LIFE Project Number

LIFE15 NAT/SE/000772

Final Report

Covering the project activities from 03/10/2016[1] to 30/11/2022

Reporting Date[2]

28/02/2023

Bridging the Spatial and Temporal Gaps in Threatened Oak Habitats

LIFE BTG

Data Project

Project location:	Baltic Sea Sverige (S), Småland med öarna, Sydsverige
Project start date:	03/10/2016
Project end date:	30/09/2022 **Extension date:** 30/11/2022
Total budget:	8 343 675 €
EU contribution:	4 999 784 €
(%) of eligible costs:	59,92 %

Data Beneficiary

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Project Website:	www.lifebridgingthegap.se

[1] Project start date

[2] Include the reporting date as foreseen in part C2 of Annex II of the Grant Agreement

This table comprises an essential part of the report and should be filled in before submission

Please note that the evaluation of your report may only commence if the package complies with all the elements in this receivability check. The evaluation will be stopped if any obligatory elements are missing.

Package completeness and correctness check	
Obligatory elements	**✓ or N/A**
Technical report	
The correct latest template for the type of project (e.g. traditional) has been followed and all sections have been filled in, in English *In electronic version only*	✓
Index of deliverables with short description annexed, in English *In electronic version only*	✓
Mid-term report: Deliverables due in the reporting period (from project start) annexed Final report: Deliverables not already submitted with the MTR annexed including the Layman's report and after-LIFE plan Deliverables in language(s) other than English include a summary in English *In electronic version only*	✓
Financial report	
The reporting period in the financial report (consolidated financial statement **and** financial statement of each Individual Beneficiary) is the same as in the technical report with the exception of any terminated beneficiary for which the end period should be the date of the termination.	✓
Consolidated Financial Statement with all 5 forms duly filled in and signed and dated *Electronically Q-signed or if paper submission signed and dated originals* and in electronic version (pdfs of signed sheets + full Excel file)*	✓
Financial Statement(s) of the Coordinating Beneficiary, of each Associated Beneficiary and of each affiliate (if involved), with all forms duly filled in (signed and dated). The Financial Statement(s) of Beneficiaries with affiliate(s) include the total cost of each affiliate in 1 line per cost category. *In electronic version (pdfs of signed sheets + full Excel files) + in the case of the Final report the overall summary forms of each beneficiary electronically Q-signed or if paper submission, signed and dated originals**	✓
Amounts, names and other data (e.g. bank account) are correct and consistent with the Grant Agreement / across the different forms (e.g. figures from the individual statements are the same as those reported in the consolidated statement)	✓
Mid-term report (for all projects except IPs): the threshold for the second pre-financing payment has been reached	N/A
Beneficiary's certificate for Durable Goods included (if required, i.e. beneficiaries claiming 100% cost for durable goods) *Electronically Q-signed or if paper submission signed and dated originals* and in electronic version (pdfs of signed sheets)*	✓
Certificate on financial statements (if required, i.e. for beneficiaries with EU contribution ≥750,000 € in the budget) *Electronically Q-signed or if paper submission signed original and in electronic version (pdf)*	✓
Other checks	
Additional information / clarifications and supporting documents requested in previous letters from the Agency (unless already submitted or not yet due) *In electronic version only*	✓
This table, page 2 of the Mid-term / Final report, is completed - each tick box is filled in *In electronic version only*	✓

**signature by a legal or statutory representative of the beneficiary / affiliate concerned*

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2. List of key-words and abbreviations

AB = Associated Beneficiaries; County Administrative Board of Blekinge, County Administrative Board of Kalmar, Linköping Municipality
CAB E = County Administrative Board of Östergötland
CAB H= County Administrative Board of Kalmar
CAB K= County Administrative Board of Blekinge
LKP = Linköping Municipality
PA= Project Accountant
GA = Grant Agreement
PM = Project Manager
RPC = Regional Project Coordinator
SEPA = Swedish Environmental Protection Agency

3. Executive Summary

In LIFE Bridging the Gap project 30 sites was selected within a limited region of south-east Sweden, in order to make it possible to build up an infrastructure of wooded pasture habitats with associated species; to bridge spatial gaps and reduce the risk of local extinctions.

The objectives of the project were:

1) Initiate the recovery process to favourable conservation status in some Annex I habitats. (9070, 6530, 9160, 9020 and 9190)

2) Initiate the recovery process to favourable conservation status for the following Annex II species: *Osmoderma eremita*, *Cerambyx cerdo, Lucanus cervus* and *Anthrenochernes stellae* in 30 Natura 2000 sites.

3) Initiate the creation of decaying wood habitats which in the longer term can bridge gaps in space and time for the Annex I habitats and Annex II species *Osmoderma eremita, Cerambyx cerdo, Lucanus cervus*, and *Anthrenochernes stellae* within the Natura 2000 sites.

4) Increase and update the knowledge about the management of the targeted habitats and species among stakeholders, site managers and scientists by the dissemination of project experiences and results, in order to ensure transferability and replicability.

The outputs of the objectives:

1) Clearing of vegetation should be done in 775 hectare and the result was 842 hectares. Fences has been put up around most of these areas as grazing is a key factor in keeping them open. Grazing animals now take care of these pastures and additional 120 hectares so in total 964 hectares of pastures is now in better condition than before the project. In total 1407 hectares have been targeted directly by concrete conservation actions. At the end of the project 857 of these hectares are in good condition and the rest is at least on the right way.

2) We have initiated the recovery process for the four Annex II species by making more suitable habitats, creating decaying wood habitats, planting of trees and bushes and by information to landowners and site managers what they can do for these species. The breeding and introduction of *Cerambyx cerdo* has worked well and primarily results tell us that the species now reproduce on the Swedish mainland for the first time since the 1960s.

3) In the project we have worked a lot with the creation of decaying wood habitats. 480 wood mould boxes are up at 28 sites, 197 stag beetle habitat piles are built at 26 sites and 1458 trees have been veteranised. The monitoring shows that all these actions seem to work well. The stag beetle (*Lucanus cervus*) responds very quickly to the action and larvae of the beetle was already found during the monitoring.

4) A lot of work has been done with information to stakeholders, site managers and scientists. There has been a great interest to the actions that have been done, especially the creation of decaying wood habitats. Several LIFE-projects from other EU-countries have visited LIFE BTG and we are sure there should have been even

more if it would not have been covid during the project period. Almost 400 people have participated in the walks and talks arranged by the project, but we have also been invited to many other activities and on these occasions reached over 3000 people. A handbook and several films have been produced. The films have a total of over 6000 views.

Of course, there have been some problems. The biggest one was the problem with doing many of the action at Borga hage where most of the actions were moved to other sites. There have also been some problems with procurement, sometimes because of too few entrepreneurs and sometimes because of appeal of the procurement. Despite the limitations due to Covid-19 the expected and sometimes expanded results were achieved.

It has been a very successful project that has advanced the positions where new measures have been tried on a larger scale in the Swedish oak habitats.

4. Introduction

Lack of, or abandonment of management has resulted in a loss of conservation status for wooded pastures and meadow habitats (9070, 6530) as well other outstanding and rare deciduous forest habitats, such as 9160, 9020 and 9190 and their associated species. Changes in the landscape have also led to habitat fragmentation, creating gaps in suitable habitat in both time and space. This fragmentation has resulted in local declines or extinctions of associated species, such as *Osmoderma eremita* (1084), *Cerambyx cerdo* (1088) *Lucanus cervus* (1083) and *Anthrenochernes stellae* (1936). As well as working to bridge gaps in habitats both in time and space, this project also sees a need to bridge gaps in knowledge, where we need to transfer and share knowledge regarding the management of these habitats and species across Europe.

The objectives of the project are as follows:

1) Initiate the recovery process to favourable conservation status in 1405 ha of the following Annex I habitats: 9070, 6530, 9160, 9020 and 9190.
2) Initiate the recovery process to favourable conservation status for the following Annex II species: *Osmoderma eremita* (1084), *Cerambyx cerdo* (1088), *Lucanus cervus* (1083) and *Anthrenochernes stellae* (1936) in 30 Natura 2000 sites.
3) Initiate the creation of decaying wood habitats which in the longer term can bridge gaps in space and time for the Annex I habitats (9070, 6530, 9160, 9020 and 9190) and Annex II species *Osmoderma eremita* (1084), *Cerambyx cerdo* (1088), *Lucanus cervus* (1083), and *Anthrenochernes stellae* (1936) within the Natura 2000 sites.
4) Increase and update the knowledge about the management of the targeted habitats and species among stakeholders, site managers and scientists by the dissemination of project experiences and results, in order to ensure transferability and replicability.

30 project sites have been selected within a limited region of south-east Sweden, in order to make it possible to build up an infrastructure of wooded pasture habitats with associated species; to bridge spatial gaps and reduce the risk of local extinctions.

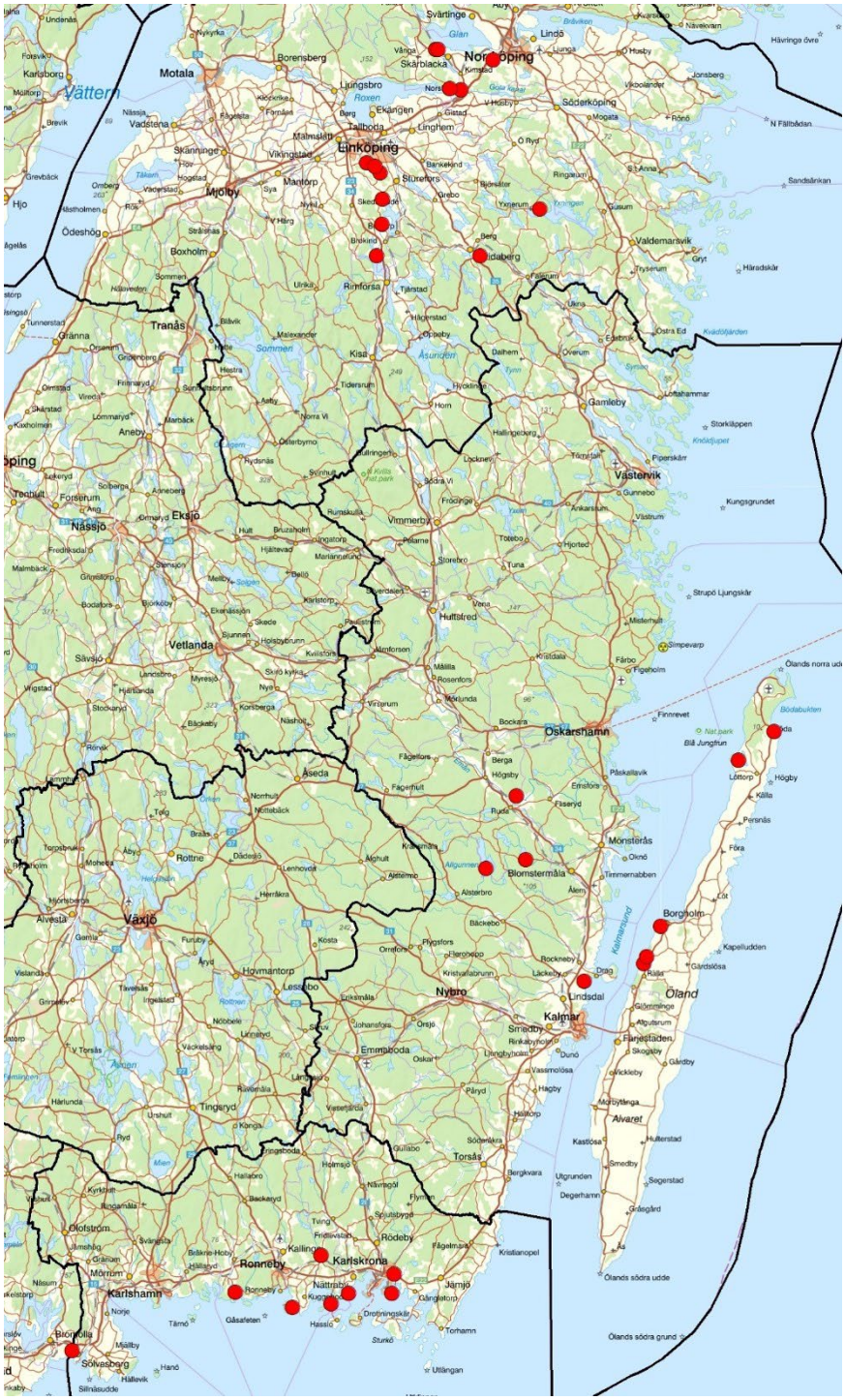

Figure 1. Map of the location of the project sites in southeastern Sweden.

<u>Natura 2000 sites:</u>

CAB E: SE0230131 Stafsäter, SE0230133 Ljusfors, SE0230160 Norsholm, SE0230161 Borg, SE0230190 Runstorp, SE0230219 Åtvidsnäs, SE0230361 Ribbingsholm, SE0230364 Hästenäs, SE0230373 Västerby

CAB H: SE330024 Halltorps hage, SE0330036 Allgunnen, SE0330038 Getebro, SE0330063 Horns kungsgård, SE0330099 Björnö, SE330101 Böda prästgård, SE0330116 Borga hage, SE0330205 Strandskogen, SE0330282 Åsebo vid Emån

CAB K: SE410024 Johannishus åsar, SE0410042 Tromtö-Almö, SE410062 Valje, SE410089 Sonekulla, SE0410092 Haglö, SE0410114 Knösö, SE0410175 Gö, SE0410219 Kummeln

LKP: SE230342 Tinnerö, SE0230349 Vidingsjö, SE0230353 Ullstämma, SE230387 Viggeby

Expected longer term results (as anticipated at the start of the project)

A favourable conservation status of targeted habitats and species targeted will not be achieved until after the end of project. Thus, some of the indicators to be monitored are focused on verification that the recovery process is moving in the right direction.

1) Clearing of overgrowth has resulted in reduced canopy cover, benefiting the habitats targeted by the project, i.e. 9070, 6530, 9020, 9160 and 9190.
2) Clearing of overgrowth and monitoring of ancient trees indicate an increased number of hollow trees that are sun exposed and thus indicate improved living conditions and potential for colonisation of tree-living insects, including the species targeted by the project.
3) The planting of trees and bushes has been successful, indicating that a process to bridge spatial and temporal gaps has been initiated.
4) The number of trees inhabited by *Osmoderma eremita* and *Anthrenocernes stellae* has increased, as indicated with monitoring using wood mould boxes.
5) Verified colonisation of log piles by wood-living beetles indicate that a potential for colonisation by *Lucanus cervus* has been created, although likely to occur only after end of project.
6) Veteranisation of trees (Action C4.3) has resulted in colonisation by *Osmoderma eremita* and *Anthrenocernes stellae*, or associated species, as indicated with monitoring, using eclector traps.
7) Reestablishment of *Cerambyx cerdo* at two project sites has been verified by monitoring exit holes of the species.

The socio-economic aspect of the project is also important. The project's measures provide economic benefits for landowners and animal owners even in the longer term. Grasslands are prepared in ecologically sound status, which makes it possible to seek support for out of the rural program, which is economically advantageous and guarantees continued necessary care.

Most of the work done out in the nature has been procured and performed by local contractors, which means that the project has contributed to their income.

5. Administrative part

The coordinating beneficiary have been the County Administrative Board in Östergötland (CAB E), where PM and PA are employed. There are four associated beneficiaries, Swedish Environmental Protection Agency (SEPA), the County Administrative Board of Blekinge (CAB K), the County Administrative Board of Kalmar (CAB H) and Linköping Municipality (LKP). The associated beneficiaries are responsible for all concrete measures within their county boundaries and SEPA has primarily been involved in production of the handbook and the final seminar.

The PM and all the RPCs have had regular skype-meetings approximately once a month. Since the start 55 such project meetings have been conducted. Between these meetings PM and RPCs have had contact on Skype, telephone and mail. Close to the project group there have been some specialists to discuss details with. To achieve all the overall objectives, the project group has set its own goals at the beginning of each year, when necessary, as a complement to the milestones in the application.

PA, PM and one RPC at a time have had meetings about the economy about four times a year or when someone think that there is a need for such a meeting. Also, here PA and RPC have contact on telephone or mail when necessary.

The project management team (PM and PA) have met on regular basis to discuss questions concerning economy, budget and general progress of the project. Since both project manager and project accountant have been situated in the same building these meetings were held continuously and there have been no need for any scheduling ahead in time.

PM have visited all associated beneficiaries except SEPA one or two times a year. It has given much knowledge to PM both about the sites and how things are running. Both RPCs and local managers have participated in those meetings out at some of the sites. There has been no need for PA to visit the partners, if there have been problems they have been solved by telephone or Skype. Out at the beneficiaries it differs how the administration was set up. They have at least had some internal meeting each year.

The steering group with representants from each beneficiary and PM +PA had three to four meetings per year, in total 18 meetings. The steering group have been active and have cooperated by adjusting the staffing and management of the activities of the respective organizations based on discussions at the steering group meetings.

