



# Using Eh da-areas – enhancing biodiversity

**Practical guide to setting up and  
maintaining Eh da-areas**

# Table of contents

1. Introduction.....	4
2. What are Eh da-areas? .....	5
3. What are Eh da-areas good for? .....	7
4. Habitat profiles.....	8
4.1 Grassland.....	8
4.2 Flower strips and patches.....	10
4.3 Horizontal raw soil habitats.....	12
4.4 Vertical raw soil habitats .....	14
4.5 Ruderal areas .....	16
4.6 Woody copses .....	18
4.7 Trees.....	20
4.8 Snags, deadwood, wood storage .....	22
4.9 Clearance cairns and old walls .....	23
4.10 Gardens.....	24
5. Using and creating maps .....	25
5.1 Non-computer-assisted cartographic options .....	25
5.2 Computer-assisted and web-based cartographic options.....	26
5.3 Professional solution .....	28
6. Who is the Eh da-concept aimed at?.....	28



7. Course of an Eh da-project (schematic) .....	29
7.1 Preparation phase .....	29
7.2 Planning phase.....	30
7.3 Implementation phase.....	31
8. What is the cost of an Eh da-project? (Resource requirements)....	32
8.1 Cost comparison of conservation measures per habitat type.....	33
8.2 Cost overview for flowering seed mixes.....	35
8.3 Recommended equipment.....	35
9. Pilot projects.....	36
10. Biodiversity concerns all of us.....	40
11. A glimpse behind the scenes.....	41



# 1. Introduction

Many animal and plant species of the agricultural landscape have become scarce. This decline of biodiversity, which affects all types of organisms – flowering plants, bees, butterflies and many birds – has been documented in a number of scientific studies. What is it that we can do against this loss of biodiversity? Indeed, there is a wide range of measures, such as designating conservation areas or applying specific, primarily extensive forms of agricultural land management. The Eh da-concept is one of the elements in the list of options. It is based on the fact that an agricultural landscape comprises areas – so-called “Eh da-areas” – that can be ecologically enhanced without reducing the already scarce land available for agricultural production. Making better use of existing areas to promote biological diversity – this is the fundamental idea of the Eh da-concept.

Eh da-areas are usually small-scale habitats, but nevertheless can account for a significant share of an agricultural landscape. They are home to many animals and plants. And they often take the function of partial habitats (elements of combined habitats) providing, for example, forage to pollinators, overwintering habitats to small animals and food for birds. In addition, other habitats must also be available to fully meet habitat requirements of a species. Eh da-areas can also serve as corridors for the migration of animals, but they cannot replace large-scale nature reserves or other zones aimed at enhancing biodiversity.

Bees are a good example to illustrate the importance of Eh da-areas. Wild bees can be considered representative animals of the agricultural landscape in many respects: with regard to their various habitat requirements, in terms of the decline of many species and not least because of their relevance to mankind. They are not merely beautiful and interesting animals and an object of nature conservation, but they also offer a wide range of “ecological services” to humans. Honey and wax – we are all familiar with these popular honeybee products. But not all of us are aware of the importance of the many wild bees living in our cultivated landscape with regard to pollination. Maintaining their habitats is key to protecting them, and this is where we have come full circle, back to the relevance of Eh da-areas.



## 2. What are Eh da-areas?

Eh da-areas are “there anyway”, casually speaking; in other words these areas are available “anyway”. This short definition puts the Eh da-concept in a nutshell. Land in residential areas or in the open landscape that is without apparent economic use is to be made available for enhancing biodiversity.

For the purpose of this practical guide, the general definition of Eh da-areas is as follows:

**Open land in agricultural landscapes and residential areas that is neither used for agricultural nor for conservation purposes.**

Eh da-areas may well serve a purpose, such as protection against erosion or ensuring a proper appearance of the townscape. But at the same time they provide opportunities for ecological enhancement. Such spaces can be found nearly everywhere. Below, an overview will be given of typical Eh da-areas in agricultural landscapes and residential zones. The latter are specifically included, since small towns and villages are considered part of the agricultural landscape in the Eh da-concept. In general, two fundamental types of Eh da-areas can be distinguished: longitudinal zones extending over long distances, e.g. alongside transport routes or water systems, and compact areas, such as municipal grassland, unused green patches between roads or wasteland. This is not an exhaustive list of Eh da-area categories, but it will help identify according spaces.

- **Land alongside transport routes**

Roadside slopes and waysides often extend over several kilometres lining municipal, district, regional and federal streets and roads, or farm tracks. Although they are usually rather narrow, they make for large continuous pieces of land due to their length. They can provide flowers with nectar and serve as microhabitats for many animal species.

But they also constitute migratory paths and corridors for animals, connecting habitats to each other. On the other hand, areas alongside busy streets

and roads also bear risks in terms of road traffic, and fauna and flora are exposed to traffic emissions.

- **Traffic islands**

Traffic islands are usually larger spaces and, unlike roadside slopes, they are often better protected against the impacts of road traffic. As bigger traffic islands, for example at motorway interchanges, allow for largely undisturbed development of nature, these habitats often show particularly rich fauna and flora.



Old trees growing on a traffic island, a compact habitat



Space for flowers and woody plants between a road and a farm track

- **Railway embankments**

Railway embankments are amongst the most interesting and species-rich Eh da-areas in Germany. Thanks to their little mowed vegetation and their sunlit gravel surface, they provide habitats for many species. These conditions are particularly tailored to thermophilous and xerophilous species. The impacts of rail traffic on flora and fauna are relatively low.



Railway embankments can provide habitats rich in species

- **Flood control dams and dykes**

Like railway embankments, flood control dams and dykes provide numerous habitats, accommodating also rare species. Flood control dams often connect habitats over long distances; situated between water on one and agricultural land on the other side, they frequently provide shelter or enclaves of flowering forage for insects.



The sloping surface of dams and dykes is often exposed to the sun

- **Municipal green spaces and green patches between roads**

In general, there are a lot of green spaces in municipality or their immediate surroundings. These include areas of vegetation along transport routes, public green spaces and parks, but also wasteland or green patches between roads which are not specifically used, and many others. These areas are rarely used for conservation purposes. The only form of management is regular mowing as the most efficient way of maintaining them.



Sparingly vegetated land at the entrance to a village

This brief overview shows that Eh da-areas are present everywhere in agricultural landscapes. They are “nothing special” and can on the contrary be seen during every car ride, train journey or when going for a walk. They may not be noticed consciously, because this sight is so familiar.

However, not every space in the landscape that seems unused matches the definition of an Eh da-area. Many zones are either designated for a specific use or are already part of a concept aimed at preserving or protecting biological diversity. It is important to make this distinction, since such areas are not available for the concept of ecological enhancement as outlined in this guide.

The following zones do not qualify as Eh da-areas:

- compensation areas according to the obligation to compensate (e.g. compensation of the setting-up of a business park in a municipality) to enhance nature and landscape,
- designated areas to protect nature as a whole, or individual elements thereof, e.g. nature reserves, European protected areas (“Natura 2000”), natural monuments or national parks,
- agricultural land, including set-aside (i.e. land not cultivated for a certain period of time) or headlands,
- water bodies and riparian vegetation,
- woodlands,
- urban areas,
- private gardens.

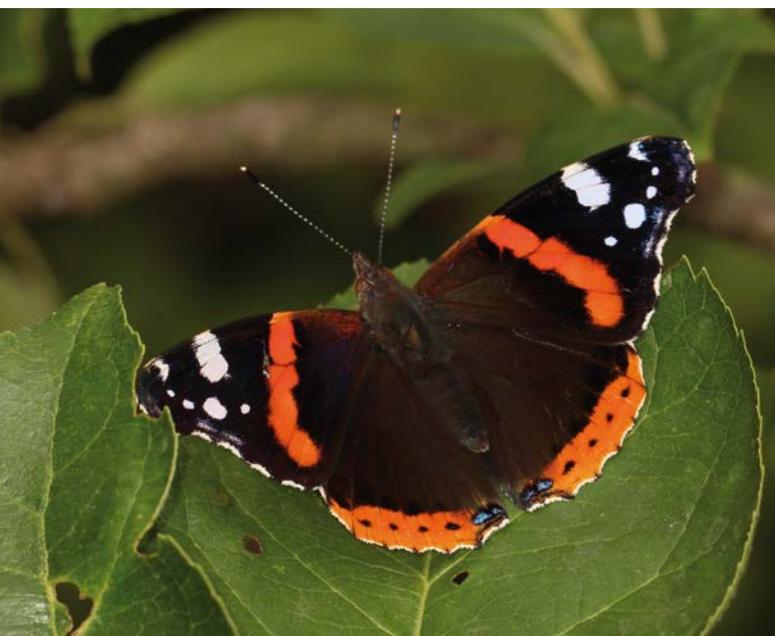
### 3. What are Eh da-areas good for?

Although Eh da-areas are typically small-scale patches, they account for a considerable total share of the agricultural landscape, depending on the region. They can comprise between 3 and more than 5 percent of the total surface of a landscape. Longitudinal zones can be made up of several small-scale areas, but they are of particular importance as they serve as corridors between different ecologically relevant areas, such as designated nature reserves. They are also used by migratory animal species, such as migrant birds or many types of butterflies.

