsam pulled by volunteers
- BBVP: invasive species kept on top of by Friends group and Forestry and Natural Heritage staff. Some new invasive species identified - yellow archangel and Russian vine – Russian vine was cut back and burned in 2018 by volunteers. Variegated yellow archangel required further management
- Easter Craiglockhart: Variegated yellow archangel outcrop effectively reduced. Area will be monitored for resurgence and managed appropriately
- The Water of Leith Conservation Trust continue to work with Napier University to map and treat the giant hogweed plants along the river between Slateford and Currie. This is part of an ongoing study to see if other methods of control could be realistically adopted as an alternative to spraying glyphosate
- The Water of Leith Conservation Trust took on a big battle with Himalayan Balsam, running 19 dedicated balsam pulling sessions where 227 volunteers spent a total of 365 hours balsam pulling. Once events are added in where there were multiple tasks, 443 volunteers spent a whopping total of 611 hours. This included corporate, youth and community groups. Work included trying a new technique - bagging and snipping the balsam seed heads where they were well developed. In addition, some particularly committed volunteers spent their own time chasing up outliers and making repeat visits to catch late seeding balsam
- The area of Japanese knotweed discovered at Swanston two years ago has virtually gone after further stem injection treatment

## Hermitage of Braid Community Wildlife Garden

This project is continually evolving. Volunteers and community groups continue to create various habitats for wildlife in the area below the 17th century dovecot. A special needs group called Tiphereth regularly work on the garden. A recent successful funding exercise meant several habitat areas within the walled garden including bug hotels and hog hotels were created and the revitalisation of the “Animals of...” project which included some new animals as well as interpretation and information about the animals featured was a great success

## Harlaw Wildlife Garden

- Annual pond vegetation removal with Forestry and Natural Heritage
- Friends of the Pentlands managed the nectar border, sensory border and herb gardens
- Work started on new draft management plan for the garden

## Community Involvement, Education and Interpretation

Forestry and Natural Heritage has an important role to play in raising awareness of nature conservation issues amongst visitors, partner organisations, communities and stakeholders. This is done through producing publications and displays, organising and attending events, responding to requests for information and advice and getting individuals involved in our work.

### Community Involvement

Below is a list of some of the groups and volunteers who have carried out biodiversity work on Natural Heritage sites. The list is not comprehensive.

Activity	Type of volunteer	No. of Volunteers	Total time in hours
Butterfly transects	Volunteers	6	38
Biodiversity surveys	Public	34	68
Tree planting	Scouts	52	260
Invasive species	Corporate Groups	434	2604



### Interpretation

- The public were invited to join us on 10 of our surveys, which had a total of 34 participants, the most since we started
- Articles on “Otters” and “Birds of Prey”, appeared in The Pentland Beacon

- The events leaflets, annual report and websites also highlight the work undertaken in relation to nature conservation and the opportunities for people to become involved
- Twitter is used to publicise our work and interesting wildlife sightings. Many of the most viewed Tweets were about wildlife sightings
- PHRP visitor centre at Harlaw displayed panels on “Butterflies”, “Mushrooms” and “Birds”
- New Wildflower Interpretation went in on River Almond Walkway
- The Hermitage of Braid Visitor Centre has displays on the conservation work in the Walled Garden and a bird feeding station where visitors can watch woodland bird’s close-up
- Bird hides managed at Bavelaw Marsh and Harperrig Reservoir. Information about what has been seen from the hide at Bavelaw is regularly updated

## Plans for 2019

The plan relating to nature conservation projects for 2019 will be guided by statutory requirements, local biodiversity action plans and site management plans. The objectives for City of Edinburgh Council Forestry and Natural Heritage 2019 include: -

### Nature Conservation & Biodiversity

Objective 24: To support Local Biodiversity Action Plans by: attending Steering Group meetings, carrying out survey work as agreed, and delivering site based projects.

Objective 25: To engage with community groups and volunteers in carrying out biodiversity surveys and works.

Objective 26: To collate and maintain species and habitat data that is helpful to the management of sites.

Objective 27: To provide specialist advice on biodiversity matters including statutory and licensing requirements throughout the City of Edinburgh Council.

