



**Social Network**



**Inspiration & Learning**



# Bee Landscape Road Map Manual



**Ecological Network**

This manual is an integral part of the Bee Landscape Road Map. This road map consists of a schematic depiction and descriptions of the various success factors that a bee landscape can offer, distinguished by the different network development phases and the different returns used as focal points. A new bee landscape can use all this to build up the social network more efficiently and effectively improve the populations and habitats of wild pollinators. For existing networks, the road map can help to assess and improve their effectiveness.

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**Costs & Added value**

## What is a bee landscape?

A bee landscape is a social network that aims to increase populations of wild pollinating insects on a regional scale. Secondly, the term also means the pollinator-friendly landscape produced from these projects.

Supporting pollinators means far more than simply looking at isolated measures that can be initiated, like a flowering strip or a bee hotel. Focusing on a variety of measures and implementing them into our landscape is perhaps even more important. And so we need to think hard about how to shape and manage measures on a landscape scale and how they can strengthen each other. At the same time, this also complicates matters as our landscape is not managed by one organisation but by many different actors.

Fortunately, there are many civilians, businesses, public authorities, and organisations that want to 'help the bees'. To foster the diversity in pollinators, we need to take measures on a landscape scale. And this is exactly why these parties have to collaborate on a landscape scale to ensure that the measures they take within their area are effective and create a sustainable living environment for a diversity of wild pollinators.

Although collaborations within these bee landscape networks are not a goal as such – as increasing the presence of wild pollinators is the main purpose – we do see that collaborating presents other benefits as well. It offers partners the opportunity to learn with and from each other, build up mutual trust and social capital, and benefit from linking opportunities with other functions. Furthermore, having a bigger platform makes it easier to realise compelling examples.



# 1 Further information on the Bee Landscape Road Map

## Why this road map?

Our wild pollinating insect populations (wild bees, hoverflies, and butterflies) are in danger. There are around 20,000 different species of wild bees worldwide, of which around 2000 species live in Europe! A global study by IPBES from 2016 showed that wild pollinators have declined in occurrence and diversity at local and regional scales in North West Europe and North America. In Europe for example, 9 % of the bee and butterfly species are endangered and 37% and 31% decline has been observed in bee and butterfly populations respectively.

Luckily, many people are aware of this and have taken the initiative to foster the diversity of bees, butterflies, and other pollinating insects. While such initiatives are well intentioned, local and isolated measures are not enough to counter the negative trend in wild pollinator populations. To do that, we need cohesive measures spread across a larger area.

No public authority, business, organisation, or individual can upgrade a landscape for wild pollinators single-handedly. Therefore by joining forces in a bee landscape, different parties can align their measures to ensure that they support and reinforce one another. This is how we can much more easily reverse the downward trend in our pollinating insects.

We see a bee landscape as a social network set up and managed by multiple parties to create at least one so-called 'bed & breakfast area' for pollinators within a certain area. A bed & breakfast area is a robust and sustainable, and a more or less connected habitat where a high diversity of different pollinating insects can exist.

## How is the Bee Landscape Road Map structured?

The road map is basically a table that lists a variety of success factors for an effective bee landscape. The columns show the bee landscape returns: 'Social Network', 'Inspiration & Learning', 'Ecological Network', and 'Costs & Added Value'. This particular structure is based on the '4 returns model' devised by the Commonland organisation ([www.commonland.com](http://www.commonland.com)).

Sociaal Network

Inspiration & Learning

Ecological Network

Costs & Added value

## Why are wild pollinators important?

Many people are familiar with the honey bee, but the fact that there are around 2000 additional bee species living in Europe, and over 20,000 worldwide, is less known. In the Netherlands, we can identify more than 350 species of wild bees, besides the 330 different types of hoverflies, which are also important pollinators. All these pollinators pollinate our plants, shrubs, and trees. Wild pollinators have a huge economic value for the fruit-growing industry and hoverflies, in particular, help as natural pest control in arable farming.

Wild pollinating insects can be seen almost everywhere – especially the most conspicuous bumblebees and butterflies, which are buzzing and flying around in even the most urbanised areas. Still, what we see is just a fraction of the hundreds of wild pollinating insect species, and they are mainly the ones that can fly great distances and have a broad range of food sources. These species can forage their food even in the most flower-depleted environments.

Most bee species, however, are much more limited in how far they can fly and in their choice of food. Wild (or solitary) bees are even more restricted in the distances they can cover looking for food as they constantly return to their nests where they store the collected pollen in so-called brood cells. Each brood cell contains an egg that, as it is nurtured by the food, grows to become a new bee. So wild bees have a significantly shorter radius to forage – which is even less than 100 metres for many of these species. If there are no flowers to be found within that range (albeit temporarily) because all the grasses and herbs in that area have been cut, it becomes difficult or even impossible for these wild bees to procreate.

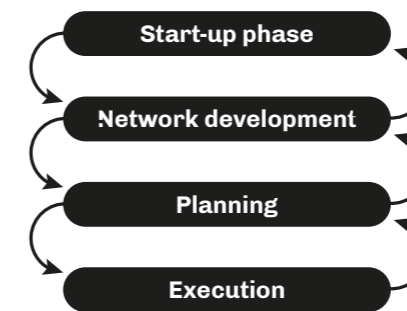
The numbers of wild pollinators have decreased alarmingly over the past decades. A global study by IPBES from 2016 showed that wild pollinators have declined in occurrence and diversity at local and regional scales in North West Europe and North America. In Europe for example, 9 per cent of the bee and butterfly species are endangered and 37 per cent of the bee populations and 31 per cent of the butterfly populations are declining. One of the main causes is not having enough flowers and flowering plant species growing in our landscape.



