(Projects funded under the Call 2014 onwards must use this format)

LIFE Project Number

< LIFE14 NAT/IT/000209>

Final Report

Covering the project activities from 01/01/2016[1] to 30/06/2022

Reporting Date[2]

<14/11/2022>

LIFE PROJECT NAME or Acronym

< LIFE EREMITA>

Data Project

Project location:	Emilia Romagna, Italy
Project start date:	01/01/2016
Project end date:	31/12//2020 **Extension date:** <30/06/2022>
Total budget:	€ 2,126,987
EU contribution:	€1,268,863
(%) of eligible costs:	59.66%

Data Beneficiary

Name Beneficiary:	Emilia Romagna Region
Contact person:	Ms Monica Palazzini
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Project Website:	https://progeu.regione.emilia-romagna.it/it/life-eremita

[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)*	N/A
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*

1. Table of contents

2. List of key-words and abbreviations

AB: Associated Beneficiary
BCWT: Black cross window traps
CB: Coordinating Beneficiary
CINEA: European Climate, Infrastructure and Environment Executive Agency
EAFRD: European agricultural fund for rural development
EASME: Executive Agency for Small and Medium-sized Enterprises
FR: Final Report
GA: grant Agreement
GIS: Geographical Information System
ISPRA: Istituto Superiore per la Protezione e la Ricerca Ambientale
MAR: Romagna Parks and Biodiversity Management Agency
MATTM: Ministero dell'Ambiente e dalla Tutela del Territorio e del Mare
MEC: Central Emilia Parks and Biodiversity Management Agency
MEOC: Western Emilia Parks and Biodiversity Management Agency
MEOR: Easter Emilia Parks and Biodiversity Management Agency
MITE: Ministero della Transizione Ecologica
MR: Mid Report
PAF: Prioritized Action Framework
PA: Project Advisor
PM: Project Manager
PNATE: Tuscany-Emilia Apennines National Park Agency
PNFC: Casentino, Monte Falterona and Campigna forest National Park
PR1: First Progress Report
PR2: Second Progress Report
PR3: Third Progress Report
PT: Pitfall Trap
RDP: Rural Development Program
RER: Emilia-Romagna Region
TC Technical Coordinator
VES: Visual Encounter Survey
WMB: Wood Mould Box
WMS: Wood Mould Sampling

3. Executive Summary

The general objective was to improve the conservation status, in the Emilia–Romagna Region, of 4 insect species, protected by the All. II Habitats Directive (92/43/EEC): 2 species of saproxylic insects: *Osmoderma eremita* and *Rosalia alpina*, classified as species of prior interest, and 2 aquatic species: *Graphoderus bilineatus* and *Coenagrion castellanii*.
The project had 6 specific objectives: 1.Increase knowledge about presence/absence, distribution and abundance of residual subpopulations for the target species in the project area; 2. Increase habitat availability for residual populations and improvement of their connectivity; 3. Elaboration of a long-term management strategy (conservation measures); 4. Ex-novo creation of a specific habitat regional network, suitable for the target species; 5. Promote adequate behaviour among interest groups, compatible with conservation needs; 6. Spread and develop solutions for the active involvement of farmers, managers and forest's users inside Natura 2000 (N2K) sites and, more in general, stakeholders. The application form foreseen 59 deliverables, 19 of which considered "key" and listed in the table below, concerning the preparatory actions essential for the concrete action implementation, drafting of conservation measures as well as volunteers training courses. All deliverables have been transmitted in the various project reports.

Name of Deliverable (translated from the Application Form original language: Italian)	**Action**
Work programme	A 1
Report of species ex-ante monitoring	A 2
Report of habitat ex-ante monitoring including cartography of *O. eremita* and *R. alpina*	A 3
Report of habitat ex-ante monitoring including cartography of *G. bilineatus* and *C.*	A 4
Minute of training course of volunteers 1st phase.	A5
Minute of training course of volunteers 2nd phase.	A5
Planning of action C1, C2, C3, C4, C5	A 7
Restoking plan of *G. bilineatus*	A 7
Final technical report of habitat including cartography for *O. eremita* and *R. alpina*	C 1
Restoration project of basins and streams for *G. bilineatus* and *C. castellanii*	C 2
Final technical report including cartography of basins and streams	C 2
Final technical report including cartography	C 3
1st on ex-situ breeding of *O. eremita*	C4
2nd Technical report on ex-situ breeding of *O. eremita*	C4
Final technical report including cartography	C 5
Conservation measures	C 8
Final technical report of ex-situ breeding evaluation	D 1
Final technical report of restocking evaluation	D 2
Final technical report of target species abundance and distribution	D 4

Outputs of specific objective n° 1: Information on the target species distribution were incomplete and fragmentary: the ex-ante monitoring activities (A2), carried out in the first 2 years, updated the knowledge of occurrence, distribution and abundance of these species. The presence of 85 specimens was recorded for *O. eremita* within 14 N2K sites. *R. alpina* was found with 110 specimens in 3 N2K sites. *C. castellani* was found in only 2 N2K sites with 3607 individuals. Only 6 individuals of *G. bilineatus* were sampled in the site IT4040001. The ex-ante monitoring revealed criticalities regarding *G. bilineatus:* the Pratignano Lake population could not allow the collection of founders to start breeding as envisaged by the action C4. The situation was addressed by requesting an Amendment granted by CINEA (No. 3). The ex-ante monitoring allowed updating of 9 Standard Data Forms of N2K sites: 7 for the occurrence of *O. eremita* and 2 for *R. alpina*. Ex-post monitoring (D4), further increased the knowledge on the 4 species in

the Region, which needed an update of additional 15 SDFs: 9 for *O. eremita*, 3 for *R. alpina* e 3 for *G. bilineatus*.

Outputs of specific objective n° 2 and 4: achieved through the implementation of Actions C1, C2 and C3. Monitoring to assess habitat suitability (A3 and A4) resulted in an inventory in which each tree surveyed was categorized based on a suitability scale: high, medium, low, none. Habitat monitoring was carried out for *O. eremita* in 38 N2K sites, for *R. alpina* in 18 N2K sites, for *G. bilineatus* in 101 watercourses, along 127 transects inside 19 sites of the N2K network and for *C. castellani:* 81 basins, along 113 transects, inside 15 sites of the N2K network. Data on the target species distribution and the suitable habitats census enabled the accurate design of Actions C. To increase habitat species suitability following interventions were carried out: 941 habitats for *O. eremita*, including: creating hollows, pollarding, felling or thining of the suckers, which increased habitat availability by 333%; 1,001 interventions for *R. alpina*, including: girding and partial ring-barking, leaning dead trees, broken sterms standing, basal slits, uprooted trees, broken stems on the ground, waste piles, tripods, which increased habitat availability by 315%; several stretches (2,685 meters) along 9 waterways in 2 N2K sites, which increased habitat availability by 229%. No intervention was carried out for *G bilineatus*, as 3° Amendment. The ex-situ breeding in the 3 centers built and / or set up produced 3,970 of larvae of *O. eremita* (with different stages) of which were 3,574 were released in 22 N2K site. The larvae were mostly released into the 150 WMBs installed for in situ breeding (C3) and partly into the tree cavity. The increase in the population connectivity was achieved thanks to the restocking/ translocation activities which led to the expansion of the distribution area of the species and to increase the number of specimens as proved by the ex-post monitoring campaign (D4). For *G.bilineatus* 132 specimens were used to restock 3 ponds in 3 different sites N2K in the Emilia-Romagna Apennines. The restocking plan implemented, following the 3rd Amendment, allowed the removal of founders from Latvia and from a site in Lombardy, whose presence of *G. blinieatus* was confirmed thanks to an investigation carried out with the project. The translocation operations of *C. castellanii*, carried out for the first time in Italy, allowed to collect 589 adults from site IT4090002 and the released in 5 streams in the site IT4070011. Conservation actions overall output was: *O. eremita* increased its range by 179% (from 14 to 25 N2K sites) and increased the number of specimens of the 1,4111% (from 85 to 1,058); *R. alpina* increased its range by 250% (from 4 to 10 N2K sites) and increased the number of specimens of the 250% (from 110 to 314); *C. castellani* increased its range by 170% (from 3,842 m to 6,527 m) and increased the number of specimens of the 120% (from 1,695 to 2,028). *G. blineatus* was released in three new basins, but evidence of its reproduction was not detected by the project, it will be monitored in the After Life.

Outputs of specific objective n° 3: Specific Conservation Measures were drafted and approved by Emilia-Romagna Region by Act No. 1336 of 01/08/2022 for the 4 species, the measures were divided into two types: obligations and prohibitions and active measures.

Outputs of specific objective n° 5 and 6: promotion of a wide communication and training campaign: 18 technical-dissemination meetings, including 2 symposia and 16 workshops (12 in E5 and 4 in C7), with a total of 6.385 participants, involving forest managers and users within N2K sites, N2K managing bodies, Forest corps and Provincial guides; No. 43 awareness-raising meetings held and no. 2.001 citizens involved; No. 46 edition of EREMITA Tour, with approximate 3.880 participants; No. 2 final event, with 133 participants; 7.516 students and no. 328 classes involved; No. 138 volunteers involved activities, with no. 4 recruitment catalogues published, 21h of theory + 88h on field lessons; 23 project videos about the species, the breeding sites, the conservation interventions made with the project (https://bit.ly/3UziIOV).

Main difficulties: the impossibility of withdrawing founders from Pratignano Lake, already foreseen in the GA as a risk, resulted in the development of an alternative plan, subject to a request for a substantial modification with technical and duration change of the project. The 3rd Amendment made it possible to plan and implement a restocking plan with specimens from other source sites of Europe, particularly in Latvia, but also from a new site of occurrence of the

species in Italy (Pian di Spagna, Lombardy), known thanks to specific monitoring activities carried out by the project entomologists. The restocking plan was drafted thanks to the activation of a European networking, which allowed the exchange of technical and scientific practices, to be transferred to other European realities. Despite the limitations due to Covid-19 that slowed down activities in the last two years, by rescheduling the modalities of communication activities and the implementation of some technical actions related to *G. bilineatus repopulation*, the expected and, in some cases, expanded results were achieved.