Which animals and plants live in Eh da-areas? This mainly depends on the regional conditions and on whether and to which extent these areas are ecologically maintained. When talking about small-scale patches here, they are not expected to be a permanent home to big animals; but they may

well be hunting grounds for raptors, for example. Impacts from adjacent fields, such as fertiliser or pesticide inputs from farm land, or impacts of road traffic in case of heavy traffic, can limit the positive effects of Eh da-areas. Due to these exposures, particularly plant communities in residential areas are often dominated by grasses.

Enhancing Eh da-areas is an appropriate and useful measure, not just because of their relevance as habitats from a nature conservation point of view, but also because of the vital “ecological services” provided by animals and plants colonising these areas. Services include pollination, pest control through beneficial organisms (living in Eh da-areas), soil protection against erosion (through vegetation on Eh da-areas) and the preservation of the region-specific landscape, which again benefits tourism or hunting.



Red Admiral – a butterfly covering long distances



Grey-backed mining bee – nesting in sparsely vegetated areas

A close-up photograph of a meadow. The foreground is dominated by numerous small, light purple flowers, likely clover, growing densely together. Interspersed among these are several bright yellow dandelions in various stages of bloom. The background shows more of the same vegetation, with some taller green leaves and stems visible. The overall scene is a vibrant, natural landscape.

## 4. Habitat profiles

Eh da-areas offer different habitats, which are either created through enhancement or exist already and are worth preserving. Below, an overview of the main categories of land with corresponding enhancement measures is presented. There may well be overlaps between the individual categories, as ruderal areas, for example, can also be colonised by flowering plants or include raw soil habitats.

### 4.1 Grassland

**Definition:**

- The term grassland refers to open areas with non-woody vegetation, maintained as such through regular mowing or grazing. Meadow orchards constitute a special case: in addition to non-woody vegetation, fruit trees (generally old ones) grow on these meadows.

**Ecological relevance:**

- Grassland with abundant floral resources, colonised not only by grasses, but also by various herbaceous plants, provides food for many animals, including flower-visiting insects.

**Locations:**

- Grassland is the prevailing form of vegetation in residential areas, along roadsides or on flood control dams.

**Flower variety can be encountered  
after several years of maintenance**

**Development objectives:**

- Turning grass-dominated green spaces into areas rich in species with various herbaceous types of flowering plants.
- Flowering herbaceous plants are constantly available throughout the entire vegetation period.

**Obstacles:**

- Many grassland areas are maintained efficiently through regular mowing, which makes them look very “neat”. But after all, they are poor in species and thus largely useless for many animal species.
- Grassland on roadside slopes or flood control dams is mowed during the main flowering season, often on large patches at the same time, which leads to a large-scale forage shortage for flower-visiting insects.
- When grassland areas are not mowed, they will develop into matted fallow land within a couple of years, with bushes starting to grow as part of natural succession. These areas still fulfil vital ecological functions, but this does not match the purpose of turning Eh da-areas into flower-rich grassland.
- Excess nutrients due to fertilisation or input from adjacent fields benefit grasses and often prevent the development of herbaceous flowers.

**Management aimed at ecological enhancement:**

- Managing grassland with the aim of ecological enhancement requires well-coordinated mowing. Sometimes it is sufficient to mow such areas once a year after the vegetation period, i.e. starting from mid-September.
- In many cases (extremely strong growth, too many nutrients in the soil, optical reasons) it is appropriate to schedule two cuttings a year, for example in May and September.
- If possible, partial mowing is recommended, with the first cutting being done in two steps at an interval of 3–4 weeks, mowing half of the area at each interval. On roadside slopes or dams, for example, this can be done by strip mowing, which allows the insects living on the mowed strip to change to the flowers of the uncut strip, until new flowers have grown in the mowed zone.
- Nutrient depletion: in case of nutrient-rich soils the clippings should be removed (soil impoverishment, i.e. reducing the nutrient content of

nutrient-rich soils) and composted. If the soil is extremely poor in nutrients, you may also leave the clippings in place. Over the course of several years, nutrient depletion will lead to the plant spectrum changing from wind-pollinated grasses to flowering plants.



Grassland maintained through regular mowing



The apex-furrowed bee depends on open soil for nesting



Partial mowing allows for an area rich in vegetation and flowers to remain between the road and the field

## Flower strip with annual and perennial plants in summer



## 4.2 Flower strips and patches

### Definition:

- Flower strips and flower patches are set up using special seeds. A distinction is made between annual and perennial flower strips and patches.

### Ecological relevance:

- Flower strips provide food for flower-visiting insects. Moreover, they can accommodate other insects and small animals.
- Perennial flower mixes serve as habitats for hibernating insects.
- Flower mixes are particularly suited to complement other types of habitats, such as set-aside land, allotments or raw soil habitats.

### Locations:

- Flower mixes can either be grown as linear patches lining paths or roads (flower strips) or as larger areas (flower patches).

It is advised that flower patches should not be smaller than half a hectare.

- Flower strips and patches can basically be set up on all Eh da-areas that are poor in flowers and not used to pursue other development objectives (e.g. preserving patches of raw soil). Areas already colonised by valuable natural vegetation or featuring hedges and other landscape elements do not qualify as flower patches.

### Development objectives:

- A large variety of flowering plants is available for foraging during the entire vegetation period, which helps filling forage gaps (especially in summer) and providing food for insects specialised in particular plants.
- In addition, overwintering habitats for small animals are created.

**Obstacles:**

- Growth of volunteers and unwanted plant species (weed pressure, grasses).
- The flower mix is too unbalanced (not enough plant species).
- The flowering period is too short.
- The seed mixture is not suitable for the specific region or location.

**Management aimed at ecological enhancement:**

- Flower mixes are normally available for various types of soil (dry/sandy/fresh/moist). As weed growth constitutes the main problem in establishing the flower mix, the seedbed must be well prepared (ploughing in advance; if necessary, mechanical weeding just before seeding). The best time for seeding is in late summer/autumn. In the first year it may be necessary to top weeds once or twice for weed control. Many flower mixes will not fully blossom until the second year. Perennial flower mixes usually blossom over a period of five years and more, before they may have to be replaced. Apart from topping weeds, and depending on the mix, one cutting may be necessary in autumn. Locations with high weed pressure or high nutrient supply are generally not suited for flower mixes, as grasses will become dominant. Poor marginal sites are ideal.
- When perennial plants have ceased blossoming, it is recommended to not remove the overwintering parts, although the brush may give an “untidy” appearance. It can accommodate many overwintering small animals. Raising public awareness can help to generate understanding for this measure.

**Recommendations:**

- It is suggested to use perennial flower mixes rich in species that contain native plant species. Optimum mixtures for wild bees should include members of the following plant families: crucifers, composites, umbellifers, the pea family, the mint family and the bell flower family.
- The disadvantage of annual flower mixes is that they normally have relatively short flowering periods. Besides, many annual mixes are tailored to

honeybees and thus include only few plant species that can also be visited by foraging wild bees or other insects. From an ecological point of view, perennial seeds with native plant species (regional seeds) are a much better choice.

- Not all types of seeds find favourable conditions everywhere. If available, local experience on the suitability of certain seeds should by all means be taken into account.



Annual flower strip between road and field edge



Flower strip in autumn providing overwintering habitats for many insects

## 4.3 Horizontal raw soil habitats

### Definition:

- Raw soil habitats are characterised by patches which are largely vegetation-free or only sparsely vegetated. Soil without green cover is prevailing, and there is always bare soil (loam, loess, sand), but no gravel or rock. Such raw soil habitats either have a horizontal or a slightly inclined surface.

### Ecological relevance:

- Raw soil habitats provide important habitats for a number of pioneer species amongst plants and small animals. In the original German landscape, mainly floods constantly created new habitats of this type. Today, plants and animals relying on such habitats depend on man-made “secondary biotopes” such as sandpits, hollow roads or scarps.

Many wild bee species, in particular, nest in the soil or in vertical, sun-exposed loess and loam walls. Moreover, annual plant species growing in raw soil habitats are an important source of forage for insects in springtime.

### Locations:

- Today, horizontal bare soil as a natural element of our landscape hardly exists anymore. Such patches may still be found on construction sites or occasionally on farm land as a result of earth-moving.
- Dirt tracks on farms and in residential areas that are kept free from vegetation through regular use by vehicles or pedestrians can comprise raw soil habitats, especially on the verges.
- Horizontal raw soil habitats also include roadside slopes and waysides – areas from which vegetation has been eliminated by heavy machinery.



**Raw soil habitats along waysides serve as nesting sites for many wild bee species**



**Horizontal raw soil habitats can also develop through regular use by vehicles or pedestrians**

**Development objectives:**

- Horizontal raw soil habitats ought to remain in place as areas largely free from or poor in vegetation for several years.

**Obstacles:**

- It is a natural fact that raw soil habitats tend to become overgrown very quickly, and from the second year onwards they frequently develop into ruderal areas rich in vegetation. But the vegetation cover prevents specialised wild bee species, for instance, from building their nests.
- Raw soil can be vulnerable to erosion.