The table rows show the four network development phases of a bee landscape:

- 1 Start-up phase – the network is set up and takes shape;
- 2 Network development – the network develops and engages in joint activities such as defining a common ambition and vision;
- 3 Planning – the network plans joint activities to realise its ambition;
- 4 Execution – the network carries out joint activities to realise its ambition.

Although the road map depicts the different phases as if one follows the other (left arrows in the figure below), a network approach differs from a project approach, meaning that the phasing is less linear in practice. Networks grow and shrink. Aspects such as planning, execution, and monitoring can take place simultaneously. So in practice, the realisation of a bee landscape will become a process whereby one may need to revert to previous phases to change course or further improve specific elements (right arrows in the figure below).



*Bee landscape realisation phases*

## What are the Bee Landscape Road Map success factors based on?

The success factors mentioned in the road map, as well as the focal points, are based on lessons learned from the development of several bee landscapes between 2016 and 2020. The Wageningen Environment Research department monitored the development of these bee landscapes as part of the 'Pollinators knowledge impulse' project, funded by the Dutch Ministry of Agriculture, Nature and Food Quality.

## Bee landscape building blocks

In this road map, the term 'bee landscape for pollinators', or simply 'bee landscape', refers to both the social network of people working together on increasing wild pollinator populations and the ecological network of areas within the landscape where wild pollinators can forage for food and find nesting sites. These two types of networks are closely interlinked: people can make the landscape more or less suitable for pollinators. Thus, the landscape offers society either more or fewer ecosystem services, such as reliable pollination, a beautiful and appealing landscape, water infiltration, inspiration, and education.

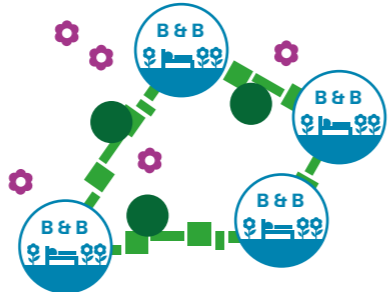
One of the first bee landscapes was launched in one of the Dutch regions in 2015: Groene Cirkels [Green Circles] Bee Landscape (see [www.groenecirkels.nl/bijenlandschap](http://www.groenecirkels.nl/bijenlandschap)). The initiators created a social network of partners that decided to develop a bee landscape together. One of the first questions they asked was: When can we say that the landscape has become a bee landscape and what must we do to achieve that?




Researchers from WENR [Wageningen Environmental Research], the EIS Kenniscentrum Insecten en Andere Ongewervelden [Knowledge Centre on Insects and other Invertebrates], and De Vlinderstichting [Butterfly Foundation] in the Netherlands have defined the bee landscape as a landscape in which a diversity of wild pollinator species can live sustainably as it offers sufficient and a cohesive variety of food and nesting places. And secondly, these areas must be managed in a bee-friendly manner.

The studies also focused on what this management implies concretely for the area around the Dutch cities of Leiden, Zoetermeer, and Alphen aan den Rijn. The wild pollinator species found here show a great diversity in the types of food they need, their nesting spots, and the distances they can fly. The researchers also

categorised the wild pollinators that would hopefully inhabit the landscapes based on the requirements set for the landscape, the so-called eco-profiles. This enabled the researchers to create guidelines based on which the bee landscape can be structured. They also developed bee landscape building blocks. The type of living environment, the required surface area, and the coherence between the building blocks could be estimated based on particular features of species falling within the same eco-profile. Other people and organisations can then use these building blocks to develop a bee landscape where pollinators can find sustainable habitats.

The bee landscape quickly became a well-known topic in this part of the Netherlands and the number of participants is still growing. The collaboration between these partners and their contribution to the bee landscape pays off: the number of wild pollinator species has grown fast within the short timespan between 2015 and 2018 – from 68 to 91 species!








-  **Bed & Breakfast areas**  
Nesting places with sufficient forage areas within 500 metres (>10% of 1 km<sup>2</sup>)
-  **Ecological connectivity**  
Connected landscapes with bed & breakfast areas that facilitate exchanges between these areas for wild pollinators.
-  **Bee fuel stations**  
Small, bee-friendly measures that make it easier for species that can travel farther to bridge the less flowering areas between bed & breakfast areas.

## Getting started with the Bee Landscape Road Map

If you want to assess how to create or start developing a bee landscape, this road map and manual can be used as follows:

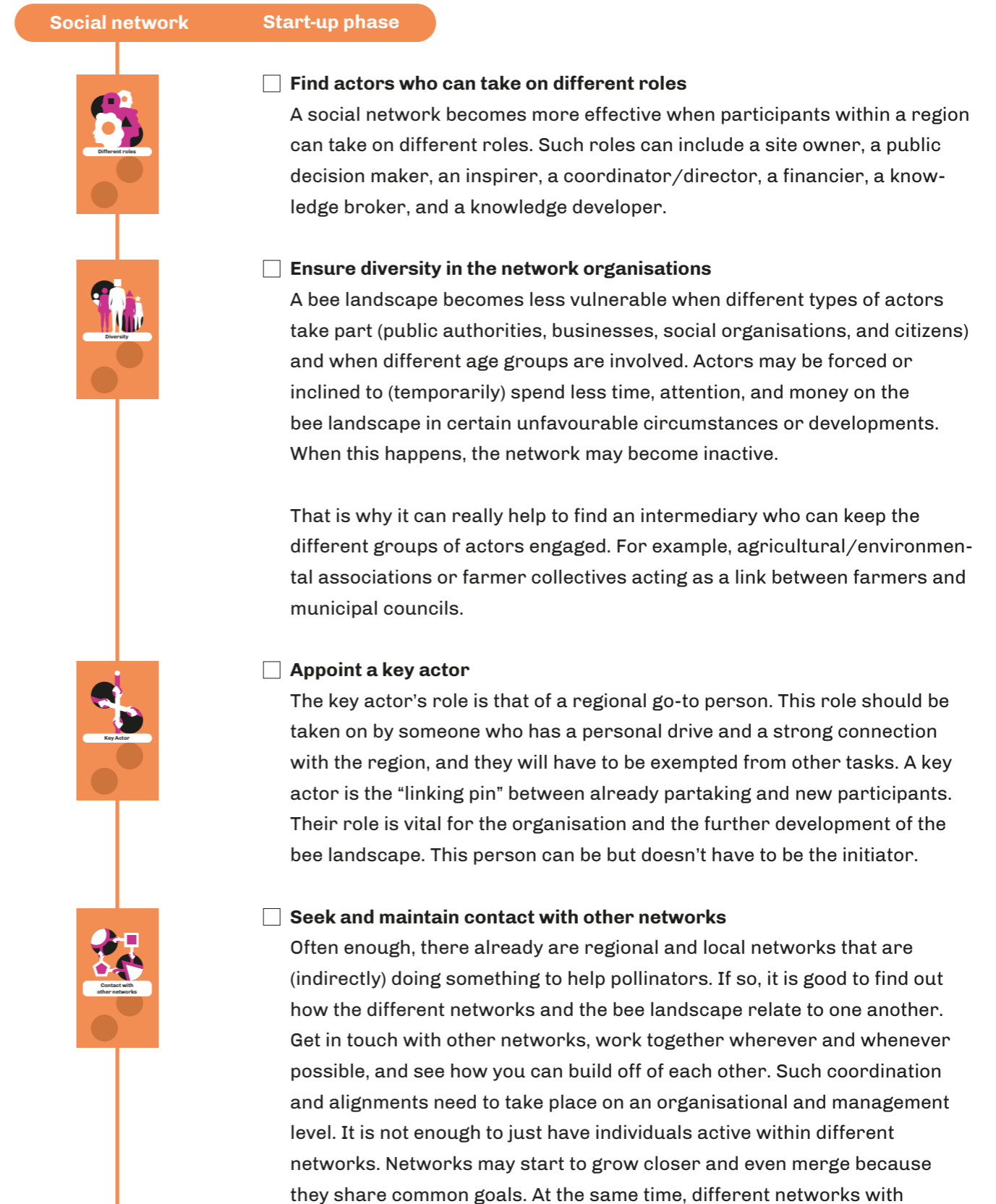
- Tick the boxes included in the road map that apply to your network. A well-structured method to fill out the road map is by starting at the section in the top left ('Social Network - Start-up phase') and considering which boxes you can tick. After that, you continue doing the same for Network development, Planning, and Execution. After ticking all the relevant boxes, you move to the next column on the road map to check again in which development phase the respective return falls.
- Chapter 2 of this manual provides more information on the terms used in the road map .
- Next, you can analyse the completed road map with the instructions and suggestions in chapter 3.
- Chapter 4 offers references to websites with more information on developing and maintaining bee landscapes.
- The appendix includes further information about the concept of the returns that was used as a framework for this road map.