4. Introduction

The project involves the Emilia-Romagna Region as the Coordinating Beneficiary together with four Managing Bodies of the regional protected areas and two National Parks, as managers of the Natura 2000 sites within them, and also involves many other sites of the Natura 2000 Network currently managed by the Region itself, for a total of 78 sites.

The project aims at ensuring the best conditions for the conservation, in Emilia-Romagna for the medium and long term, of the residual populations of two saproxylic insects of priority conservation interest (*Osmoderma eremita* and *Rosalia alpina*) and of two lentic and lotic water insects of community interest (*Graphoderus bilineatus* and *Coenagrion mercuriale castellanii),* acting on the threat factors of anthropic origin.

Osmoderma eremita (Scopoli, 1763), a priority species included in Annexes II and IV of the Habitats Directive 92/43/EEC, assessed as "near threatened" by IUCN, is a saproxylic insect linked to the deciduous forests of temperate Europe. In Europe it is in decline. The main threat factor for the species is the extreme fragmentation and isolation of populations, often corresponding to a strong localisation of suitable habitats. The causes are to be found in the ways forest management is carried out, exclusively or mainly for productive purposes and the lack of large decayed and dying trees - even isolated or in groups - in pastoral-forestry contexts, in agro-ecosystems and in other anthropized environments, from the plains to the mountains.

Rosalia alpina (Linnaeus, 1758), priority species included in Annex II and Annex IV of the Habitats Directive 92/43/EEC; assessed as globally of "least concern" in Europe by the IUCN but as "threatened" in several European countries. It is a cerambycidae beetle linked to mature beech-woods from the mountain to the subalpine (between 600 and 1500 m.a.s.l.). The species is undergoing a fragmentation of its habitat in Europe, which has led to the existence of isolated populations, which may pose a threat to this species, as it is a saproxylic beetle with a low dispersion capacity.

Graphoderus bilineatus (DeGeer, 1774) is a species included in Annexes II and IV of the Habitats Directive 92/43 / EEC, in Appendix II of the Berne Convention and classified as "vulnerable" by the IUCN because it is rare and in strong decline in most of Europe and extinct in some European countries. It is a sedentary and strictly aquatic species, a relic of the beginning of the post-glacial period. In Emilia-Romagna and in Italy the species is present in a single site, Lago Pratignano (MO), and is strongly threatened by the lack and fragmentation of suitable habitats and by the presence of alien predator species.

Coenagrion castellanii (Roberts, 1948) is a dragonfly included in Annex II of the Habitats Directive 92/43/EEC and in Appendix II of the Berne Convention and in particular it is among the species that need special measures for habitat conservation. The species is assessed as "vulnerable" by the IUCN and globally threatened. Later on, it was assessed as "near threatened" by the IUCN and declared in decline in its area of distribution. In Italy, the IUCN-Italy commission assessed it as "vulnerable" but in strong decline in northern Italy. The dragonfly is indeed rare and in decline throughout the European range. The main threats are the reduction of the suitable habitat and/or its alteration and the excessive isolation of relict and residual populations.

Concrete conservation actions are implemented in an integrated and coordinated way among all partners to pursue specific objectives that contribute to improving the conservation status of these insect species and their habitats, while allowing them to expand their distribution range in Emilia-Romagna and ensuring their survival over time.

The specific objectives are: to increase the knowledge on the presence/absence and distribution of sub-populations in Emilia-Romagna; increase the availability of habitats for residual populations and improve their connectivity; develop a long-term management strategy, through the development and implementation of management plans and specific conservation measures; to promote correct behaviour - compatible with the needs of habitat and species

protection - by interest groups; to involve citizens and the various stakeholders to spread a greater naturalistic culture, to raise awareness on respecting ecosystem balances and to overcome commonplaces and paradigms on insects, with an increased awareness of the importance of their role, for humankind, in the ecosystem.

The concrete conservation actions included habitat creation and restoration interventions to guarantee adequate availability of reproductive sites; ex situ reproduction (captive breeding), in particular for *O. eremita*, to provide specimens for restocking/reintroduction to reinforce natural populations; installation of nest boxes, Wood Mould Boxes, for the reproduction in situ of *O.eremita* thus favouring the natural dispersion of the species; drafting of multi-annual operational programs for the management/conservation of the species; carrying out information and awareness campaigns aimed at the public opinion and stakeholders.

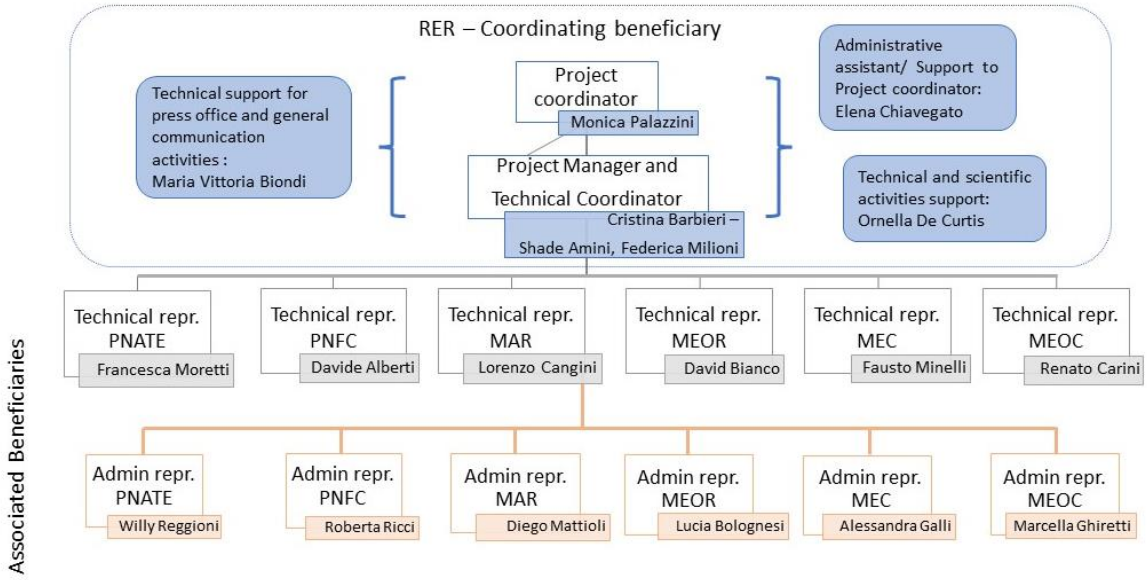
The wide geographic scale to which project actions refer is undoubtedly a unique experience also for the European context. The joint work between various parties involved ("Management Bodies of Macro-areas for Parks and Biodiversity", National Parks and the Emilia-Romagna Region) and the various stakeholders, is a practice that will remain stable over the medium and long term to allow a synergic and systemic effort for the conservation of the four target species, but also for the benefit of other species of insects to be protected, linked to the forest and aquatic environment.

Expected results:
300% increase in the availability of habitats for *O. eremita* in the Emilia-Romagna Region; 200% increase in the availability of preferential habitat for *R. alpina* in the Emilia-Romagna Region; 900% increase in the availability of habitats for *G. bilineatus* in the Emilia-Romagna Region; 900% increase in the availability of habitats for *C. mercurialis* in the Emilia-Romagna Region; 50% increase in the *O. eremita* area of presence in the project area; 50% increase in the area of direct presence of *Rosalia alpina* in the project area; 600% increase in the area of presence of G. bilineatus in the Emilia-Romagna Region and at the national level; 600% increase in the presence of *C. mercurialis* in the Emilia-Romagna Region; 100% increase in the numerical consistency of *O. eremita* in the project area; 80-100% increase in the number of *Rosalia alpina* individuals in the project area; 400% increase in the number of individuals of *G. bilineatus* in the Emilia-Romagna Region and at the national level; 400% increase in the number of *C. mercurialis* individuals in the Emilia-Romagna Region. The project will involve 100% of the stations with the presence of *G. bilineatus* and *C. mercurialis* at the regional level.
The project will involve 100% of the sites of the RN2000 managed by project partners with an established or presumed presence of *O. eremita* and *R. alpina*. It is estimated that the project activities involve 100% of the sub-populations present in the project area.

5. Administrative part

Project coordination and management are under the responsibility of the CB. The organisational structure includes a CB Project coordinator (Monica Palazzini), who works as part of the staff with the Project manager and Technical Coordinator (Cristina Barbieri - sub-contractor), with the support of the entomologist (sub-contractors) Roberto Fabbri (with n°2 contracts, from 20/04/2016 to 27/02/2017 and from 01/03/2017 to 30/11/2018).
From November 2018 to the end of April 2020 the project was managed by the staff of the Emilia-Romagna Region. The tender for the appointment of the Project Management assignment terminated at the end of April 2020, assigning the task to the Delta-Ethic Institute Temporary Joint Venture. The PM is Cristina Barbieri who, with the support of her work group, had coordinated until the end of project the technical, scientific and dissemination activities of the project, including the creation of technical documents and financial reporting.
To aid the project manager, the CB made available a support structure for the technical and administrative aspects as well as for the communication activities. Each AB appointed the project's contact persons: technical, administrative and communication.
For the entire duration of the project, the technical contact persons of the associated beneficiaries were the same for all beneficiaries with the exception of MAR, where Mr. Lorenzo Cangini replaced Mr. Massimiliano Costa (starting from 01/04/2021), who resigned as director for another assignment in another organisation and in the initial part of the project, for MEOC, Mr. Renato Carini replaced Mr. Sergio Tralongo (starting from 08/08/2016), who also transferred to another organisation.
The project manager is in charge for: supervision of the technical aspects of the project partners' activities; support communication between the different partners and technical-administrative aspects; coordination between partners for joint activities; control of the consistency of the activities with respect to the timeline and deliverables provided by the various Project Actions; support to the CB and ABs regarding the rules for eligibility of expenditure and reporting; organization of periodic meetings of coordination and drafting of minutes; drafting of the reports foreseen by the project for the technical-scientific aspects; communication activities with the EC and the external monitoring team. The PM's activities took place under the supervision of the Project Coordinator (CB).
The Activity Plan (Action A1) has defined for each action the activities to be carried out, implementation methods, results, deliverables and milestones, and the role of each beneficiary. The coordination between the beneficiaries is ensured by the Project Manager and the Technical Board (comprising the technical representatives of all partners) and the Administrative Board (administrative representatives), whose members are represented in the organisational chart below.