**Management aimed at ecological enhancement:**

- It is recommended to set up parts of Eh da-areas as bare raw soil habitats using appropriate machinery (e.g. cultivator or rotary tiller).
- Existing raw soil habitats must be protected against shrub invasion and should not be used for growing trees to avoid shading.

**Please note:**

- It is advisable to set up and maintain raw soil habitats in close proximity to flower strips and other flower-rich habitats to ensure availability of both elements of combined habitats (breeding and foraging), which many wild bees need.

- Depending on vegetation growth intensity, raw soil habitats can also be left unmanaged for two or three years and new adjacent areas can be set up. This allows for permanent availability of one-, two- and three-year-old vegetation, which is a perfect habitat mosaic for all species.
- Raw soil habitats do not have to be of a certain size to benefit wild bees. Areas of a few square metres can be sufficient. Strips of raw soil with a minimum width of half a metre are well suited, too.
- As natural raw soil habitats only exist for a short time before they become overgrown, wild bees living in these habitats are very mobile and have no difficulty in colonising new raw soil habitats in the immediate vicinity every 2 to 3 years.
- When it comes to protecting wild bees, in particular, the relevant measures must be taken very carefully (e.g. manually instead of using machines) in order to avoid destroying existing bees' nests.
- Unlike flowered areas, raw soil habitats are not particularly attractive. This is why it is usually necessary to explain to the public why they are still worth preserving.



**Combined habitat:**  
An open scarp next to abundant floral vegetation benefits many wild bee species.

## 4.4 Vertical raw soil habitats

### **Definition:**

- Steep faces and scarps are vertical soil structures free from vegetation. These include slopes, deep plough furrows, loess hollow ways, soil dug up during construction measures, or earth fills.

### **Ecological relevance:**

- Open steep faces and scarps have become rare in today's landscape, but they are an important nesting site for wild bees and other insect species. Some species have specialised in vertical nesting structures and cannot build their nests on level ground. At the same time, the vertical surfaces must be sunlit to serve this purpose.

### **Locations:**

- They are to be found primarily on slopes, scarps, loess or loam walls and in hollow ways, in sand and gravel pits and generally in the context of earth-moving (building land, road construction).

### **Development objectives:**

- Vertical raw soil habitats that are exposed to the sun and kept free from vegetation are set up or maintained.
- Even low scarps with a minimum height of 30cm are worth preserving as they can serve as nesting sites for many wild bee species.



Beginning shrub invasion by blackberry leads to shading and reduces the habitat value for wild bees



The bee chafer beetle lives in habitats rich in flowers

**Obstacles:**

- Vertical raw soil habitats usually become overgrown from the bottom or the top, while the vertical surface itself remains largely free from vegetation.
- Especially in loess landscapes, hollow ways are asphalted or edges turned into embankments, which makes the raw soil disappear.
- Vertical raw soil habitats can be affected by water erosion.

**Management aimed at ecological enhancement:**

- Vertical raw soil habitats are relatively easy to maintain by removing the vegetation at the upper and lower edges of the steep face.

- Every so often vertical raw soil habitats must be set up again, as the soil tends to crumble away over time.
- The possible risk of soil erosion must be taken into consideration as early as during the planning stage of vertical raw soil habitats.
- Once again, it is recommended to take all measures carefully (e.g. manually instead of using machines) to protect existing bees' nests.
- Due to annual erosion there is a gradual retreat of vertical raw soil habitats (headward erosion), which is why sufficient land must be available behind the upper edge when planning the measure.



**Non-cultivated land benefits many different plant species**

## 4.5 Ruderal areas

### **Definition:**

- Ruderal areas are fallow land that can develop undisturbed over a long period of time (usually several years). This allows for dynamic development of vegetation, which normally follows a natural cycle over the years: open soil – development of annual plants and grasses – development of perennial plants – emergence of woody plants – shrubs – mixed deciduous woodland (final stage of the natural succession in most of Germany).

### **Ecological relevance:**

- Ruderal areas are vital as they are very dynamic, providing different habitats over the years. They usually consist of combined types of habitats, which is why they are colonised by very different plants and animals.

- Ruderal areas contain structural elements that can be used by animals as overwintering habitats or nesting sites (some bumble-bees build their nests only on slopes with matted grass).
- In addition, these areas offer several vital forage plants for bees that would not develop on land mowed on an annual basis.

**Locations:**

- Ruderal areas develop anywhere, when vegetation is removed without subsequent cultivation or maintenance; that is when nature is basically “left to itself”.

**Development objectives:**

- Ruderal areas ought to be able to develop pretty much undisturbed over several years.
- They ought to be characterised by a coexistence of as many structural elements and stages of vegetation development as possible. These include: hedges, matted grass, solitary trees with deadwood, clearance cairns etc.

**Obstacles:**

- Without human maintenance, ruderal areas tend to become covered with shrubs and woodland over time.

**Management aimed at ecological enhancement:**

- After some years, unmanaged ruderal land will lose its character as habitat for specially adapted ruderal species. This is why such areas should be mowed with heavy machinery every three to five years, shrubs and growing trees should be removed, or all or part of the area should be ploughed up and set up again.
- If that is the objective, ruderal areas can also be allowed to gradually turn into copses of shrubs.



The tawny mining bee can be found in many gardens



Diverse ruderal habitat developed over several years at the edge of a water body



Shrubs and trees are removed on railway embankments, thus providing space for abundant flowering plant communities.



**Ecotone made up  
of trees and shrubs**

## 4.6 Woody copses

### **Definition:**

- Depending on their age, woody copses consist of different shrub and tree species. This habitat type is dominated by woody plants.

### **Ecological relevance:**

- Copses of shrubs and trees are home to birds and numerous small animals. A lot of birds, for example, depend on dense woody vegetation for building their nests.
- Many insects and other small animals overwinter in woody copses.

### **Locations:**

- Copses of shrubs and trees are mainly to be found along farm tracks, on the edge of fields, or alongside railway embankments or country roads; they take the shape of linear vegetated structures.

### **Development objectives:**

- A variety of woody plants adapted to the region, fulfilling different ecological functions.
- Shape the overall appearance of the regional landscape.
- Copses are longitudinal structures and thus vital elements in connecting individual habitats.



The eye-catching swallowtail butterfly likes visiting flowers on Eh da-areas



Blooming dog rose



Blooming hawthorn hedge

**Obstacles:**

- Over time copses of shrubs tend to develop ever bigger woody plants up to trees. Moreover, they extend laterally, which may be contrary to the original objectives of setting up the copse.
- Copses of shrubs can shade adjacent open land.
- Conflicts with agriculture or traffic safety (obstructed view in road traffic) may arise.

**Management aimed at ecological enhancement:**

- Setting up new woody copses can be done in a natural way by allowing the existing vegetation to continue to grow.

- Greater effort is needed for setting up new copses in a more targeted way, as this entails planting specific tree and shrub species. On the other hand, it will allow for a deliberate choice of species, for example shrubs that provide forage for pollinators, such as dog rose, hawthorn or amentiferous willows.
- Maintenance includes pruning excessive lateral growth and planting new shrubs when the existing vegetation gets too old.



**The newly planted tree will eventually replace the old one**

## 4.7 Trees

### **Ecological relevance:**

- Trees fulfil several important functions in the ecosystem. They provide habitats to birds, small mammals and many insect species.
- Trees are structures that shape the overall appearance of landscapes and townscape.
- Dead branches of trees will immediately be colonised by a number of insects. They leave behind burrows, which again can be used by wild bees for building nesting holes.

- Ivy growing on old trees is an essential source of forage for honeybees and wild bee species, especially in summer when there is low forage supply.
- Holes in old trees provide habitats to many bird species and bats.

### **Locations:**

- Alleys, solitary trees in the open landscape and in built-up areas, fruit trees and bushes, e.g. on meadow orchards.

**Development objectives:**

- Preserving a great number of native tree varieties and species.
- Preserving trees rich in structure, i.e. with proportions of snag and deadwood.
- Trees are fundamental elements of combined habitats (e.g. in the vicinity of flowering meadows).
- Preserving trees that shape the overall appearance of landscapes and townscales.

**Obstacles:**

- Trees grow bigger, cast shadows and lose their leaves in autumn. Before planting a tree, it should be made sure that this will not create problems.
- Safety of pedestrians and road traffic as well as protection against falling deadwood must be ensured.

**Management aimed at ecological enhancement:**

- In many cases professional tree refurbishment can help preserve old trees and thus the habitats they provide for animals. It is strongly recommended to examine this possibility before deciding on cutting a tree.
- New trees must be planted to ensure a continuously high level of diversity in the future.
- Maintaining existing trees and planting new ones in agricultural landscapes can contribute to preserving old species of standard fruit trees, many of which have become increasingly rare.
- When old trees are felled or large branches removed, it is desirable that the wood be stored to allow for the development of insect larvae living in the wood.



Meadow orchard



The rose chafer is a colourful visitor of blossoms



Old fruit tree with proportion of deadwood

Fungi growing on a decaying tree stump,  
decomposing old wood



## 4.8 Snag, deadwood, wood storage

### **Ecological relevance:**

- Solid wood in various stages of decay and with several cavities is home to many animal species. Different forms of storing wood make for a wide variety of habitats.