Once a year we have had visits from the project monitor, Camilla Strandberg-Panelius. The visits have given us a lot of good inputs to the project. The communication with Camilla Strandberg-Panelius, representing the Monitoring team has been excellent. We appreciate the monitor's high knowledge of the Life-program, being well prepared about our project and, also important, being available almost at any time. The communication with the CINEA have mainly been through the project reports and the monitor. Three Progress reports have been delivered to the CINEA: the first Progress report by 03/04/2018, the second Progress report by 15/09/2019 and the third by 31/10.2021. Between the second and the third a Midterm report was delivered 02/05/2020. Feedback on reports and monitor visits has been in form of CINEA-letters which was perceived as clear and easy to understand.

There have been no major problems in the management of the project, except different problems in two of the sites. The problems with a new management plan in Borga Hage (SE0330116) was explained in the Midterm report when many of the actions there was moved to other sites in the project. There is also a problem with Åsebo vid Emån (SE0330282) which unfortunately has not yet been approved as a Natura 2000 site by the Swedish government is explained in more detail in chapter 6.2.

Two amendments have been sent in. One amendment was sent in 2020 when SEPA wanted to be associated beneficiary instead of being co-financer in the project. The inclusion of SEPA as a partner allowed the project to solve the problem with reaching the 2% rule, which was a problem because the project have had a higher proportion of costs for permanent personnel

than originally foreseen. In the beginning of 2022 one amendment about prolonging the project for two months so that it would run to 30/11/2022 was sent in. The reason was to be able to use a longer part of the field season 2022 for certain actions that was lagging the schedule. This was a very good minor adjustment that allowed important actions in the application to be completed in a good way.

6. Technical part

6.1 Technical progress, per Action

6.1.1 Action A1 Revision of management plans

A revision of eleven of the management plans was necessary in order to implement some of the planned measures. Each partner was responsible for producing or sometimes purchasing the management plans. The work continued according to plan and an extra management plan for Västerby was approved in letter 04/12/2019 as this plan also needed to be revised. All eleven management plans that were in that application were ready in time and so also the extra plan, Västerby (SE0230373) that was added.

Foreseen start date: 10/01/2017 Actual start date: 10/01/2017
Foreseen end date: 30/06/2019 Actual (or anticipated) end date: 27/06/2019 for the plans in the application and anticipated end date for the extra Management plan 30/12/2020. All management plans except one have been sent in before, see 9.1.1 Deliverables in LIFE Bridging the Gap. You can also find the management plans at the website.
https://lifebridgingthegap.se/material/klara-skotselplaner/

Deliverable – 9.1.2 Management plan Västerby SE0230373

After the management plan in Hästenäs SE0220129 was revised more of several actions have been done in the end of the project. This was discussed at the Monitor visit in 2020 and justified in a letter from CINEA 08/10/2021. When working in Hästenäs it was discovered that that several ancient trees standing out in the pine forest in the nature reserve was missing in the earlier inventory. This nature reserve is quite big, almost 700 hectares and it is just a small part of this that's of habitat 9070, the most area are different kind of forests. In order to manage the entire area as well as possible in the future, more areas were therefore inventoried with regard to ancient trees in 2021. When this inventory was done it was possible to see where this often lonely ancient trees were located, if it was a new generation of oaks nearby. After looking at the new inventory and analyzing that data, a plan for how to try to tie the whole area together could be made. This meant that more wood mould boxes were set up along a road in the area, clearings were carried out to favor young oak, log piles were created and veteranisation were done in suitable areas.

6.1.2 Action A2 Restoration plans

The restoration plans have been produced for each site. Discussions with stakeholders such as landowners and keepers are woven into planning. The plans are concrete with what is to be implemented in the project and easy to understand. They include which areas need to be cleared, grazed, mowed or restored in another way. The restoration plans also describe devices for outdoor life when appropriate, such as the location of parking spaces and hiking trails. The work with finalizing this action continued until autumn 2019 when all sites included had a Restoration plan. When needed an update of the plans has been made.

Foreseen start date: 10/01/2017 Actual start date: 10/01/2017
Foreseen end date: 30/06/2019 Actual (or anticipated) end date: 26/08/2019

All restoration plans have been included before, see 9.1.1 Deliverables in LIFE Bridging the Gap. You can also find the restoration plans at the website.
https://lifebridgingthegap.se/material/klara-restaureringsplaner/

6.1.3 Action C1 Clearing of overgrown vegetation
Foreseen start date: 01/11/2017 Actual start date: 13/03/2017
Foreseen end date: 31/12/2021 Actual (or anticipated) end date: 30/11/2022

All C-actions has, for natural reasons, not always turned out exactly as described in the application. Sometimes a little more has been done and sometimes a little less. It is not so strange because it is when you stand out in the field and look carefully that you can decide exactly what to do to best take care of the biological diversity in that area. To see what has been done in each site see 9.2.1 C-actions LIFE BTG.

The measures that have been carried out have been continuously documented through photography. The nature conservation manager for each area has compiled this in a document to be able to easily see what has happened within the project. To show this documentation, there is an example of this photo documentation from each beneficiary, see appendix 9.2.2 - 9.2.5

Clearing of overgrown vegetation has been the projects most comprehensive of the restoration action. The action includes all kinds of clearing, that is clearing of encroachment as dense shrubberies or saplings of alder, birch and other quick growing trees to make space for the grassland habitats. It can also be clear cutting below the canopies of old pastoral trees to prolong their life span or to remove spruce plantations. Some clearings are made in areas that will not be grazed afterwards but these are minor exceptions and almost all areas are now grazed. Clearing of trees and bushes is divided into two categories standard and difficult clearing. Standard clearings are used in the “normal” cases, i.e. when the grazing pressure is starting to get too low and encroachment process has started or when the animals do not have time to take care of the regrowth of earlier clearings and so on. Difficult clearings are used when the situation is more difficult. Either if the grasslands are at an island (for example Tromtö-Almö and Haglö) where transportation of equipment is an issue, or it could be very wet requiring special mats to be able to perform the clearings without damaging the top layer of the soil for example many of the sites at Öland like Halltorp and Horns kungsgård.

The action has been ongoing at different sites through all the project time and the last clearings were performed at Horns Kungsgård in November 2022. One of the associated beneficiaries, CAB H, has been lagging behind the schedule for most of the time but they worked really effective the last years and did what they have promised. It also made it easier to reach the goals that the project could be extended by 2 months so that the work could continue during the hay season, which is often a good period to work on this action. In total the project has followed the plan in the Grant agreement rather well according to the cleared area. Almost 70 hectares more than expected are cleared.

Table 1. C1.1 and C1.2 Clearance of overgrown vegetation – standard and difficult

	GA (ha)	Completed (ha)
C1.1	550,7	600
C1.2	224,3	242,3
Total	775	842,3

Figure 2. Before restoration at Kummeln.

Figure 3. After restoration at Kummeln at the same spot as above.

C1.3 Reintroduction of grazing and cutting

This action includes two very different measures that are needed after the clearance of overgrown vegetation. After clearing most often there is a large amount of regrowth of woody vegetation from the cut stumps or from the roots. In the majority of the sites the long

term aim is to ensure that grazing or hay cutting are in place. It has been good to find farmers who want to manage the land with their grazing animals. It is very advantageous for future management as it is more costly to manage land with recurrent clearing to keep open around valuable trees and other light-dependent structures. Because the work to reintroduce pasture has taken place in wooded environments, it has sometimes taken longer than anticipated before the pastures have had enough vegetation to be able to receive subsidies through CAP. In some cases, grazing compensation through the project has therefore been paid out for longer than 4 years.

This action should have been done in 20 sites and that is also how many sites the action was done in. But in some sites the action has been removed and in others it has been added. 810,4 hectares was in GA and we have worked in 845,5 hectares. There is a mix of grazing and cutting that has been done. The grazing animals are a key-factor to get the habitats in good status.

Figure 4. Some of the important grazers at Tinnerö.

C1.4 Blocking ditches, restoring small forest wetlands
The action should from the beginning be done at 5 sites. As explained earlier problems have appeared in 2 of the areas. So, the result is wetlands at three sites but at two of these more wetlands have been made.

At Hästenäs SE0230364, three wetlands instead of only one was made. The first one was made early in the project in a very simple way by using a backhoe to block the ditches. The second one was made in a similar way. The third was built in the spring of 2022 with the digging of a rather substantial dam and after the rains in November the wetland became filled with water. The water level varies in the wetlands, but never dries up completely. In total, there have been made about 5 hectares of wetlands.

In Halltorp SE0330024, ditches have been plugged at 12 places, so also here it will be wetter than originally planned. The measure means that the runoff is slowed down and water pools are created. The planning was done in spring 2021 and in September 2022 the ditch fillings were done with a Bobby Cat. Because it is so small, the reach of the backhoe was limited,

which meant it was difficult to reach so far. But on the other hand, the machine had good accessibility in the area. It was difficult to fill the entire trench to the surrounding ground level at the plugs, because there were a lot of tree roots in the ground that you wanted to protect. The effect of the ditch plugs must be evaluated in the spring and winter, and then the ditch plugs can be supplemented with more soil if necessary. The advantage of this is that surrounding trees have time to adapt to new conditions a little more. The wetland is so newly constructed that the results will not be visible until 2023.

Figure 5. One of the wetlands at Halltorp SE0330024

In Åsebo vid Emån SE0330282 ditches have been blocked at 7 places. The planning was carried out in the spring of 2021. Deploying ditch plugs in the field with a smaller excavator was done in summer 2021. The plugs were taken from surrounding dikes from when the ditch was dug. The effect is a larger water table in a previously wetter area and is estimated to have grown 30-50% and the ability to hold water for a longer period of time should be greater. But it is too early to say with only a year to compare with previous conditions. The size of the water table is estimated to be about 0.1 ha. The ditches are estimated to hold slightly more water. It is difficult to tell between years because we have had such extremely dry summers in recent years. Northern crested newt (*Triturus cristatus*) has been observed here before so hopefully it will now return.

All these wetlands now enrich the biological diversity in the areas. In the future, a certain amount of supervision of the wetlands and control of the level regulation and dikes will be required to avoid erosion damage so that the areas do not lose their water. In summary, it can be said that the measures that have been carried out have turned the clock back in time and the water is back in areas that, long ago, were always water-sick from time to time.

6.1.4 Action C2 Infrastructure for the reintroduction of grazing and cutting

Foreseen start date: 30/11/2017 Actual start date: 07/04/2017
Foreseen end date: 31/03/2021 Actual (or anticipated) end date: 31/03/2021

A livestock ferry has been purchased to ensure long term management of the island Bromön at the site Viggeby (SE230387). It took longer time than expected both to find a suitable contractor, to get the ferry build and to get the ferry from Poland to Sweden. This is not a large and established market and it was difficult to find a ferry at all. After looking at what the market looked like in Sweden for used ferries, we soon abandoned it because the supply was very limited and it was not possible to find the functions one needed, ie to be able to transport both the machinery needed for the care and the grazing animals to be to Bromön. We got tips about a Polish manufacturer who had been to Swedish boat fairs and showed up. Then we could watch, and test drive a ferry in the Stockholm archipelago. The owner of this one was very pleased and after discussion with the manufacturer it was decided how it could be built.

It was more expensive than budgeted, but we got a lot for the money. The engine was installed by a Swedish company and they spontaneously said that we should be very satisfied and that a similar ferry built in Sweden had cost at least twice (and probably more) here. After the ferry arrived in the autumn of 2019, several Swedish archipelago residents have contacted us to find out more. The milestone for the ferry in place was 05/2018 and it was in place in October 2019.

Figure 6. The livestock ferry with sheeps on that are waiting to disembark on Bromön.

C2.1 Fencing

Fences are essential for grazing of the sites. The application says that more than 53 800 meters of new fences will be put up at 19 sites. In the end that has been 58 446 meters of new fence completed in 19 sites. There have been changes in both which sites that needed new fence and also how much to put up in some of the sites. But still 8 % more fences then expected are now ready.

C2.2 Corrals
Corrals are necessary for the farmers to collect together their animals, both to check their health, prepare them for being moved and to treat them if they are sick or have parasites. Corrals have been done at 11 sites in total.

C2.3 Installing cattle grids
In the application cattle grids should be installed in 3 sites whereby the grazed pasture crosses a public road. The action is completed at two of these Viggeby (SE230387) and at Strandskogen (SE0330205). At the last one two instead of one cattle grid was installed. At the third site Åtvidsnäs, the action was not done. When detailed planning of the work was done, it became clear that there was no need of this action here.

Figure 7. One of the cattle grids at Viggeby is installed.

C2.3 Installing water facilities
In the application a source of water for the livestock should be installed at five sites. When detailed planning of the work was done, it became clear that there was no need of this action in three of the sites. On the other hand, one new site, Borg SE0230161 needed that and at one of the sites Kummeln SE0410219 three water cups was installed. So, water is installed at three sites.

In Borg grazing the area have been considerably simplified, and thus secured for the future, by running an approximately 700-meter-long water pipe from a nearby farm to the pasture. The pastures in Borg is surrounded by roads and before this, water for the animals was driven by tractor to them. This new water pipe means that it will be easier to find a farmer who can have grazing animals here.

6.1.5 Action C3 Planting of trees and bushes
Foreseen start date: 30/10/2019 Actual start date: 02/11/2017
Foreseen end date: 31/03/2022 Actual (or anticipated) end date: 31/03/2022

Planting will help to bridge spatial gaps in habitat but also gaps in time by ensuring a new generation of veteran trees for the future. In this action there has been some changes, both in how to use the action and modification of methods in some sites. Probably this is because we haven't worked this much with planting of trees and bushes before the project, so it was hard to get all details right in the application. For example, at LKP they now had tried to minimize the cost for protection fencing of the plantation and instead, where it is possible, try to increase the nature conservation benefits. That is done by plantation of bushes where it originally only should have been only larger oaks. In doing like this, this planted area will be good for the wild fauna much faster.

Another example is CAB E who had problems with receiving tenders. The entrepreneurs are used to work with this action in the cities and near the bigger cities but not out in the countryside as many of the BTG sites are situated. Therefore, it differs a lot how much this action costs at different beneficiaries.

C3.1 Planting large oaks
Planting of large oaks has been done at 11 sites in total. There are a little less hectares planted in this action than in GA, however that depends on that the area is instead as C3.4. So, all the large oak is planted but when it has been possible also some bushes was planted around the trees.


Figure 8. One of many elongated plantings at Tinnerö.

C3.2 Oaks small enclosure
Planting of small oaks have been done at 7 sites in total, it was 6 in GA. Breeding of acorn that has been at local nursery gardens was successful at CAB H. The breeding at CAB K was not successful but fortunately they could get plants from both CAB H and CAB E (action C3.4) instead.

C3.3 Archaeologist
An archaeologist will be required at 13 sites in total according to GA. In three sites this action is done. Instead of archaeological investigations at the other sites that CAB H and CAB K had, communication with the cultural environment functions has been done. Areas that are suitable or not suitable for planting have been developed in that process so there was no need of an archaeologist there.

At the work with plantation 2018 in Tinnerö (SE0230342) archaeological investigation was carried out at the construction of 89 planting beds. At the check, traces of burnt coal were noted at one location. Otherwise, no ancient remains were noted. Due to the fact that such a large area must be excavated in the archaeological investigations and that so few traces of ancient remains were found, it was decided that the planting beds instead would be raised and only excavated to about 2,5 dm depth, which is the depth that arable land normally is ploughed to and thus lacks untouched ancient remains. Excavation of planting beds were only done on previously ploughed arable land in Tinnerö and thus no more archaeological control needed to be carried out.

C3.4 Planting bushes and trees
As explained about C3.1 planting of small oaks and bushes have been done in more sites. In application it was 17,2 hectares in 3 sites, but the result is 73,2 hectares in 8 sites. Breeding of acorn that has been at local nursery gardens was successful at CAB E and the small oaks that was planted was then of local material. Because there was a god survival of the oaks some of them was instead planted at CAB K (C3.2).

C3.5 Planting small oaks
This action was changed to C3.4 in Progress report 1.

C3.6 Consumables cost around C3.4 and C3.5
Fencing to protect trees and bushes have been done at 5 sites in total.

C3.7 Move bushes
In Midterm report it was explained that this action was no longer needed. It was only in one site, Böda prästgård (SE330101) that this action should have been done.

6.1.6 Action C4 Creation of decaying wood habitats
Foreseen start date: 31/12/2017 Actual start date: 28/09/2017
Foreseen end date: 31/03/2022 Actual (or anticipated) end date: 01/09/2022

This action involves three different sub-actions that helps to increase the amount of decaying wood habitat. One of these actions, the wood mould boxes, have been used before on a fairly large scale in Sweden. The others, the stag beetle habitat piles and veteranisation, are not equally accepted methods. This has meant that the methods have had to be tested and that the nature conservation managers have had to learn a little while the work has been going on. The contractors also had no knowledge of these measures and had to be taught in different ways. All these actions progress has been very good. See details about how much of each action that was done in each site in 9.2.1 C-actions LIFE BTG.