 <b>Bee Landscape Road Map</b> Start small, strive to expand the bee landscapes!			
 <b>Social Network</b>	 <b>Inspiration &amp; Learning</b>	 <b>Ecological Network</b>	 <b>Costs &amp; Added Value</b>
<input checked="" type="checkbox"/> Check and follow the progress! <b>Start-up phase</b> <ul style="list-style-type: none"> <li><input type="checkbox"/> Find actors who take on different roles</li> <li><input type="checkbox"/> Create a network with a diversity of organisations</li> <li><input type="checkbox"/> Appoint a key actor</li> <li><input type="checkbox"/> Seek connections with other networks</li> <li><input type="checkbox"/> Get citizens and businesses engaged</li> <li><input type="checkbox"/> Explore each other's ambitions</li> <li><input type="checkbox"/> Explore the municipal policies</li> </ul>	<b>Start-up phase</b> <ul style="list-style-type: none"> <li><input type="checkbox"/> Learn from existing partners</li> <li><input type="checkbox"/> Learn from existing neighbouring networks/landscapes</li> <li><input type="checkbox"/> Promote the new network with general ambitions broadly</li> </ul>	<b>Start-up phase</b> <ul style="list-style-type: none"> <li><input type="checkbox"/> Explore the area and potential regarding flora and fauna</li> <li><input type="checkbox"/> Tap into the knowledge and experience of local organisations such as environmental (educational) organisations</li> </ul>	<b>Start-up phase</b> <ul style="list-style-type: none"> <li><input type="checkbox"/> Secure funding, exempt the key actor from other tasks or arrange for a volunteer position</li> <li><input type="checkbox"/> Explore options for (private) funding to organise the social network organisation</li> </ul>
<b>Network development</b> <ul style="list-style-type: none"> <li><input type="checkbox"/> Define a common ambition and set goals</li> <li><input type="checkbox"/> Start small, strive to expand the network</li> <li><input type="checkbox"/> Welcome new partners</li> <li><input type="checkbox"/> Join goals described in the council policy and follow it up critically</li> <li><input type="checkbox"/> Find a local council employee who is passionate about pollinators and get them involved</li> <li><input type="checkbox"/> Connect bee landscape goals with opportunities in other policy areas</li> <li><input type="checkbox"/> Respond to changes in staffing</li> </ul>	<b>Network development</b> <ul style="list-style-type: none"> <li><input type="checkbox"/> Meet regularly, organise field trips</li> <li><input type="checkbox"/> Discuss all learning points</li> <li><input type="checkbox"/> Propagate your ambitions</li> <li><input type="checkbox"/> Share projects that serve as an example</li> <li><input type="checkbox"/> Use social media</li> </ul>	<b>Network development</b> <ul style="list-style-type: none"> <li><input type="checkbox"/> Explore opportunities and chances for:               <ul style="list-style-type: none"> <li>• different types of measures</li> <li>• both food and nesting places</li> <li>• different types of areas</li> </ul> </li> <li><input type="checkbox"/> Include climate change in planning</li> <li><input type="checkbox"/> Create a regional opportunities map</li> </ul>	<b>Network development</b> <ul style="list-style-type: none"> <li><input type="checkbox"/> Determine a budget that matches your goals, and include monitoring</li> <li><input type="checkbox"/> Find funding from different sources and for the long term, in line with the scale and ambition</li> </ul>
<b>Planning</b> <ul style="list-style-type: none"> <li><input type="checkbox"/> Set up an execution programme:               <ul style="list-style-type: none"> <li>• with different types of measures</li> <li>• for different types of areas</li> </ul> </li> <li><input type="checkbox"/> Implement a monitoring scheme</li> <li><input type="checkbox"/> Make it easy for people to contribute to the bee landscape</li> <li><input type="checkbox"/> Start with reachable goals (low-hanging fruits)</li> <li><input type="checkbox"/> Safeguard the existence of the bee landscape for the mid and long term</li> </ul>	<b>Planning</b> <ul style="list-style-type: none"> <li><input type="checkbox"/> Share successes and learning points within and outside the social network</li> <li><input type="checkbox"/> Propagate your ambitions and progress</li> </ul>	<b>Planning</b> <ul style="list-style-type: none"> <li><input type="checkbox"/> Set up a monitoring plan</li> <li><input type="checkbox"/> Carry out a baseline measurement</li> <li><input type="checkbox"/> Experiment (pilots)</li> </ul>	<b>Planning</b> <ul style="list-style-type: none"> <li><input type="checkbox"/> Invest in all types of returns that the bee landscape offers</li> <li><input type="checkbox"/> Consider what the bee landscape also offers in other aspects</li> </ul>
<b>Execution</b> <ul style="list-style-type: none"> <li><input type="checkbox"/> Share results and evaluations with the social network</li> <li><input type="checkbox"/> Promote all activities broadly, handle complaints immediately</li> </ul>	<b>Execution</b> <ul style="list-style-type: none"> <li><input type="checkbox"/> Monitor and evaluate the support for measures</li> <li><input type="checkbox"/> Make specific agreements on continuous learning and improvement</li> </ul>	<b>Execution</b> <ul style="list-style-type: none"> <li><input type="checkbox"/> Execute planned measures!</li> <li><input type="checkbox"/> Carry out the planned monitoring</li> <li><input type="checkbox"/> Evaluate monitoring results and adjust the execution when necessary</li> </ul>	<b>Execution</b> <ul style="list-style-type: none"> <li><input type="checkbox"/> Monitor and evaluate the costs and added value of the bee landscape</li> </ul>

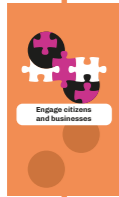
## Bee landscape focal points

- Start small, strive for more and bigger. The larger the number and diversity of the partaking parties in the bee landscape, the better. Still, that doesn't mean that initiatives have to focus on a large area and network from the start. It is often better to start on a small scale (with a few farmers and/or a municipality) and build it up from there.
- The development of a bee landscape that covers an entire region should not be a goal in itself. It is perfectly fine when regions contain networks that function side by side. As long as networks understand how they relate to each other and know how to find each other, their effectiveness will only increase.
- Developing a bee landscape takes a lot of time and effort. The process is intensive and initiators need to get a lot of organisations on board by convincing them of the importance of the network and their participation. The start-up phase alone often proves to be a lengthy and elaborate process. During this phase, participating organisations invest a lot of time to come to a mutual vision and plan based on which they can apply for the required funding to carry out their network activities.
- This means that bee landscape partners need to trust one another. Parties should welcome each other's successes and share knowledge openly. If they don't, opportunities will be overlooked and both the social and ecological network will fail to grow.
- All bee landscapes are unique. Every network goes through its own process and mistakes will be made – which is unavoidable and acceptable. What is important, however, is that the network learns from its mistakes and failures.
- When a bee landscape takes off, it can make a huge difference for pollinators (and other species) living in that area. The landscape will certainly become more natural and this will be hugely rewarding for the network partners.

## 2 Further information on the success factors in this road map



overlapping goals can coexist perfectly. It goes without saying that exchanging information and collaboration will increase the effectiveness of the separate networks.



**Engage citizens and businesses**

By engaging farmers and other businesses, social organisations, and citizens you will also get to know the site owners whose land can play an important role in the bee landscape. They will strengthen the local and regional support for policies that are aimed at improving the habitat for pollinators.



**Explore each other's ambitions**

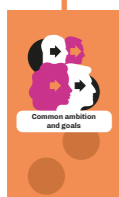
Knowing the ambitions of the different participants and stakeholders in the bee landscape is essential. Some will want to get started straight away and see results, for instance by sowing flower seeds or making a bee hotel. Others will want to take a more programmatic approach, such as identifying opportunities within the landscape (an opportunities map), setting up an execution programme based on multi-year projects, and organising the required funding. Participants will have to assess whether they share the same expectations, of each other and of the collaboration. For some, taking immediate action works better than first getting everything aligned and figured out at all levels.



