



# EU POLLINATORS INITIATIVE

**A review of Member States actions to tackle the decline of wild pollinators**



**STRATEGY**



**INITIATIVES**



Rural



Urban



Private sector



**NATIONAL RED LISTS**  
*Threatened species*



Bumblebees (2019)



**RAISING AWARENESS**



Citizens



Schools children



Farmers & beekeepers

*This document has been drafted by IEEP within the framework of the contract No 07.0202/2018/795538/SER/ENV.D.2 “Technical support related to the implementation of the EU Pollinators Initiative”. The information set out in this document is not comprehensive and does not necessarily reflect the official opinion of the Commission, or IEEP. The Commission does not guarantee the accuracy of the data included in this document. Neither the Commission nor IEEP or any person acting on the Commission’s behalf, including any authors or contributors of the notes themselves, may be held responsible for the use which may be made of the information contained therein. Reproduction is authorised provided the source is acknowledged.*

*This document shall be cited as:*

*IEEP. 2019. Member States initiatives to support wild pollinators populations: Estonia. Prepared by IEEP for the European Commission.*

*Date of completion: 01/12/2019*

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*Estonia does not currently have any national or regional strategies specifically targeted at pollinators or their habitats. There is a national target to have 45,000 ha of semi-natural habitats managed by 2020 including a large share of pollinator habitat notably in semi-natural grasslands.*

*The imminent publication of revised red lists for pollinator groups and the ongoing revision of the Estonian bee fauna will provide significant new evidence of the state of pollinator populations in Estonia. Besides the ongoing butterfly monitoring and targeted monitoring of bumblebees on sample farms in connection with agri-environment measures, there are plans to revive the abandoned national bumblebee monitoring programme.*

*The Estonian agri-environment measure for environmentally friendly management includes actions that benefit pollinators and has a high uptake level, covering nearly half of the farm area receiving direct payments under the Common Agricultural Policy. Organic farming, around a fifth of the agricultural area, also benefits pollinators. Farmers taking part in the popular Estonian agri-environment measure for environmentally friendly management receive training to increase their awareness of wild pollinators and the importance of reducing pesticide pressure. In contrast, the additional option in this measure targeted at honeybees (also expected to help wild bees) has a relatively low uptake. An important aspect is that farmers in the environmentally friendly management and the organic farming schemes must take part in training which includes a component on wild pollinators. Some agri-environment options also partly contribute to reducing pesticide pressures, though few other measures to reduce pesticide use (e.g. in urban areas) were identified.*

*A brochure on Estonian bumblebees is widely distributed and proving popular with both farmers and citizens. Several citizen science and engagement campaigns are mobilizing citizens to identify and report pollinator observations, particularly bumblebees. No private sector or apiculture sector-led initiatives for wild pollinators were identified.*



# STRATEGIES FOR WILD POLLINATORS OR ANY OTHER SIMILAR PLANS

Estonia does not currently have any national or regional strategies specifically targeted at pollinators or their habitats. However, the Estonian Environmental Board and the University of Tartu will develop a national pollinator action plan in 2022-2024. This will be funded by the LIFE-IP project ForEst&FarmLand.

The Nature Conservation Development Plan (NCDP) approved in 2012 sets a target to have 45,000 ha of semi-natural habitats maintained by 2020, which includes a large proportion of wild pollinator habitat, notably in semi-natural grasslands.



# IMPROVING KNOWLEDGE OF POLLINATOR DECLINE, ITS CAUSES AND CONSEQUENCES

## RED LISTS ON POLLINATORS AND DATA ON POLLINATOR POPULATIONS

The Environment Board coordinated the 5<sup>th</sup> Estonian evaluation of species vulnerability according to IUCN categories from 2017 to 2019 and the results are available on EELIS. The evaluation of bumblebees revealed that of the 28 species found in Estonia 18% are threatened (ie 1 is endangered, 4 are near threatened and 1 is extinct, whilst 2 species are data deficient) (pers comm Viik). Other pollinator groups were also assessed.

The previous Estonian red data book published in 2008 (Elurikkus 2008) did not cover the groups Hymenoptera, Diptera and Lepidoptera.