Organisational chart



The documentation is updated quarterly (as established in the partnership agreement) and filled in the groupware system of the Emilia-Romagna Region, to which all the beneficiaries' representatives have access with different rules.
All partners agreements have been signed and drafted following the guidelines published by the Committee and explicitly referring to the General Conditions annexed to the PR1 folder: A1_Deliverable_1.

Three amendments have been signed:

- **Amendment N° 1 to the Grant Agreement,** notified with EASME letter (ref. B.3/AS/AREAS (2015) 6183951 of the 13/01/2016), regarding the correction of clerical/material errors.
- **Amendment N° 2 to the Grant Agreement,** notified with EASME letter (ref. b.3 (2018) 3792965 of the 29/06/2018) regarding the modification of the definition of conditions for natural persons, submission of VAT certificate and threshold for submission of the certificate on the financial statements.
- **Amendment N° 3 to the Grant Agreement,** notified with EASME letter (ref. B.3 4029848 of the 4/06/2019), regarding the modification of the forms: A1; B1; C1a; C1c (Actions: A7, C2, C4, C5, D1, F2, F3); C2, C3.

All beneficiaries equipped themselves with a project-related analytical accounting system and identified the resources responsible for managing payments and spending commitments.

6. Technical part

6.1Technical progress, per Action

ACTION A.1: Preliminary meeting, draft and signing of agreements, annual activity plan

Foreseen start date: 01/01/2016 Actual start date: 01/01/2016
Foreseen end date: 30/06/2016 Actual end date: 30/06/2016

Beneficiary responsible for implementation: RER

The action was duly completed on schedule, milestones and deliverables have been implemented and expected results achieved.
The project was approved by the Emilia-Romagna Region with Resolution No. 1733/2015, and in this occasion also the Draft of the Partnership Agreement (Milestone) was approved. All Partnership Agreements were signed between the CB and the ABs within February 2016. Annexed to the PR1 (Folder: Deliverable, file: A1_Deliverable_1).
The work plan was drawn up within May 2016, where all project actions were analysed, and protocols required to implement the activities were agreed upon. Annexed to the PR1 (Folder: Deliverable file: A1_Deliverable_2).
Administrative and technical representatives were appointed by each individual beneficiary within March 2016. Annexed to the PR1 (Folder: Millestone -A1_Millestone_3).
All Entomologists (involved in Actions A2, A3, A4) were selected through selection procedures within the month of May 2016 and signed their assignments within June 2016.
In the table below, a summary of all the assignments of entomologists involved in the various actions, starting with assignments for A actions (ex-ante), to which the assignments given later for conservation actions must be added, as well as those for the ex-post monitoring (D actions) and dissemination activities (E actions).

BENs	Entmologist	Period	Note
MAR	Ecosistema Scarl (Andrea Serra)	from 30/05/2016 to 22/01/2017) (1st assignment) from 12/04/2017 to 31/12/2019 (2nd assignment)	For the entomologist assignment, the budget was transferred from "Direct Personnel Costs" to "External assistance costs" due to impediments and long periods of administrative wait for activating the selection procedures. Below are the assignments that were entrusted to the Entomologists with the reference to the relative actions: <u>to "Ecosistema S.r.l" (Mr. Andrea Serra.):</u> 1st contract for A activities 2nd one for actions C3, C4, C5 and E2, E7
	Roberto Fabbri	from 02/07/2019 to 31/12/2020 with an extension until 30/06/2022	<u>to Roberto Fabbri</u> contract for actions: C7, D1, D2, D4 and E5
MEC	Davide Malavasi	from 4/06/2016 to 30/06/2017 (1st assignment)	1st assignment for both entomologists entailed a budget transfer from "Direct Personnel Costs" to "External assistance costs", according with the solution of financial issue n°25 from the

BENs	Entmologist	Period	Note
		from 01/07/2017 to 10/06/2019 (2nd assignment)	letter note no. EASME D.3/MM/D (2020) 2744508 of the fifth monitoring visit. Davide Malavasi resigned his position through resignation letter dated May 27, 2019.
	Silvia Maria Stefanelli	from 4/06/2016 to 30/06/2017 (1st assignment) from 01/07/2017 to 16/06/2018 (2nd assignment)	Silvia Maria Stefanelli resigned her position through resignation letter dated June 16, 2018.
	Giovanni Carotti	from 04/03/2020 to 10/06/2022	Carotti's assignment concerning C3, C5, C7, C8, D4, E3, E5, E7 and F1 actions is accounted in "Personnel category costs".
MEOC	Francesca della Rocca	from 20/06/2016 to 31/07/2016	Francesca della Rocca resigned her position through a letter dated July 29, 2016. Rocca's assignment concerned A2, A3 and A4 activities and required a budget transfer from "Direct Personnel Costs" to "External assistance costs", according with the solution of financial issue n°25 from the letter note no. EASME D.3/MM/D (2020) 2744508 of the fifth monitoring visit.
	Davide Malavasi	from 1/3/2017 to 27/05/2019	Subsequently MEOC activated a new selection procedure and the new entrustment was assigned in March 2017 to Davide Malavasi, who resigned his position through resignation letter dated May 27, 2019. Malavasi assignment is accounted for in "Direct Personnel Costs".
	Carotti Giovanni	from 08/02/2020 to 10/06/2022	Later another assignment was given in January 2020 to Giovanni Carotti, concerning actions C3, C5, C7, C8, D4, E3, E7 and F1.
MEOR	Hidrosynergy: Elisa Monterastrelli and Patrizia Giangregorio	from 20/05/2016 to 30/06/2017 with an extension until 30/09/2017	For the entomologist assignment, the budget was transferred from "Direct Personnel Costs" to "External assistance costs" due to impediments and long periods of administrative wait for activating the selection procedures. The assignment was entrusted to "Hidrosynergy" (Dr. Elisa Monterastrelli and Dr. Patrizia Giangregorio).
	Roberto Fabbri	from 19/05/2021 to 23/06/2022	Fabbri's assignment concerned actions C7, C8, D2 and D4.
PNATE	Iris Biondi	from 01/06/2016 to 30/06/2017 (1st assignment) from 01/07/2017	For both entomologists the first 2 assignments were Co.Co.Co. contracts, involving these experts as employees.

BENs	Entmologist	Period	Note
		to 30/07/2019 (2nd assignment)	
	Giovanni Carotti	from 01/06/2016 to 30/06/2017 (1st assignment) from 01/07/2017 to 30/07/2019 (2nd assignment) from 04/09/2019 to 29/02/2020 (3rd assignment) with an extension until 30/06/2020 from 01/09/2020 to 30/08/2021 (4th assignment) from 05/01/2022 to 10/06/2022 (5th assignment)	In addition, Carotti had n° 3 further assignments as a sub-contractor, accounted for in external assistance on actions C3, C4, C5, C7, D1, D2, D4, E2 and E7.
PNFC	Margherita Norbiato	from 26/07/2016 to 10/12/2019.	Ms. Norbiato resigned her position through resignation letter by e-mail (than protocolled) on May 25, 2020. Norbiato's assignment (A2, A4, C5 actions) entailed a budget reallocation from "Direct Personnel Costs" to "External assistance costs", according with the solution of financial issue n°25 from the letter note no. EASME D.3/MM/D (2020)2744508 of the fifth monitoring visit.
	S.T.E.R.N.A. Scarl	from 15/07/2021 to 21/06/2022 from 23/07/2018 to 13/11/2018	STERNA had two different assignments: • 1st contract for actions C3, C4, C5, D1, D2 and D4 • 2nd contract for action C4: captures of *O. eremita*.

Regarding the authorisations: on 01/02/2016 the Ministry of the Environment and Protection of Land and Sea authorised the capture, marking and release for monitoring purposes (letter PG 2016/056067). The single Managing Bodies of protected areas (ABs) issued to the technical staff the authorisation to capture, and release to the wild the 4 species, pursuant to Article 4 of Regional Law 15/2006 and art. 3 paragraph 2, letter i) of Regional Law 24/2011. The authorisations for the breeding structures are dealt with in Action C4, the possible assessments for the environmental impact of the interventions (C1, C2, C3) are dealt with in the related actions. Following Amendment No. 3, authorisations for the restocking of *G.bilineatus* are dealt with in Action A7.

All the expected results of this action have been achieved. Deliverables foreseen by the action have already been transmitted with the 1st PR (Folder: Deliverable\A1_Deliverable). Other results related to the expected Milestones have also already been sent within folder Other_documents\A1, as specified in the following summary table:

DELIVERABLE	**Foreseen Deadline**	**Actual Deadline**	**DELIVERY DATE AND REFERENCES**
Agreement between partners	03/2016	03/2016	27/06/2017 – **PR1** – Folder: Deliverable – A1_Deliverable_1; file: Action A1 - Agreement between partners
Drafting of a work program	06/2016	05/2016	27/06/2017 – **PR1**– Folder: Deliverable; file A1_Deliverable_2
Milestone	**Foreseen Deadline**	**Actual Deadline**	**DELIVERY DATE AND REFERENCES**
Start of administrative procedures for personnel selection	06/2016	05/2016	05/2016 – **PR1**– Folder: Milestone - A1_Millestone_1
Draft agreement between beneficiary coordinator and associated partners	02/2016	12/2015	27/06/2017 – **PR1**– Folder: Milestone - A1_Millestone_2
Appointment of in-house staff for the project	03/2016	03/2016	27/06/2017 – **PR1**– Folder: Milestone - A1_Millestone_3

ACTION A.2: Ex ante monitoring

Foreseen start date: 01/04/2016 Actual start date: 01/06/2016
Foreseen end date: 30/04/2017 Actual end date: 31/12/2017

Beneficiary responsible for implementation: PNATE

The monitoring of the 4 species began in May 2016 and ended in October 2017 and was carried out according to what was defined in the Protocols. The monitoring was carried out in parallel with the activities of Actions A3 and A4, which aimed at monitoring the habitats. The monitoring (A2, A3 and A4) took place over two years instead of one and involved 78 Natura 2000 sites instead of 38. The two-year monitoring and the expansion of the study area allowed the achievement of a deeper level of knowledge on the species and a better planning of the interventions envisioned in Actions C1, C2, C3. In the survey areas, the monitoring took place through the definition of transects (ID-transect) and the geo-referencing of the presence points of the species and/or habitat trees (ID-tree) on GIS. For *O. eremita* and *R. alpina* for each transect a quantified abundance index was calculated as the number of individuals captured-sighted/Km of transects. The results of the two monitoring campaigns of the target species are summarised in the following table:

PNFC	Survey area, 6 Natura 2000 sites: IT4080001; IT4080002; IT4080003; IT5140005; IT5180002; IT5180018. All four target species were monitored. *O. eremita:* 8 transects containing 24 habitat trees in two Natura 2000 sites: IT4080002; IT4080003. The species was detected in 5 transects, 24 individuals were captured or reported, including 3 larvae, 4 reports of remains of individuals and 17 adults. In particular, 12 specimens were intercepted in the BCWT traps, and 11 specimens were found with WMS and VES (larvae, adults and remains of exoskeleton/elytra). A specimen was seen flying in a mapped transect. The abundance index for transects varies from a minimum of 1.43 to a maximum of 36.49 N/km. *R. alpina*: 9 transects containing 151 habitats trees in 3 Natura 2000 sites: IT4080002; IT4080003; IT5140005 and in an area outside SCI. The species was detected in 7 transects. 101 individuals have been captured or reported, including 2 larvae, 10 reports of remains of individuals and 89 adults. In particular, all identified with the CMR method. In one transect the presence was detected with the VES method because of the identification of a hole on a tree. The abundance index of the transects varies between 3.68 and 26.67 N/km. *G. bilineatus*: 4 transects in 4 basins monitored within 2 Natura 2000 sites: IT4080002; IT5180018. For the detection of the species bottle-traps and nets for aquatic insects were used. The species was not detected in any investigated sites. *C. mercuriale*: 2 transects, outside SCI, in 1 water course. For the detection of the species the VES method was used. The species was not detected in any investigated transects.
PNATE	Survey area, 8 Natura 2000 sites: IT4020020; IT4030001; IT4030002; IT4030003; IT4030004; IT4030005; IT4030006; IT4030009. As per GA, *Coenagrion mercuriale* has not been monitored because of unsuitable environments. *O. eremita:* 17 transects containing 72 habitat trees in four Natura 2000 sites: IT4030002; IT4030003; IT4030004; IT4030009 and in an area outside SCI. The species was detected in 6 transects, 20 individuals were captured or reported, including 19 adults (female), 1 remain of individual intercepted in the BCWT. The

	abundance index for transect varies from a minimum of 2.24 to a maximum of 108.1 N / km. *R. alpina*: 2 transects containing 3 habitat trees in one Natura 2000 sites: IT4030004 and in an area outside the SCI. The species was detected in 2 transects, 10 individuals were captured or reported, including 8 adults (4 male and 4 female), 2 remains of individual, chest and leg respectively. In particular, individuals were intercepted with VES and CMR, while the remains of individual with VES. The abundance index for the transect is 0.27 N / km. *G. bilineatus*: 20 transects in 16 basins monitored within 5 Natura 2000 sites: IT4030001; IT4030002; IT4030003; IT4030004. For the detection of the species bottle-traps and nets for aquatic insects were used. The species was not detected in any investigated sites.
MAR	Survey area, 9 Natura 2000 sites: IT4050004; IT4070011; IT4070016; IT4070024; IT4080004; IT4080008; IT4090001; IT4090003; IT4090002. *O. eremita:* 19 transects containing 78 habitat trees in eight Natura 2000 sites: IT4070011; IT4070016; IT4070024; IT4080004; IT4080008; IT4090001; IT4090003 and in an area outside the SCI. The species was detected in 10 transects, 29 individuals were captured or reported, including 2 larvae, 16 remains of individual and 11 adults (1 male), intercepted in the BCWT, and 10 females, intercepted with WMS and BCWT. The abundance index for transects varies from a minimum of 1.15 to a maximum of 19.05 N/km. *R. alpina*: 4 transects containing 4 habitat trees in one Natura 2000 sites: IT4080008. For the detection of the species VES was used. The species was not detected in any investigated sites. *G. bilineatus*: 5 transects in 5 basins monitored within one Natura 2000 site: IT4070011. For the detection of the species bottle-traps and nets for aquatic insects were used. The species was not detected in any investigated sites. *C. mercuriale*: 12 transects in 12 watercourses monitored within two Natura 2000 sites: IT4070011; IT4090002. The species was detected in 7 transects. 3607 adults (years: 2016 and 2017, adults live just one year) were captured or reported, 3179 male and 422 females. For the detection of the species VES was used, with the exception of one transect where CMR was used.
MEOR	Survey area, 8 Natura 2000 sites: IT4050001; IT4050002; IT4050003; IT4050012; IT4050013; IT4050020; IT4050015; IT4050029. *O. eremita:* 13 transects containing 57 habitat trees were identified in five Natura 2000 sites: IT4050001; IT4050002; IT4050003; IT4050013; IT4050020. The species was detected in 2 transects, 4 adults were captured or reported, 1 adult (female) and 3 males, intercepted in the BCWT and VES. The abundance index for transects was not calculated. *R. alpina*: 6 transects containing 21 habitat trees were identified in one Natura 2000 site: IT4050002. The species was intercepted with VES. The species was not detected in any investigated site. *G. bilineatus*: 3 transects in 3 basins monitored within two Natura 2000 sites: IT4050015; IT4050029. For the detection of the species bottle-traps and nets for aquatic insects were used. The species was not detected in any investigated sites. *C. mercuriale*: 7 transects in 7 basins monitored within two Natura 2000 sites: IT4050003; IT4050012 and in an area outside SCI. For the detection of the species VES was used. The species was not detected in any investigated sites.
MEC	Survey area, 8 Natura 2000 sites: IT4030007; IT4030011; IT4040001; IT4040002; IT4040003; IT4040004; IT4040005; IT4040013; IT4040018. *O. eremita:* 20 transects containing 115 habitat trees were identified in six Natura 2000 sites: IT4030007; IT4030011; IT4040001; IT4040002; IT4040003; IT4040004

	and in an area outside the SCI. The species was detected in 2 transects, 2 adults were captured or reported, 1 female with BCWT and 1 male, intercepted with VES. The abundance index for transect was not calculated. *R. alpina*: 11 transects containing 280 habitat trees were identified in three Natura 2000 sites: IT4040001; IT4040002; IT4040005 and in an area outside the SCIs. The species was intercepted with VES. The species was not detected in any investigated sites. *G. bilineatus*: 23 transects in 6 basins monitored within three Natura 2000 sites: IT4040001; IT4040002; IT4040005. For the detection of the species bottle-traps and nets for aquatic insects were used. The species was detected in 5 transects. 6 adults were captured or reported, 1 larva with net, 2 females, one with net and one with trap, 3 males with net and bottle-trap. *C. mercuriale*: 3 transects in 3 basins monitored within two Natura 2000 sites: IT4040013; IT4040018 and in an area outside SCI. The species was not detected in any investigated sites.
MEOC	Survey area, 11 Natura 2000 sites: IT4030007; IT4010003; IT4010008; IT4010017; IT4020001; IT4020003; IT4020007; IT4020008; IT4020017; IT4020020; IT4020021; IT4020026. *O. eremita:* 10 transects containing 41 habitat trees in seven Natura 2000 sites: IT4010008; IT4010017; IT4020001; IT4020003; IT4020017; IT4020021; IT4020026 and in an area outside the SCI. The species was detected in 2 transects. 6 individuals were detected, 3 larvae and 3 adults, 2 females and 1 male. The individuals were detected with BCWT and VES. The abundance index for transects was not calculated. *R. alpina*: 8 transects containing 118 habitat trees in four Natura 2000 sites: IT4010003; IT4020007; IT4020008; IT4020020 and in an area outside the SCIs. The species were intercepted with VES. The species was not detected in any investigated sites. *G. bilineatus*: 5 transects in 4 basins monitored within three Natura 2000 sites: IT4010003; IT4020008; IT4020020 and in an area outside the SCIs. For the detection of the species nets for aquatic insects were used. The species was not detected in any investigated sites. *C. castellani*: 3 transects in 3 basins monitored within one Natura 2000 site: IT4020017; The species was not detected in the investigated site.

The total number of individuals surveyed was:

- 75 individuals of *O.eremita*, in 14 Natura 2000 sites and 13 individuals outside;
- 110 individuals of *R.alpina*, in 3 Natura 2000 sites and 2 individuals outside;
- 3607 individuals of *C.castellani* in 2 Natura 2000 sites and 1 individual outside – most probably a wandering individual outside of the Natura 2000 site, near the SCI IT4070011.

The ex-ante monitoring revealed a very critical situation regarding *G. bilineatus*. During the surveys carried out in 2016 and 2017 in nr. 14 Natura 2000 sites and in nr. 110 basins distributed in the Apennine range, the species was found in a single site - Lago di Pratignano (MO) - with only a few individuals. It became clear that the population of Lago di Pratignano could not allow the sampling of founders and the start of the breeding activity envisaged by the project within action C4. The situation was addressed by requesting an Amendment to the project, granted by the CINEA Agency (Amendment No. 3).

It was not possible to define the numerical consistency of the sub-populations of the target species through the CMR method, with the exception of *C.castellani*, since there were no recapture data. For the CPSI index the considered species are the ones of saproxylic Coleoptera

intercepted with non-attractive and discriminating systems, placed within the hollows of the trees or in the external part of the tree trunks, therefore this index was applied only to *O.eremita*. Specific trapping was carried out in two transects in the MAR- Campiuno locality (RA) in SCI - IT4070011 of the Vena del Gesso Romagnola.
For *O.eremita* and *R.alpina* the respective eligibility models were developed, updating models previously defined for the Emilia-Romagna Region by a study group of Sapienza University of Rome (Prof. Maiorano). The 2016 and 2017 monitoring data made it possible to deepen and develop the models with greater precision. Eligibility models for the other two target species were not achieved because the results revealed an extremely localised presence.
The Deliverable foreseen by the action has already been transmitted with the MR: FOLDER: Deliverable/A2, as specified in the following summary table.