**Explore the municipal policy**

Finding out what the municipality is already doing to improve the situation for pollinators is always a good start. This prevents reinventing the wheel, doing work that has already been done, and offers options to lift each other's plans to a higher level. New networks can match or align their activities with the already programmed municipal policy. Try to find out whether the execution programme for pollinators is well-defined and implemented or if this can be done by integrating it within local or regional policy plans. This can be realised by adding ambitions and allocating funding to a zoning plan, an environmental development plan, a green structure plan, or a (regional) environmental vision. And naturally, they need to be part of the green management plan.

**Social network**      **Network development**



**Define a common ambition and set goals**

During the network phase, the different participants' ambitions and challenges for the bee landscape often become clearer. One of the pre-conditions for success is defining the common ambitions for the bee landscape and translating them into concrete goals. Even so, doing this is

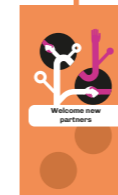
no guarantee for success as the planning phase will have to see them turned into feasible actions that can actually be realised during the execution.

You may want to assess how changes in the social network affect the bee landscape. A network is never static. As it grows or becomes smaller, the area within which the network's goals can be achieved may also grow or shrink – in which case your ambitions should be adjusted too.



**Start small, strive for a bigger network**

The more bee landscape participants, the better. However, it is often better to start small instead of pulling out all the stops right away. Start with plans for areas where network partners have a relatively large amount of land and expand from there. We speak of a physical bee landscape where at least one pollinator bed & breakfast area can be realised – a robust and sustainable habitat where a high diversity of different pollinating insects can exist. We speak of a social network when multiple partners collaborate in this realisation.



**Welcome new partners**

Make sure that new and interested participants can easily join the network and that they feel welcome. A growing network that gets more widely known may motivate initially reluctant parties to join in. The same can be stimulated by internal processes and through the people who are involved. So never write off parties, keep inviting them when their involvement will help the network, and always leave the door open.



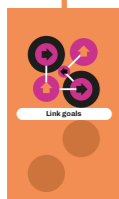
**Join goals described in the council policy and follow it up critically**

Municipalities often have ambitions to improve the habitat for bees/pollinators and local officials may even sign a covenant to achieve that. Still, such actions are not always enough to get this ambition embedded in the administrative organisation and, for example, make the management of the public space more bee-friendly. A bee landscape can take on the role of a critical watchdog and offer ideas as to how the municipality can put a theoretical covenant into practice.

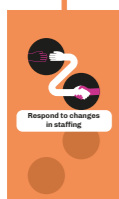


**Get a municipal official with a passion for pollinators involved**

Try to find a municipal official who would like to spend time and effort on improving the habitat for pollinators and their populations or on creating a bee landscape. This could be a local ecologist or a passionate political administrator. This person's energy will be infectious to the rest of the organisation. Work closely with this potential driving force and see how you can support each other.



- Link the bee landscape goals with opportunities in other policy areas**  
It is important to stay aware of the ambitions other parties have and which can be linked to the network's ambitions for pollinators. Try to link the bee landscape goals with goals in other policy areas. Measures that are or can be taken for pollinators also contribute to many other goals relating to, for example, the (living) environment and nature, sports, health and relaxation, water management and water quality, cultural history, recreation, and education.



- Respond to changes in staffing**  
Changes in staffing hamper the relationships the network has with an organisation. Get new people actively involved when others leave. Make sure that new employees are properly introduced to the existing network.



- Start with low-hanging fruit**  
It is often smart and desirable to quickly realise visible results to retain and/or increase the stakeholders' support. Some measures for pollinators are easy to realise and instantly raise the enthusiasm of residents and others – for example by sowing blends of flower seeds. The enthusiasm for a bee landscape can reduce when a network only focuses on its policy and waits too long with executing visible measures.



- Safeguard the existence of the bee landscape for the mid and long term**  
The funding of a bee landscape by public authorities generally refers to a time frame of a few years (until new elections). Consequently, the execution programme and projects don't have a longer time frame as well. Therefore, it is crucial to find other stable finance sources to ensure continuity and safeguard the existence of the network for the mid and long term. Another option is establishing multi-year programmes that stretch beyond the political term of four years.

Social network Planning



- Set up an execution programme**  
An execution programme or business plan is made to establish the mutual goals, identify projects, and arrange for funding and other means required to carry out the plans and/or contain clear agreements on how this will be realised. Try to come up with a programme that includes diversity in bee-friendly measures. Besides creating spots where flowers can grow abundantly (forage habitats), you could also think of creating nesting options for wild bees (sandy embankments, hillsides, a bee hotel, etc.). Another relevant aspect is planning the measures at a variety of locations, from road verges to parks and industrial estates.



- Make sure the execution programme includes monitoring**  
Monitoring the different measures offers insight into the execution programme results. Positive results highly motivate the social network and, naturally, much can be learned from positive and negative results. Take a look at the different monitoring aspects under the header Ecology in the planning phase. Don't forget to do a baseline measurement before the measures are implemented and include specific checkpoints.

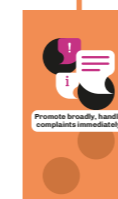


- Make it easy for people to contribute to the bee landscape**  
Actors should not find it cumbersome to take part in the bee landscape. Communicate what they can do themselves, how and where they can collaborate with others, when they can join lectures or field trips, and who to contact if they have questions and ideas. This can be done through a website, newsletters, brochures, activity calendar, and by organising excursions.

Social network Execution



- Share results and evaluations with the social network**  
To realise a sustainable bee landscape, it is important to evaluate the execution of the different measures. Many site managers are not yet familiar with bee-friendly management and landscaping and so the switch may not initially go entirely as planned. This is unavoidable and not a serious problem. However – and especially during the first few years and when they are not part of the network – it is essential to maintain good relationships with site managers and evaluate what goes well and what can be improved. This will make the network a learning network.