C4.1 Wood mould boxes

Wood mould boxes are like big birdhouses filled with sawdust and leaves. This is proven to create habitat suitable for example for *Osmoderma eremita* and *Anthrochernes stellae*. The boxes in the project measures 2.5 meters x 50 cm, and this is much larger than the boxes used before. A drawing was made so that the boxes would be the same. The boxes were built by carpenters and then driven out to the areas. Because they were so big, it was not easy to get them out into the terrain. Once out in the right place, they have been placed by a tree and anchored there so that they will not fall over. They have then been filled with sawdust, chips and leaves and also watered. The lid of the boxes is removable so that this can be done. It was decided that all boxes that should be monitored should be completed in May 2018 and so they were. The rest of the boxes have been put up during almost the whole project period, but most of them in the beginning. At the end of the project, all nest boxes were checked, and new material was added so that they can last a few more years. A problem with the boxes that was discovered during the monitoring was that they were too dry so in the end of the project this was adjusted.

The plan was to put out 443 wood mould boxes at 28 sites in total. 480 boxes have been put out in the 28 sites. The number of boxes varies from a minimum of 2 (Borga hage) to a maximum of 58 (Tinnerö). This means that 8% more boxes than planned have been set up.

Figure 9. Curious grazing animals around a wood mould box at Viggeby nature reserve.

C4.2 Stag beetle habitat piles of dead oaks

Cut oak and other deciduous trees were cutted in shorter logs (approximately between 60 - 200 cm) and then partially digged down half a meter underground. On the piles that were to be used for monitoring, three lying logs were also screwed to the remaining parts. This is so that they could be removed during the follow-up. In the piles created for follow-up, the aim was also to use only oak. In the others, there were often mixed tree species. Two iron bands

were screwed to the bottom of the outer logs to make it more difficult for wild boars to break the pile. Then the pile was filled with shavings and wood chips and sometimes also sand. The wood for these was taken from the cuttings made in the area. In a few areas, restorations had not been done, so the wood then had to be transported from other areas.

A drawing was made for the most important part of the construction of the piles. A common protocol to be completed for the piles to be monitored was also drawn up. There, for example, data was collected on tree species, roughness of the logs, coordinates, direction and distance to the nearest tree and bush. It was decided that all piles that should be monitored should be completed in May 2019 and so they were. The rest of the boxes have been put up during almost the whole project period, but most of them in the first half. At the end of the project, all piles were checked, and new material was added when needed so that they can last some more years.

The plan was to put out 185 stag beetle piles at 25 sites in total. 197 piles have been put out in 26 sites. The number of piles varies from a minimum of 1 (several sites) to a maximum of 60 (Tinnerö).

Figure 10. One log pile in an area grazed with horses.

C4.3 Veteranisation of trees

Veteranisation is a method used to try to close the gap in tree age continuity. It is mainly carried out by arborists using a chainsaw. It is normally used in areas with many old large trees and with species depending on structures with dead wood in standing trees but with a lack of middle age trees to replace the old ones when they die. By damaging young trees in a controlled way, so that they do not die but create necessary structures as holes and dead wood in the canopies age in advance.

In LIFE Bridging the Gap four ways for this was used. All trees got their top ringbarked and in addition one of three different types of veteranisation was carried out. A nest box with a woodpecker hole sized entrance, ringbarking of a large branch or mimicking of a lightning

strike. In the beginning of the project, it was only two of the Swedish arborists that was good at this method. So, in order to carry out all the planned veteranisations, practical courses were organized for arborists. Discussion about these courses were discussed a Monitor visit and is mentioned in letter 20/10/2017.

The plan was to veteranise 1236 trees at 27 sites in total. 1458 trees have been veteranised. The number of veteranised trees varies from a minimum of 5 (Haglö and Ullstämma) to a maximum of 273 (Halltorp).

Figure 11. An arborist making a nest box in a tree.

6.1.7 Action C5 Reintroduction of Cerambyx Cerdo

Foreseen start date: 31/08/2017 Actual start date: 07/06/2017
Foreseen end date: 30/09/2022 Actual (or anticipated) end date: 30/09/2022

When the project started Cerambyx cerdo only in a single site (Halltorp) in Sweden. Some preparatory action was done before the project started with the implementation of the national action plan for the species during 2010 – 2014. During the project the aim was to breed the species and then introduce it at two sites within its former range.

Rearing of larvae at the lab at breeding station of Nordens Ark have worked out very well.
In June 2018 the reintroduction of Cerambyx cerdo started on the Swedish mainland. Two different types of cages have been mounted on three different old oaks per site. About 5-10 imagines of Cerambyx per large oak tree (in total 3 trees per site) has been kept in captivity in the cages, mated and laid eggs. The rest of the imagines have been released in the late evening on oaks in the surroundings. As anticipated there have been problems with the cages. At Björnö (SE0330099) it seems that the microclimate in one of the cages have been too hot and all the imagines have died within a week or so. In one of the other cages imagines have disappeared. At Björnö it was possible to detect sabotage on the cages, so they stopped using them there. At Tromtö (SE0410042) holes in the net has been discovered probably caused by cows. In cages enclosing a hollow in an oak it seems like some imagines die inside the cavity and therefore cannot be found when the cage has been removed. Imagines have been released throughout the project period. Depending on how the breeding went, the number released imagines has varied.

Table 2. Number of imagines released at different sites. At Halltorps hage some individuals are released every year to enhance the population.

Site	2018	2019	2020	2021	2022	Total
Halltorps hage	4	30	16	30	20	100
Björnö	30	93	61	80	136	400
Tromtö	27	93	60	82	135	397

Figure 12. One, just released, *Cerambyx cerdo*

6.1.8 Action D1 Monitoring of the impact of the project actions - Monitoring of habitats

Foreseen start date: 30/06/2017 Actual start date: 01/12/2017
Foreseen end date: 30/09/2022 Actual (or anticipated) end date: 30/11/2022

D.1.1 Analysis of aerial photographs of canopy cover
An analysis of tree and shrub cover is done through aerial image interpretation. The images are taken nationally at certain intervals and were provided by Metria. The aerial image interpretation is done by a contracted company. 21 areas had been singled out for aerial image interpretation, but since the aerial images are taken every few years, 16 areas were then interpreted. A joint procurement of the aerial image interpretation for all parties was done by PM. The degree of canopy cover was high in the 16 areas before the restoration measures were carried out. Of the aerial image interpreted area, 82% had a canopy cover in the densest range (81–100%). After the management measures, the area with the highest degree of crown coverage had decreased to 35%. In general, all areas had become sparser, and the distribution was spread between all the other categories of lower canopy densities.

In addition to aerial image interpretation of the degree of crown coverage in all selected areas, the number of standing dead wood has also been interpreted, as well as the distribution of tree species in percentage between pine, spruce, broadleaved trees. Before the restoration measures, deciduous trees made up 79% of the total crown cover, after the restoration measures that proportion had increased to 88%. Broadleaved hardwood made up 57% of the crown cover after the restoration measures, which is an increase of seven percentage points. The proportion of spruce, on the other hand, had decreased from 13 % to only 4% of the crown cover after measures.

Deliverable: 9.1.3 Flygbildstolkning inom LIFE Bridging the Gap

D.1.2 Ancient trees
The action started in two sites in December 2017, Åtvidsnäs (SE230219) and Västerby (SE0230373) where there was a gap in the inventory. However, the majority of the work was done in 2021 and 2022.The monitoring of ancient trees was done by each partner with own personnel. In the beginning of the monitoring a day to see each other and to discuss the inventory method was arranged in May 2021 in Getebro. The data for the report was compiled and processed by an employee at CAB E.

Figure 13. Monitoring of ancient trees in Getebro.

The survey of the Natura 2000 areas showed a large number of trees with high conservation value. In total, there were an average of 10.9 trees of conservation value per hectare (3–35 trees per hectare) in the survey areas, which is significantly higher than the average for Östergötland county's oak habitats, which is 0.12. The number of younger oak trees and other tree species other than oak becoming the next generation of old trees (0.50–0.99 meters in diameter) are also high, 37 and 26 trees per hectare, respectively. The average for Östergötland county is 5.2 younger oaks per hectare. A total of 57 percent of the trees with high conservation value were hollow.

The results from the survey show that the restoration have had a large positive effect on the trees with high conservation value. After the restauration, only one percent of the trees had an urgent need for measures, in contrast to previous surveys when 14 percent of the trees had an urgent need for restauration measures.

Deliverable: 9.1.4 Uppföljning av skyddsvärda träd inom LIFE Bridging the Gap

D.1.3 Planted trees and bushes

The survival of the planting was monitored by each partners own staff in summer and early autumn 2022. Planting have been made in 16 project areas. More than 23000 trees and bushes have been planted, among them 924 older oak plants. Survival is good, 91 %. The goal was over 80 % survival for the planted small trees and over 90 % for the large oaks. Late autumn is the best time to plant. To succeed, protection from grazing, a cage, is needed, as well as tillage and cover of the soil. Irrigation of newly planted trees during hot and dry summer periods may be necessary for at least two years after planting.

Deliverable: 9.1.5 Uppföljning av Trädplantering inom LIFE Bridging the Gap

6.1.9 Action D2 Monitoring of the impact of the project actions - Monitoring of species

Foreseen start date: 30/06/2019 Actual start date: 30/06/2021
Foreseen end date: 30/09/2022 Actual (or anticipated) end date: 30/11/2022

The monitoring of species was not started as planned in June 2019. As reported in Progress 2 there must have been a misunderstanding because to monitor species in 2019 is all too soon after the actions have taken place and the milestone was changed to 2021. This means that all monitoring of species has started the same year. All the species determination was contracted out in one procurement. There is one report for the whole D2 action.

D.2.1 Wood mould boxes
Monitoring of the boxes was done by Nicklas Jansson from CAB E for all partners instead of contracted out. This means that a lot more staff hours have been spent on this action and we think that the quality of the monitoring now was the best. Nicklas works both at CAB E and Linköping University. He is doing some research on wood mould boxes and had time to do this job. The determination of species was contracted out.

39 out of 480 boxes built in LIFE BTG was investigated. None of the target species could be found in the large wood mould boxes. For the hermit beetle, it was quite expected, as it has been shown in previous studies that only a small part of set-up nests are colonized in the first years and that this is probably not due to the environment not working, but to the fact that the species takes time to spread to new habitats. For the *Anthrenochernes stellae*, it was disappointing that it was not found, as it has been found in the previous studies. A problem with the boxes that was discovered during the monitoring was that they were too dry. There were anyhow 93 species of saproxylic beetles found. 8 of these are on the Swedish red list.

Figure 14. Field work with monitoring of one wood mould box.

D.2.2 Log piles

This monitoring was done as a Master thesis by a student at Linköping University. He was reimbursed for car expenses to all sites and hotel accommodation when necessary while working at the sites located at CAB H and CAB K. The determination of species was contracted out. 24 out of 197 log piles built in LIFE BTG was investigated and also seven much older log piles.

It was established early on that the log piles were attracting egg laying females of stag beetle (*Lucanus cervus*), which was confirmed by the observations of larvae during monitoring. There was also a lot of other species in the log piles, in total 211 species of saproxylic beetles was found. 18 of these are on the Swedish red list. The most species rich log piles had 58 species of saproxylic beetles. This is a very good result.

Figure 15. Field work with monitoring of the log piles.

Figure 16. Larvae of stag beetle found during the monitoring

D.2.3 Veteranisation

Setting up the traps and emptying the traps as well as sorting out the insects was contracted out to one company. The species identification of the insects was handled by another company (same as for D.2.1 and D.2.2). It was one of the methods that was monitored, the artificial woodpecker holes. This is the method that we thought would benefit *Osmoderma eremita* and *Anthrenochernes stellae*.

Figure 17. Trap for monitoring in one veteranised tree.

There was a lot of species found, in total 104 species of saproxylic beetles was found. 14 of these are on the Swedish red list. An average of 10 saproxylic beetles per cavity was found. This is a very good result. One individual of the Hermit beetle was caught in one of the veteranisation cavities. This is confusing since Hermit beetles normally appear late in the succession of the cavities and prefer to live in cavities with a large wood mould volume. It remains to be confirmed whether the individual came from the artificially created cavity or from an older pre-existing microhabitat that was already colonized.

> Deliverable: 9.1.6 Uppföljning av åtgärder som gjorts för att gynna vedlevande skalbaggar inom LIFE Bridging the Gap

6.1.10 Action D3 Monitoring of the impact of the project actions - Monitoring of Cerambyx Cerdo reintroduction

Foreseen start date: 30/06/2019 Actual start date: 30/06/2021
Foreseen end date: 30/09/2022 Actual (or anticipated) end date: 30/11/2022

Monitoring of *Cerambyx cerdo* reintroduction was done during summer 2022. The monitoring showed that 23 greater Capricorn beetle had seen the light of day on Björnö and 4 on Tromtö. It was a year before that exit holes was expected, as the greater Capricorn beetle has been assumed to have a four-year larval development in Sweden. A large amount of data on the condition of the oaks and where the exit holes are found on the oaks is being collected and a larger evaluation will be done when all larval stages have produced adult beetles at least once.

Earlier an application about complementing this monitoring with dogs was approved. The dogs have been trained at Nordens Ark but unfortunately the dogs have not turned out as well

as expected, which is why they have not been able to be used in the monitoring. The hope is that, despite this, in the future some dogs can be trained to be able to do this work.

Deliverable: 9.1.7 Uppföljning av större ekbock inom projektet LIFE Bridging the Gap

Figure 18. One of the exit holes from a hatched Cerambyx cerdo

6.1.11 Action D4 Monitoring of the socioeconomic impact of the project

One analysis of the livestock owner has been carried out in the beginning of the project so that we could measure the changes in for example livestock and hectares of grassland before and after the project. Later in the project these data and many other statistics was collected again. In several ways, the LIFE Bridging the Gap project has contributed to increased financial income in the project area, both for entrepreneurs and farmers. Through restorations, the proportion of oak farmland that is grazed has increased and thus increased the income for landowners and livestock keepers from environmental compensation. However, in the workshops conducted with livestock owners, problems and opportunities with animal husbandry were discussed. There are many possibilities, but what is clearly visible is that the economic profitability of meat production is fundamental to how many grazing animals you can have and whether you should develop the business or not.

One procurement of telephone interviews with both farmers and entrepreneurs was done. Both entrepreneurs and animal keepers are generally positive when they describe how they experienced their participation in the project LIFE Bridging the Gap. Many of the participants feel they learned new things that both increased their competence and strengthened their commitment to issues such as biodiversity and forestry. Several entrepreneurs were able to

take this knowledge to other customer assignments that were not part of the project. Hence, the positive effects of the project have spread beyond those directly affected.

Deliverable: 9.1.8 Socioekonomiska effekter av projektet LIFE Bridging the Gap
9.1.9 Telefonintervjuer inom projektet LIFE Bridging the Gap

6.1.12 Action D5 Ecosystem functions restoration assessment
One procurement of the action was done. Appropriate data from the project was collected and sent to the company that would do the work. Here there was problems with the executor who did not have sufficient competence to carry out the work. Parts of what they had written could be used and PM was allowed to complete the work.

The report contains a description of the work with different types of ecosystem services within the project. To make it even clearer, ecosystem services within two project areas have been highlighted.

Deliverable: 9.1.10 Ekosystemtjänster som skapats av projektet LIFE Bridging the Gap

6.1.13 Action D6 Monitor project specific indicators
The database is filled in at the end of the project.

6.1.14 Action E1 Dissemination and networking
Foreseen start date: 31/03/2017 Actual start date: 31/03/2017
Foreseen end date: 30/09/2022 Actual (or anticipated) end date: 30/11/2022

See Annex 9.2.6 E-actions per site for some of the actions (E1.1, E1.2, E1.3 and E1.4)

Different activities were planned during the project time to disseminate the project actions and results to raise the awareness of the biological values of oak habitats and their need of management. Most important for the project have the landowners and farmers been. With those there has been a continuous contact through the site managers. The general public has been reached through guided field excursions and by improving facilities for visitors. Two different kinds of mobile guides are produced. At all sites, general project signs have been erected to inform about the project as well as thematic signs. In some sites also site-specific signs was produced. Leaflets with information about the sites as well as thematic information have been produced. Networking with other projects is also an important measure to both learn from others and to be able to tell what you have done and learned in your project. The project has produced five films about some of the actions done in the project and the Laymans report.

E1.1 Site signs
Site-specific signs with information about the protected areas and their natural values and protection needs are produced for 9 sites. They have been produced in total of 30 copies. It differs between one to seven signs in the different sites.

All site-signs are delivered in this final report, see 9.1.1 Deliverables in LIFE Bridging the Gap, and they can also be found on the website.