DELIVERABLE	**Foreseen Deadline**	**Actual Deadline**	**DELIVERY DATE AND REFERENCES**
Activity report	04/2017	12/2017	20/12/2018 - –**MR** – Folder: Deliverable A2_ActivityReport

ACTION A.3: Identification/inventory of habitat trees

Foreseen start date	01/04/2016	Actual start date	01/06/2016
Foreseen end date	30/06/2017	Actual end date	31/12/2017

Beneficiary responsible for implementation: PNFC

The monitoring of the habitat trees allowed the identification of the areas potentially suitable for the reproduction of the two target forest species and directed the implementation of actions C1, C3 and C5. The result is a catalogue of all the habitat trees surveyed along the identified transects and their geo-referencing, which made it possible to produce detailed maps. The identification of the habitat trees was carried out following the protocols elaborated by the Entomologist (Mr. Roberto Fabbri) and validated by the scientific supervisor (Mr. Marco Uliana). The suitability level for the species has been attributed to each tree. The protocols were shared with all ABs' entomologists and technical representatives at the meeting held on June 3, 2016 in Bologna at the CB's headquarters. The overall area of the survey is the same one as for the species monitoring (Action A2). The results of the two monitoring campaigns of the target species are summarised in the following table:

PNFC	*O. eremita*: 2 Natura 2000 Sites: IT4080002; IT4080003 and an area outside the SCIs. The results of the survey have catalogued 8 transects containing 238 habitat trees, of which 14 with high suitability; 4 with medium suitability; 0 with low suitability; 220 with no suitability. *R. alpina:* 2 Natura 2000 Sites: IT4080002; IT4080003. The results of the survey have catalogued 8 transects containing 191 habitat trees of which 45 with high suitability; 82 with medium suitability, 45 with low suitability, 19 with no suitability.
PNATE	*O. eremita:* 4 Natura 2000 Sites: IT4030001; IT4030002; IT4030003; IT4030005 and an area outside the SCIs. The results of the survey have catalogued 14 transects containing 155 habitat trees, of which 0 with high suitability; 8 with medium suitability; 2 with low suitability; 145 with no suitability. *R. alpina*: 4 Natura 2000 Sites: IT4020020; IT4030003; IT4030004; IT4030005 and an area outside the SCIs. The results of the survey have catalogued 21 transects containing 243 habitat trees of which 230 with high suitability; 3 with medium suitability, 0 with low suitability, 10 with no suitability.
MAR	*O. eremita:* 8 Natura 2000 Sites: IT4050004; IT4070011; IT4070016; IT4070024; IT4080004; IT4080008; IT4090001; IT4090003 and an area outside the SCIs. The results of the survey have catalogued 33 transects containing 307 habitat trees, of which 81 with high suitability; 179 with medium suitability; 0 with low suitability; 47 with no suitability. *R. alpina*: 2 Natura 2000 Sites: IT4080005; IT4080008 and an area outside the SCI. The results of the survey have catalogued 5 transects containing 10 habitat trees of which 0 with high suitability; 0 with medium suitability, 1 with low suitability, 9 with no suitability.
MEOR	*O. eremita:* 8 Natura 2000 Sites: IT4050001; IT4050002; IT4050003; IT4050013; IT4050020; IT4050023; IT4050025; IT4050029 and an area outside SCI. The results of the survey have catalogued 24 transects containing 87 habitat trees, of which 18 with high suitability; 13 with medium suitability; 3 with low suitability; 53 with no suitability. *R. alpina*: 1 Natura 2000 Sites: IT4050002. The results of the survey have catalogued 7 transects containing 21 habitat trees of which 10 with high

	suitability; 4 with medium suitability, 7 with low suitability, 0 with no suitability.
MEC	*O. eremita:* 5 Natura 2000 Sites: IT4030007; IT4040001; IT4040002; IT4040003; IT4040004 and area outside the SCIs. The results of the survey have catalogued 19 transects containing 210 habitat trees, of which 11 with high suitability; 97 with medium suitability; 0 with low suitability; 102 with no suitability. *R. alpina*: 2 Natura 2000 Sites: IT4040001; IT4040002 and an area outside the SCIs. The results of the survey have catalogued 24 transects containing 415 habitat trees of which 29 with high suitability; 72 with medium suitability, 247 with low suitability, 67 with no suitability.
MEOC	*O.eremita:* 11 Natura 2000 Sites: IT4010008; IT4010012; IT4010017; IT4010018; IT4020001; IT4020003; IT4020012; IT4020015; IT4020017; IT4020021; IT4020026 and area outside the SCIs. The results of the survey have catalogued 40 transects containing 760 habitat trees, of which 40 with high suitability; 232 with medium suitability; 113 with low suitability; 375 with no suitability. *R. alpina*: 2 Natura 2000 Sites: IT4010003; IT4010012; IT4020007; IT4020008; IT4020010; IT4020012; IT4020015; IT4020020 and area outside the SCIs. The results of the survey have catalogued 14 transects containing 232 habitat trees of which 4 with high suitability; 37 with medium suitability, 191 with low suitability, 0 with no suitability.

For *O. eremita* a total of nr.1760 habitat trees were surveyed in 38 Natura 2000 sites, of which nr.283 with high suitability, nr.605 with medium suitability and nr.125 with low suitability.
For *R. alpina* a total of nr.1112 habitat trees were surveyed in 18 Natura 2000 sites, of which nr.318 with high suitability, nr.198 with medium suitability and nr. 491 low suitability. The Deliverable foreseen by the action has already been transmitted with the MR (Folder: Deliverable/A3), as specified in the following summary table.

DELIVERABLE	Foreseen Deadline	Actual Deadline	DELIVERY DATE AND REFERENCES
Technical report including overview map and detailed maps	06/2017	12/2017	20/12/2018 - **MR** – Folder: Deliverable A3_Technical_Report

ACTION A.4: Identification of suitable lakes, ponds and streams

Foreseen start date	01/04/2016	Actual start date	01/06/2016
Foreseen end date	30/06/2017	Actual end date	31/12/2017

Beneficiary responsible for implementation: MAR

The monitoring involved areas potentially suitable for conducting the repopulation of *C. mercuriale* and *G. bilineatus*. The result is a catalogue of all the registered water basins and waterways, using transects, and the geo-location of points to which a suitability scale has been assigned. The geo-location allowed the production of detailed maps. The monitoring was carried out following the protocols elaborated by the TC (Mr Roberto Fabbri) and validated by the scientific supervisor (Prof. Gianmaria Carchini). The protocols were shared with all the ABs' entomologists and technical representatives at the meeting held on June 3, 2016 in Bologna at CB's headquarters. The overall survey area is the same one as for the species monitoring (Action A2). The results of the two monitoring campaigns of the target are summarised in the following table:

PNFC	*G. bilineatus:* 2 Natura 2000 sites: IT4080002; IT5180018. 4 basins and 5 transects were catalogued, 1 of which with high suitability, 3 with medium suitability, 0 with low suitability, 1 with no suitability. *C. mercuriale*: 2 transects in 1 watercourse outside the Natura 2000 network, but adjacent to the SCI IT4080002. A watercourse with 1 low suitability transects and 1 transect with no suitability have been catalogued.
PNATE	*G. bilineatus*: 5 Natura 2000 sites: IT4020020; IT4030001; IT4030002; IT4030003; IT4030006 and area outside the SCIs. 16 basins and 20 transects were catalogued, 4 of which with high suitability, 7 with medium suitability, 6 with low suitability, 3 with no suitability. *C. mercuriale*: as foreseen by GA it has not been monitored as it has no environments.
MAR	*G. bilineatus*: 2 Natura 2000 sites: IT4070011; IT4080004. 8 basins and 8 transects were catalogued, 1 of which with medium suitability, 1 with low suitability, 6 with no suitability. *C. mercuriale*: 3 Natura 2000 sites: IT4070011; IT4080007; IT4090002 and an area outside the SCIs. 16 watercourses and 24 transects were catalogued, 0 of which with high suitability, 7 with medium suitability, 7 with low suitability, 10 with no suitability.
MEOR	*G. bilineatus*: 7 Natura 2000 sites: IT4050001; IT4050002; IT4050003; IT4050015; IT4050016; IT4050023; IT4050029 and an area outside the SCIs. 52 basins and 54 transects were catalogued, 0 of which with high suitability, 4 with medium suitability, 5 with low suitability, 45 with no suitability. *C. mercuriale*: 5 Natura 2000 sites: IT4050001; IT4050003; IT4050012; IT4050016; IT4050029 and area outside the SCIs. 42 watercourses and 44 transects were catalogued, 0 of which with high suitability, 1 with medium suitability, 7 with low suitability, 36 with no suitability.
MEC	*G. bilineatus*: 3 Natura 2000 sites: IT4040001; IT4040002; IT4040005 and area outside the SCIs. 15 basins and 33 transects were catalogued, 20 of which with high suitability, 1 with medium suitability, 1 with low suitability, 11 with no suitability. *C. mercuriale*: 3 Natura 2000 sites: IT4030018; IT4040004; IT4040013. 3 watercourses and 3 transects were catalogued, 0 of which with high suitability, 2 with medium suitability, 0 with low suitability, 1 with no suitability.
MEOC	*G. bilineatus*: 4 Natura 2000 sites: IT4010003; IT4010004; IT4020008; IT4020020.

	6 basins and 7 transects were catalogued, 0 of which with high suitability, 2 with medium suitability, 3 with low suitability, 2 with no suitability. *C. mercuriale*: 3 Natura 2000 sites: IT4020001; IT4020003; IT4020017 and an area outside the SCIs. 7 watercourses and 10 transects were catalogued, 0 of which with high suitability, 5 with medium suitability, 0 with low suitability, 5 with no suitability.

G. bilineatus: the overall study area concerned no. 101 watercourses, along no. 127 transects, inside 19 sites of the Natura 2000 network: no. 25 transects presented high suitability; 18 medium suitability; 16 low suitability and 68 no suitability.
C. castellani: the overall study area concerned no. 81 basins, along no. 113 transects, inside 15 sites of the Natura 2000 network: no. 20 transects presented high suitability; 14 medium suitability; 16 low suitability and 63 no suitability.
In the case of *G.bilineatus*, the results of the monitoring activity provided the basis on which the Focus Group on *G.bilineatus* carried out in-depth studies to identify potential sites for the restocking of the species within Action C.5 (as provided for in Amendment No. 3). The Deliverable foreseen by the action has already been transmitted with the MR: FOLDER: Deliverable/A4, as specified in the following summary table.