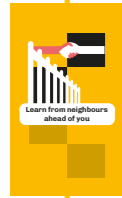
- Promote all activities broadly, handle complaints immediately**  
A bee-friendly road verge or (commercial) site looks different from what people are used to. People may have questions or complaints. So before you start, you need to communicate clearly what will change, why different land management is important for pollinators, and what the added value will be for the public and/or stakeholders. Consider the (justified) complaints you may expect and how they can be avoided or adequately dealt with.

## Inspiration & Learning Start-up phase



### Learn from partners already on board

A network often already has a lot of in-house knowledge and skills. Some may be experts in ecology, finances, or policies while others know about learning processes and how to organise meetings. A network allows you to share and connect knowledge and expertise so people don't have to be experts in every field. Sharing knowledge can be done by phone or social media but is, of course, more effective when people can meet and talk in person. For example, during meetings or field trips.



### Learn from neighbouring networks/landscapes that are ahead of yours

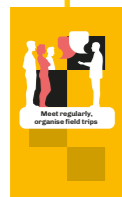
Other regional networks to improve the habitat for pollinators have already been set up. And although every network has its specific dynamics, much can be learned from other regional networks developed by other organisations and individuals.



### Promote the new network with general ambitions broadly

New initiatives or networks that are just getting started may be reluctant to broadcast their plans. Parties may be hesitant because they feel unsure about any possible bumps in the road and the fact that they cannot show any results yet. By indicating that everything is still in an exploratory stage, communicating the ambitions early on can help to enthuse other parties that would like to participate.

## Inspiration & Learning Network development



### Meet regularly, organise field trips

Field trips generally offer an easy-going and relaxed opportunity to meet each other and see the results or current situation in an area. They are a great moment for sharing knowledge and experiences. Likewise, round-table meetings etc. can be very inspiring as well, and the social network should actively put this inspiration into practice! Only then will a social network become a robust and sustainable network.



### Discuss all learning points

Networks should regularly reflect on the progress of all four aspects of return: Social Network, Inspiration, Ecology, and Costs & Added Value. The monitoring results, process progress, and project development can be a good reason to jointly reflect and learn. Mistakes will be made, hurdles must be taken. That means that taking two steps forward may result in taking one step back, which is why the network must be a learning network.

A learning network can only be created if someone takes the lead and remains to do so.



### Propagate your ambitions and progress

Communication is first of all important within the area you focus on: what is the idea behind the bee landscape and why? This also means that you need to counter problems before they arise. Consider all the problems that may occur, think about how you can deal with them proactively, and how problems that others may be facing can be solved quickly. By propagating the ambitions of the bee landscape, you create a realistic idea of the results people can expect. For example, how long will it take for road verges to be teeming with flowers or what are the additional costs (25-30%)? Also, indicate when the overall ambitions transcend the ambition for the pollinators and make them appealing to residents and other stakeholders. For example, broadening the pollinator goal to biodiversity and health: measures that benefit pollinators are also good against pest infestations, like the oak processionary caterpillars, which are fast becoming a great nuisance in The Netherlands.



### Propagate projects that serve as an example

It is important to make example projects widely known as they can inspire others to realise similar projects in their regions.



### Use social media

The regional network can communicate results via a website, an app, or through LinkedIn, Facebook, Instagram etc.

## Inspiration & Learning Planning



### Share successes and learning points within and outside the social network

Be open about the results of all your efforts, not only the success stories but also the learning points, and show that you are a learning network.



### Propagate ambition and progress broadly

Make the bee landscape visible and publish the results via a website, social media, newspaper articles, during national events, etc.



**Inspiration & Learning Execution**



- Monitor and evaluate the support for measures**  
Knowing how and to what extent public authorities, businesses, social organisations, and residents support the measures is crucial. Flower ribbons may result in farmers fearing that this will lead to more weeds growing among their crops. Monitor and evaluate whether this will actually be a risk. Take fast and proper action when inconveniences or issues occur.



- Make specific agreements on continuous learning and improvements**  
Agree on fixed moments to reflect on what is realised within the region. Ask externals, such as other public authorities, businesses, and social organisations to reflect on this as well, so that this continuous learning and improvement process can be maintained.

**Ecological Network Start-up phase**



- Explore the area and potential regarding flora and fauna**  
To determine the most viable measures the bee landscape should focus on, you need to be aware of the current main habitat areas within the projected bee landscape and identify the potential for a habitat where pollinators can thrive.



- Tap into the knowledge available at local organisations**  
Avoid regional network participants having to search for ecological knowledge unnecessarily. Organisations involved in nature education and local history and heritage societies are usually a vast source of local ecological knowledge the network can utilise during the planning and execution phases.

**Ecological Network Network development**



- Make sure that the programme offers diversity in:**
    - Types of habitat elements (food and nesting places)
    - Types of measures (adjustments in land management, seeding, etc.)
    - Types of areas and land owners
- The overall group of pollinators can be divided into a great variety of species that all come with their specific requirements. Pollinators thrive in a varied landscape with different types of vegetation as well as a diversity

in measures that are aimed at providing more food sources (flowers) and more nesting options. To create a sustainable bee landscape with bed & breakfast areas, ecological connectivity, and 'bee fuel stations', you need diversity in the types of land and participating land owners.



- Include climate change in the plans**  
Climate change causes the climate zones where plant and animal species can live to shift. The risk of species becoming extinct if they are unable to find new, suitable habitats should not be underestimated. Connected landscapes and 'bee fuel stations' make it easier for pollinators to move from one place to another in both agricultural and urban environments. It makes the bee landscape more climate-robust. At the same time, climate change also offers new opportunities. We need to adapt to more extreme weather conditions in all sorts of ways. By doing that in a landscape-oriented and nature-inclusive fashion, we also help our pollinators.