A checklist of all Lepidoptera species of Estonia was published in 2008 (Jürivete & Õunap 2008). The Estonian Butterfly Mapping Project was conducted in 2016 – 2017 and the results, including distribution maps for all species, will be published soon.

The [Estonian Nature Information System](#) (EELIS) administered by the [Environment Agency](#) is a tool for all nature conservation specialists in the counties and for the administrations of protected areas. It includes a database of information about protected species in Estonia, including the butterflies and moths listed in the Habitats Directive.

See the description of the citizen science platform "[Loodusvaatluste andmebaas](#)" in the citizen engagement initiatives section.

## POLLINATOR MONITORING SCHEMES

The Agricultural Research Centre (PMK) started bumblebee monitoring in 2006 in order to evaluate the impact of some of the Estonian rural development measures under the Estonian rural development programme and it is still ongoing. Every year bumblebee data are collected on 66 selected arable farms, mainly on the grass margins next to arable fields but also within arable crops that are attractive to pollinators. Farms are in different parts of northern and southern Estonia, in order to capture the differences in landscape diversity and agricultural intensity. In each region, one third are organic farms, one third farms with environmentally friendly management agreements (AES), and one third conventional farms with no agreements. Over ten years (2009 to 2018), the survey has observed 31,135 individuals of 21 bumblebee species (PMK 2018).

A bumblebee monitoring scheme was part of the national environmental monitoring programme, but stopped in 2015. The Environment Agency now has plans to restart using a new method.

Butterfly monitoring Estonia has gathered data from transect monitoring since 2004, coordinated by the University of Tartu. It is part of the [national environmental monitoring programme](#).

## RESEARCH INITIATIVES

*University of Tartu*

[Revision of the Estonian bee fauna](#) is a 2-year project to raise the knowledge about the more than 200 bee species in Estonia. It is being coordinated by the University of Tartu together with the Natural History Museum and Botanical Garden. The collected data will be published in June 2020 and will be a good basis for future bee studies.

Virve Sõber, Tiit Teder, and colleagues in the Institute of Ecology and Earth Sciences study the effects of landscape on bumblebee and butterfly communities in Estonia. Part of this research is being done within the ForBee project (2019-2021), a collaboration with Marika Mänd and the Estonian University of Life Sciences, and the Ministry of the Environment and the Ministry of Rural Affairs.

*Estonian University of Life Sciences Institute of Agricultural and Environmental Sciences*

[Marika Mänd's research group](#) has studied bumblebee diversity changes on red clover fields in Estonia during 50 years, and investigated the impact of pesticides on bumblebees, compared bumblebee population structure between Estonia and Belgium, and the potential to use bumblebees as crop fungal disease control agents. Marika Mänd's research group is coordinating the project ForBee

“Opportunities for mitigation of bee losses”, which will evaluate the effects of habitat- and landscape-level factors affecting pollinators; analyse existing veterinary problems and toxic compounds relevant to Estonian conditions; analyse the severity of existing stressors; and generate protocols for policymakers to mitigate the effects. The research group is the contractor for carrying out the field work for the bumblebee monitoring coordinated by ARC. Marika and Valdo Kuusemets supervised the PhD thesis of Isabel Diaz Forero, which investigated the influence of biotic and abiotic factors on bumblebees in semi-natural meadows (Diaz 2011). The research group took part in the EU FP7 [QuESSA project](#) on quantification of ecosystem services in agriculture.

#### *Agricultural Research Centre (PMK) and other research groups*

The ARC arable farmland bumblebee data was analysed by various research groups. The survey from 2010 to 2014 found higher bumblebee species richness and abundance in the field margins of the agri-environment contracted farms than the conventional fields (with no AES agreement), whilst there was no significant difference between the AES farms and the organic farms (Marja et al 2018). The differences in abundance were mainly due to the small-sized colony species, whilst the medium and large sized colony species showed little difference. The ARC monitoring data on the grass margins of arable fields showed a negative correlation between the field size and the abundance of bumble bees: as the field area increased the number of bees decreased (Muljar et al 2010).

## **TAXONOMICAL EXPERTS ON POLLINATORS**

Estonia has pollinator experts in the University of Tartu Natural History Museum and in the Estonian Museum of Natural History. These institutions carry out training events and information days to increase species identification skills in the wider public. See above for the University of Tartu Natural History Museum expert involvement in the revision of the Estonian bee fauna.