Deliverables: 9.1.11 Site sign Stafsäter SE0230131
9.1.12 Site sign Åtvidsnäs SE0230219

9.1.13 Site sign Västerby SE0230373
9.1.14 Site sign Getebro SE0330038
9.1.15 Site sign Böda prästgård SE0330101
9.1.16 Site sign Strandskogen SE0330205
9.1.17 Site sign Sonekulla SE0410089
9.1.18 Site sign Haglö SE0410092
9.1.19 Site sign Kummeln SE0410219

E1.2 Project sign and action signs

The project sign production was completed in the beginning of the project. 75 copies of the project sign were printed. Some of the sites have more than one entrance and at these sites more signs have been put up. Some of the signs were set up immediately, while others took a little longer. If there was a delay, it was because they were waiting for new sign stands for those areas.

Three action signs are produced, 60 copies of each. One about veteranisation, one about wood mould boxes and one about stag beetle habitat piles. After the regular order CAB K has printed another 6 copies of the sign about wood mould boxes. The signs was delivered in Midterm report, see 9.1.1 Deliverables in LIFE Bridging the Gap, and they can also be found on the website. https://lifebridgingthegap.se/material/skyltar/

Figure 19. Project sign and the three actions signs.

Early in the project, a small sign was produced to be able to mark devices that were paid for by the project. This after tips from the LIFE Coast Benefit project. The signs have been widely used at gates in fences and other places where the public passes devices.

E1.3 Boardwalk

The older boardwalk at Halltorp SE0330024 has been replaced and a new loop of about 201 m has been built. Along the sidewalk there are meeting places, sofas and a larger resting table. The chosen stretch feels most natural and that you get to experience several of the large oaks. Several pedestrian segments were purchased, and they have been laid out in several places where it has been the muddiest places. Approximately 75 meter is laid out in this way with shorter sections.

E1.4 Recreational facilities

This action has taken place at 12 sites and the action is a mix of different actions. In total the result is three walking trails with a total distance of 7,9 km, 5 picnic tables, 9 carparks, 3 boardwalks, 2 mobile guides, 14 benches and two barbeque areas. See Annex 9.2.6 E-actions per site, for more details.

Figure 20. One of the boardwalks at Västerby with the small sign on so that all could see that the boardwalk has been produced in the project.

Figure 21. One sign with QR-code to the audioguide at Halltorp nature reserve, SE0330024

E1.5 Website

The website was up and running 28 mars 2017.The website has so far been visited by 21 011 users. The most visited pages are the about wood mould boxes and about the project. There is also a Facebook account that is linked to the website. All members of the project have been able to directly update Facebook, and this have been done more or less regularly. During the project period there has been 329 updates on Facebook, and there are 484 followers. The number of people who have been reached with each post have most often been between 200 to 700 people, but some posts has reached over 13 000 people. The ones with most viewers have been about a podcast that has been paid for marketing. The Instagram account has 443 followers and 204 updates have been done.

E1.6 Leaflet

A leaflet of the project was produced in the beginning of the project as reported earlier. 2 500 copies of the leaflet in Swedish and 500 copies in English has been produced. The leaflet was delivered in Midterm, see 9.1.1 Deliverables in LIFE Bridging the Gap, and they can also be found on the website.

E1.7 Layman´s report
A report entitled, LIFE Bridging the Gap – preserving unique oak environments in Sweden, has been produced in 2022. The report has been printed in 400 copies in Swedish and 200 copies in English. The report is written in simple language to disseminate the project's aims and results to the public. The report is in full colour, images have been given space to make the report easy to read and it is 16 pages long.

Deliverables 9.1.20 Layman report English version
9.1.21 Layman report Swedish version

E1.8 Media activity
There have been 15 press releases or press conferences and also articles in the press without any press releases being written. In total that has resulted in over 80 articles in the press and also some radio and TV features. During the final seminar PM and one of the speakers at the seminar was interviewed and the feature was broadcast on television. See 9.2.7 press activities in LIFE BTG.

E1.9 Walks and talks
17 walks and talks has been arranged and at these 400 people participated. The goal was to do 9 walk and talks and reach at least 225 people, so this goal has been achieved beyond expectations. All partners have arranged between three and seven walks and talks and most arrangements is done by CAB K. In addition to the guided tours organized entirely by BTG several more arrangements of different kind where LIFE BTG has been presented has happened. It has been information to for example forestry secondary school, presentation of the project on a webinar for arborists, many webinars, presentation of LIFE BTG for other types of European project and many other arrangements. In total over 3200 people have listened to information about LIFE BTG. See 9.2.8 Walks and talks etc.

Figure 22. Two stag beetles, one female and one male seen at one of the walks and talks at Johannishus åsar.

E1.10 Networking with other projects

A lot of networking has been done. Three members of LIFE BTG visited LIFE MIPP in Italy in May 2017. PM participated in the LIFE-platform meeting in Örebro 19-20/4 2017. In the Platform meeting June 2018 LIFE BTG was represented both by PM and one of the RPC from CAB K. PM also participated in the Platform meeting Bugs for life in Scotland in September 2018. During 2020 and 2021 PM participated in two digital Platform meetings. In 2022 we could all meet again and therefore in October 2022 PM and RPC from CAB E went to the Platform meeting in Klaipeda, Lithuania.

In Sweden we have a tradition that representatives from all LIFE-project try to meet each other every year. PM and PA participated in the Swedish LIFE network meeting in Östersund November 2017 and in Västerås May 2018. After that these meetings have unfortunately been cancelled but there will be a meeting in March 2023.

In April 2018 one networking trip to another Swedish project, Bushlife, was arranged. We were out in the field guided by the PM of Bushlife, Måns Bruun. After one day of visits and discussion in their sites we travelled further into CAB K and looked at some of their BTG sites and discussed actions done and planned.

In 2019 8 representants from LIFE BTG participated in the final conference of LIFE Coast Benefit. The last day of the conference ended at lunchtime and participant plus two extra persons from LIFE BTG had decided to meet some hours in one of the BTG sites nearby, Ribbingsholm (SE0230361) to look at and discuss completed and planned actions. Under the final conference PM met two Czech participants and invited them to the afternoon out in the field. LIFE Taiga had its final seminar as a webinar and PM participated there. Bushlife

arranged the final conference as a mix of webinars and field visits. PM and 3 people from CAB K participated in the field visit and some more only on the webinars.

Later in May 2019 we were visited for two days by representants from Estonia. They visited LKP and CAB E. We also arranged so that they one day had a meeting with Swedish Board of Agriculture. In June the Lithuanian/Latvian project LIFE Osmoderma visited LIFE BTG for several days. All partners were involved in this networking. In august 2022 LIFE for Species from Latvia visited LIFE BTG. If covid has not been we probably should have got even more visits from other projects.

Figure 23. LIFE For Species in Åtvidsnäs nature reserve

In august 2020 PM got in contact with PM from the Danish project LIFE Open Woods. That resulted in some webinars where people from LIFE BTG talked about the project, wood mould boxes and veteranisation.

In September 2022 we could finally do our networking trip to Italy that has been cancelled before because of Covid. We visited both LIFE 4 oak forest and Life Eremita. It was a very successful trip and we did get many new ideas on how to work with the oak trees, monitoring and new project ideas. Earlier 5 travel reports have been sent in, see 9.1.1 Deliverables in LIFE Bridging the Gap.

Deliverables: 9.1.22 Travel report Italy

E1.11 Project dissemination kit
Roll-ups in both English and Swedish were ready in June 2018. 8 copies, 4 in English and 4 in Swedish was produced of the rollups. The dissemination kit was sent photos of in Progress report 1. We had shopping bags, caps and a t-shirt.

E1. Extra action, Exhibitions
Adjacent to the final seminar in June 2022 there was a meeting with the technical monitor and Mr Manuel Montero Ramirez. At that meeting we discussed some extra action. They are described in letter from CINEA 04/07/2022. The extra action was exhibitions, extra signs and building small wood mould boxes. For different reasons we have unfortunately only had time to work on the exhibitions. At the same time, these were the ones that felt most important and would take up the most working time.

The mobile exhibition that CAB E should do was completed in time and the technical monitor Camilla Strandberg-Panelius could see it at the visit 23 - 24 of November 2022. It was then at the lobby of County Board of Östergötland. In the beginning of January, the exhibition was moved to the library in the city of Linköping. The exhibition will be moved to other libraries in the county and so far, it is booked at a few different libraries until the beginning of May 2023.

Figure 24. Exhibition done by CAB E at the library in Linköping.

CAB K was in the discussion about exhibitions but did not at the time to work with this. When they saw the mobile exhibition, they were intrigued to do something similar and hooked. They managed to get funds to buy a similar screen and reused as much as possible of what had already been produced and supplemented with some of their own material such as some information about the sites in Blekinge. At the end of January, it was ready and then stood in the County Administrative Board Blekinge's entrance. This exhibition is financed by other money.

The exhibitions for the two Nature centres on Öland are also completed. Both these Nature centres closed for the season in November 2022 but will open again in spring 2023. In spring the exhibition will be showed at Nature center Trollskogen and at the autumn at the Nature center Ottenby. Both this nature centers are well attended, in 2022 Trollskogen had 50 000 and Ottenby 65 000 visitors. Eventually it will be showed at a third Nature center in the county of Kalmar, at Västervik in 2024.

6.1.15 Action E2 Replicability and transferability

Foreseen start date: 31/12/2017 Actual start date: 30/06/2017
Foreseen end date: 30/09/2022 Actual (or anticipated) end date: 30/11/2022

E2.1 International seminar
31st of May to 2nd of June the final seminar took place in Linköping with 85 participants. It was both indoor sessions and one day in field. The speakers were a mixture of researchers, representatives from other European LIFE-projects and of course representatives from LIFE BTG. The field trip got to two sites (Tinnerö and Åtvidsnäs) where the participants could look at and get more information about the actions done in the project. All indoor session was filmed and are on YouTube.

Deliverables: 9.1.23 Final seminar LIFE Bridging the Gap summary
Films from the seminar https://www.youtube.com/playlist?list=PLuuY-uRgovCCnt4J5MiFOJ2Fic_buKgTG

E2.2 Practical managers handbook
The big work with planning and writing the handbook took place from 2020. Experts and conservation managers in the project have been writing different chapters. Disposition, structure and layout were done by an advertising agency. The handbook was made in several steps, and it was decided that also a digital handbook, in both Swedish and English, should be produced. The chapters that was ready in the beginning was then published digitally. The whole handbook was ready and printed to the final seminar. 200 copies of the handbook in Swedish and 50 copies in English has been produced.

Deliverables: 9.1.24 Handbook LIFE BTG
9.1.25 Handbok LIFE BTG
http://handbok.lifebridgingthegap.se/english/

E2.3 Management films
According to the GA, three films should be produced. There have been 5 films produced. The first film that was about the Great Capricorn beetle was ready in 2019. Three more films were produced in 2020. One film about the value of the oaks, one about stag beetle and the habitat piles and the last one about wood mould boxes and the hermit beetle. We got a lot of positive responses on the first films and also questions when we were going to make a similar one about veteranisation. So, in autumn 2021 there was also a film about veteranisation produced. The films have a total of over 6000 views. The most viewed film is the one about the habitat piles.

Deliverables: https://lifebridgingthegap.se/material/filmer/

E2.4 Grazing workshops including site visits and exchange
Grazing animals are a key factor for maintain good ecological status in the oak habitats. Lack of grazing animals is thus a threat. The development in Sweden in terms of the area of natural pasture has been stable in recent years. To discuss this issue about the grazing animals three workshops took place in the beginning of 2022. The idea was that a workshop would have been arranged much earlier so that it could then be evaluated before the other workshops started. Due to covid this date had to be pushed forward and, in the end, all three were arranged around the same time. A total of 67 farmers participated.

Deliverable: 9.1.26 Short PDF report from the grazing workshops

6.1.16 Action F1 Project management
Foreseen start date: 31/03/2017 Actual start date: 31/03/2017
Foreseen end date: 30/09/2022 Actual (or anticipated) end date: 30/11/2022

The steering committee have consisted of representatives from all beneficiaries except SEPA. The steering committee have been continuously updated on the progress of the project and the committee have decided the changes concerning time, cost and activities in the project. The steering committee have had 18 Skype meetings and have also one meeting booked after the final report are completed.

The PM and all the RPCs have had regular skype-meetings approximately once a month. Since the start 55 such project meetings have been conducted. Between these meetings PM and RPCs have contact on telephone and mail. PM have visited all partners one or two times a year.

The reference group had one meeting in October 2019 that was both inside and out in the field at Åtvidsnäs (SE0230219). After that PM had conversation and discussion with the members about specific issues, for example now about the planning of the grazing workshop and the final seminar. The two farmers that are members of the reference group participated on the field trip on the final seminar and talked about their role in the project and about their companies. One of the researchers in the reference group, Associated professor on conservation biology Karl-Olof Bergman from Linköping University was one of the speakers at the final seminar. Because of the covid situation no one more meeting with the reference group have been hold.

Once a year we have had visits from the project monitor, Camilla Strandberg-Panelius. All partners have participated in these meetings. Between these visits, both PA and PM have more or less regular contact with the monitor via mail and telephone.

In the beginning of the project there was a kick-off in Kalmar. Then in the autumn of 2017 we had a two-day course about veteran trees for the whole project. In April 2018, in connection with a networking visit to Bushlife all project members also stayed together at Tjärö at CAB K. Day two we mostly discussed BTG actions at different sites. In spring 2019 we didn't arrange any special LIFE BTG meeting for the whole project but encouraged participation in LIFE Coast Benefits final seminar. In September 2020 we had a workshop in Östergötland. Because of covid we could only see each other out in the field, but it was a good day. In Åtvidsnäs we looked at some of the actions done and talked particularly about dead wood and its inhabitants. In 2021 the workshop was again in Östergötland but at other sites. One day we had representants from Artdatabanken with us and theme for one day was to discuss good status or not for some of the oak habitats. The second day we looked at some

actions done in Västerby and also visited two one site nearby, Brokind. In one pasture we discussed subsidies for pastures in CAP and then we also visited a very nice site with good status and good structures for biodiversity that we looked at and discussed why this specific site might have so great biodiversity? In October 2022 at the end of the project we had a kick-out at Nordens Ark. This is the place where breeding of the *Cerambyx cerdo* have been done. On these two days we were of course looking at the breeding centre and then we did evaluate the whole project and also discussed how to work with these habitats after the project ends. We think that all these described days where as many as possible in the project are welcome are important. It makes everybody feels like this is a project that we are doing together and that all of us has colleagues in other parts of Sweden.

In the beginning of the project a SharePoint was set that have been available to all beneficiaries and where all documents are kept.

The After Life plan is produced at the end of the project. The plan describes how the actions initiated in the LIFE project will be continued and developed in the years that follow the end of the project. It also describes how the longer-term management of the sites will be assured and in the end of the plan there are site-specific After-Life plans with a map of each site.

Deliverable: 9.1.27 After Life plan for LIFE Bridging the Gap

In GA there is information about some of the sites that needed new decisions from the Swedish government about the Natura 2000 sites, Åtvidsnäs SE0230219, Gö SE0410175 and Åsebo vid Emån SE0330282. The two first ones are in the decision from 31/05/2018 but unfortunately not the last one. Also, Hästenäs SE 0230364 is in the decision. See appendix 9.2.9 Regeringsbeslut, Bilaga 2 page 1 and 2.

6.2 Main deviations, problems and corrective actions implemented

As reported in Progress report 2, Monitor visit in October 2019 and Midterm in 2020 there have been problems in one site, Borga Hage (SE0330116). A new management plan (not financed by the project) was appealed and there was a very negative opinion in the neighborhood to some of the actions that was meant to happen in the project. This led to that many of the actions was moved away from there to other sites in the project.

Two amendments have been sent in, se chapter 5.

There have of only been small difficulties with the budget, except that the cost for the livestock ferry was higher than expected. The outcome of the distribution between external costs and consumables for a few actions, as for example the wood mould boxes, have differed. There was a lot more work to put up these big boxes at the right places than expected so the cost for external work was underestimated.

<u>Åsebo vid Emån nature reserve SE0330282 is not yet a Natura 2000 site</u>

When the application was submitted, some changes were to be made for some of the project sites to Natura 2000, among other things, Åsebo was not yet a recognized Natura 2000 area. Åsebo nature reserve is one of several project areas in Kalmar County that are part of LIFE Bridging the Gap. The application for Åsebo to be recognized as a Natura 2000 area took place in 2015. The actions done in Åsebo have been important and effective so that the area can function as a stepping stone and as part of a larger functional landscape where work is done on bridging the gap.

There has not yet been a government decision made that the area should be included in the Natura 2000 network. The area is one of the 176 new areas (154 SCI and 21 SPA) and 176 areas for expansion (149 SCI and 27 SPA) proposed by SEPA and which have been waiting for the Government's decision for several years.

The area has Natura 2000 values and there are no formal obstacles to a future positive decision. The project area is long-term protected as a nature reserve. The state, through Sweden's Nature Conservation Agency, owns all land within the nature reserve. The County Administrative Board in Kalmar County and the project management for Life BTG therefore believe that the budgeted funds for Åsebo should be retained, even if the government has not yet taken a position on whether the area should be part of the Natura 2000 network.