DELIVERABLE	Foreseen Deadline	Actual Deadline	DELIVERY DATE AND REFERENCES
Technical report including maps	06/2017	12/2017	20/12/2018 - **MR** – Folder: Deliverable A4_Technical_Report

ACTION A.5: Training courses for volunteers/contractors

Foreseen start date	01/04/2016	Actual start date	01/04/2016
Foreseen end date	30/06/2020	Actual end date	25/10/2020

Beneficiary responsible for implementation: MEOR

The action started in April 2016; the activity was centralised for some organisational aspects to the CB.

1st Volunteers Recruitment Campaign 2016/2017: http://ambiente.regione.emilia-romagna.it/life-eremita/notizie/notizie-2016/da-oggi-e-possibile-partecipare-come-volontari-al-progetto-life-eremita

In July 2016 a call for expressions of interest (approved by RER with act n ° 10786 of 06/07/2016) was published (Annexed to the PR1, Folder: Other documents, Action A5). It was addressed to all citizens over 18 years to select a group of volunteers dedicated to the activities of the project, who were required to commit to a training period. For the dissemination, a flyer-manifesto of the initiative was created and printed (Annexed to the MR, Folder: Other documents, A5_2016-17) and posted at all the universities of the region and other selected locations frequented by possible target subjects (Museums, associations, etc.). On 25/10/2016, in Bologna at the CB's headquarters, the first meeting was held to present the activities, the project technical representatives and the representatives of the main regional volunteers' associations. During the meeting the project (objectives and activities) and the training program were presented. The training activity established consisted of three initial meetings located in CB's headquarters (BO) and Collecchio (PR): 16/12/2016 - 17/12/2016 - 25/10/2016. The field training activity also consisted of several repeated meetings to cover the entire regional territory, and they took place on: 25/03/2017 - 01/04/ 2017- 14/04/2017 - 29/ 04/2017 - 06/05/2017 - 07/05/2017 - 11/05/2017 both in forest environments and in aquatic environments, located between Lizzano in Belvedere Castagneto Poggiolforato e faggeta a Bosco della Tesa (MEOR); Alto Frignano (MEC); Corniolo di Santa Sofia (PNFC); Riolo Terme Vena Gesso: Rio Gambellaro, Rio Sgarba, lago Rio Mighe (MAR); Cà de Mandorli - Stagni La Martina, rii (MEOR) and PNATE lakes. All flyers and program of the events are annexed to the MR, Folder: Other documents, Action A5. The volunteers were evaluated by the trainers with the aim of identifying their aptitudes and vocations to the various voluntary activities (Annexed to the MR, Folder: Other documents, A5_2016-17).

The first "Catalogue of opportunities for the volunteers within the LIFE Eremita Project" was drafted and disseminated. No. 65 volunteers joined the recruitment campaign, while at the end of this first training, 34 volunteers were selected and assigned to the various ABs to attend all training meetings.

Other volunteers were recruited directly by the ABs. The 1st volunteer campaign involved in the project activities a total of 40 volunteers. Below is the detail:

PNFC	17 volunteers involved in the following project activities: species monitoring (A2, A3, A4); *O. eremita* collecting, to be used as founders for the breeding centre of the Santa Sofia PNFC (C4); choice of trees on which to install WMBs (C3), breeding activities (C4)
PNATE	7 volunteers involved in the following project activities: species monitoring (A2, A3, A4); communication and information (E7 - Paleremita)
MAR	8 volunteers + 1 trainee involved in the following activities: habitat trees monitoring (A3), aquatic habitat monitoring (A4), monitoring of the 4 species (A2), *O. eremita* ex situ breeding activities (C4), Wood Mould Boxes installation and monitoring (C3), dissemination activities (E2, E7)

MEOR	2 volunteers involved in the following activities: monitoring of species and habitats (A2, A3, A4).
MEC	3 volunteers involved in the course, with field trips in April. The volunteers did not participate in the project activities.
MEOC	3 volunteers involved in the following activities: *O.eremita* monitoring (A2, A3)

2nd Volunteers' recruitment campaign 2018: on 25/05/2018 a workshop was organised on the progress of the project, with the presentation of the new catalogue of opportunities for the volunteers. No. 15 aspiring volunteers joined the programme and attended all training meetings. It was an opportunity for a new phase of recruitment. a flyer-manifesto of the initiative was created and printed (Annexed to MR, Folder: Other documents, A5_2018). A second volunteer catalogue was developed and presented. In the 2nd volunteer campaign, a total of 43 volunteers were involved in project activities. In this case, no training courses were organised, but the training material previously produced was delivered. Below are the details broken down by AB.

PNFC	11 volunteers involved in the following activities: collection of *O. eremita*, to be used as founders (C4), marking and cataloguing of the plants selected for WMBs (C3); *O. eremita* breeding activity: larvae control, box humidity, replacement and creation of new boring dust.
PNATE	9 volunteers were involved in the following activities: *O. eremita* collecting, to be used as founders (C4), marking and filing of the plants selected for WMBs (C3); breeding activity of *O. eremita*: larvae control, box humidity, replacement and creation of new boring dust; communication and information (E7 - paleremita)
MAR	5 volunteers + 3 trainees were involved in the project activities. The activities were: monitoring of habitat trees (A3), monitoring of aquatic habitats (A4), monitoring of the 4 species (A2), *O.eremita* ex -situ farming activities (C4), installation and monitoring of Wood Mould Boxes (C3), dissemination activities (E2, E7)
MEOR	12 MEOR volunteers were involved in the project activities. The activities were: support for the capture of specimens of *O. eremita* to be used for breeding (C4) and support during inspections for the analysis in the field of conservation actions to be developed for *O. eremita* and *R. alpina*.
MEC	The volunteers did not participate in project activities.
MEOC	6 volunteers were involved in the project activities. The activities were: preparation and management of the boring dust, installation of boards on forest interventions, WMBs maintenance.

Within the costs of the action, the project does not provide for costs to support voluntary activities, therefore a fast turnover of the volunteers often occurs. The PM and the regional structure remain as an organisational reference of the volunteer body. Once the volunteers have been assigned to the different ABs, they are organised directly by the respective technical representatives.

Volunteers' recruitment campaign 2019: the catalogue of opportunities was promoted and updated by all beneficiaries. In 2019, the number of volunteers was not recorded; from direct interviews with project technical staff, it is estimated that about 9 volunteers were involved. It was a year when no monitoring was conducted, volunteers were engaged in breeding and dissemination activities.

3rd Volunteers' recruitment campaign 2020: The management of volunteers and the organisation of activities was assigned to Istituto Delta. With regard to action A5, on August 13th 2020, a call for expression of interest in the participation to the training course for volunteers was opened; No. **25 volunteers** were trained with a course of **6 workshops** with online theoric activities and on field (No. of total training hours: 11; No. of training hours performed: 40) in the field. The workshops were held on the 18th ,19th, 26th, 27th September 2020, and October 18th 2020. To promote the activities a flyer of the course was published on the project website; a private Facebook group was created to favor the dialogue among the volunteers and it is still open up to date for the further coordination of the project activities (https://www.facebook.com/search/top?q=volontari%20life%20eremita%202020). All the slides and the materials produced within the course have been published on the website (https://progeu.regione.emilia-romagna.it/it/life-eremita/temi/convegni-workshop/convegni-workshop-e-seminari-2020). Within the 3rd volunteer campaign, until the end of the project, a total of 55 volunteers were involved in the project activities.

PNFC	No. 11 volunteers were involved in the following project activities: species and interventions monitoring; breeding activities (C4) and communication and information actions such as PalaEremita (E7) and Festa dell'Eremita (A5).
PNATE	No. 12 volunteers involved in species and interventions monitoring; breeding activities (C4) and communication and information actions such as PalaEremita (E7) and Festa dell'Eremita (A5).
MAR	No. 8 volunteers were involved in the project activities. The activities were: monitoring of habitat, monitoring of the 4 species (A2), monitoring of Wood Mould Boxes (C3).
MEOR	No. 8 volunteers were involved in the project activities. The activities were: breeding activities (C4) and support during inspections for the analysis in the field of conservation actions to be developed for *O. eremita* and *R. alpina*.
MEC	No. 9 volunteers involved in the following project activities: species and interventions monitoring.
MEOC	No. 7 volunteers were involved in the project activities: species and interventions monitoring; breeding activities (C4) and communication and information actions such as PalaEremita (E7) and Festa dell'Eremita (A5).

Throughout the project, no. 4 recruitment catalogues were published; no. 74 volunteers participated in training courses thanks to the recruitment campaigns; a total of no. 138 volunteers were involved in all project activities. Many activities were organized during the years of the project, including 21 hours of theory and 88 hours in the field.

All of the materials produced during the last recruitment campaign 2020, are available on FR - Folder: Other documents\A5_Training courses\Volunteers including photos, flyer, certificate of attendance, FAQs, power point presentations of theoretical classes and lessons recording. The 4th Volunteering Opportunities Catalogue is attached in FR_Folder\ Deliverable\A5_Training courses.

Eremita Festival

The 1st edition of the "Festa dell'Eremita" (*Eremita Festival*) took place on 23 September 2017 at the Casa Fantini Visitor Centre (via Jussi, 171 - Farneto) in San Lazzaro di Savena (BO). The event took place concurrently with the inauguration of the "Eremita Tour "(Action E7). For the occasion, the first promotional objects were created: 50 backpacks with the "Life Eremita" logo.

The 2nd edition was held on 25/10/2020 – at Bagno di Romagna in conjunction with the Fall Foliage Festival of the Slow Fall 2020 programme. All activities were carried out in compliance

with the COVID-19 emergency containment regulations. There were activities aimed at the public on the project's target species with a particular focus on *Rosalia alpina* and *Osmoderma eremita* and their ecological value linked to the old-growth forests, and activities aimed at project volunteers such as the excursion to San Paolo in Alpe, in the heart of the Casentino Forest National Park. Accompanied by an expert environmental excursion guide and a professional photographer, the volunteers observed in the field the forest interventions carried out as part of the Life Eremita project (Wood Mould Boxes, beech tree felling) and admired the Sasso Fratino Integral Reserve in front of them, and tried their hand at taking photographs with the precious advice of a professional photographer. After lunch, the volunteers put into practice what they had learnt during the morning and were in fact involved in the activity of the Pala Eremita: supported by the Atlantide operators, they helped to illustrate to visitors the project's target species and their value for forest ecosystems.