### **Management aimed at ecological enhancement:**

- Wood storage sites or woodpiles are to be maintained and set up.

- It is suggested to let big tree trunks and large branches rot over time, as they are colonised by various insects, depending on the stage of decay. They should be exposed to the sun.
- Wood storage sites, too, are often perceived as untidy and do not match our idea of beautiful nature, which is why communication is of vital importance.



Many insects colonise stored wood, in particular when it is exposed to the sun



**Crevices in dry stone walls provide important habitats for small animals**

## 4.9 Clearance cairns and old walls

### **Ecological relevance:**

- As the name implies, clearance cairns developed as a result of farmers picking up unwanted stones on farm land and piling them up next to the fields. Clearance cairns and old walls provide essential habitats for thermophilous small animals, such as lizards. Some animals live in the holes of clearance cairns, such as bumble-bees and wasps, others bask on the warm stones or find food there.

### **Management aimed at ecological enhancement:**

- Walls will only be able to fulfil this function, if crevices are not sealed (dry stone walls). It is suggested to set up dry stone walls to support slopes in danger of sliding.
- Residents frequently remove stones from clearance cairns for decorating their gardens, as a result of which clearance cairns tend to disappear from the natural landscape. This is why signs pointing to the problem should be put up or clearance cairns be covered with a wire mesh.
- Walls and clearance cairns will only meet their purpose, if they are not overgrown with vegetation, such as blackberries.

They can be colonised by small plants relying on this type of habitat.

- There is hardly any natural development of new clearance cairns under today's forms of agricultural land use. Instead, they can be set up artificially, using regional natural stones.



Clearance cairn on the edge of a residential area

## 4.10 Gardens

### **Ecological relevance:**

- Although gardens do not qualify as Eh da-areas, they should briefly be mentioned here. After all, there are abandoned or little used old gardens or any other sort of “enchanted places” in many municipalities. These patches of land often do not fit our idea of neat and tidy towns and villages, yet they accommodate a variety of important animal and plant species. This is because these gardens frequently combine many or even all of the relevant structural and land features of the Eh da-concept described above.
- Allotments, for instance, can be the starting point for the colonisation of newly established Eh da-

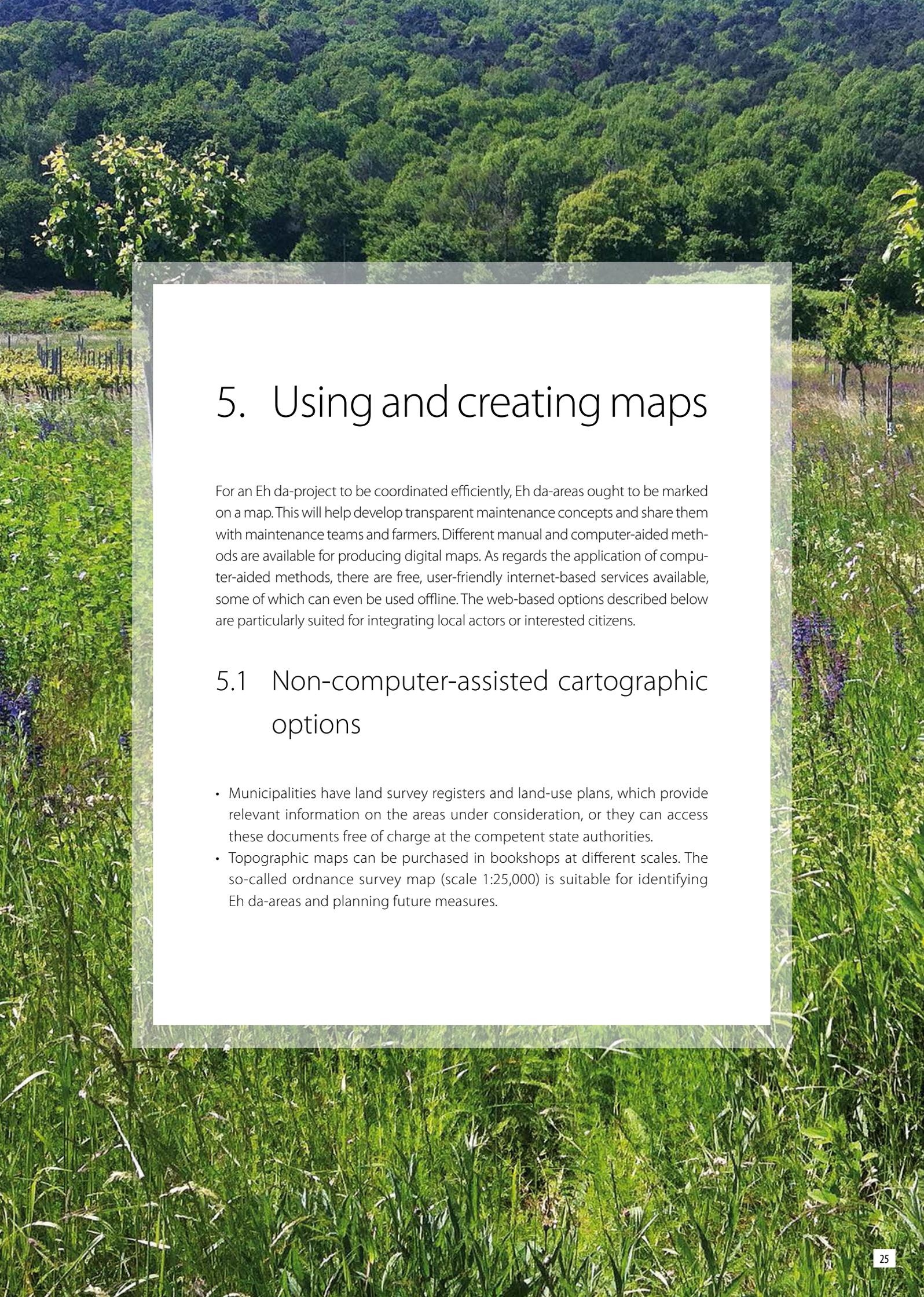
areas. Hence, they should be taken into account when developing an Eh da-concept, for example as elements of combined habitats.

### **Management:**

- Refraining from tearing down an old barn, not removing wood piles or stones, not cutting back an overgrown tree – all of the above can be vital contributions.
- It does not take more than annual mowing of grassland to allow for the development of meadow plants on sun-filled open areas.



“Untidy spots” provide habitat to many animal species



## 5. Using and creating maps

For an Eh da-project to be coordinated efficiently, Eh da-areas ought to be marked on a map. This will help develop transparent maintenance concepts and share them with maintenance teams and farmers. Different manual and computer-aided methods are available for producing digital maps. As regards the application of computer-aided methods, there are free, user-friendly internet-based services available, some of which can even be used offline. The web-based options described below are particularly suited for integrating local actors or interested citizens.

### 5.1 Non-computer-assisted cartographic options

- Municipalities have land survey registers and land-use plans, which provide relevant information on the areas under consideration, or they can access these documents free of charge at the competent state authorities.
- Topographic maps can be purchased in bookshops at different scales. The so-called ordnance survey map (scale 1:25,000) is suitable for identifying Eh da-areas and planning future measures.



Web-based mapping of Eh da-areas can also be done on your home PC

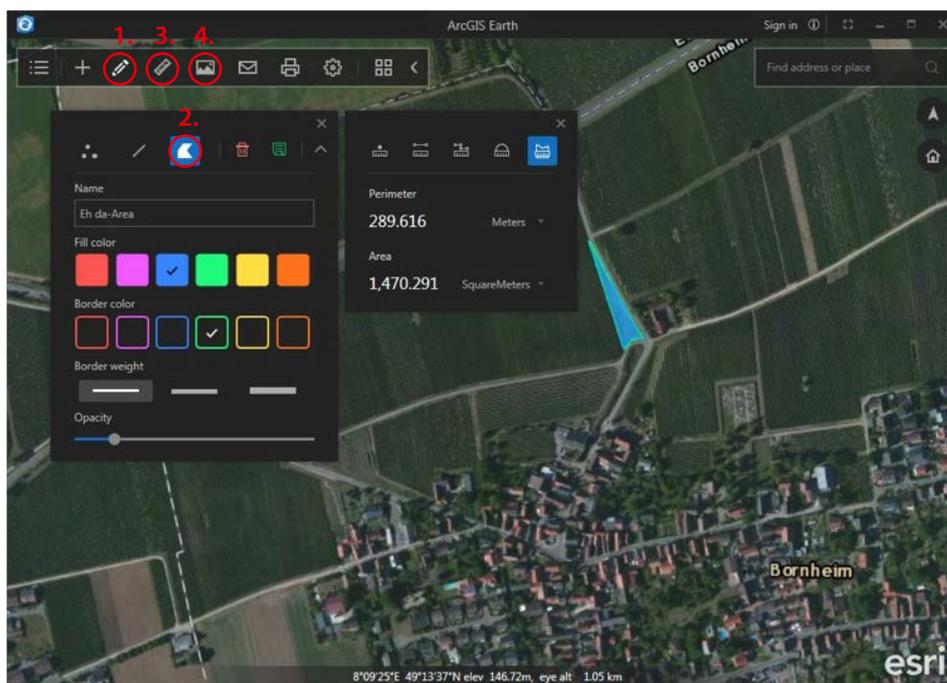
## 5.2 Computer-assisted and web-based cartographic options

In the following, two simple options for web-based, convenient planning will be presented to accompany Eh da-projects from a home PC, both of which support digital mapping and sharing of identified Eh da-areas using dynamic (option 1) or static (option 2) map data.