This will be achieved by:

### Natural Heritage Actions for the City of Edinburgh Council Biodiversity Action Plan 2019.

Topic/site/habitat/species type	Description
Grasslands and meadows	Through active management, continue to increase diversity within meadow habitats at the following CEC Natural Heritage sites: Meadows Yard LNR, Craigmillar Castle Park, Hermitage of Braid and Blackford Hill LNR, Easter Craiglockhart Hill LNR, Wester Craiglockhart Hill SSSI, Burdiehouse Burn LNR, Cammo Estate LNR and Bavelaw Marsh SSSI.
Invasive species	Monitor and control invasive plant species on CEC Natural Heritage managed sites.
Invasive species	Continue to enable community involvement and volunteer participation in the control of INNS on Natural Heritage sites.
Moorland	Implement a heather management, grazing and muirburn programme in Bonaly Country Park.

Parks, Greenspaces and Cemeteries	Manage Local Nature Reserves and other natural heritage parks to benefit biodiversity.
Parks, Greenspaces and Cemeteries	Liaise with Parks Events team and event organisers to ensure that events are well managed and do not damage any valuable habitats on Natural Heritage Sites.
Blue networks - Marine/coastal	Investigate and implement recycling opportunities for litter campaigns
Blue networks - Marine/coastal	Act to conserve the coastal sand dunes (a UKBAP Priority Habitat) at Cramond, focussing on the control of invasive species (Japanese rose, bracken, Japanese knotweed, sycamore). Identify any other threats to this habitat such as visitor pressure, fly-tipping and erosion.
Blue networks - Marine/coastal	Carry out WeBs counts on CEC Natural Heritage sites to help monitor coastal habitat and bird populations.
Blue networks - Riparian	Manage River Almond woodlands in partnership with Friends group.
Blue networks - Riparian	Manage Harperrig, Harlaw, Bonaly and Threipmuir Reservoirs within Pentlands Hill Regional Park in conjunction with Flood Prevention to improve biodiversity where appropriate.
Blue networks - Riparian	Encourage student research projects on otters.
Blue networks - Riparian	Management of Water of Leith corridor in partnership with Water of Leith Conservation Trust
Blue networks - Riparian	Deliver the River Almond barriers project by identifying the best solution for improved fish passage on the river, either removal of obstructions or construction/repair of fish passages.
Blue networks - Riparian	Identify sites suitable for riparian woodland creation or enhancement.
Blue networks - ponds	Manage and enhance ponds and wetlands at Cammo canal, Blackford Pond, Easter Craiglockhart Hill to include the investigation of water quality
Birds, butterflies and plants	Continue to encourage members of the public to join Natural Heritage Officers on surveys - Breeding birds, green hairstreak, small pearl-bordered fritillary and wildflower meadows.
Birds: Breeding birds	Continue breeding bird survey on Bonaly Moor at Bonaly Country Park as a way of monitoring heather management and contributing to national monitoring scheme.
Birds: Breeding birds	Encourage student to research data collected from the Breeding Bird Survey (BBS).
Invertebrates: Butterflies	Continue to carry out butterfly transects to build an understanding of changing populations and monitor habitats at the following Natural Heritage sites: BBVP LNR, Cammo Estate LNR, Meadows Yard LNR, Craigmillar Castle Park and Hermitage of Braid & Blackford Hill LNR.
Invertebrates: Butterflies	Continue to utilise volunteers in the surveying of butterfly species on Natural Heritage sites.
Invertebrates: Green hairstreak butterfly (Callophrys rubi)	Continue to monitor the known populations of green hairstreak in the PHRP via butterfly transects.
Invertebrates: Bees	Increase knowledge of bee populations by undertaking bee transect recording at Natural Heritage sites.