Åsebo was selected as the project area as it is located in a well-documented larger geographical network of noble leaf environments. This network also includes the project areas Allgunnen and Getebro. They fulfill important functions for preserving green infrastructure, and that it can thus be considered part of the protection referred to in objective 1 of the EU strategy BM 2030, and the trans-European network of protected natural areas, see the attached map. As can be seen from the map, Åsebo is geographically closely connected with several value cores which also harbor species that depend on relatively short dispersal distances such as *Osmoderma eremita*.

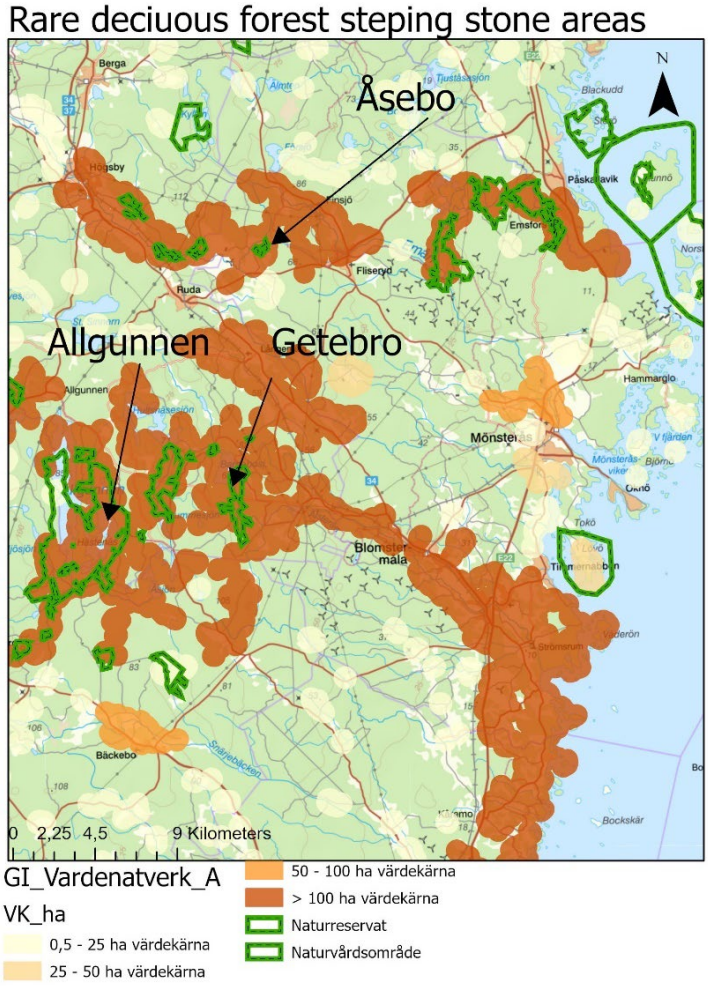

Figure 25. Map of Åsebo vid Emån nature reserve and the surroundings. In the map you can also see two other sites in LIFE BTG, Allgunnen and Getebro. The brown color shows network of value for oak habitats.

After its creation, the nature reserve had a great need for maintenance in order to secure the very high natural values for future generations. The project has made possible major maintenance efforts such as the deployment of wood mould boxes, the construction of log piles, veteranisation, free cutting of oaks and restoration felling to benefit successors to oak and other deciduous trees. Within the project, the nature reserve has been fenced and good grazing has been achieved, which is necessary to secure the natural values in the long term. The positive impact of the measures on the nature values in the mapping of the Natura 2000 nature types was confirmed, table below. All habitats were before the project in bad condition. Just a few hectares are now in good status but on the other hectares the process from bad to good status has started, thanks to the maintenance efforts in the project. These processes often take time so it will take some more years before that happens.

Table 3. Habitat restored in Åsebo vid Emån

9070 good status (Hectares)	9070 in unfavorable status	Land who will be 9070 in the future
4,36	11,13	10,33

The area consists of natural pastures with old multi-hundred-year-old oaks and other deciduous trees, deciduous forest pastures, marshes and flowing watercourses. The nature reserve has documented very high natural values linked to oak environments and water areas, and directly borders the Natura-2000 area Emån's water system (SE0330160). Åsebo has Annex I habitat 9070 and several other habitats 3210, 6270, 6510, 7140, 9010, 9020 and 9080.

High abundance of oak successors is found in different ages which are so crucial for the survival of oak-dependent threatened species. A number of old coarse centuries-old oaks grow here with, among other things, the habitat species in Appendix II *Osmoderma eremita*, *Lucanus cervus* and the red-listed lichen species *Buellia violaseofusca, Gyalecta flotovii, Schismatomma pericleum, Lecanographa amylacea* and the fungus *Fistulina hepatica*. Furthermore, there are several very coarse and old linden trees, including the red-listed species *Schismatomma pericleum* and *Cliostomum corrugatum*. Species in the bird directive are *Dryocopus martius, Lanius collurio* and four species of bats have been found, two of which are the habitat species *Myotis naterieri* and *Pipistrellus pygmate*. Large newts *Triturus cristatus* are found in the wetlands.

CAB H would like to emphasize that the Åsebo nature reserve was purchased on behalf of the state to ensure far-reaching and long-term protection and that the Natura 2000 qualities that the area currently has are strong reasons for the area to receive funds from the LIFE project.

6.3 Evaluation of Project Implementation

6.3.1 Methodology

Action C1 and C2

Within action C1, restoration of overgrown oak habitats has taken place through felling, clearing, fencing and grazing. The methods we used within the project to implement these measures are consistently accepted and proven. When you remove overgrown vegetation, you see immediate results, the light penetration that we strive for, to the trunks of trees and grass, increases. The typical species that are present are given good conditions to increase, over time, when we have removed shading and suffocating competition. It is of the utmost importance that after the restoration effort you continue with care such as grazing, mowing or recurring

clearing. If you only clear and follow-up care is not taken, weed species and other opportunists can quickly increase in number and suffocate the species you really wanted to benefit in the grass, and sly will quickly return and crowd out valuable trees.

Generally, the methods we have used to restore grasslands seem to have worked well in the purpose of creating pastures. In most areas this has been performed in close cooperation with the animal holder to make sure that the number of grazing animals is adjusted to restored areas to minimize any problems with regrowth. At most restored areas this has worked above expectations and the grass layer is quickly recovering and establishing after actions has taken place. In the beginning in some areas there was a distrust of grazing in oak habitats, but it has worked well. Though especially in parts where it is humid or wet there normally is a need of at least one secondary clearing. In the long run an optimal grazing pressure is the best, and often the only way, way to maintain the conservation status. The methods used to create a more variable landscape are all meant to be best practice.

For some associated beneficiaries, it has been a great build-up of knowledge regarding the restoration of oak habitats. CAB K started early in the project with major restorations, which provided a calm and prerequisites for further interventions in the same area and maintenance clearing for several years. Large areas have been restored and a large proportion have reached favorable conservation status for the habitat.

The talented entrepreneurs who have returned to several jobs have during the project time learned how to think when doing restoration jobs in these valuable areas. They have thus become more independent.

CAB K have done some of the restoration on islands. Restoration on islands is expensive, and logistically more difficult than on the mainland. We believe that good planning and coordination with those involved and chipping on the islands instead of the mainland led to the best possible cost effectiveness.

The project has created the conditions for good pasture management through fences and corrals. In well visited areas it was possible to change to accessibility-adapted gates. The project has made it possible to replace fence sections that had been neglected for a long time.

One important lesson learned is to dare to take more extensive measures, and to dare to take measures in very valuable overgrown areas. It is important to start the restoration work in such areas to make both the ancient trees and their species live in the future. If the sites are very overgrown, just do the restoration work in stages. It has often taken a long time for the ground to grow again, and it is usually only good for the trees that the restoration also takes a little time so that the trees will not be shocked. It also important to work with variation in denseness and structures and to work with the dead wood of different kinds in the restoration work.

Action C3 Planting

For LKP, which did large plantations, this became a cost-effective measure. The action became more expensive than budget when the plantings are done in rural areas and also when plantings are done on a smaller scale. For CAB E it was also difficult to find entrepreneurs who would like to do this job, probably because it’s not wat they normally do. It was only LKP who had worked with the action before, so all the other beneficiaries learned a lot during the process.

Planting is a fairly simple measure in areas lacking oak regeneration so the method is yet another tool that more nature conservation managers will have in their toolbox in the future.

Complements to this measure have emerged during the time the project has been ongoing. Young seedlings observed in good locations have been protected from grazing animals by fencing. In places with many naturally occurring young plants, some of these have also been able to be moved. A third measure is that the importance of saving small shrubbery with thorny bushes has been emphasized even more clearly. These are the natural nursery for seedlings of trees during their early years and prevents the seedlings from being eaten by grazing animals.

Action C.4.1 Wood mould boxes

The wood mould boxes used in the project are much larger than those previously used. The boxes are clearly visible and have received a lot of attention from both nature conservation managers and the public.

Figure 26. One fixed wood mould box with new battens.

This was an action that had not previously been worked on in this way, and it was therefore perhaps not so strange that the budget was incorrectly distributed between external and consumables. Because they are so large and unwieldy, it was much more difficult to get them out in place in the terrain than expected.

During the monitoring, it turned out that several of the boxes had gaps in the constructure and that they therefore became too dry. It could be adjusted by placing battens over the crevices. There were also other parts of the construction that can be looked at in the future to make them as useful as possible. The boxes need to be continuously filled and adjusted in the future, but they have a limited lifespan.

Action C.4.2 Stag beetle habitat piles

The monitoring showed that the stag beetle habitat piles is a relatively simple measure that provides a great conservation benefit, not only for the stag beetles but for many other species. When wood from completed restoration in the same area can be used, it is a very cost-effective measure.

One problem observed is that some piles have been invaded by ants. Another problem discovered were that in areas with clay soils, it is better not to bury the logs, but instead to use more filling material around them.

Action C.4.3 Veteranisation

It was very good that we carried out courses for arborists at the beginning of the project because it meant that there were many different arborists who could do the job. A joint procurement was done by CAB H for the whole project, and it made it very easy to call out work and get it done.

Veteranisation is a good and relatively simple maintenance measure to use during restorations. It reduces the number of trees that need to be felled and driven out and at the same time it creates more dead wood, which is positive. Veteranisation does not require any follow-up care, which saves time.

An instruction in both English and Swedish was produced which was good because it could be given directly to the arborists who would do the work. One lesson learned is that it can sometimes be difficult to get arborists to understand, that we, as clients, want the work done correctly and that it is much more important than that the work done does not cost so much. There has been a difference between different arborists, and some have simply not had the right touch and we have had to announce that an individual arborist may not continue to work in the project.

There are many different ways to veteranise trees. It would have been good if the project has used some method that can be done from the ground as well. For example, imitating horse gnawing is one such method that has also been shown to work well in follow-ups that have been carried out. By being able to show methods that not only arborists can use, but also those that someone who can use a chainsaw can do, you can get more landowners to implement them.

Action C.5 Cerambyx cerdo

Before the project began, there was already a started collaboration within the national action plan for *Cerambyx cerdo*, which allowed the work with breeding and stocking to flow within the project. Collaboration with Nordens Ark, which breeds the species, has also been very good. At the projects last year, a collaboration with Linneus University Center, where a research project is run where they followed Cerambyx cerdo reintroduced at Tromtö with radio transmitters. About 55 transmitters were used and data on how the beetles move was

collected. The biggest problem was getting the radio transmitters to stay on the beetles. The preliminary results showed that there were 13 beetles that moved over 100 meters. The longest movement was 453 meters for a male and 392 meters for a female. The size of the males seems to have an effect on how far they move. They could not show any effect of the temperature.

Figure 27. Searching for Cerambyx cerdo with transmitters.

It is still too early to evaluate this part of the project. It is important with the continuity that the work continues for a sufficient number of years and that the measure is then evaluated.

6.3.2. Results achieved against the objectives and expected results

Table 4. Objectives in LIFE BTG

Action	**Foreseen in the revised proposal**	**Achieved**	**Evaluation**
C1 and C2	Objectives: Initiate the recovery process to favourable conservation status in 1405 ha Expected results: The conservation status in the project areas for targeted habitats will be favourable.	The recovery process is initiated into favourable condition in 1407 hectares.	There are already improvements of the habitats. 857 hectares are now in favourable condition and that is a god result for these tree rich habitats. For the remaining areas it will take a while longer. In many cases even more measures may be required before they have arrived there. But now they are in better condition than they were when the project started.

C1, C2, C3, C4 and C5	Initiate the recovery process to favourable conservation status for the following Annex II species: *Osmoderma eremita* (1084), *Cerambyx cerdo* (1088), *Lucanus cervus* (1083) and *Anthrenochernes stellae* (1936) in 30 Natura 2000 sites.	Restoration of habitats, putting up and introducing grazing animals fences is done. The creation of decaying wood habitats at the sites has been successful, so also planting of trees and bushes. Breeding and introduction of *Cerambyx cerdo* is done.	The planting of trees and bushes has been successful, indicating that a process to bridge spatial and temporal gaps has been initiated. The monitoring shows that both the stag piles, wood mould boxes and the veteranisation of trees seems to work very well for a lot of organisms. It is still very early in processes that take many years, but the breeding of *Cerambyx cerdo* now works very well. It also seems like the reintroduction of the beetle is successful.
C4	Initiate the creation of decaying wood habitats which in the longer term can bridge gaps in space and time for the Annex I habitats (9070, 6530, 9160, 9020 and 9190) and Annex II species *Osmoderma eremita* (1084), *Cerambyx cerdo* (1088), *Lucanus cervus* (1083), and *Anthrenochernes stellae* (1936) within the Natura 2000 sites.	480 wood mould boxes are in place. 197 stag beetle piles are in place. Veteranisation is completed at 1458 trees.	The monitoring shows that both the stag piles, wood mould boxes and the veteranisation of trees seems to work very well for a lot of organisms. The only of these species that for sure breeds in these structures is *Lucanus cervus*. When new monitoring can be done in the future so hopefully the result will be even better.
E1 and E2	Increase and update the knowledge about the management of the targeted habitats and species among stakeholders, site managers and scientists by the dissemination of project experiences and results, in order to ensure transferability and replicability.	Much networking and exchange of knowledge with colleagues and scientists have been done.	

6.3.3 Visible project results

The actual restoration actions (C-actions) are all obvious and clearly visible in the landscape. The removal of dense shrubberies and stands of young trees produces immediate results that

also improves the accessibility of the area. Clearing around old trees opens the landscape creating a far more appealing environment for nature recreation as well as give access for grazers. The typical pastoral trees with grazing horizon are considered beautiful and are appreciated when managed.

The big wood mould boxes and the stag beetle habitat piles are obvious new structures in the nature where they are erected in the nature, hardly possible to miss when passed through. During the same year as the trees has been treated with veteranisation the scars are clearly visible, shining white on the trunks. But after one season you need to know where the treatment has taken place and then it is still easy to spot.

It will take a longer time to see if the species that we are working with will respond as we hope because we think it will take time before they find and colonize the habitat that has been produced. They are slow moving animals with quite a long lifecycle. The first results are positive, for example several examples of *Cerambyx cerdo* has already hatched in 2022 even though we didn't expect it until 2023. The monitoring of both veteranisation and stag beetle habitat piles has shown very have both shown very positive results in terms of the number of species found.

6.3.4 Project amendments

The Amendment where the Swedish Environmental Agency got in the project as one associated beneficiary was very good for the economy in the project because the problem with the 2 % rule was solved that way. In the last year the project was prolonged for two months. That was very good because in some sites the last actions wouldn't have had time to finish otherwise.

6.3.5 The results of the replication efforts

During the last year, an international seminar was organized to spread what's have been done and what we have learned. The seminar was well attended and had participants from several countries. The lectures in the auditorium were recorded and can therefore also be viewed afterwards. In the project, a handbook has been produced and this means that you can easily see how you have worked within the project and what you have also learned.

The project's C1 and C2 actions are consistently based on well-proven management methods that are used in nature conservation in Sweden. Even if we think that we have a long tradition of doing these actions in Sweden we can of course learn more and not least learn from each other. A clear example is that CAB K in the past had some bad experience of restoring oak pastures and therefore had stopped doing so. As being part of this LIFE project and have time to discuss the restoration procedure with colleagues with other experiences and of course also to see the successful result of the ongoing restoration have made them change their routines. Now they have more oak habitats that will be restored in the project LIFE RestoRED.

For C3 actions (planting) there exists proven management methods, but there are still many things to learn about this action. One example is the extremely dry summer that was 2018. LKP planted trees in springtime, they have before planted both in spring and autumn. The dry summer meant that they had to water immensely, and later in the project all planting was done in the autumn.