### Option 1: ArcGIS Earth

“ArcGIS Earth” is a free programme (freeware) to be downloaded at [www.esri.com](http://www.esri.com), before installing it on a computer. It offers various functionalities for digitalising Eh da-areas, saving them as geodata (e.g. in “KML” or “SHP” format), sharing them and for generating maps according to respective needs (see figure below):

- ① Move the map section to the relevant position in ArcGIS Earth and select “Draw” at the top left of the menu bar.
- ② Activate “Polygon” in the new window and mark the Eh da-area in the map section.
- ③ The “Measure” function allows for using point coordinates, distance measurements and surface measurements.
- ④ Finally, the “Save image” function can be used to save the marked Eh da-areas as an image (e.g. “JPG”) in the selected map section on the underlying aerial image.



Screenshot ArcGIS Earth – free map software

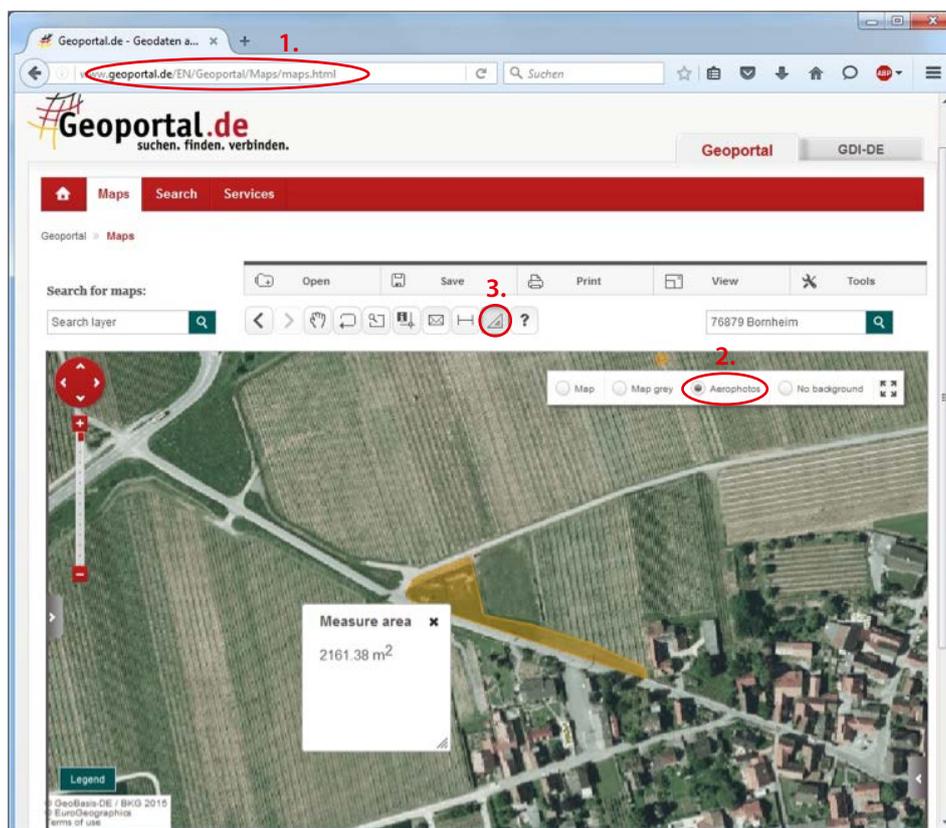
### Option 2: "Geoportal.de"

The webpage "Geoportal.de", which provides maps mainly in the form of aerial images, also allows for measuring potential Eh da-areas and viewing their direct surroundings, without the need for installing additional software. With this programme, the measurement of an area will only be shown temporarily and for just one individual area (see figure on this page). Below, an example is presented of how to preselect a potential Eh da-area:

1. Enter the following web address in an internet browser (e.g. Firefox): [www.geoportal.de/EN/Geoportal/Maps/maps.html](http://www.geoportal.de/EN/Geoportal/Maps/maps.html),
2. select "Aerophotos" as map background,

3. activate "Measure area", zoom to a potential Eh da-area in the map section and surround it with a line.
4. Finally, the map section can be saved as a screenshot pressing the key combination "Alt+print", as shown in the figure below. In this way, it can be pasted into a text or an image editing software, for example, where it can be saved in the desired format (e.g. "JPG") and can thus be printed and shared.

Based on the map sections or files created, which show the measured Eh da-areas, project stakeholders and local actors can come to an agreement as regards the identification and selection of Eh da-areas.



Screenshot Geoportal.de – free interactive map browser

Both options presented offer the possibility of creating simple interactive (option 1) or static (option 2) maps. This will help taking into account surrounding areas, considering possible cross-linking with other habitats and extrapolating the cost of enhancement

projects (e.g. seeds) based on the square measures. In addition, both options provide geographic search functions to quickly locate potential Eh da-areas by entering the place or street name.

## 5.3 Professional solution

Professional geographic information systems (GIS) can be applied to conduct and map further spatial analyses. In this context, RLP AgroScience developed process chains to automatically identify Eh da-areas. Besides, further analyses of areas can

be made to differentiate between various surface structures (high-rise vegetation, sealed land etc.) or reliefs (slope, orientation), which again allows for monitoring success of completed enhancement measures on Eh da-areas.

# 6. Who is the Eh da-concept aimed at?

In general, maintaining and enhancing biodiversity are challenges to be addressed by society as a whole. They affect us all! As regards the maintenance of Eh da-areas, the central actor usually is the municipality or the land owner, since Eh da-projects require teamwork, and the municipality is the organisational entity able to pool local actors and coordinate all stakeholders in the best possible way.

Who can initiate an Eh da-project and who should be involved?

- Anyone interested: any individual can initiate an Eh da-project. The procedure is illustrated in the flow chart on pages 30 and 31.
- Agriculture: farmers are interested in pollination and the activities of beneficial organisms. Contributing to maintaining the species diversity of the agricultural landscape is in line with the general goals of agriculture.
- Nature and landscape conservation: nature and landscape conservation are organised in many ways by federations, associations and authorities. This is where to find the necessary expertise for successfully implementing an Eh da-project.
- Beekeeping: sources of forage apart from mass forage, such as rapeseed or fruit flowers, are of crucial importance, since they are available during summer and late summer, when flower

availability is generally limited; but also because they contribute to forage diversity.

- Garden owners: garden owners depend on pollination services for harvesting fruit and berries. Bumble-bees, honeybees and the large variety of wild bees living solitary or in colonies fulfil this function. They also add to the beauty of a garden – or could you imagine flowers without bees and butterflies?
- Hunting: Eh da-areas in open landscapes offer food and shelter to small game species, such as hare or pheasant.
- Municipality: preserving biological diversity is in the municipality's interest. Mayor, municipality council and related institutions (e.g. road construction authority, nature conservation authority) or political decision-makers must be integrated and can initiate an Eh da-project.
- Media: the press plays an essential role in communicating an Eh da-project as the media inform citizens about planned measures, conservation goals and the development of a project.



## 7. Course of an Eh da-project (schematic)

An Eh da-project is to last for several years and depends on the cooperation of various institutions and committed persons. The following basic chart illustrates the workflow of an Eh da-project that has proven successful in practice.

### 7.1 Preparation phase

Every project starts with an idea: What about launching an Eh da-project in my community? Since every Eh da-project depends on the contribution of several participants and is therefore carried out through teamwork, it is worth sharing the ideas with other potential participants from the very beginning.

## 7.2 Planning phase

### Involvement of stakeholders

The municipality is the central actor in every Eh da-project, as it is responsible for coordinating the project, and decision-makers as well as active stakeholders are involved here. Thus, integrating the municipality with municipality council and mayor, land owners and the lower nature conservation authority is an indispensable requirement.



### Preselection of areas at the municipal level

Potential Eh da-areas are registered on the basis of available data and maps (see chapter 5). At the end of this project step, areas eligible for Eh da-measures will have been identified (potential Eh da-areas).

**Analysis of the areas at municipal level using GIS and land registry data → potential Eh da-areas**



### Team formation

Eh da-projects develop through teamwork, and it is useful to establish a (at least loose) team structure. One person should be responsible for scheduling meetings and maintaining contacts. Experts play a vital role.

**The Eh da-team consists of decision-makers and experts. Clarify funding, property situation, expertise. If applicable, link the project to other ongoing projects in the community.**



### Analysing the area

This step will lead from “potential Eh da-areas” to “real Eh da-areas”. This entails site inspections, defining conservation goals (beekeeping? nature conservation? other stakeholders?) and getting the landowners’ consent. At the end of this project step, conservation goals and suitable areas will have been identified.

#### Site inspections. The Eh da-team agrees on:

- ecological conservation goals
- project areas have been identified; potential Eh da-areas will be turned to real Eh da-areas.