3rd edition: On 18/09/2021 at MEOC (Salsomaggiore Terme – PR) and on 25/10/2020 at PNFC (Bagno di Romagna) two "Festa dell'Eremita" events were organised. The organisation of these last two festivals was entrusted to the cooperative Atlantide.

4th edition: On 18/09/2021 – Salsomaggiore terme: all activities were carried out in compliance with the current COVID-19 emergency containment regulations. Activities were organised for the public, which included getting to know the project's target species, stereoscopic observation of body parts of various insects (beetles, odonates, lepidoptera, dipterans, hymenoptera) and a guided tour of the Geopaleontology section of the MuMab - Ancient Sea and Biodiversity Museum. For the volunteers, a training meeting on the Meet platform was organised before 18/09 by the Atlantide operators, during which the volunteers were informed about the logistics of the day and the public-facing activities in which they would have had to actively participate in. On Saturday 18 September in the morning, the Project volunteers assisted and supported the activities aimed at schools carried out by the Atlantide operators. After lunch, the volunteers were involved in activities at the Pala Eremita.

No.	**Whene**	**Where**
1st edition	23/09/2017	San Lazzaro di Savena (BO)
2nd edition	25/10/2020	Bagno di Romagna
3rd edition	18/09/2021	Salsomaggiore terme - PR
4th edition	18/09/2021	Salsomaggiore terme - PR

The CB called for a public tender for the organisation of the festivals and the production of promotional objects planned for E6 action, and – thanks to cost savings - other additional promotional objects to be distributed to information events foreseen in E actions.

All of the materials produced during the festivals, are available on FR - Folder: Other documents\A5_Training courses\Eremita festival including photos, flyer, programme.

Academic internships and thesis: a specific group of volunteers were university students, who were further involved by turning their experience in a real pre-lauream academic internship, on which they later wrote their final dissertations. The students' dissertations focused mostly on the following: data collection on the target species; monitoring of species and habitats carried out during the internship; data analysis; the study of populations for the possible translocation of specimens, and finally data collected during the activities of in-situ and ex-situ breeding of *O. eremita*.

The dissertations refer mainly to monitoring and breeding activities carried out in the territories of MAR, PNFC and PNATE:

1. "Monitoring after translocation interventions of the dragonfly *Coenagrion castellani* Roberts, 1948 within the Life Eremita project in the area of the Management Authority for Parks and Biodiversity, Romagna" (2020-2021);
2. "In-situ conservation of the saproxylic beetle *Osmoderma eremita* (Scopoli, 1763) in Romagna within the Life Eremita project" (2019-2020);
3. "Translocation interventions of the dragonfly *Coenagrion mercuriale castellani* Roberts, 1948 within the Life Eremita project in the area of the Management Authority for Parks and Biodiversity, Romagna" (2019-2020);
4. "Breeding of the beetle *Osmoderma eremita* (Scopoli, 1763) for reintroduction purposes within the Life Eremita project in the National Park of Tuscan- Emilian Apennines" (2018-2019);
5. "In-situ conservation by means of Wood Mould Boxes of the species *Osmoderma eremita* (Scopoli, 1763) within the Life Eremita project in the National Park of Casentinesi Forests, Mount Falterona and Campigna" (2018-2019);
6. "First translocation experience of the dragonfly *Coenagrion mercuriale castellanii* Roberts, 1948 within the Life Eremita project in the area of the Management Authority for Parks and Biodiversity, Romagna" (2018-2019);
7. "Breeding of the species *Osmoderma eremita* (Scopoli, 1763) within the Life Eremita project" (2017-2018);
8. "Capture methods of the beetle *Osmoderma eremita* within the area of the National Park of the Tuscan-Emilian Apennines in the context of the Life Eremita project" (2017-2018);
9. "Monitoring and conservation of the species *Coenagrion mercuriale castellanii* Roberts, 1948 within the Life Eremita project" (2016-2017);
10. "Fauna monitoring and conservation techniques adopted by the Management Authority for Parks and Biodiversity in Romagna" (2016-2018);
11. "Breeding of the species Osmoderma eremita (Scopoli, 1763) within the Life EREMITA project in the National Park of the Casentinesi Forests, Mount Falterona and Campigna" (2018-2019).

All of the thesis' abstracts drafted are available on FR - Folder: Other documents\A5_Training courses\ Abstract_thesis_2017-2020.pdf.

DELIVERABLE	Foreseen Deadline	Actual Deadline	DELIVERY DATE AND REFERENCES
1° Catalogue of Volunteers' opportunities within the LIFE Eremita Project.	01/2017	05/2017	20/12/2018 – MR – Folder: Deliverable\ A5_Catalogue_minute
2° Catalogue of Volunteers' opportunities within the LIFE Eremita Project.	01/2018	05/2018	20/12/2018 – MR – Folder: Deliverable\ A5_Catalogue_minute
Minutes of volunteers' training courses, first phase.	06/2018	06/2018	20/12/2018 – MR – Folder: Deliverable\ A5_Catalogue_minute
3° Catalogue of Volunteers' opportunities within the LIFE Eremita Project.	05/2019	05/2019	14/11/2022 - FR_ Folder\ Deliverable\ A5_Training courses: file 3° Catalogue Volunteers opportunities 2019.pdf
4° Catalogue of Volunteers' opportunities within the LIFE Eremita Project.	05/2020	05/2020	14/11/2022 - FR_Folder\ Deliverable\ A5_Training courses: file 4° Catalogue Volunteers opportunities 2020.pdf

Minutes of volunteers' training courses, second phase.	06/2020	10/2020	14/11/2022 - FR_Folder\ Deliverable\ A5_Training courses: file A5_Minutes_2020.pdf

ACTION A.6: Ex-ante survey on the opinions of the main stakeholder groups.

Foreseen start date	01/07/2016	Actual start date	01/05/2016
Foreseen end date	30/06/2017	Actual end date	30/06/2017

Beneficiary responsible for implementation: PNATE

During the Technical Table held on 30/05/2016, acting on a proposal by the Project Manager with a consensus shared by all the partners, a decision was made to change the method of administration of the questionnaires, opting for the involvement of the schools present in the territories of the various ABs. This modality was presented to the Monitor during the first monitoring visit of 09/06/2016 and was accepted by EASME (now CINEA) with note Ref. Ares (2016) 4205908 of 08/08/2016.
The questionnaire (Deliverable sent with PR1) was shared and approved by all the ABs in the TT on 12 September 2016.
13.736 questionnaires were distributed and 3.891 were filled-in and returned by people between 16 and over 66 y-o, with a coverage of the entire project territory. The return rate was 28.3%. Below are the schools involved for Abs:

ABs	**No. 25 Schools involved**	**Questionnaires distributed**	**Completed questionnaires collected**
PNFC	I.C. Bagno di Romagna; I.C. Santa Sofia	2,646	868
PNATE	I.C. Villa Minozzo; I.I.S. Mandela; Liceo delle scienze umane e sociali Cattaneo dall'Aglio; Liceo scientifico dall'Aglio; I.C. Castelnovo Ne Monti; I.C. Busana I.C. Camporgiano.	940	331
MAR	D.D. N. 1; Liceo scientifico a. Righi; I.C. O. Pazzi; I.C. Pennabili	1,500	406
MEOR	I.C. Crespellano; I.C. Bazzano – Monteveglio; I.C. Castello di Serravalle I.C. Monte S. Pietro	4,800	678
MEC	I.I.S. Primo Levi	350	172
MEOC	I.C. Fiorenzuola D'Arda; I.C. Bobbio – Capoluogo; Liceo scientifico Lorenzo Respighi; I.C. Di Neviano Arduini; I.I.S. Zappa – Fermi; Liceo Classico Romagnosi; IPSIA Primo Levi	3,500	1,435
		13,736	3,891

The questionnaire was presented to schools with a direct contact (telephone), then sent with an accompanying letter to explain to the school management and teachers the aims of the project and of the cognitive survey as well as the procedures to be followed for the distribution of the questionnaire to the students' families.
A poster was printed and sent to the schools involved in the survey, to be posted inside the school to inform people about the project objectives and make them aware of the survey in progress.
By the end of the school year, in June 2017, all the questionnaires were retrieved, analysed and the activity report (Deliverable already sent with the PR1, Folder: Deliverable-A6) was drawn up.

The results show that there is a distorted perception of the threats insisting on habitats and species and a lack of awareness about management and conservation of the biodiversity tools, in spite of an awareness of the importance of the topics discussed and the necessity of doing something.
Based on the level of knowledge and awareness about forest insect conservation and specific habitat loss due to anthropogenic causes, the survey results have been a useful benchmark for evaluating particular targets, such as farmers, and the training and information campaigns planned by the project, including: the concept of the Natura 2000 Network, the management and financial tools (especially the LIFE instrument) that Europe makes available for the conservation and improvement of habitats and species and the actual expenditures for forest management and channel cleaning.

DELIVERABLE	**Foreseen Deadline**	**Actual Deadline**	**DELIVERY DATE AND REFERENCES**
Evaluation questionnaire	01/2016	09/2016	27/06/2017 – **1° PR** – Folder: Deliverable – A6_Questionario_DEF.pdf
Activity report	06/2017	06/2017	27/06/2017 – **1° PR** – Folder: Deliverable – A6_activity report.pdf

ACTION A.7: Drafting of a recovery plan for the target species based on the results of preliminary surveys

Foreseen start date	01/10/2016	Actual start date	01/10/2016
Foreseen end date	30/06/2019	Actual end date	31/03/2020

Beneficiary responsible for implementation: RER

The Action ended on 31st March 2020 with the delivery of the Restocking Plan of *G. bilineatus* and the last executive projects (MAR and MEOR), which were formally approved in December 2019.

The Plan was defined following the completion of the monitoring activities (A2 and A3), which, as already described, were extended by one year. In some areas of PNATE, PNFC; MAR and MEOR the monitoring of the habitats for the saproxylic species took place also in 2018, with the aim of a precise identification of the habitat trees with the final goal of expanding the distribution range.