For the actions of decaying wood habitats (C4) there exists proven management methods on a smaller scale. Here we can see that the interest from both public, media and nature

conservation managers are big. We have received many questions about these actions, and we have sent drawings and explanations on these to many different actors both in Sweden and to other countries. The way we have worked with signs, films and the handbook make it easy to replicate in the future.

6.3.6 Dissemination activities

We have arranged and attended several meetings, webinars, conferences and excursions. We can see a great interest in what we are doing from both the Swedish public and nature conservationists in both Sweden and other European countries. The final conference was well attended and with participants from several different European countries.

Several products (films and handbook) have been produced that are good to be able to refer to when you have guided tours or foreign visitors. Material has also been produced that can give tips on what you can do at home in your own garden.

A lot of attention from media have been received and a good reach of public via Facebook and Instagram. Information about the project and its status has continuously been posted on both the social media. It has been relatively easy to get media interest, but unfortunately, we haven't had the opportunity to spend a lot of time on that. In the last year there has been a communicator attached to the project and it has been very good.

Most questions have been about the C4-actions. We started doing some of the actions before the information signs came up. It would have been better if the information had been in place right at the beginning, because then we would have avoided a number of questions. This was noticed, for example, in the densely populated area of Tinnerö, where there were many phone calls about wood mould boxes and stag beetle habitat piles at the beginning. The questions stopped completely when the signs came up. Several nature conservation managers from other municipalities and county boards have asked about the signs and then they have received permission from us to copy texts if they wished.

Work with information to the public has also been done. A podcast has been made and in the well-visited area of Halltorp an audio guide has been made. At the end of the project, we have also worked with exhibitions aimed specifically at the general public. Certain themes on guided tours are easier to attract the public, such as when we talked about the stag beetle which many people would like to see.

6.3.7 Policy impact

One area in which we actually learn and influence is the interpretation of the support rules within the rural program, which is crucial for the continued management of the grasslands. Collaboration across sector boundaries and principal discussions on natural values versus rural support enriches both sides. In the project we have worked locally with meetings in the field for those who work with nature conservation and those who work with CAP to create better understanding on both sides and to get people talking to each other. Even though the problems with CAP to wooded pastures have been raised, the issue has not yet been resolved. We need to keep working on this important question.

In LIFE BTG we work with green infrastructure in the small scale, like in one site. We think that we learn from the things we do and after the project this will be evaluated, and we can learn which actions that are suitable to do where in the bigger scale for example to connect areas outside Natura 2000 with high biodiversity so that the risk for local extinction will be reduced. Linköping Municipality has developed its work on land outside protected areas during

the project period. For example, they have started working with both wood mould boxes, stag beetle habitat piles and veteranisation in completely different areas.

The knowledge gained from the BTG project has been used in other actions, like when the municipality of Finspång put out 20 wood mould boxes 2018 after inspiration from LIFE BTG in the city to connect two species rich areas with *Osmoderma eremita*. This is practice work done with thinking green infrastructure.

The breeding of *Cerambyx cerdo* has gone very well. Nordens Ark seems to have found a method for breeding of long horned beetles. Before breeding of the *Cerambyx cerdo* they have worked with *Plagionotrus detritus*. The preliminary results show that the release also seems to have gone well. In Sweden, there is a national action program for *Cerambyx cerdo.* With the successful breeding and also the release of this critically endangered beetle, some of the most important measures in this program have been done even if we don't yet know it the species will reproduce in the mainland in the future.

In the Swedish report of Habitats directive in 2019 it was reported that the negative trend for habitat 9070 seems to have slowed down mainly thanks to LIFE-projects. In this report the projects work with the reintroduction of *Cerambyx cerdo* is also mentioned.

6.4 Analysis of benefits

6.4.1 Environmental benefits

Benefits of habitats

The project targets were 5 habitats covering 1932 ha and 1020 ha of these was planned to be directly targeted by concrete conservation actions. Action have been done in 1101 hectares of habitats and also in more areas, so actions have been done in a total of 1407 hectares. The status of the habitats before the project was unfavorable/bad or unfavorable/inadequate. In the end of the project 857 hectares are in favorable condition. Besides, 145 hectares land who will be 9070 in the future has been created and also a few hectares of land who will be other habitats.

The main target habitat for the project was 9070, fennoscandian wooded pastures. The goal was to work in 907 hectares in 27 of the project sites. The result was just over 1000 hectares in 29 of the sites, see table 5.

Table 5. Habitat type 9070 targeted by LIFE BTG (hectares)

Sitecode	Sitename	GA	BTG total areal	good status
SE0230131	Stafsäter	37,7	20,2	20,2
SE0230133	Ljusfors	9,1	4,1	4,1
SE0230160	Norsholm	14,4	7,4	7,4
SE0230161	Borg	10,5	13,4	13,4
SE0230190	Runstorp	13,3	8,7	8,7
SE0230219	Åtvidsnäs	39,3	35,3	35,3
SE0230342	Tinnerö eklandskap	144,8	128	128
SE0230349	Vidingsjö	5	5	5
SE0230353	Ullstämma	3,6	3,6	0,6
SE0230361	Ribbingsholm	15	8,8	8,8
SE0230364	Hästenäs	45,7	45,7	40,7
SE0230387	Västerby	43,6	40	27,7
SE0220231	Viggeby	46,8	46,8	46,8
SE0330024	Halltorp	27,1	80,68	64,29
SE0330036	Allgunnen	30,2	28,43	0
SE0330038	Getebro	1	19	18,02
SE0330063	Horns kungsgård	58	58	55,12
SE0330099	Björnö	52,8	0	0
SE0330101	Böda prästgård	7	7	7
SE0330116	Borga Hage	77	10,71	8,49
SE0330205	Strandskogen	60	49,68	29,46
SE0330282	Åsebo vid Emån	24,3	15,49	4,36
SE0410024	Johannishus åsar	25,4	15,7	15,7
SE0410042	Tromtö-Almö	356	62,7	48,8
SE0410062	Valje	11,3	10,9	10,9
SE0410089	Sonekulla	32,1	29,2	25,9
SE0410092	Haglö	33,6	17	14,2
SE0410114	Knösö	25,7	11,3	11,3
SE0410175	Gö	213,9	208,6	107,2
SE0410219	Kummeln	12,2	10,2	10,2
		1476,4	1001,59	777,64

The goal with habitat 6530, Fennoscandian wooded meadows, was to work with 25,5 hectares at three sites. The result was fewer hectares than planned, 16,64 hectares at three sites. At one of the sites there must have been one mistake in the application as there is no habitat in the area. On the other hand, a quite large meadow was restored at another site, Horns kungsgård. The area not restored at Halltorp was already in good condition.

Table 6. Habitat type 6530 targeted by LIFE BTG (hectares)

Sitecode	Sitename	GA	BTG total areal	good status
SE0330024	Halltorp	8	3,02	
SE0330036	Allgunnen	6,9	3,44	
SE0330038	Getebro	13,3	0	
SE0330063	Horns kungsgård		10,18	10,18
SE0410042	Tromtö-Almö	0,5	0	
		28,7	16,64	10,18

The goal with habitat 9020, Fennoscandian hemiboreal natural old broadleaved forest, was to work with 35,4 hectares at two sites. The result was more hectares than planned, 52,6 hectares at four sites.

Table 7. Habitat type 9020 targeted by LIFE BTG (hectares)

Sitecode	Sitename	GA	BTG total areal	good status
SE0230219	Åtvidsnäs	6,2	4,7	4,7
SE0230387	Västerby	23,1	21,5	21,5
SE0220231	Viggeby	14,3	0	
SE0330036	Allgunnen	10,1	0	
SE0330063	Horns kungsgård	23,9	23,9	23,9
SE0330116	Borga Hage	0,3	0	
SE0330205	Strandskogen	41,6	2,5	
SE0410175	Gö	5,1	0	
		124,6	52,6	50,1

The goal with habitat 9160, Subatlantic and medio-European oak or oak-hornbeam forests, was to work with 29 hectares at three sites. The result was fewer hectares than planned, 17,81 hectares at three sites. At one of the sites, Halltorp, there has been a change in habitat from 9160 to 9070 so the area is restored but as 9070.

Table 8. Habitat type 9160 targeted by LIFE BTG (hectares)

Sitecode	Sitename	GA	BTG total areal	good status
SE0230160	Norsholm	5,2		
SE0230190	Runstorp	1,8		
SE0330024	Halltorp	52,2	14	6,68
SE0330036	Allgunnen	16,7	0	0
SE0330038	Getebro	11,4	3,81	3,81
SE0410175	Gö	93,3		
		180,6	17,81	10,49

The goal with habitat 9190, Old acidophilous oak woods, was to work with 23,9 hectares at three sites. The result was fewer hectares than planned, 13,01 hectares at four sites. Most of the area planned to work with in Allgunnen was discovered to already be in good status.

Table 9. Habitat type 9190 targeted by LIFE BTG (hectares)

Sitecode	Sitename	GA	BTG total areal	good status
SE0330036	Allgunnen	59,9	0,47	0,47
SE0330038	Getebro	5,5	4,34	0
SE0410042	Tromtö-Almö	31,6	5,6	5,6
SE0410175	Gö	24,7	2,6	2,6
		121,7	13,01	8,67

Direct / quantitative environmental benefits

The grasslands restored in the project will need regular maintenance even after the end of the project period. The management will be arranged within the framework of ordinary reserve management with funds from the Swedish Environmental Protection Agency (SEPA) and with the assistance of the rural program. 842 hectares have been restored and 170 of these hectares are in the end of the project approved for subsidies. In just a few years about the same amount will be in the subsidies so a total of 330 hectares. With recurring care, these natural grasslands are very sustainable as a feed resource. The ecosystems are adapted and dependent on the recurring management. The ecological value of the land is thus increasing over time with continued maintenance.

The livestock ferry that was bought to Viggeby by LKP works very well. The sheeps are transported over to graze on Bromön safely now. Wood mould boxes and other material that has been needed to carry out measures in the project have also been able to be transported across the water with the ferry. It is highly regarded by the animal keeper and will facilitate the transport of grazing animals and much else on the island for many years to come. Bromön is 30 hectares and the whole island is habitat 9070 and are grazed.

Results from the analysis of aerial photographs of canopy cover shows that after the management measures, the area with the highest degree of crown coverage (81 – 100 %) had decreased from 82 % to 35%. In general, all areas had become sparser, and the distribution was spread between all the other categories of lower canopy densities.

The survey of the Natura 2000 areas showed a large number of trees with high conservation value. In total, there were an average of 10.9 trees of conservation value per hectare (3–35 trees per hectare) in the survey areas, which is significantly higher than the average for Östergötland county's oak habitats, which is 0.12. The number of younger oak trees and other tree species other than oak becoming the next generation of old trees (0.50–0.99 meters in diameter) are also high, 37 and 26 trees per hectare, respectively. The average for Östergötland county is 5.2 younger oaks per hectare. A total of 57 percent of the trees with high conservation value were hollow. The results from the survey show that the restoration have had a large positive effect on the trees with high conservation value. After the restauration, only one percent of the trees had an urgent need for measures, in contrast to previous surveys when 14 percent of the trees had an urgent need for restauration measures. The high number of large oaks, younger oaks and hollow trees shows that the surveyed Natura 2000-areas and nature reserves also have a great potential when it comes to the development of future large oaks and other important deciduous trees. The restoration measures also affect the conditions for the next generation of trees. Clearing of older trees will give younger deciduous trees more living space and the more open, sun exposed environments also increase the chances for new seedlings to establish. In conclusion, the survey confirms the high biological values in these sites and the positive effects of the

measures in the project. There is still a need for continued management around large trees and create more open conditions thus increasing the survival of trees, giving them the chance to become the old and large trees of the future. The management of individual trees with high conservation value will therefore continue even after the project LIFE Bridging the Gap has ended. To summarize, the results show that these unique habitats are important to prioritize in the work of conserving the biological diversity linked to areas with old, large and hollow trees.

Wetlands that are recreated immediately provide an additional habitat in the landscape. One well-planned wetland will become permanent and provide biodiversity and ecosystem services for a long time. In LIFE Bridging the Gap several small wetlands have been shaped in three sites. However, no monitoring has taken place on the wetlands created in the project.

Stag beetle, *Lucanus cervus*, was one of the target species. We have tried to benefit the species by building stag beetle habitat piles. These seem to work very well as 14 stag beetle larvae during the monitoring was observed in five of the monitored piles. In addition, dead stag beetle females have been found at additional facilities. The monitoring of the stag beetle piles also shows that these facilities work surprisingly well for many other species as well. In the survey, 211 species of saproxylic beetles are found, of which 18 are listed on the Swedish red list. Stag beetles had before the project been observed in 14 of the sites. In one of these sites, it was thought that it was probably extinct so actually in 13 sites. In the end of the project the stag beetle is observed at 24 sites and also in the one where the thesis was that it was extinct.

Hermit beetle, *Osmoderma eremita,* is another target species. In earlier research it has been showed that the species benefits from wood mould boxes. However, the species is slow, and it often takes a little longer for it to appear in the boxes. It is therefore not surprising that it was not observed in the wood mould boxes during the project period. One individual of the hermit beetle was caught in one of the veteranisation cavities. This is confusing since the hermit beetles normally appear late in the succession of the cavities and prefer to live in cavities with a large wood mould volume. It remains to be confirmed whether the individual came from the artificially created cavity or from an older pre-existing microhabitat that was already colonized. A companion species to the hermit beetle is the small claw crawler, *Anthrenochernes stellae*. That species has even fewer finds than the hermit beetle, and it is not surprising that it was not observed during the project period either.

Table 10. Annex II species in the sites of LIFE Bridging the Gap

	Osmoderma eremita	***Lucanus cervus***	***Anthrenochernes stellae***
Sites before LIFE BTG	22	13 (14)	7
Sites at the end of LIFE BTG	24	24	7
increase	2	11 (10)	0

At Nordens Ark they have been breeding the greater capricorn beetle, *Cerambyx cerdo*. The breeding has been successful and 797 specimens of the species have been released on the two sites where the species earlier lived. In addition, some specimens have also been returned to the site Halltorp where the breeding animals were caught. Preliminary results shows that the reintroduction also seems to have been successful.

Qualitative environmental benefits

The grassland habitats included in the project used to be in poor condition, as could be seen in the poor status and negative trends reported through Article 17 to EC every sixth year. They are generally rather hard to manage in a way that conserves and develop the biological values leading to a beneficial conservation status. The management needed is both time consuming and expensive since it rarely is a part of the rational farming practises that have developed during the last three decades. The need for restoration has therefore been high. Through LIFE BTG, the large scale and in some cases drastic restorations, the status have good possibility to enhance. The methods used and the involvement of the users of the grasslands provides good opportunities for successful long-term management and further development om the biological values.

The large number of restored habitats in favourable condition created in the project, will benefit the population sizes of the Annex II insects stag beetle, *Osmoderma eremita* and *Anthrenochernes stellae*. Also, the work with creating more decaying wood habits will benefit all these species in long term.

In the update of the Swedish red list 2020, *Osmoderma eremita* was changed from NT (Nearly Threatened) to VU (Vulnerable) mainly because a decrease of its habitats. If more actions like the one done in LIFE BTG were done in a wider landscape where the species live maybe there can be a change in this decline.

Through the plantings that have been carried out, the landscape will eventually fit together in a better way. In some cases, barriers such as spruce plantations have been removed, which is also positive. In a large proportion of the plantings, flowering bushes have also been planted, which directly produces an ecological effect and is, for example, very positive for pollinators.

Before the project started, there were not much monitoring done on veteranisation. During the time that the project has been ongoing, several monitoring has been made. The monitoring within BTG concentrated on beetles, while other monitoring has looked at the structures in the trees. In 2020 a larger monitoring of an international veteranisation trial from 2012 was carried out. In summary, after eight years, the veteranised oaks included in this study show positive results in terms of improving the quantity of microhabitats in young trees. Monitoring of older veteranisation (from 2011-2015) in Tinnerö was done in 2021. It showed, among other things, that approximately half of all veteranised trees had decaying wood and that a very large proportion of the trees had exposed wood that was also eaten by insects. In nests made by veteranisation, 77% had been used by birds. Monitoring by LIFE BTG and other monitoring shows that veteranisation seems to work very well as a tool in creating structures in relatively young trees that normally form in much older trees.

The purpose of the restoration actions is to increase the possibilities for the habitats and species in the habitat and bird's directive to reach favourable conservation status at a regional and national scale. It is the aim of LIFE BTG that the development in those habitats will result in a more positive trend in forthcoming Article 17 reporting. In the Swedish report of article 17 2019 the status of all the habitats and the species that LIFE BTG works with is still bad. The number of grazing animals continues to decrease and that is a big threat for the long-term conservation. Problems with profitability in agriculture are considered to be the biggest problem with the decrease.

The management of the sites after-LIFE will continue through the administration of the partners. Almost all the restored habitats are grassland habitats that will benefit of grazing or similar management. Therefore, it is important to ensure grazing animals for a long time forward. Areas that have been restored will be included in the system for agricultural subsidies when they developed required biological values. The sites are included in the management for protected areas in Sweden that are funded by SEPA.