### Planning of measures

Who is going to do what and when? It is recommended to put up a written plan that shows all the project steps, in particular the planned sequence and the name of the respective person in charge. The plan is the basis for the subsequent implementation phase.

**Project launch; duration; area requirements; cost; expertise; expert participation (interested parties, possible donors)**



Communication is key for every Eh da-project. It is recommended to inform the public before launching a project, for example through municipal newsletters or through the local press.

## 7.3 Implementation phase

### Implementation of measures & documentation

Implementation requires the participation of the entire team. Eh da-projects have the advantage of progress being visible as early as in the first year. This progress should be documented and discussed.

#### Documentation of measures and results:

- a. expert participation
- b. photo documentation
- c. integrating the community and the press; possible excursion
- d. maybe monitoring



### Monitoring success

At the end of the first year, but definitely during the second year valuable experience will have been gathered. Exchanging experiences is crucial; in addition to success stories, however, also weaknesses should be discussed.

#### Monitoring success:

- a. get feedback from the Eh da-team and the community
- b. fix weaknesses and mistakes



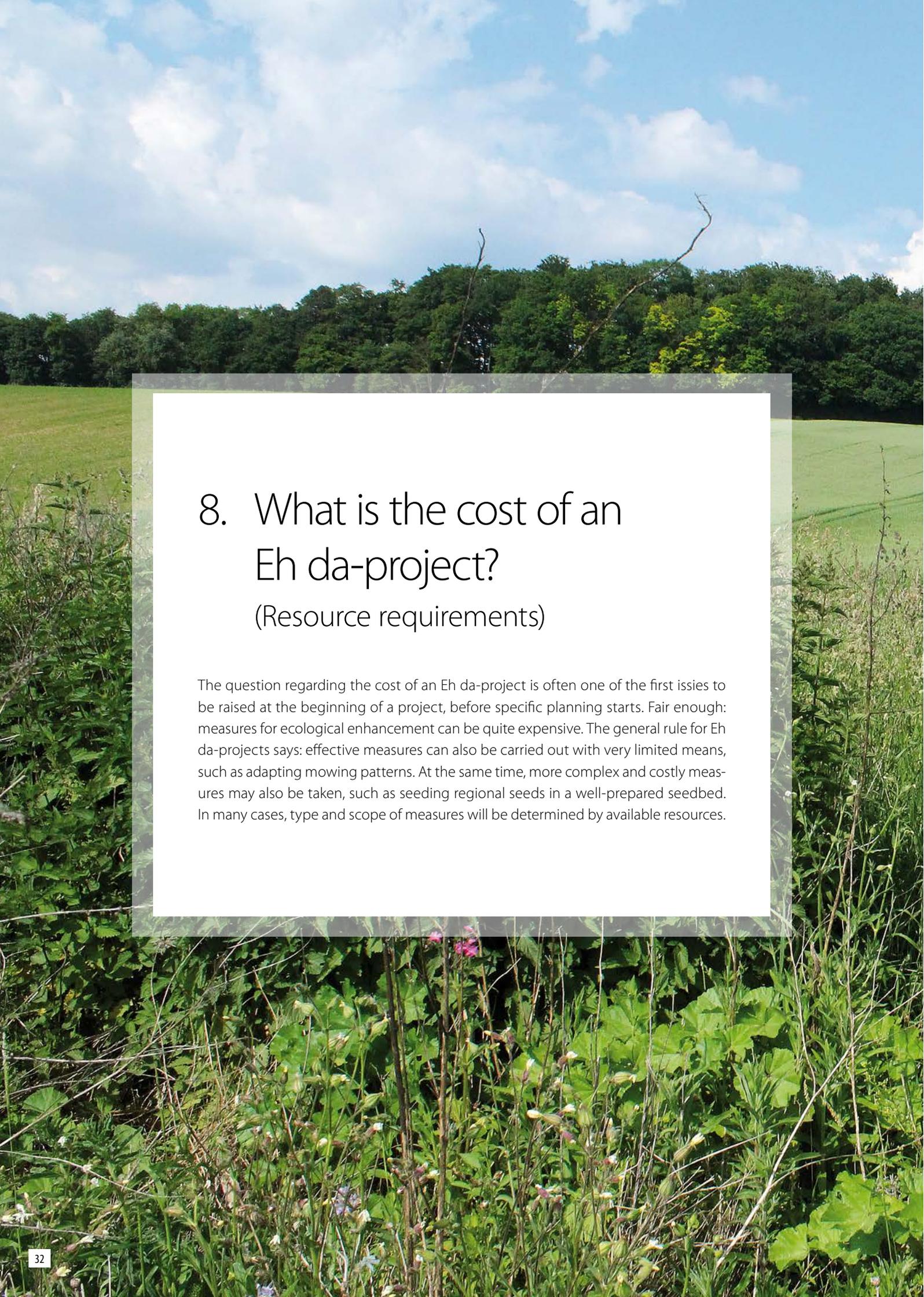
### Multiplication

This is when communication – within the Eh da-project, but also with other interested parties, such as neighbouring communities – becomes increasingly important.

#### After two or several years:

- a. communication with other municipalities becomes increasingly important
- b. support to neighbouring communities in implementing Eh da-projects

Communication is key during and even more so towards the end of the implementation phase. Eh da-projects are visible to everyone. And it may take a bit of explaining to make people understand why the neat green space they were used to has turned into herb-rich grassland or a seemingly untidy area of thicket.



## 8. What is the cost of an Eh da-project? (Resource requirements)

The question regarding the cost of an Eh da-project is often one of the first issues to be raised at the beginning of a project, before specific planning starts. Fair enough: measures for ecological enhancement can be quite expensive. The general rule for Eh da-projects says: effective measures can also be carried out with very limited means, such as adapting mowing patterns. At the same time, more complex and costly measures may also be taken, such as seeding regional seeds in a well-prepared seedbed. In many cases, type and scope of measures will be determined by available resources.

In the following, examples of the cost of different Eh da-measures will be given. The cost calculation is based on usual market prices applicable to conservation measures carried out for municipalities. Please note that this information is only indicative, since:

- Some conservation measures are carried out by road construction authorities, many measures are taken by motivated project stakeholders (e.g. coordinated mowing times). School classes can be integrated as well. Costs can be, but do not have to be allocated to the municipality. Sometimes costs would have to be paid anyway and do not create an additional financial burden for the municipality.
- In our example from “Derenburg” it was one farmer who offered to have his staff take care of all necessary conservation measures during agricultural off-peak season.
- Various Eh da-work can be combined with habitat conservation measures that are carried out by highly committed people anyway.

Several forms of funding are available for Eh da-projects. Which type of funding a project is eligible for mainly depends on the Eh da-areas identified and – in case of German for example – on the respective federal state. On agricultural land this can include agri-environmental measures; in residential areas it can entail participation in competitions to promote sustainable rural development (e.g. “Our village has a future”). Finding local sponsors is yet another option, in particular when they are explicitly mentioned as project sponsors.

## 8.1 Cost comparison of conservation measures per habitat type

Habitat type	Standardised conservation measures	Eh-da-specific measures
<b>Grassland and meadows</b>	Maintenance: mowing incl. clipping removal, several times a year: 200–350 €/ha each, plus landfill fee, if applicable: 50–100 €/t per mowing (not applicable if clipping is used as mulch, animal feed)	Maintenance: lower mowing frequency to promote flowers: cost savings due to extended mowing intervals  Or soil impoverishment: 1. Setting up, time approx. 2–3 years: mowing 2–3 times per year with obligatory clipping removal and landfill fee, if applicable (see left column) 2. Maintenance, starting approx. in the 3rd year: mowing once per year with clipping removal and landfill fee, if applicable (see centre column): cost savings due to extended mowing intervals from the 3rd year onwards
<b>Flower strips and patches</b>	Maintenance: see “Grassland and meadows”	Setting up: 1. Preparing the seedbed: 500–600 €/ha 2. Sowing: cost of the seed greatly varies between 35–170 €/ha; reseeding approx. every 5 years for perennial seeds  Maintenance: cutting back unwanted weeds (weed pressure) for 100 €/ha Various options for funding, see text



<b>Flat raw soil habitats</b>	Maintenance: see "Grassland and meadows"	Setting up: soil cultivation through tilling: 200–400 €/ha (every 3–5 years) Maintenance: manual mowing to remove vegetation: 600–700 €/ha (every 3–5 years)
<b>Vertical raw soil habitats</b>	Standard conservation measures not applicable	Setting up: digging for 100 € per 10m Maintenance: - manual mowing: 600–700 €/ha (every 3–5 years) - digging off eroded soil at the foot of the slope: 100–200 € per 10m (every 3–5 years)
<b>Ruderal areas</b>	Maintenance: see "Grassland and meadows" or cutting back woody plants every 3–5 years (shrubs, unwanted trees): 300–600 €/ha, landfill fee, if applicable: 50–100 €/t	Setting up: cost-neutral Maintenance: cutting back woody plants every 3–5 years starting approx. in the 5th year, for cost see centre column
<b>Woody copses</b>	Maintenance: cutting back woody plants (see above)	Setting up: planting field shrubbery (local wild shrubs) for 10–40 €/m <sup>2</sup> Maintenance: cutting back woody plants (see above)
<b>Trees</b>	Planting new trees: planting trees incl. follow-up care for 40–100€/tree Maintenance: - tree rehabilitation (isolated measures for old trees) for 250–500€/tree - pruning and foliage removal (on a regular basis for trees in villages and towns and close to road traffic) for 50–80 €/tree	Planting new trees: planting flower-rich trees and historic regional fruit trees incl. follow-up care for 70–200 €/tree Maintenance: see centre column
<b>Snag and deadwood, wood storage</b>	Standard conservation measures not applicable	Setting up: cost-neutral storing and preservation of dead solid wood Maintenance: cost-neutral preservation of snag and deadwood Various options for funding, see text
<b>Clearance cairns and old walls</b>	Standard conservation measures not applicable	Setting up: - replacing grouted masonry with dry stone walls for 80–120 €/m depending on height and material - setting up clearance cairns cost-neutral Maintenance: manual mowing to prevent shrub encroachment for 600–700 €/ha (every 3–5 years)

