

Scottish Wildlife Trust

Briefing



Members' debate:

Motion S4M-10368: Scotland's pollinator population

The Scottish Wildlife Trust supports Angus MacDonald's motion regarding Scotland's pollinator population and broadly agrees with Buglife's manifesto for pollinators.

Pollinators and ecosystems

Pollinators such as bumblebees, solitary bees, commercial honeybees, moths, butterflies, hoverflies and many other invertebrates provide the free service of crop pollination which is worth at least £43 million to Scotland's economy every year and is essential for the production of commercial soft fruit, oilseed rape, beans and peas and some biofuels.

But wild pollinators and honeybees also play an important role in maintaining Scotland's biodiversity by being the agents by which many wildflowers, shrubs and trees are fertilised and hence dispersed across Scotland's landscapes. The seeds, fruit, berries and nuts of insect-pollinated plants are also an important part of the food chain and support wider biodiversity such as other invertebrates, mammals and birds. Native wildflowers, shrubs and trees add beauty to Scotland's landscapes - think of hawthorn and blackthorn blossom, rowan, gean, native bluebell and harebell, red campion, melancholy thistle - and in the long term help conserve and spread rare habitats such as heathland and machair which have unique biodiversity, cultural and economic value in themselves.

Pollinator decline

Our pollinators are in decline; there has been a 60% decline in bumblebee abundance in the last 50 years - with species such as the great yellow bumblebee, the moss carder bee and the red-shanked carder bee becoming rarer¹ - specialist butterflies have also dwindled (65% decline since 1979).² Causes of a decline are a combination of factors including loss in floral diversity and nesting habitat, habitat fragmentation, climate change, agricultural intensification, spread of invasive non-native species and impacts of pesticides and diseases.

The public are extremely concerned about the plight of bees; a recent GB YouGov Poll³ showed that the public consider the decline of bees to be the most serious environmental issue (85%) even more than climate change (73%). The public are right to be concerned, as a decline in wild pollinators and honeybees may indicate as 'the canary in the mine' we are not managing Scotland's landscapes and ecosystems sustainably, which has economic repercussions too.

Achim Steiner, Executive Director UN Environment Programme (UNEP) sums up the problem by stating:

Human beings have fabricated the illusion that in the 21st century they have the technological prowess to be independent of nature. Bees underline the reality that we are more, not less, dependent on nature's services in a world of close to 7 billion⁴ people"

Scotland has the ability through policy and action to help pollinators recover.

Policy and actions

Pesticide exposure landscape

There is increasing evidence^{5,6,7, 8} to show that neonicotinoids, applied as a pesticide seed treatment to protect crops such as oilseed rape from pests, harms bumblebees and honeybees by interfering with foraging behaviour, forager plant selection and foraging efficiency which has a knock on effect on bee colony growth. Damage to other wild pollinators is unknown as research has concentrated on bees. Such pesticides also persist in the soil which could impact on those invertebrates which help improve soil quality and fertility and because these pesticides are water soluble, residues get into watercourses and could be affecting aquatic life.⁹ A recent study¹⁰ has also shown that insectivorous birds such as skylark, barn swallow, yellow wagtail are also being impacted, through a loss of insect food supply.

Because of the mounting evidence showing neonicotinoids were impacting on insect pollinators, the Scottish Wildlife Trust campaigned in 2012-2013 to get the Scottish Government to adopt the precautionary principle and place a moratorium on neonicotinoid use on all outdoor crops in Scotland until there was convincing scientific evidence to show that pollinators and by extension ecosystem health, are not significantly impacted upon by use of

neonicotinoids. The Trust is pleased that a 2-year ban has been imposed by the EU and would like to see the ban being made permanent in Scotland.

Reducing pesticide use through integrated pest management (IPM)

To reduce environmental damage from pesticides, the EU has set out rules for the sustainable use of pesticides.¹¹ Member states must show in a plan how they will reduce risks and impacts of pesticide use and include guidance on integrated pest management (IPM) which must be applied by commercial users from 1 January 2014.

IPM is about achieving low pesticide-input systems to grow healthy crops. Reduction in pesticide use can be achieved through a combination of measures such as biological control and biomimicry, understanding agricultural ecosystems and food webs which still ensures crop protection range. Applying IPM reduces the chance of pest resistance and if practiced at the catchment scale, can benefit aquatic ecosystems, farmland wildlife including wild pollinators and agricultural ecosystems.

The Scottish Wildlife Trust believes that the Scottish Government should provide support for research into IPM solutions for Scottish agricultural systems and the Government's practical advice on how to reduce pesticide use urgently needs to be updated.¹²

The Trust believes there should be a permanent ban on using neonicotinoid seed coatings for crops such as oilseed rape. This form of pesticide application is contrary to the principles of IPM because it is applying the chemical as an 'insurance measure' against pest attack rather than using it when it is needed.