Invertebrates: Bordered brown lacewing (Megalomus hirtus)	Undertake annual survey for bordered brown lacewing to establish ecology and distribution on Blackford Hill and other suitable habitats on Natural Heritage sites.
Invertebrates: Small Pearl-bordered Fritillary (Boloria selene)	Continue to monitor the known population of small pearl-bordered fritillary at Balerno Common SSSI via butterfly transects.
Invertebrates: Small Pearl-bordered Fritillary (Boloria selene)	Encourage research into identifying habitat improvements to help species spread of Small Pearl-Bordered Fritillary
Mammals: Bats	Continue to work with the Lothian Bat Group to monitor bats on CEC Natural Heritage sites
Mammals: Otters	Continue to pass all sightings and records to TWIC
Plants: Maiden Pink	Attempt to establish new populations of Maiden Pink at historical sites around the city.
Plants: Sticky Catchfly	Establish new populations at sites where Sticky Catchfly occurred in the past.
Plants: Juniper	Work with Forestry Tree Nursery on growing new plants and replacement of failed plants where appropriate.
Plants: Juniper	Investigate additional locations for new plantings e.g. Bonaly, Hillend Country Parks and work with landowners for new locations within PHRP.
Plants: Juniper (Juniperus communis)	Continue to monitor juniper in the Pentland Hills Regional Park.
Plants: Rare Plants project	Review rare plants list and scope future monitoring and habitat conservation work. RZSS to support with interpretation and re-introductions where appropriate.
Plants: Sticky catchfly (Silene viscaria)	Establish more colonies on Wester Craiglockhart Hill and Blackford Hill.
Plants: Sticky catchfly (Silene viscaria)	Monitor and manage populations of Sticky catchfly (Silene viscaria).

## Natural Heritage Actions for Midlothian Council Biodiversity Action Plan 2019.

<b>ACTION</b>	<b>Description</b>
1. Restoration and Creation of Flower Rich Habitats	Manage and monitor wildflower meadow at Hillend Country Park
4. Pond Creation & Maintenance	Encourage landowners and farmers to manage or create wetlands or ponds on their lands
6. Tackling INNS in Rivers, Streams and Ponds	Monitor for INNS in the Pentland Hills Regional Park (PHRP) and provide action if required
10. Promoting Citizen Science	Continue to invite public along to wildlife surveys and encourage visitors to PHRP to send in their wildlife sightings. Continue to train PHRP voluntary rangers in wildlife identification and recording.

<p>12. Local Priority Species Prepare strategies for the protection and support of local priority species.</p>	<ul style="list-style-type: none"> <li>• Monitor present population of juniper and encourage further planting in PHRP</li> <li>• Provide advice and encouragement to students carrying out wildlife projects in PHRP.</li> <li>• Continue to search for Large Heath in the PHRP</li> </ul>
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**Additional Actions include:**

**Planning and Strategy**

- Attending and providing input into relevant Local Biodiversity Action Plan meetings and working closely with the Biodiversity Team in the City of Edinburgh Council
- Continuing to work with partners, neighbouring landowners, stakeholders and other agencies to ensure nature conservation is included in decision-making process
- Working with Police Scotland on species protection issues
- Responding to planning applications with nature conservation issues
- Convening and administering the Harperrig Management Group
- Convening and administering the Bavelaw Marsh Management Group
- Attending and inputting into the Water of Leith Action Group
- Convening and attending the Cammo Estate Advisory Group
- Attending Local Neighbourhood meetings

**Survey and monitoring**

- Fixed point photography will continue at Bavelaw Marsh SSSI, Redford Wood and The Howe SSSI to monitor vegetation changes
- Craigmillar Castle Park continuation of common spotted and northern marsh orchid populations
- Carry out analysis of data collected and use it to influence management of habitats
- Planting and monitoring of creeping buttercup using fixed point photography as a possible combatant to Himalayan balsam

**Wildlife recording**

- Collect records of wildlife sightings and continue to data swap with The Wildlife Information Centre

**Habitat management**

- Implementing management plans for parks as appropriate
- Manage our wildlife gardens
- Continue to manage our wildflower meadows
- Possible changing of management type on Wester Craiglockhart. This may include funding from SNH to re-establish the hillside as agricultural grazing to allow the SSSI (acid grassland flowers) to propagate more successfully

**Species Management**

- Work with the Royal Zoological Society of Scotland on the project to introduce the mud pond snail to new locations to help secure the species' future in Scotland

## Community Involvement, Education and Interpretation

- Working with local community groups on projects that benefit their local parks
- Engaging corporate groups to carry out practical conservation tasks
- Working with the universities to assist with surveying and research
- Continue to engage local users in surveys on our sites
- Continue to support engagement with third party social inclusion programmes looking for conservation tasks on our sites
- Continue with the Big Awards Week working with schools on JASS/ John Muir in a scheduled programme of conservation activities
- Articles will be provided for The Pentland Beacon