The project has not eliminated the threats to habitats and species, but it has found ways to continue working with the entire landscape. In the project the work has been done within Natura 2000, the goal now should be to work across the landscape with green infrastructure, how to find funding to continue this?

6.4.2 Economic benefits

The project's measures provide economic benefits for landowners and animal owners even in the longer term. The fences and other devices built within the project are estimated to support agricultural operations for several decades. Grasslands are prepared in ecologically sound status, which makes it possible to seek support for out of the rural program, which is economically advantageous and guarantees continued necessary care. At the end of the project some of the restored areas was good for these subsidies which would provide a compensation of approximately 465 00 euros per year. In just a few more years, more area will be eligible for compensation, which is an estimated total of 100,000 euros per year.

Most of the work done out in the nature has been procured and performed by local contractors. Some of the measures were relatively new and carried out on a much larger scale than before. This applies, for example, to veteranisation, where at the beginning of the project there was training for arborists because there were too few Swedish arborists who had worked with this. Those who have completed the training have since been able to expand their business. This also applies to a company that has worked with and become good at manufacture and deploy wood mould boxes.

6.4.3 Social benefits

Despite the fact that the public often has no knowledge of nature conservation, people enjoy and appreciate the values we create through restoration and grazing. Some of the sites has many visitors. By restoring and improving accessibility to these areas through, for example, parking lots and hiking trails, their experience of the areas can hopefully be improved, and accessibility increased. Hiking trails are important for the public to dare to move out into the landscape. So even if it is a small and simple infrastructure, it makes a big difference so that a wider part of society's population can take part in the nature experience in the N2000 areas and increase the understanding of what is required to care for nature.

At some project sites we also got the possibility of using another solution since LIFE Bridging the Gap, together with the regular management of Nature reserves in CAB E, H and K, was involved in an ongoing co-operation project with the Swedish Forrest Agency. The purpose of this project is to allow long-term unemployed together with newly arrived immigrants and refugees to get practice and working experience. In practice work-teams are put together consisting of approximately 50% long-term unemployed and 50 % newly arrived with a team leader from the Swedish Forrest Agency. In LIFE Bridging the Gap they have worked with cleaning the area on branches after clearing of overgrown vegetation at Gö, Allgunnen, Åsebo, Stafsäter, Hästenäs and Åtvidsnäs. They have also been involved in raking

leaves for the filling of wood mould boxes in several areas (Borg, Norsholm, Ribbingsholm, Runstorp, Stafsäter, Västerby, Åtvidsnäs). In sites where CAB K have done planting (Johannishus, Valje, Tromtö-Almö and Kummeln) they have cleared weeds around the plants. Out of a socio-economic perspective this kind of co-operation between authorities is very beneficial.

6.4.4 Replicability, transferability, cooperation:

To transfer the knowledge from what we have learned during the years of LIFE BTG is of course important. Much of the most important thing we have learned has been when we have met colleagues from other projects in different ways and exchanged experiences. This applies both to colleagues within and outside the project and also from other countries.

We have had a lot of national and international contacts and we can see that there is a big interest for the actions that we have done. The biggest interest has been for the actions with the creation of decaying wood habitats (C4). The probability for replicability of parts of the project therefore seems large. The wood mould boxes have already been used in at least one other LIFE project, LIFE Osmoderma. The drawings of the wood mould boxes are sent to other County Administration boards and municipalities in Sweden as well as to representants in Belgium and Germany. Drawing of the stag beetle habitat piles are also sent to other County Administration boards and municipalities as well as some golf courses, one airport and a company working with ecological compensatory measures.

The project LIFE Coast benefit used both the instructions and the procurement for veteranisation made in the end of their project because they had some money left and thought that veteranisation was a good complement to all the action they had already done. There have also been some contacts and discussions with other stakeholders who have planned to plant trees and bushes.

Linköping municipality have looked at the actions done in LIFE BTG and have done them in other areas. Some of these actions are so called LONA-project, which are local nature projects financed by SEPA.

We can see that it is important to carry on talking and discussing about the need for managing grassland rich in trees and bushes and will show LIFE BTG as a good example. The final seminar that was held in 2022 had 85 participants and they all got to learn about the experiences from the project.

The experiences from the practical work with restoration is described in a Practical managers handbook. The handbook is published both in Swedish and English and both in printed and digital edition.

6.4.5 Best Practice lessons:

Many of the actions, as clearing and fencing, is of best practice. It is good to be several partners with different experiences and being able to share these with each other. For example, CAB K had not been working with restoration of oak habitats during a long period because it had gone a bit wrong with some restorations. When in this project they had to start doing restorations and learned how to do it and what to think about to do it the right way. The experiences so far have been very good and those who have worked in the project have spread what they learned to their other colleagues. CAB K are also partners in LIFE RestoRED that will go on between 2021-2027 and in that project restore even more oak habitats.

One area where we actually learned and greatly influences the future of the restored areas is the interpretation of the support rules within the rural program. When restoring a habitat, it is also good to know how this system works. Sometimes just a small adjustment in the restoration can make the pasture get subsidies or not. Cooperation across sector boundaries and principled discussions about natural values versus rural support enriches both sides.

During the project some workshops has been arranged. In the beginning of the project, it was days about tree ecology and how to take care of old trees. After that we had workshops about dead wood, assessment of quality and status of different oak habitats and wetlands. Also, a webinar about lessons learned about veteranisation was arranged. These workshops have been very valuable for the whole project. You get to know new colleagues with different knowledges and when you have met it is easy to take more contacts and learn even more from each other.

6.4.6 Innovation and demonstration value

LIFE BTG is mostly of best-practice character, but some of the actions nevertheless seems to have a big demonstration value. When doing planting of trees and bushes (C3) we of course contacted other projects (LIFE MIA and Bushlife) to hear about their experiences. Also, LKP has quit big experiences from this action. After talking and discussion LKP decided to do the planting a little different from the application. The result is much more bushes in the planting areas. This should mean that biological values are much faster in the plantations because shrubs become interesting to, for example, pollinators after just one season, while it takes many years for the trees to become so.

For the creation of decaying wood habitats (C4) it has been a big interest from both other counties and municipalities in Sweden as well as interest from other LIFE Projects. The Danish project, LIFE Open Woods, has been in contact with us and are replicating some of the actions. In 2019 LIFE Osmoderma visited us and was out in the field discussing this thing. Drawings for both the wood mould boxes and the stag beetle habitat piles have been sent to several nature conservation managers in Sweden.

Veteranisation is a relatively new method. By working with planning this action and see the good results of it this is also a method that can be used more often in the regular nature conservation work. Before the veteranisation started it was obligatory for the arborists that should do the work to attend an education about how to do the veteranisation. When LIFE BTG started the project VETCert (financed by Erasmus) was ongoing but not finished. In Sweden there are at least 50 arborists that have attended their educations. If LIFE BTG had started now, probably their certification system should have been used. You can find out more about this project at https://www.vetcert.eu/

Before LIFE BTG stag beetle habitat piles had only been used a few times. In the project we have learned that this is a very simple action to do that benefits many species and will do more of this action in the regular nature conservation work.

We have seen that it is much easier to capture the interest of the public and the media in this not so usual activity like creating decaying wood than it uses to be when we just do “normal restoration”. Once you have captured their interest, it is then easy to talk about, for example, biodiversity.

Nature conservation with EU funds is quite unknown to the public in our country, apart from EU support for agriculture. Through the measures in the project, information has been disseminated to both the public and officials about the EU LIFE funding and how important it is to meet national and international goals for the conservation of biological diversity and natural values. The project is an example of how EU funds can improve nature conservation measures with the help of national money as co-financing.

6.4.5 Policy implications:

One area in which we learn, and influence is the interpretation of the support rules within the rural program, which is crucial for the continued management of the grasslands. Collaboration across sector boundaries and principal discussions on natural values versus rural support enriches both sides. It is a work that we see that we must constantly work with and ensure that we have joint training days in the field to understand what different regulations mean in practice.

LIFE BTG have worked with grazed habitat with quit lot of trees (9070). This habitat is not the easiest to work with in the rural program. Because of that we have worked with understanding from other authorities. The 19th of September 2019 a day with for instance Swedish Environmental Protection Agency and Swedish Agriculture Department was arranged out in the field at CAB E that PM had planned. The purpose was to discuss the environmental subsidies in tree rich habitats.

The actions that we have done in LIFE BTG is totally in line with the EU Biodiversity strategy. The EU Biodiversity Strategy aims to halt the loss of biodiversity and ecosystem services in the EU and help to stop global biodiversity loss by 2020.

In May 2019, IPBES presented the report on the state of the world's biodiversity and ecosystem services. The situation is described very serious. More species than ever in human history are threatened with extinction and many ecosystems are changing at a rapid rate. The calculations show that about half to one million of today's more than eight million species are at risk of extinction within a few decades unless powerful measures are put in place to stop the negative trend. LIFE BTG is not doing big things to change this development, but at least we try to do something to change it.

The breeding and introduction of *Cerambyx cerdo* has been included in the Swedish action program for the species and some measures that would be carried out according to this have now been completed.

7. Key Project-level Indicators

The set of Key Project-level Indicators (KPI) has been updated in the corresponding KPI webtool for LIFE projects. The values of the indicators represent the results obtained by the project at its ending moment, according to the targets established. Many of the indicators had the status deprecated so these had to be changed. Something had also happened in the database with the sites, so they had to be re-entered. There have been some changes in habitat restored, see comments on some of the indicators in table 11.

Table 11 provides a list of some of the KPIs assessed

Indicator	Description	Foreseen value	End Value	Comment
1.6	Humans to be influenced by the project.	225	400	Arranged walks and talks which received many participants
7.3	Habitat 6530 (ha)	25,5	16,64	Less hectares than in GA has been restored. In one of the sites in GA (Halltorp) most of the hectares of 6530 was already in good status so there were no need of more action. In one site (Getebro) there was an error in the application as the habitat is not there. On the other hand, another site (Horns kungsgård) has been expanded with actions in the habitat.
7.3	Habitat 9020 (ha)	35,4	50,1	More hectares than in GA has been restored. Actions have been made in 4 instead of 2 sites.
7.3	Habitat 9070 (ha)	907	1001,59	More hectares than in GA has been restored.
7.3	Habitat 9160 (ha)	29	17,81	Less hectares than in GA has been restored. That depends on a change in habitat in Halltorp, so the area is restored but as 9070.
7.3	Habitat 9190 (ha)	23,9	10,41	Less hectares than in GA has been restored. Actions have been made in 3 instead of 5 sites. In one of the sites in GA (Allgunnen) most of the hectares of 9190 was already in good status so there were no need of more action.
12.1	Professional training or education	100	596	There have been a lot of webinars, networking and field sessions with nature conservation managers from different countries. By participating in many activities, a much larger number of professionals has also been reached. Some arrangements were done within the project, while we also received many invitations to speak at other events both digitally and physically.

8. Comments on the financial report

8.1. Summary of Costs Incurred

Summary of cost incurred 03/10/2016 – 30/11/2022 for all partners in comparison with the approved budget in Grant Agreement:

PROJECT COSTS INCURRED				
	Cost category	Budget according to the grant agreement in €*	Costs incurred within the reporting period in €	%**
1.	Personnel	2 215 620	1 946 484	88%
2.	Travel and subsistence	164 500	108 625	66%
3.	External assistance	4 271 623	4 534 821	106%
4.	Durables goods: total non-depreciated cost	27 777	43 138	155%
	- Infrastructure sub-tot.			
	- Equipment sub-tot.			
	- Prototype sub-tot.			
5.	Consumables	1 048 309	768 102	73%
6.	Other costs	69 999	57 824	83%
7.	Overheads	**545 847**	**522 128**	96%
	TOTAL	**8 343 675**	**7 981 122**	96%

*) If the Agency has officially approved a budget modification through an amendment, indicate the breakdown of the revised budget. Otherwise, this should be the budget in the original grant agreement.
**) Calculate the percentages by budget lines: e.g. the % of the budgeted personnel costs that were actually incurred

At the project end 30th of November 2022 the project has consumed 96 % of the total budget. Even though the entire project budget has not been used, the project has been able to implement all its planned measures, with only small deviations from the GA.

The budget category that overspends is equipment (155 %) and external assistance (106%). Equipment is overspent because a unique Cattle ferry was procured in the project, and it was hard to find a supplier for this. The budget for the ferry was estimated, and for this money maybe we could buy an old used ferry. But we found this alternative to uncertain. When we found the alternative with a new cattle ferry without unreasonably high price, we found it considerably better, even if it was over the budget. The procurement of the ferry was handled by a responsible contractor at LKP in consultation with the RCM. The cost is below the direct procurement limit in Sweden. The auditor has also certified and confirmed the purchase of ferry is in accordance with the rules of public procurement (Annex 9.3.12). External assistance is overspent because some actions where more expensive, but if we count in the wood chip revenues, amount 311 810 EUR, the external assistance is on budget.

Personnel have spent 88 % of budget. One reason is that the budget for personnel is higher calculated than the real costs for personnel, but other reasons is also that LKP personnel cost only spent 35 % of their budget. This is partly because experienced personnel have worked in the project, and that the procurements have most times been won by experienced and already established contractors, which is why little time had to be spent on guiding the contractors. The budget of action C3 is also calculated wrong from the beginning. 349 days of work is not reasonable, more reasonable in relation to LKP measures would be approx. 100 days. If we calculated this instead the total personnel budget for this action would instead 63 % spent, instead of now 27 %.

Travel have spent only 66 % of budget. A big reason is because of Covid-19 pandemic, one trip abroad and platform meetings did not take place. But in 2022 the Study tour to Italy took place, and because study tour to Spain didn´t get off, more people involved in the project came along. E1. LIFE Kick off was more expensive, because PM went to more meetings than planned budget. F1. Meeting with project monitor, was more expensive, because more meetings were held, and more coordinators came along than planned budget (miscalculated budget).

External assistance has spent 106 % of the budget. It´s overspent because some actions where more expensive, but if we count in the wood chip revenues, amount 311 810 EUR, the external assistance is almost on budget.
C1.1 has overspent with 108 % when the income is settled from amount. But the project has made almost 70 hectares more than planned.
C2.1 has overspent with 127 %, but if we count in the consumables it´s nearly on budget. The planned budget misallocated between external and consumables.
C3.3 has only spent 10 %. The reason is because archaeologist will be required at 13 sites in total according to GA. In three sites this action is done. Instead of archaeological investigations at the other sites that CAB H and CAB K had, communication with the cultural environment functions has been done. Areas that are suitable or not suitable for planting have been developed in that process so there was no need of an archaeologist there.
C3.4 CAB H spent 585 % because cost for watering the oak plants and clearing planted trees annually charged this budget.
C4.1 spent 518 % of budget. It´s because the calculation between consumables and external assistance is wrong in planned budget. With both external and consumables budget 163 % is spent. The wood mould boxes were a new action that haven't bene done before in this way. It took considerably more time to get the boxes out into the wild than expected. They are very large and unwieldy, and this often required a lot of work. In addition, it was discovered during the monitoring that the boxes needed to be sealed with laths so as not to dry out and that there was extra work that needed to be done at the end of the project.
C4 Making pollinator actions is new budget (according to letter from CINEA 04/07/2022)
D1.1 spent 170 % of budget. This must have been a miscalculation in the budget. A joint procurement for the entire mission to do the aerial photograph interpretation and to write a report about this was done by PM. Four tenders were received and the cheapest of these was accepted. Some of the other tenders were almost twice as expensive.
D2 spent only 73 % on all actions together. As explained about personnel in 8.5 for this monitoring, the field work for D.2.1 was done by personnel from CAB E for the whole project instead of a procured company. In addition, the monitoring of D.2.2 was done as a Master thesis by a student at Linköping University. The costs incurred is therefore only for the species determination.
E1 Handicap boardwalk. Misallocated budget between consumables and external.

E1 Exhibition actions is new budget (according to letter from CINEA 04/07/2022)

Consumables have spent 73 % of the budget.
C1 Clearing of overgrown vegetation is new small budget that was missed in GA. When the work with clearing is planned, you need to mark trees that are to be removed or saved in different ways so that the contractors can do it the right way.
C4 Material stag beetle and pollinator actions is new budget that was missed in GA. It's not only external help but also material which is needed for the log piles. In total if you count external and consumables together this action is cheaper than expected.
C3.4 Tree planting spent only 63 %. This is mostly since LKP has not disposed the entire budget due to affordable procurement.
E1 Materials for handicap boardwalk spent 210% for CAB H, because the frame is built in oak. The costs of oak timber have risen since the application was written.
E1 Material for recreational facilities spent 128 %. CAB H cost for this sofa is higher than budget, because for example some sofas are designed with good accessibility in mind for everyone.