- Create a regional opportunities map**  
Focus on the 'eco-profiles for pollinators' when making a regional opportunities map. These eco-profiles consist of groups of pollinator species that more or less require the same type, size, and cohesion in their habitats. The eco-profiles can be used to assess the current situation within a region based on the preconditions that these groups set on the landscape. It will also show how and where the bee landscape can best be enhanced. Additionally, maps can be made to identify promising locations for the development of food habitats for pollinators (sandy soil, sunny spots). The acquired information allows you to set up a scientifically substantiated and concrete execution plan.

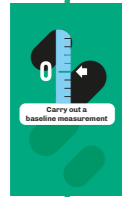
**Ecological Network Planning**



- Set up a monitoring plan**  
Set up a monitoring plan to make the outcome of the measures that are taken more insightful. Various aspects can be monitored:
  - Locations where measures are carried out – this offers insight into the progress of the executed measures. You can use the regional opportunities map to see how and to what extent the measures have contributed to a cohesive bee landscape.
  - The qualitative aspects of the execution. The transition to bee-friendly land management means that the people managing the landscape will have to adopt different methods. It takes time to reorganise a land-

scape management organisation and, perhaps, reskill its people, so it is important to support that and follow it up during the first years.

- Numbers and types of pollinator species.



**Carry out a baseline measurement**

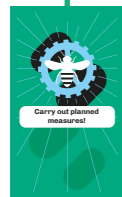
Start with determining how the pollinators are doing in the area you focus on before you take any measures. Additionally, you should identify several checkpoints where you don't take any measures. This allows you to correct the monitoring data on the natural fluctuations in pollinator numbers. Such inventories can be organised through crowd-sourced scientific data, for example by getting (high school) students or residents involved, supervised by a research institute or agency.



**Experiment (pilots)**

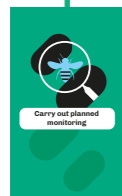
Don't hold off taking measures until you think you have all the information and completed the planning. Dare to diverge from common practices. Start pilots with bee-friendly measures and bee-friendly land management as they can result in important learning curves. The practical knowledge also contributes to shaping/reorganising land management and landscaping. Naturally, this also strengthens our motto of 'starting small'.

**Ecological Network Execution**



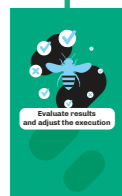
**Carry out the planned measures!**

Ultimately, this is what it is all about: the execution of measures to upgrade the landscape for larger numbers and more species of wild pollinators. The execution should be the main focal point within the network. And don't forget to show the people who enable or execute the measures that their efforts are acknowledged and appreciated.



**Carry out the planned monitoring**

This road map also has you setting up a monitoring plan to gain insight into the effects of the measures. Make sure that this monitoring is carried out at the scheduled moments and locations.



**Evaluate monitoring results and adjust the execution when necessary**

Evaluate the monitoring results between monitoring moments. This offers insight into the progress and/or results of the bee landscape. Are there any new bed & breakfast areas, where has a connected landscape been realised, and has the density of 'bee fuel stations' increased? An intermediate evaluation provides learning points and the opportunity to adjust

measures. Naturally, any noticeable effect will certainly add to the network motivations – especially that of managers and financiers.

**Costs & Added Value Start-up phase**



**Secure funding, exempt the key actor from other tasks or arrange for a volunteer position**

Network development demands a lot of the key actor's time. If an employee takes on this role, they will have to be paid for their work and time and/or need to be exempted from other tasks. Another option is to find a volunteer who would like to take on this role. Having a professional in this role means that you need to arrange for funding to pay them.



**Explore options for (private) funding to organise the social network organisation**

Actors don't see money as the sole motivation to get actively involved and invest. However, when participants need to do everything in their spare time, the social network will be vulnerable and stay limited. So it is prudent to arrange for funding for the network developers or actors who spend a lot of time and money on it. Facilitate volunteers by scheduling meetings after working hours. Generally, the execution of measures also requires funds. Make an inventory of monetary sources such as provincial public authorities, municipalities, Water Boards, businesses, and/or social organisations. And don't forget other types of sponsoring by, for example, local banks, supermarkets, or the Rotary Club.

**Costs & Added Value Network development**



**Determine a budget that matches your goals, and include monitoring**

Bear in mind that funding can be terminated or become available at a later stage and that execution projects may turn out more or less costly. Adjust your short-term goals when budgets shrink while the execution programme is still ongoing. Another important tip is to reserve ideas for measures or projects in case the network receives additional funds.



**Find funding from different sources and for the long term, in line with the scale and ambition**

Acquiring funding from different (types of) sources is essential as this will make the network less vulnerable. Should you (temporarily) lose one of the funding sources, then this will not suddenly put a stop to all the activities.

**Costs & Added Value Planning**



**Invest in all types of returns that the bee landscape offers**

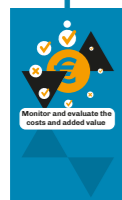
Aim to invest in all the 'returns' the bee landscape can offer (Social Network, Inspiration & Learning, Ecological Network, and Costs & Added Value) and try to secure long-term funding (for at least five years). Try to earmark budgets that are intended for improving the conditions for pollinators as specifically as possible. Don't just focus on costs for landscaping and implementing measures but also allocate budgets for management and maintenance. We regularly see that the budget becomes a pawn in political games and the general allocation of budgets when this earmarking is not done properly. Activities may be labelled differently and political or administrative opportunism determines what the money is spent on.