The Estonian Lepidopterologists’ Society provides taxonomic expertise and about 15 people are able to provide expert level identifications of Estonian butterflies (personal communication Toomas Tammaru). Taxonomic expertise in other insect groups (e.g. flies) is more limited.



# INITIATIVES TACKLING THE CAUSES OF POLLINATOR DECLINE

## ACTION PLANS ON SPECIES AND HABITATS

No [Species Action Plans](#) for pollinators have been approved yet, though some of the plant species action plans could have an indirect benefit for pollinators of those plant species.

## FARMER AND LANDSCAPE INITIATIVES, AS WELL AS LOCAL LEVEL STRATEGIES

The [Estonian rural development plan \(RDP\) 2014-2020](#) includes a measure for [environmentally friendly management](#), which was already included in the 2007 to 2013 programme. It requires farmers to allocate a minimum of 15% of arable land (including rotational grasslands) to legumes, use diversified crop rotations, take soil samples to determine optimal fertilizer requirements and create a fertilization plan, maintain/create permanent grassland field margins (2–5 m wide), to keep 30% of arable land from 1<sup>st</sup> of November to 31<sup>st</sup> of March under winter cover, and limit glyphosate applications. Beneficiaries are obliged to take part in trainings which include information about pollinators (see training below). In 2018, 46% of the area under single area payments was also under environmentally friendly management, so the measure is quite popular.

Since 2015 this scheme includes an additional activity „establishing foraging areas for bees“. This is primarily directed at honeybees but other native pollinators are also likely to benefit. However, the uptake is low - in 2018 there were 314 ha under this measure (for comparison: the area under single area payment scheme was ~962 000 ha).

Some other measures in the RDP 2014-2020 also favour wild pollinators although they are not targeted to this objective, e.g. organic farming support, environmentally friendly horticulture and support for maintaining semi-natural habitats.

RDP support for organic farming requires the use of diversified crop rotations, to allocate 20% of arable land (including rotational grasslands) to legumes, to keep 20% of arable land from 1<sup>st</sup> of November to 31<sup>st</sup> of March under winter cover, to do soil testing and fertilisation planning and to take part in trainings.

The RDP support scheme for management of semi-natural habitats was adopted by 820 farmers on 29,679 ha of habitat in 2018 (pers comm Viik). This corresponds to two-thirds of the national target of 45,000 ha under the scheme by 2020 set in the National Conservation Development Programme.

## MEASURES ON PESTICIDES

The “[Requirements for the use and holding of plant protection products](#)” restrict the application of plant protection products on areas with flowering plants (including weeds) to only permitted (labelled) products and only from 10 pm to 5 am, in order to protect pollinators.

The use of glyphosate herbicides is prohibited in school areas, children’s playgrounds and in the immediate proximity of health care institutions. The city of Tallinn has a [ban on pesticide use in public areas](#).

The revised national action plan on sustainable use of pesticides (2019-2023) mentions the possibility of using structural changes in bumblebee communities as a monitoring indicator to measure the performance of the plan in reducing pesticide impacts. The project to implement this began this year.

Some other measures in the RDP 2014-2020 could indirectly favour wild pollinators by:

- Prohibiting use of glyphosate in crops, green fallow and bee foraging areas supported by the environmentally friendly management measure and environmentally friendly horticulture (with an exception for use on strawberries)
- Prohibiting plant protection products on semi-natural habitats (with exceptions for use for nature conservation purposes)
- Supporting organic farming - Estonia has a high proportion of organic farms, at about 20% of the total utilised agricultural area.



# RAISING AWARENESS, ENGAGING SOCIETY-AT-LARGE AND PROMOTING COLLABORATION

## TRAINING AND AWARENESS RAISING CAMPAIGNS

Farmers participating in the popular environmentally friendly management agri-environment scheme are obliged to take part in training. The training materials were mainly prepared by ARC. The presentation “Bees – useful but vulnerable insects” includes an overview about bumblebees and



solitary bees and the importance and trends of pollinators, and information about the possible negative effects of pesticides on bees to make farmers aware of the threats and emphasize the necessity of following integrated plant protection methods and to read carefully the pesticide fact sheets and labels. Another presentation mentions bees and hoverflies.