Other costs have spent 83 % of the budget.
E1 Layman's report and E2 Handbook have overspent budget because the cost was more expensive.
Cost regarding hotel and accommodation for not employed has been added. This applies in part to lecturers at the final seminar and to the student who did his Master thesis on monitoring of the log piles.

The consolidated cost statement for the project annex 9.3.1, indicates that the percentage of our planned budget shifts do not reach up to the 20 % flexibility rule.

Income
CAB E, CAB H and CAB K has had income during the project of total 311 810 EUR. This consist of sold timber or wood chip from feeling when the revenue has been higher than costs such as e.g., when removing larger spruce plantations. This is reported under the funding tab on Direct income of the project for each partner.

8.2.Accounting system

County Administrative Boards
Every County Administrative Board (CB and AB) in the project use Agresso accounting system and Visma Proceedo for invoices, and they apply the same routine.

The invoices are sent by mail to Inscanningscentralen i Strömsund where it is being scanned and after that sent out to respective CB and AB and each reference on the invoice. As soon as the invoice is scanned you can find it in the accounting system. When the reference got the invoice, a mail is sent to the person. When the invoice is reviewed, controlled and account is filled in by the reference, it´s sent for certificate to competent approver. Certified person approves the invoice, or if the invoice is wrong in some way, it goes back to the earlier reference person. When the invoice is approved and the certified person signed it, the invoice moves to CB and AB own economy section. A payment confirmation is done (every day) and the invoice is now definitely booked in CB and AB accounting system Agresso.

The accounting system and codes that identifies LIFE BTG costs:
Account code: Follow the account plan for government agencies

Project code: Different project codes for all CB and AB. The project codes are divided into different Natura 2000 areas in the project and for project salaries and project management. See attached document annex 9.3.2-9.3.5.

Spec code: In Life BTG have all CB and AB the same spec code between the interval 52512901-52512915 and they specify the different activities in the program. See attached document annex 9.4.2.

Controller and certified approver have been careful that the correct reference is written on the invoice. Invoices that haven´t correct reference LIFE15 NAT/SE/000772 have been sent back and a new invoice has been requested.

Time registration system
Every employee in CB and AB must report all their time in Agresso time registration system, both worked time and absence. After every week must the timesheet be saved electronic and transmitted to Agresso. If the timesheet isn´t saved a reminder is sent out to the person. Worked time is being transmitted and absence, overtime, travel bills and other costs the employee paid for, must be approved/certified by authorized person (in most cases the supervisor). In Life BTG must every employee that have done time in the month, print the timesheet. The timesheet is being dated and signed both by the employee and the authorized person and then sent to CAB E, who collect these originals in binder.

After the Monitor visit in October 2019, we got a question about financial issues: total number of hours worked. In annex 9.3.14 you can see an explanation and answer to EASME letter 04/12/2019 about financial issues about that, and the Covering letter we sent in to EASME regarding this.

<u>Linköping Municipality (LKP)</u>
LKP are using Unit 4 Business World (UBW) for account system and the columns that are used are Project and Activity to identify costs linked to the project as seen below.

Begreppsvärden LIFE BTG för Linköpings kommun

Projekt	Beskrivning
604100	BTG SE0230342 Tinnerö ekland
604101	BTG SE0230349 Vidingsjö
604102	BTG SE0230353 Ullstämma
604103	BTG SE0230387 Viggeby

Aktivitet	Beskrivning
604100	A1 Revision of managements plans
604101	A2 Restoration plans
604102	C1 Clearing of overgrown vegetations
604103	C2 Infrastructure for the reintroduction of grazing and cutt
604104	C3 Planting of trees and bushes
604105	C4 Creation of decaying wood habitats
604106	C5 Reintroduction of Ceambyx cerdo
604107	D1 Monitoring of habitats
604108	D2 Monitoring of species
604109	D3 Monitoring of Cerambyx cerdo reintroduction
604110	D4 Monitoring the socioeconomic impact of the project
604111	D5 Ecosystem functions restoration assessment & LIFE project
604112	E1 Dissemination and networking
604113	E2 Replicability and transferability
604114	F1 Project management

For invoices we are using UBW Electronic invoice handling and the procedure of two levels of approving. In level one the Conservationist in charge of the project approve the invoice. The system then sends it to the Head of Unit who approve the payment.

To ensure that all invoices are marked in order to show the link to the LIFE project are we making sure that all invoices associated to the project are distributed to the financial coordinator to be reviewed.

Time registration system
For reporting our time, we are using the digital system “Oracle Time sheet”. Every week all employees must report both worked time and absence. The employee must save and submit their weekly report which are then transmitted to Agresso. If the timesheet isn´t submitted a reminder is mailed to the person.

Concerning worked time the authorized person is sending the time report (through the time registrations system) regarding the monthly worked time, for approving to the employee. The report contains both the hour of the month and the accumulated hours for the whole time, with gives the total worked hours during the year in December’s report.
In Life BTG must every employee that have done time in the month, print the timesheet. The timesheet is being dated and signed both by the employee and the authorized person and then sent to CAB E.

Swedish Environmental Protection Agency (SEPA)
SEPA is a co-financer in LIFE BTG. An amendment request to change the partner to associated beneficiary was sent to ESAME and approved in Amendment No 2 dated 20/05/2020.

Unit4 ERP is the Swedish Environmental Protection Agency's main financial system. In Unit4 ERP are the general ledger, accounts receivable and accounts payable. Sales orders are created, accounts registered and the object plan (cost centers, projects, financiers, etc.) are created and upheld. Unit4 ERP is also Swedish Environmental Protection Agency's budget tool. In the Visma Proceedo system, the Swedish Environmental Protection Agency has its invoice management (supplier invoices) and E-orders. To check that invoices contain a clear reference to the LIFE project, information (repeatedly – but at least once a financial year) via email, phone calls and meetings to the employees involved in the project (as well as their heads of units) to be clear when procuring, travel ordering, etc. that the reference to the project must always be stated.

In the system Primula (Personnel and salary system), employees register matters such as applying for vacation, reporting outside activities, making travel expenses and registering sick leave. Unit4 ERP is also used as a time accounting system. The project codes created in Unit4 ERP with the special project codes for all LIFE projects are transferred and used in Proceedo and Primula. Specially, so-called activities, can be used in both invoice management and accounting, including time accounting to further subdivide costs.

Time registration system
Electronic system, Unit4 ERP. The employee must register their time on an ongoing basis in Unit4 ERP. The time accounting should be marked "finished" for each week. There is no electronic approval by the head of unit/project manager. If the employee has not marked their timesheet “finished” for the previous week before 13:00 on Monday of the following week, an automatic reminder goes out via email. The reminders are repeated every Monday for all non- finished timesheets. The head of unit is responsible for ensuring that employees report time and follows, continuously, flextime, additional time and overtime. Once a year (about 1 Sept) a reconciliation of the work time balance is made. Balances that at the time of

reconciliation are greater than 30 hours are deleted and negative balances that are greater than 10 hours are settled with salary deductions. Timesheets for staff participating in EU projects (e.g. LIFE) are printed and signed by employee and head of unit both.

8.3. Partnership arrangements

Financial reporting and supported document

The PA on CAB E is responsible that all AB financial report is being filled in, but every partner is responsible that it is correct. Every third month is a follow up being done with each AB, where every cost under these months is filled in the financial report. The cost is reviewed with each partner and corrections are done. The PA on CAB E is responsible that every invoice, travel bills and timesheet, payment proof and ledger from Agresso are saved at CAB E.

Contract number (diary number) with suppliers should carefully be insert in the financial report, so the contract can be found at respective CB and AB and should be easily searchable in the digital system "Platina".

Every month the PA on CAB E print the timesheet for partners in each CB and AB, and the timesheet is sent by mail to the contact person in respective CB and AB. LKP print them by them self and send the original by mail. This is done around the 10th of every month, when the time registration must be finalized and transferred to CB and AB. The timesheet is after that sent back signed in original to CAB E.

Each partner is responsible that their co-financing is annually transmitted to the project. CAB E is responsible to promptly share (according to the distribution key agreed with partners) the payment from Commission and SEPA to each AB.

On the steering group meeting they are among other things being informed of the financial follow up for the whole project and each CB and AB.

Consolidated Financial Statement

The PA in CAB E has prepared every partner´s Financial Statement of the Individual Beneficiary and filled in all the costs to the 30 of November 2022 for partners CAB H, CAB K, LKP and SEPA. For CAB E costs are reported until 31 of January 2023, because of work with the final report.

CAB E have also collected all supporting documents (such as ledger, invoices, timesheets etc) to these costs. Each AB has approved and signed their Financial Statement (Annex 9.3.6-9.3.10) The PA at CAB E prepares the Consolidated Financial Statement on basis of each partners Financial Statement. Financial Statement of the Individual Beneficiary and Consolidated Financial Statement can be found in annex 9.3.1.

Regarding each partners Individual Cost Statement, it cannot be in balance due to the high own contribution from SEPA. Therefore, the calculations in the individual cost statement are followed by the beneficiaries (i.e., all the contributions by SEPA to the project have to be declared as SEPA's own contribution). The total income and costs declared by all project partners is reported and in balance in the Consolidated cost statement.

Beneficiary Certificate

LKP have sent a signed "Beneficiary Certificate for Nature and Biodiversity Projects" to CAB E, to certify that the durable goods they purchased for the project in the future will be used exclusively for nature conservation activities (Annex 9.3.11).

8.4. Certificate on the financial statement

Approved auditor who will conduct the audit for LIFE BTG is Peter Ohlson. He is Head of Internal Audit in County Administrative Board of Stockholm. His member number in IIA (The Institute of Internal Auditors) Sweden is 996444. Attached you can find the organization plan who shows that he is independence - subordinate governor and the auditor member card (Annex 9.3.13)

Contact details:
County Administrative Board of Stockholm
Peter Ohlson
Regeringsgatan 66, 104 22 Stockholm
Mail: Peter.Ohlson@lansstyrelsen.se

The audit independent report dated 24/02/2023 finds no deviations and no exceptions were noted. All documentation and accounting information has been provided to carry out the procedures. (Annex 9.3.16).

8.5.Estimation of person-days used per action

Action type		**Budget person days**	**Estimated % of person days spent**
A.1	Revision of management plans	320	97%
A.2	Restoration plans	150	88%
C.1	Clearing of overgrown vegetation	1 187	109%
C.1	Clearing of overgrown vegetatation: Nature conservation manager	180	0%
C.2	Infrastructure for the reintroduction of grazing and cutting	304	76%
C.3	Planting of trees and bushes	431	27%
C.4	Creation of decaying wood habitats	331	82%
C.5	Reintroduction of Cerambyx cerdo	200	45%
D.1	Monitoring of habitats	124	128%
D.2	Monitoring of species	12	649%
D.3	Monitoring of Cerambyx cerdo reintroduction	10	228%
D.4	Monitoring the socioeconomic impact of the project	45	6%
D.5	Ecosystem functions restoration assessment	20	7%
E.1	Dissemination and networking	295	130%
E.2	Replicability and transferability	83	105%
F.1	Project accountant	396	70%
F.1	Regional coordinator	210	87%
F.1	Project manager	1 950	84%
	TOTAL	**6 248**	**88%**

Comments on major deviation:

C1, clearing of overgrown vegetation and nature conservation manager have been merged, 109 % is spent of the total budget. This is a big action that took a lot of time. Almost 70 hectares more than planned have been restored. There has been a great need to anchor the project's measures with farmers and landowners in order to ultimately get the best possible result.

C3, Planting of trees and bushes: Only 27 % of the budget is spent. One big reason is because LKP personnel cost only spent 35 % of their budget. This is partly because experienced personnel have worked in the project, and that the procurements have most times been won by experienced and already established contractors, which is why little time had to be spent on guiding the contractors. The budget for LKP and action C3 is also calculated wrong from the beginning. 349 days of work is not reasonable, more reasonable in relation to LKP measures would be approx. 100 days. If we calculated this instead the total personnel budget for this action would instead 63 % spent, instead of now 27 %.

C5. Spent 45 %. One reason is because CAB K spent only 25 % because the budget for days was higher than needed.

D1 spent 128 % of budget. Two of the monitoring actions are made by own personal, ancient trees and planted trees and bushes. It is mainly the monitoring of ancient trees that has taken more time. It has been time-consuming to collect all the data in the field. Some of the staff who did this work were experienced, while it was also a new task for some A joint report for the entire project was then made by CAB E. We therefore believe that we have tried to work as efficiently as possible.

D2 spent 649 % of budget. Very few hours were allocated to this budget item from the beginning. All but LKP have exceeded their budget. Monitoring of the boxes was done by Nicklas Jansson from CAB E for all partners instead of contracted out. This means that a lot more staff hours have been spent on this action but that the quality of the monitoring now did get the best. Nicklas also wrote the report for this monitoring action.

D3 spent 228 % of budget. This action was done by staff from CAB H. The person who is experienced and in charge of the national action plan for the species was unfortunately not able to carry out the monitoring. Therefore, a new employee had to be trained in this and this meant that the work took more time than estimated.

D4 spent only 6 % of budget. This task has mostly been carried out by PM and the time has then been set to F1. A regional coordinator in CAB K has also helped a little more with this and it is mainly the time that has been reported. The remaining coordinators have only put in occasional hours.

D5 spent only 7 % of budget. This task has mostly been carried out by PM and the time has then been set to F1. A regional coordinator in CAB K has also helped a little more with this and it is mainly the time that has been reported. The remaining coordinators have only put in occasional hours.

E1. Spent 130 % of budget. All beneficiaries except LKP have exceeded their budget. It has become more networking than budgeted as, for example, we had several other LIFE projects visiting LIFE Bridging the Gap. There have also been more guided tours than originally planned. We have nevertheless considered that the time spent on this is significant as it is important to explain what is being done to both the general public and those who work professionally with nature conservation in order to spread what has been learned while a project like this is ongoing.

F1 Project accountant, Spent 70 % of budget, because of effective financial work.

9. Annexes

9.1 Deliverables

9.1.1 Deliverables in LIFE Bridging the Gap
9.1.2 Management plan Västerby SE0230373
9.1.3 Flygbildstolkning inom LIFE Bridging the Gap
9.1.4 Uppföljning av skyddsvärda träd inom LIFE Bridging the Gap
9.1.5 Uppföljning av Trädplantering inom LIFE Bridging the Gap
9.1.6 Uppföljning av åtgärder som gjorts för att gynna vedlevande skalbaggar inom LIFE Bridging the Gap
9.1.7 Uppföljning av större ekbock inom projektet LIFE Bridging the Gap
Sensitive art, not to be published
9.1.8 Socioekonomiska effekter av projektet LIFE Bridging the Gap
9.1.9 Telefonintervjuer inom projektet LIFE Bridging the Gap
9.1.10 Ekosystemtjänster som skapats av projektet LIFE Bridging the Gap
9.1.11 Site sign Stafsäter SE0230131
9.1.12 Site sign Åtvidsnäs SE0230219
9.1.13 Site sign Västerby SE0230373
9.1.14 Site sign Getebro SE0330038
9.1.15 Site sign Böda prästgård SE0330101
9.1.16 Site sign Strandskogen SE0330205
9.1.17 Site sign Sonekulla SE0410089
9.1.18 Site sign Haglö SE0410092
9.1.19 Site sign Kummeln SE0410219
9.1.20 Layman report English version
9.1.21 Layman report Swedish version
9.1.22 Travel report Italy
9.1.23 Final seminar LIFE Bridging the Gap summary
9.1.24 Handbook LIFE BTG
9.1.25 Handbok LIFE BTG
9.1.26 Short PDF report from the grazing workshops
9.1.27 After Life plan for LIFE Bridging the Gap

9.2 Other documents

9.2.1 C-actions LIFE BTG
9.2.2 Photo documentation CAB E Åtvidsnäs SE0230219
9.2.3 Photo documentation LKP Tinnerö SE0230342
9.2.4 Photo documentation Cab H Halltorp SE0330024
9.2.5 Photo documentation Cab K Tromtö – Almö SE0410042
9.2.6 LIFE BTG E-actions per site for some of the actions

9.2.7 Press activities in LIFE BTG
9.2.8 Walks and talks etc. LIFE BTG
9.2.9 Regeringsbeslut, Bilaga 2 page 1 and 2

9.3 Financial annexes

9.3.1 Life BTG Financial reporting Consolidated
9.3.2 Financial Account code LIFE BTG CAB E
9.3.3 Financial Account code LIFE BTG CAB K
9.3.4 Financial Account code LIFE BTG CAB H
9.3.5 Financial Account code LIFE BTG SEPA
9.3.6 CAB E Financial reporting
9.3.7 CAB K Financial reporting
9.3.8 CAB H Financial reporting
9.3.9 SEPA Financial reporting
9.3.10 LKP Financial reporting
9.3.11 Beneficiary certificate
9.3.12 Certificate purchase ferry auditor
9.3.13 Organization plan and certificate Auditor at County Administrative Board of Stockholm
9.3.14 Answer to ESAME letter of 04/12/2019
9.3.15 Financial identification
9.3.16 Audit report