**Consider what the bee landscape also offers in other aspects and how this can be visualised**

A bee landscape can offer so much more than just being a pollinator-friendly landscape. Think of what other added value the activities within the bee landscape will or can offer. Whether this is more water infiltration to more recreational options or people enjoying the landscape more positively. Consider how you can visualise this added value early on and how to collect the required data to do that.

**Costs & Added Value Execution**



**Monitor and evaluate the costs and added value**

Check what the money is actually spent on. Are there any windfalls or setbacks? How do they affect the planned activities? Where can you identify significant added value? And is it sufficiently visible for the right parties?

### 3 Help to analyse the completed Bee Landscape Road Map

After ticking the return boxes in the road map, it is time to take stock and analyse the outcome. Steps to go through with the network partners include:

- Determining in which phase you more or less are (indicated in the rows) for each of the returns (indicated in the columns).
- Looking more closely at the success factors, per return and the phase you are in. Which are doing well and which need work? When they need to be improved, consider how this should or can be done.
- If you conclude that the different returns are in different phases, then this would need additional attention: Try to lift the lacking returns to the higher phase that others are already in.
- And look ahead, to the success factors in the following phases.
- Based on the steps taken above, determine which success factors would need improvement to boost the effectiveness of the network. Define a strategy and next steps. Be as specific and concrete as possible: who will realise what, when, and how?

The phase the network is in often appears to be different for each of the four returns. In practice, we see that when it comes to the development of the social network, many parties focus on inspiration from the outside world and on each other and that the new network is trying hard to organise the funding. During the planning phase, the ecological returns and economic aspects become greater focal points. It is important to make sure that the four types of returns within the bee landscape don't divert too much in which phase they are, preferably not more than one.

Social network	Inspiration & Learning	Ecological network	Costs & Added Value
Start-up phase	Start-up phase	Start-up phase	Start-up phase
Network development	Network development	Network development	Network development
Planning	Planning	Planning	Planning
Execution	Execution	Execution	Execution

Ticking the boxes in the road map doesn't mean that the network discussions about the next steps and strategy are no longer necessary – the road map is only a tool to add focus and depth to these discussions. Questions on the next steps that the bee landscape network can ask itself are:

- Are we a bee landscape? If not, do we want to be one?
- Is our bee landscape robust? Sustainable? (The ticked-off boxes will not make this self-evident. It will show from the overall idea that is created.)
- What are the strong aspects/returns that our bee landscape offers? And which returns are still less developed?
- How can we boost the underdeveloped returns?

## 4 Other information sources

<https://ipbes.net/assessment-reports/pollinators>

The assessment report of the intergovernmental science-policy platform on biodiversity and ecosystem services on pollinators, pollination and food production. S.G. Potts, V. L. Imperatriz-Fonseca, and Ngo H. T. (eds.).

<https://www.fao.org/pollination/en>

FAO's Global Action on Pollination Services for Sustainable Agriculture

<https://wikis.ec.europa.eu/display/EUPKH/EU+Pollinator+Information+Hive>

EU pollinator Information hive

Interesting subpages:

<https://wikis.ec.europa.eu/display/EUPKH/Actions+in+my+country>

Member States' initiatives to support wild pollinator populations

<https://wikis.ec.europa.eu/display/EUPKH/Get+involved>

Get involved: a series of technical guidance with recommendations for action for citizens, invasive alien species managers, local authorities and cities, farmers, businesses and public authorities.

## Appendix The Commonland '4 returns model'

The different existing concepts that were already combined by Willem Ferwerda<sup>2</sup>), the founder of Commonlands, were used to design or evaluate bee landscapes. As such, the way we combine the existing knowledge and insights is not new. This road map can be seen as a more in-depth framework for bee landscapes. Ferwerda introduced the four returns that we have used for our road map. The four returns create a landscape development framework on which networks can base their activities over twenty years and for three different landscape zones. The bee landscape returns, as presented in the Bee Landscape Road Map, are based on the Commonland '4 returns model' (Brasser & Ferwerda, 2017; [www.commonland.com](http://www.commonland.com)).



*The Commonland 4 returns model*

The Commonland organisation constructed this model to foster and promote the recovery of landscapes within a single generation (twenty years). The four returns are: Natural capital (biodiversity), Financial capital (long-term, sustainable profit), Social capital (jobs, security, schooling, commercial activities), and Inspiration (hope and meaning). Inspired by this model, we regard a regional initiative that mobilises stakeholders and results in a bee landscape as 'social capital'. We take the return 'financial capital' broader than just economic and financial aspects; we also include the social values that the bee landscape can create. When it comes to 'natural capital', we add favourable environmental conditions and positive management to biodiversity. The return 'inspiration' in this road map includes the development and sharing of knowledge and a collective learning process.

<sup>2</sup>) Ferwerda, W., 27 June 2018. 4 returns, 3 zones, 20 years. A holistic framework for landscape restoration to create pipeline for investors and bringing down risks.



## Bee Landscape Road Map

### Colophon

The Bee Landscape Road Map Manual is part of the 'Supporting Pollinators' toolbox, developed by [www.kennisimpulsbestuivers.nl](http://www.kennisimpulsbestuivers.nl). This research programme is funded by the Dutch Ministry of Agriculture, Nature and Food Quality, and executed by Wageningen Environmental Research, in cooperation with Naturalis Biodiversity Center en EIS Kenniscentrum Insecten.

Visit [BeeLandscape.org](http://BeeLandscape.org)

### Accompanying knowledge products

- Bee Landscape Road Map
- Bee Landscape Road Map Manual
- 4 Brochures Developing a bee landscape together, directed at:
  - Farmers
  - Businesses
  - Citizen/civic initiatives
  - Regional authorities

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