## EDUCATIONAL CAMPAIGNS AND MATERIALS ON WILD POLLINATORS

The Estonian school curriculum includes a brief overview about bees and pollination in the 8<sup>th</sup> grade (age 13-14) adapted to school children.

The Agricultural Research Centre brochure on Estonian bumblebees ("[Eesti kimalased](#)") has proved very popular and has been disseminated not only to farmers but also to interested citizens. The city of Tartu distributes the brochures to children during events and educational programmes. ARC have also produced a short film about bumblebee monitoring.

## CITIZEN ENGAGEMENT CAMPAIGNS

Citizens Bumblebee Monitoring was a one-year project financed by the Environmental Investment Centre and led by an internet environment ("[Looduskalender](#)"). The purpose was to improve citizens' knowledge about bumblebees and encourage them to notice and recognise bumblebee species, but also to get information about the distribution of the bumblebee species in Estonia and their plant species preferences. In the project:

- Citizens monitored bumblebees in their gardens, noting down the plant species in which they observed the bumblebee. The project provided easy to use bumblebee species identification guidance materials. Unfortunately, the number of participants was quite low.
- A Facebook group was created which now (28 June 2019) has more than 400 members. In May 2019 the name was changed to include solitary bees ("[Meie kimalased ja erakmesilased](#)" - previously "Meie kimalased").
- Estonian names were given to bumblebee species which did not have one.
- 40 short articles about bumblebees were published on the website.
- Although the project website is no longer active, citizens can still enter observations of bumblebees on a website managed by the Estonian Ornithological Society ("[Suvine aialinnupäevik](#)").

The Nature Observation Database citizen science platform ("[Loodusvaatluste andmebaas](#)") is managed by the Estonian Environment Agency in cooperation with the Estonian Naturalists' Society, the Estonian Society of Lepidopterologists and the University of Tartu. It enables citizens to enter their species observations and upload a photo, which can be approved by an expert. One of the goals is to broaden knowledge about nature so it is open to beginners as well as more skilled observers. It includes an application "LVA" for smartphone and tablet. Any observations of protected species are checked by an expert and entered into the Estonian Nature Information System.

## PRIVATE SECTOR INITIATIVES FOR WILD POLLINATORS

None identified.

## APICULTURE SECTOR INITIATIVES FOR WILD POLLINATORS

The Estonian beekeepers association Eesti Mesinike Liit are very active in meeting with different stakeholders to agree on relevant actions to protect honeybees (pers comm Viik).

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## Educational materials

**Brochures about bumblebees** from Agricultural Research Centre:

- o E. Viik, M. Mänd. 2012. Eesti kimalased. Põllumajandusuuringute Keskus. Ecoprint, 44 lk.  
<https://pmk.agri.ee/mak/wp-content/uploads/sites/2/2017/01/Eesti-kimalased.pdf>
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<https://pmk.agri.ee/mak/wp-content/uploads/sites/2/2017/01/Estonian-bumblebees.pdf>

- o Viik, M. Mänd. 2017. Eesti kimalased 2017. Põllumajandusuuringute Keskus. Ecoprint, 44 lk. The 2<sup>nd</sup>, improved edition. [https://pmk.agri.ee/mak/wp-content/uploads/sites/2/2018/03/Eesti\\_kimalased\\_2017.pdf](https://pmk.agri.ee/mak/wp-content/uploads/sites/2/2018/03/Eesti_kimalased_2017.pdf)

The brochure “Eesti kimalased” (“Estonian bumblebees”) has been very popular and has been disseminated not only to farmers but also to all interested citizens. The city of Tartu distributes the brochures to children during events and educational programmes.

**Short film** "Bumblebees and the counting of bumblebees" (in Estonian):

[https://www.maainfo.ee/data/Maaeluvirgustik/VIDEOD/2018\\_KIM/Kimalased\\_ja\\_nende\\_loendamine\\_12\\_min\\_PMK\\_2018\\_1920\\_x\\_1080p.mp4](https://www.maainfo.ee/data/Maaeluvirgustik/VIDEOD/2018_KIM/Kimalased_ja_nende_loendamine_12_min_PMK_2018_1920_x_1080p.mp4)