Please note: full-cost accounting, i.e. incl. labour costs

## 8.2 Cost overview for flowering seed mixes

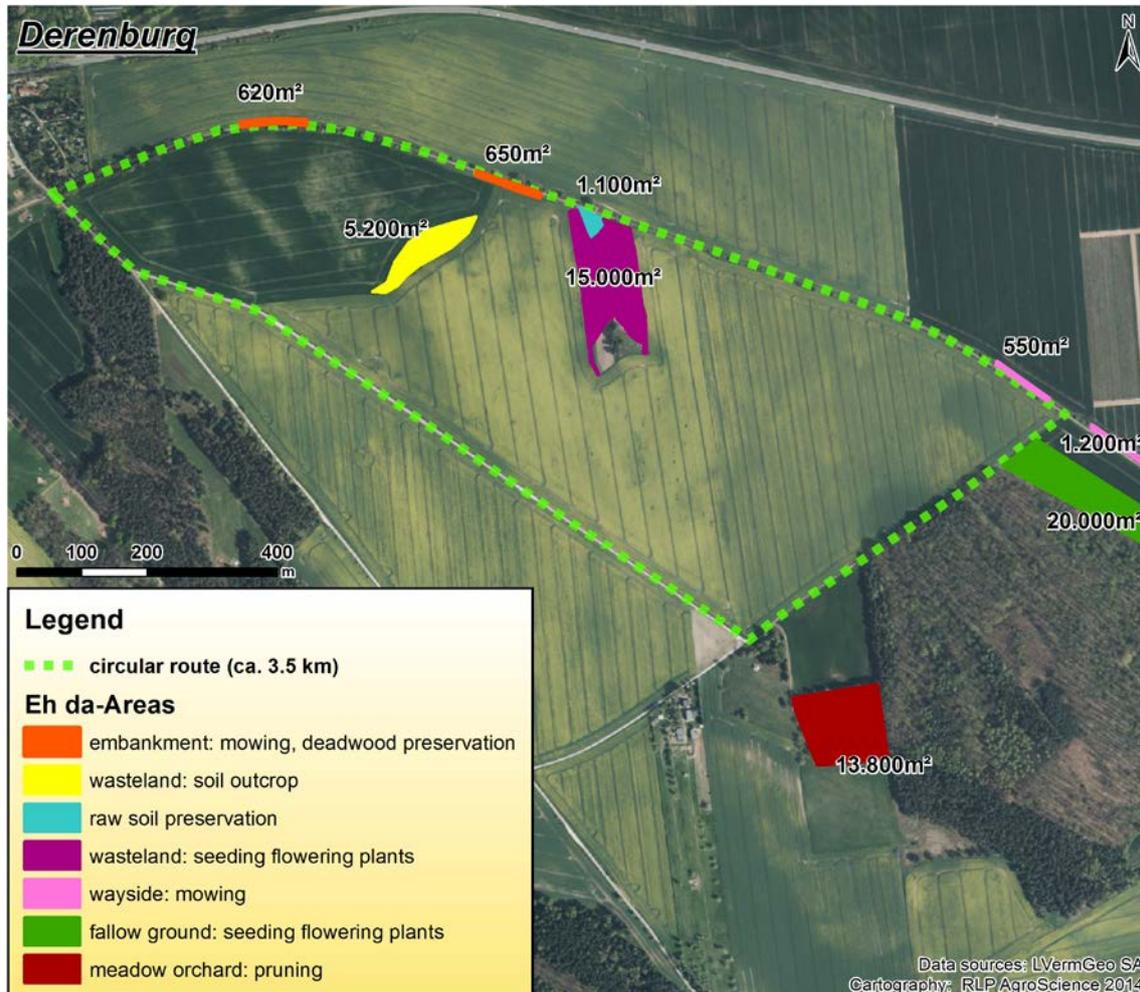
Category	Flowering seed mix (examples)	Cost (approx.)
Seeds for meadows & flower strips	• "Butterfly & wild bee flower strip" Seed rate: 2 g/m <sup>2</sup>	120 €/kg
	• "Flower meadow" Seed rate: 4 g/m <sup>2</sup>	95 €/kg
Seeds for residential areas	• "Flower lawn, herb lawn" Seed rate: 6 g/m <sup>2</sup>	50 €/kg
	• "Thermophilous flower strip" for private gardens, parks, public green spaces Seed rate: 2 g/m <sup>2</sup>	170 €/kg
Seeds for agriculture & forestry	• "Slopes, roadside vegetation" Seed rate: 5 g/m <sup>2</sup>	45 €/kg
	• "Seed mix for vine and fruit rows" Seed rate: 2.5 g/m <sup>2</sup>	35 €/kg
	• "Blooming landscape" Seed rate: 1 g/m <sup>2</sup>	35 €/kg

## 8.3 Recommended equipment

Measures	Required equipment
Mowing (e.g. grassland)	Double knife cutter-bar (animal-friendly) mounted on tractor
Preparation of the seedbed	Ploughing with half-turn plough, rotary cultivator for loosening the surface soil, fertiliser spreader for seeding, rolling, all equipment mounted on or pulled by a tractor
Topping	Flail mulcher mounted on tractor
Setting up or maintaining raw soil habitats	Tractor with front loader and shovel or mini-digger
Manual mowing (e.g. removing vegetation around clearance cairns)	Brushcutter with set of blades
Pruning woody plants	Vertical clearance or side mulcher

# 9. Pilot project

## Case study 1: Derenburg in Saxony-Anhalt



Overview map showing designated conservation areas in Derenburg

### Location:

Derenburg is part of Blankenburg, a town in the rural district of Harz in the north-western part of the German federal state of Saxony-Anhalt. The fields are located on the south-eastern edge of the town.

### Habitat types:

The designated Eh da-areas include a farm track built on an abandoned railroad embankment. The land is mainly owned by the municipality. The neighbouring farmer supports the cross-linking of habitats with deer and wildlife food plots as well as fallow land.

[www.tinyurl.com/ehdaderenburg](http://www.tinyurl.com/ehdaderenburg)