Four ways to help pollinators through both Pillars of CAP

- agri-environment schemes need to properly fund to ensure tax payers' money pays farmers for providing vital ecosystem services above and beyond food production e.g. pollination, improved water quality, biodiversity and healthy ecosystems
- greening of direct farm payments (Pillar 1) need to be more meaningful; at a minimum the land area requirement for ecological focus areas needs to be increased to 7%
- detailed pollinator plans and demonstration of IPM practises should become a requirement for qualification for many agri-environment schemes.
- We need to encourage biodiversity both at the farm scale and across farm boundaries at the catchment scale. Encouraging cross boundary working within SRDP and by RPID will be vital to make this to happen.

Examples of what the Scottish Wildlife Trust is doing for wild pollinators

120 Wildlife Reserves in Scotland

The Scottish Wildlife Trust's 120 reserves across Scotland provide habitat for 62 *priority* terrestrial invertebrates listed in Scotland's biodiversity action plan (c. 41% of whole list) and include rare wild pollinators such as the small blue butterfly, northern brown argus, pearl-bordered fritillary, great yellow bumblebee, narrow-bordered bee hawkmoth, the moss carder bee and northern Colletes mining bee.¹³

Working in partnership in Ayrshire to create a nectar network

A 5 km nectar network is being created along Ayrshire's coast from Irvine to Troon to connect wild pollinators, on land owned by Scottish Wildlife Trust (Gales Marsh Wildlife Reserve), Dundonald Links golf course and local businesses. By planting appropriate wildflowers for coastal dune systems, the nectar network is helping rare and specialist solitary bees such as northern Colletes mining bee; it also creates habitat and connectivity for bumblebees, rare butterflies such as the small blue and hoverflies.

The Trust's flying flock of sheep (and cattle)¹⁴

To maintain species-richness on Trust reserves containing wildflower meadows, the Trust uses a flying flock of sheep and/or cattle at appropriate times of year, to lightly graze the habitat which helps keep grasses and scrub encroachment in check and allows wildflowers to flourish. Grazing by the flying flock and cattle on Trust reserves occurs in Angus, Falkirk, Fife, and South Lanarkshire. At Bo'mains Meadow Wildlife Reserve in Falkirk rare and beautiful flowers such as greater butterfly orchid, twayblade and common spotted orchid flourish; Fleecefaulds Meadow Wildlife Reserve in Fife conserves species such as globeflower, twayblade, early purple orchid and cowslip. The flying flock also provide meat and wool which generates income to help maintain the flock.

Demonstrating how to garden for wildlife at Jupiter Wildlife Reserve in Grangemouth

The Trust's Jupiter Wildlife Reserve attracts nearly 9,000 visitors a year to this wildlife haven in industrial Grangemouth. The Trust has recently obtained funding and is opening a new contemporary themed demonstration wildlife garden which has an innovative wildflower lawn, this alternative to the traditional grass lawn is rich in native wildflowers including knapweed, red clover and ox-eye daisy - all of which provide nectar and pollen for pollinators.

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- ¹ See: SNH commissioned report no 609 http://www.snh.org.uk/pdfs/publications/commissioned_reports/609.pdf
- ² <http://www.snh.gov.uk/docs/B424909.pdf>
- ³ <http://yougov.co.uk/news/2014/06/27/bees-dying-most-serious-environmental-issue/>
- ⁴ Quote was pre global population reached 7 billion+
- ⁵ Gill and Rein 2014. Chronic impairment of bumblebee natural foraging behaviour induced by sublethal pesticide exposure. *Functional Ecology* doi: 10.1111/1365-2435.12292
- ⁶ Penelope R. Whitehorn et al. 2012 Neonicotinoid Pesticide Reduces Bumble Bee Colony Growth and Queen Production. , *Science* Vol 336: 351 – 352
- ⁷ Goulson 2013. An overview of the environmental risks posed by neonicotinoid insecticides. *Journal of Applied Ecology* 2013. doi: 10.1111/1365-2664.12111
- ⁸ Gill et al (2012) Combined pesticide exposure severely affects individual- and colony-level traits in bees. *Nature* Volume:491, Pages:105–108
- ⁹ Op cit 6
- ¹⁰ Hallman et al 2014 Declines in insectivorous birds are associated with high neonicotinoid concentrations. *Nature*. doi:10.1038/nature13531
- ¹¹ Sustainable Use of Pesticides Directive (Directive 2009/128/EC). See: <http://ec.europa.eu/environment/ppps/home.htm>
- ¹² See: <http://www.scotland.gov.uk/Publications/2006/12/19110050/0>
- ¹³ See Reserves Biodiversity at: http://scottishwildlifetrust.org.uk/docs/002__057__publications__policies__Reserve_Biodiversity_2011__1340901981.pdf
- ¹⁴ See Ten Years of the Flying Flock: http://scottishwildlifetrust.org.uk/docs/002__057__publications__policies__Flying_Flock_report_v1__1345711614.pdf