**Deadwood habitat next to the planned circular Eh da-path close to Derenburg**

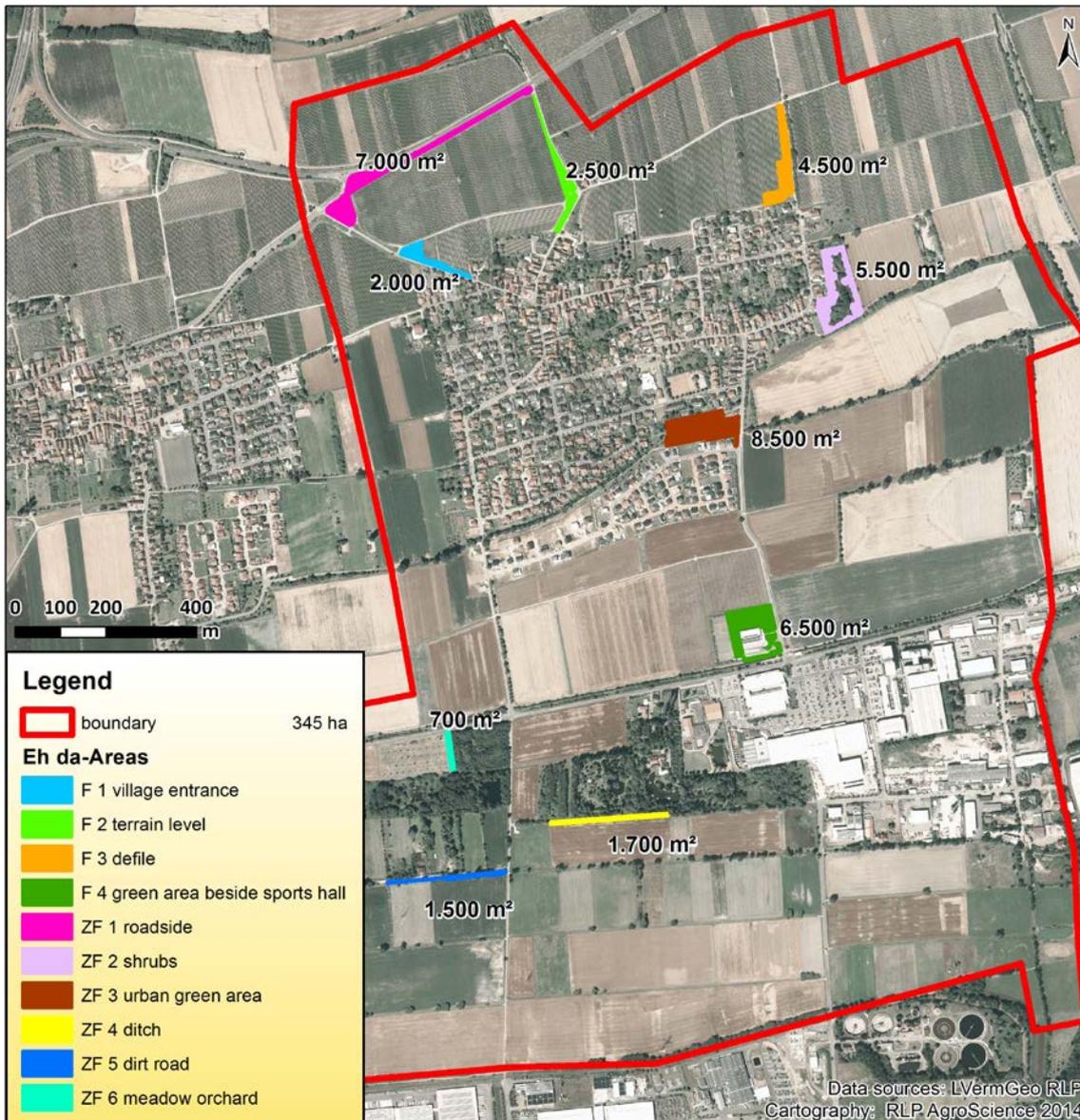


**Spacially off-set mowing – an efficient conservation measure**



**Land designated for seeding a mix of perennial flowering plants**

## Case study 2: Bornheim in Rhineland-Palatinate



Overview map showing designated conservation areas in Bornheim

### Location:

Bornheim is a town in the rural district of "Südliche Weinstraße" in the German federal state of Rhineland-Palatinate and belongs to the association of municipalities of Offenbach an der Queich. The Eh da-areas are located inside and outside the town.

### Habitat types:

A total of 10 areas have been identified for the purpose of ecological enhancement in Bornheim. It should be pointed out, however, that not the entire areas marked on the above map, but only parts of each of these Eh da-areas will be enhanced.

The first four conservation areas include a reservoir at the northern entrance to the town (F 1), a terrace comprising vertical raw soil habitats outside the town (F 2), a hollow way with adjacent land outside the town (F 3) and grassland surrounding the town's sports hall (F 4). On top of these, six additional areas have been identified: roadside vegetation along a northern access road (ZF 1), a woody copse adjacent to the eastern part of the town (ZF 2), a municipal green space (ZF 3), a ditch (ZF 4), vegetation lining a farm track (ZF 5) and a slope on a meadow orchard in the southern part of Bornheim (ZF 6).

[www.tinyurl.com/ehdabornheim](http://www.tinyurl.com/ehdabornheim)



Raw soil is preserved in this water retention basin next to the sports hall (F 4)



A large variety of flowers is provided at the entrance of Bornheim (F 1), existing structures (e.g. clearance cairns) are preserved.



Roadside vegetation maintained through spatially off-set mowing to promote flowers (ZF 1)



## 10. Biodiversity concerns all of us

As described at the beginning of this practical guide, enhancing biodiversity in agricultural landscapes is an essential requirement with a view to nature conservation and also in terms of protecting the functions of biodiversity. This is a crucial task to be tackled by society as a whole, not just by agriculture, although agriculture being the main factor influencing biological diversity – regarding both its increase and decline – is consistently placed in the centre of attention. The benefits of biological diversity are not limited to production-oriented functions, such as ecological services through pollination, activities of beneficial organisms or soil formation; they also include cultural services, such as the diversity and beauty of the landscape, which in turn benefit tourism. These precious resources must be maintained. The same holds true for the conservation of the large variety of native species often living in agricultural landscapes.

These are the assumptions the Eh da-initiative is based on. Unlike many other concepts, there is no need for additional land or major changes in the use of existing land. The Eh da-concept springs from the idea, which proved to be correct, that agricultural landscapes provide significant land resources – “Eh da-areas” – with potential for enhancing biological diversity. These resources are to be used. Taking the example of bees (honey-bee and wild bees), the guide at hand outlines possible options.

To avoid misunderstandings: the Eh da-concept does not aspire to compete with the many other concepts that have become established or are being discussed, for instance under the heading “Greening of Agriculture”. The Eh da-concept will not be able to provide significant protection to either large animals or overwintering agricultural birds, but it can make an important contribution to habitat connectivity, in particular due to the longitudinal shape of most Eh da-areas. At the same time, these areas can considerably enhance the variety of microstructures meant to be an integral element of agricultural landscapes, and thus support animals and plants that depend on these habitats.

# 11. A glimpse behind the scenes

In March 2012, a scientific potential study on Eh da-areas in agricultural landscapes (entitled “Eh da-Flächen in Agrarlandschaften”) was launched. On behalf of the initiative “Innovation & Naturhaushalt” of the Forum Moderne Landwirtschaft e. V., scientists from the Institute for Agroecology of RLP AgroScience and RIFCON GmbH conducted a quantitative and qualitative assessment of Eh da-areas in selected regions of Germany. The study was completed in summer 2014 with an extrapolation of the Eh da-potential in the whole of Germany. During the same period, the pilot projects described in this practical guide were launched. To ensure professional implementation the team was complemented by additional experts. Geoscientists, biologists, landscape planners and wild bee specialists contribute their scientific expertise to the project. This is to reflect the considerable importance of the project for promoting biological diversity in our agricultural landscape.

## **Further information (available in German only)**

- Blühmischungen für Bienen in Sachsen. – Praktische Tipps zur Anwendung im Agrarraum – Informationsbroschüre des Sächsischen Landesamtes für Landwirtschaft, Umwelt und Geologie, von C. Schmid-Egger & A. Grüttner, 2015, zu beziehen über [www.smul.sachsen.de/lfulg/](http://www.smul.sachsen.de/lfulg/).
- Naturschutzbrachen im Ackerbau. Praxishandbuch. Von G. Berger und H. Pfeffer, erschienen 2011 bei Natur & Text.
- Praxishandbuch zur Samengewinnung und Renaturierung von artenreichem Grünland. Von A. Kirmer, B. Krautzer, M. Scotton und S. Tischew, erschienen 2012, zu beziehen über [www.raumberg-gumpenstein.at](http://www.raumberg-gumpenstein.at).
- Wildbienen. Die anderen Bienen. Von P. Westrich, erschienen 2011 im Pfeil-Verlag.
- Wildbienenenschutz – von der Wissenschaft zur Praxis. Von A. Zurbuchen & A. Müller, erschienen 2012 bei der Bristol Stiftung/Haupt-Verlag.
- Links:
  - [www.Eh-da-flaechen.de](http://www.Eh-da-flaechen.de) (with numerous publications for download)
  - <http://youtu.be/CvDfSOZY8X4> (FSpecialist event Neustadt 2013)
  - <http://tinyurl.com/m4xl3vl> (International Green Week, Berlin 2015)

# Imprint

## **Editor**

Forum Moderne Landwirtschaft e. V.  
Initiative „Innovation & Naturhaushalt“  
Fanny-Zobel-Straße 7, 12435 Berlin

Phone: +49 30 814 5555-0

Fax: +49 30 814 5555-13

info@Eh da-flaechen.de

www.Eh da-flaechen.de

## **Managing director – operational management**

Lea Fließ (responsible according to the press law)

## **Project manager**

Kerstin Krohn

## **Authors**

Dr. Christian Schmid-Egger, Prof. Dr. Christoph Künast,  
Dipl.-Geogr. Mark Deubert

## **Design**

WPR COMMUNICATION, Berlin

## **Print**

DCM Druck Center Meckenheim GmbH

## **First edition**

April 2016



## © Picture credits

### Cover

IfA-RLP AgroScience (p. 1 top)

Christoph Künast (p. 1 bee)

### Table of contents

Christoph Künast (p. 2, 3)

### 1. Introduction

Christoph Künast (p. 4)

### 2. What are Eh da-areas?

Christoph Künast (p. 5, 6 top and bottom)

Marc Venema/shutterstock (p. 6 centre)

### 3. What are Eh da-areas good for?

Martin Künast (p. 7)

### 4. Habitat profiles

Christoph Künast (p. 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21 bottom, 21 centre, 22, 23 bottom, 24)

1stGallery/shutterstock (p. 21 top)

Robert Künast (p. 23 top)

### 5. Using and creating maps

Christoph Künast (p. 25)

IfA-RLP AgroScience (p. 26)

Bing Maps (p. 27)

### 7. Course of an Eh da-project (schematic)

Christoph Künast (p. 29)

### 8. What is the cost of an Eh da-project? (Resource requirements)

Christoph Künast (p. 32)

### 9. Pilot projects

LVerGeo RLP (p. 36)

IfA-RLP AgroScience (p. 37, 38, 39)

### 10. Biodiversity concerns all of us

Martin Künast (p. 40)