Action C1 interventions planning: the choice of the intervention areas was based, where possible, on the identification of buffer areas of amplitude compatible with the biology of the species, identified starting from the established centres of presence, within areas of civic use or of public property. The tree in which the specimens were captured represents the centre of a circle with a radius equal to the dispersal capacity of the species: 3000 m for *R. alpina*; 2500 for *O. eremita*. Within these buffers habitat trees were identified and mapped with action A3. Using the suitability value, the types of intervention were defined. The types of intervention planned for *O. eremita* are: suckers removal area radius 5m, 10m; trimming area radius 5m; pruning of the dry parts or to let the light in, H 2-3m; pruning-scaffolding (big branches); removal of suckers at the base of the plant; felling; creation of hollow on the stem H <1.80m, grade 1, 2 and 3, creation of hollow on the stem from a branch scar, deepening the scar cavity on a branch or stem.

The types of intervention planned for *R. alpina* are: felling; stacks formation; girdling; ring barking; broken stem; pruning of the dry parts and to let the light in; pruning main branches; removal of suckers at the base of the plant; cleaning area radius 5m, 10m; thinning 10m, 15m.

Action C2 interventions planning: Following the results of actions A2 and A4, a low number of suitable sites for *G. bilineatus* and *C. mercuriale* has been detected as well as monitoring of the presence of species, therefore the choice of intervention areas is relative only to the MAR's area and only with regards to *C. mercuriale*. For *G.bilineatus*, the monitoring activities of the A4 action, revealed that the few sites that resulted suitable do not require interventions.

Action C3 interventions planning: the choice of the habitat trees on which to install the WMBs was carried out together with the definition of the areas in which to execute the interventions envisaged in action C1, so as to enhance their effectiveness and function in relation to the expansion of the *O. eremita* distribution range.

Actions C4 and C5 interventions planning: a Feasibility Study was carried out for the breeding and repopulation of *O. eremita*, according to the MATTM and INFS Guidelines (2007) and the recent IUCN Guidelines (2013). The study sent by the CB to the Ministry of Land and Sea Protection and to ISPRA (note No. PG / 2017/0583976 of 25/08/2017) received a favourable opinion from ISPRA, note prot.n. 49711 of the 10/10/2017. For *C. mercuriale* a specific translocation programme has been defined concerning only the MAR area within two Natura 2000 sites IT4070011 and IT4090002, in the waterways suitable for hosting it, where the habitat improvement and restoration interventions were carried out (Action C2). Some adult specimens of *C. mercuriale* will be moved from the source site of the Rimini area (IT4090002) to the 6 rivers present in the site IT4070011 - Vena del Gesso Romagnola.

For *C. mercuriale*, the Ministry of the Environment authorised the capture, marking and release activity (PG 1946/PNM dated 01/02/2016) subject to a translocation programme, which was sent by the CB on 09/04/2019 with prot.no. PG7201970356183. The Institute for the Environmental Protection and Research (ISPRA) examined the programme and issued a favourable opinion through note no. 25892 of 15 April 2019.

Restocking Plan

For the breeding of *G. bilineatus* it was estimated that the population of Lago di Pratignano, the only site of certain presence in Emilia-Romagna, did not possess sufficient consistency for the withdrawal of founders. In fact, during the monitoring campaigns of 2016 and 2017 only 4 specimens were captured. As a consequence, we proceeded according to the alternative scenario envisaged by the GA in action C4, which entailed the recovery of *G. bilineatus* specimens from other European populations.

To validate this hypothesis, it was necessary to carry out a specific genetic study conducted by the University of Padua (head of research: Prof. Leonardo Congiu).

The CB, following a comparison of cost estimates from other universities, commissioned to the University of Padua a study on the genetic variability of *G. bilineatus* using samples from Croatia (multiple sites), Hungary, and Lithuania, with the aim of identifying the closest genetic population to the one historically present in Lago di Pratignano. The cost of the study (€ 6,322), borne by the CB, was sustained through the use of savings from other actions.

The survey on genetic diversity observed in the gene for mitochondrial COI, revealed that the population of Lago di Pratignano has an extremely reduced genetic diversity. Due to a long reproductive isolation and the consequent phenomenon of inbreeding, the population of *G. bilineatus* suffered a bottleneck effect, causing a strong reduction of its genetic variability over time.

The other European populations present a greater diversity, none of them having shown the same haplotype of that of Pratignano, and there is no significant relationship between genetic distance and geographical distance between populations. Therefore, the indications resulting from the study for a correct design of the work programme were to select the source populations from which to transfer the specimens intended for possible reintroduction in the Italian site, based mainly on ecological considerations, sustainability of the chosen habitats and the study on existing communities. From the genetic point of view, in order to avoid problems of outbreeding, the assumption on which to operate was to take the founders by paying attention to ensure a good genetic diversity, while avoiding releasing specimens from populations too genetically different from each other.

The implementation of the new strategy necessitated the request for a substantial project modification. Following Amendment No. 3, a Restocking Plan was established.

Emilia-Romagna Region's act No. 13250 of August 13th 2018 "Focus group for the target species *G. bilineatus*" established a work group for the development of a timely emergency strategy that provides for the definition and feasibility analysis of a *G. bilineatus* restocking plan. The formulation of the plan in three phases (withdrawal-storage-introduction) is the result of the work of the aforementioned group, coordinated by prof. Paolo Audisio. Representatives of the territorially competent bodies and ABs identified and verified the potentially suitable stations for the reintroduction of *G. bilineatus*, whereas representatives of the CB activated the networking with more than 15 research groups in Europe, to identify research groups available to collaborate in the supply of *G. bilineatus* specimens from vital populations.

For the evaluation of the suitability of the re-introduction sites, all the contact persons of the ABs were asked to compile a grid that comprised the indication of a set of parameters for each monitored station as suitable on the basis of Action A4 monitoring (wet area/water basin foreseen as a potentially suitable habitat).

The parameters considered are specified in the attached Restocking Plan.

The introduction sites were chosen based on: absence/low persistence of threats for the target species; echo-morphological characteristics more similar to the source sites; the long-term guarantee of maintenance of species protection activities; logistical aspects related to introduction operations.

For the implementation of the restocking, please refer to the description of action C5.

The action ended six months later than planned, which nevertheless allowed for the successful implementation of Action C.

PNATE	**Action C1 interventions planning**: Intervention area: 5 Natura 2000 sites (IT4030001, IT4030002, IT4030003, IT4030004, IT4030005). New tree habitats: 135. **Action C3 interventions planning**: the trees were identified where to install 27 WMBs regarding 10 transects located in 4 Natura 2000 sites. An executive project been drafted and approved by act no. 132 dated 11/06/2018
PNFC	**Action C1 interventions planning:** Intervention area: 2 Natura 2000 sites (IT4080003, IT4080002). New tree habitats: 161. An executive project was drafted and approved by act no. 707 on 24-10-2018 **Action C3 interventions planning**: the trees where 35 WMBs were to be installed were identified on 7 transects located in 2 Natura 2000 sites.
MEOR	**Action C1 interventions planning:** Area of intervention: 5 Natura 2000 sites (IT4050001; IT4050002; IT4050003; IT4050016; IT4050020). New tree habitats: 193. An executive project was drafted and approved by act no.446 on 14-12-2018 **Action C3 interventions planning:** the trees where 23 WMBs are to be installed have been identified regarding 7 transects located in 6 Natura 2000 sites.
MEC	**Action C1 interventions planning:** Area of intervention: 4 Natura 2000 sites (IT4040001, IT4040002, IT4040003, IT4040004). New tree habitats:107 An executive project was drafted and approved by act. no. 29 on 22/02/2018. **Action C3 interventions planning:** the trees have been identified where to install 25 WMBs regarding 6 transects located in 4 Natura 2000 sites.
MEOC	**Action C1 interventions planning:** Area of intervention: 4 Natura 2000 sites (IT4020001, IT4020003, IT4020017; IT4020026). New tree habitats: 71 An executive project was drafted and approved by act no. 85, dated 06-02-2018. **Action C3 interventions planning:** the trees have been identified where 13 WMBs are to be installed along 4 transects located in 3 Natura 2000 sites.
MAR	**Action C1 interventions planning.** 4 Natura 2000 sites (IT4050004; IT4070011; IT4070016; IT4090001). New tree habitats: 228 An executive project been drafted and approved by act no. 134 on 6/12/2019. **Action C2 interventions planning:** 2 Natura 2000 sites (IT4090002; IT4070011): 6 intervention areas with 9 streams: Removal of sections of shrub cover and cores of poplars and willows. Two executive projects were drafted and approved by act act no. 51 on 5/07/2018 and by act no. 86 of 16/11/2018. **Action C3 interventions planning:** the trees where 27 WMBs are to be installed have been identified along 9 transects located in 8 Natura 2000 sites.

DELIVERABLE	Foreseen Deadline	Actual Deadline	DELIVERY DATE AND REFERENCES

DELIVERABLE	Foreseen Deadline	Actual Deadline	DELIVERY DATE AND REFERENCES
Action Plan of Interventions C1, C2, C3, C4, C5	06/2019	12/2019	14/11/2022 – **FR –** Folder: Deliverable\ A7_ActionPlan+Restocking: • file A7_Action Plan_Summary.pdf • A7_Action_Plan.pdf • folder A7_ Action_Plan_Annexes: files included in the annexes to Chapter 7: • Executive project C1_C3 MEOC • Executive Project C1_C3 MEC • Executive Project C1_C3 MEOR • Executive Project C1_C3 MAR • Executive Project C1_C3 PNFC • Executive Project C1_C3 PNATE files included in the annexes to Chapter 8: • Executive Project MAR_C2 • final project MAR_C2 • SUMMARY Action C2.pdf files included in the annexes to Chapter 9: • WMB substrate.pdf • WMB_guidelines.pdf files included in the annexes to Chapter 10: • Enviromental_minister.pdf • Feasibility study_Osmoderma eremita.pdf • ISPRA_captivebreeding Osm_ 10 _10_17.pdf • Prot_Breeding_Osmoderma eremita.pdf files included in the annexes to Chapter 11: • Advice_ISPRA.pdf • Coenagrion_program_submission.pdf • Translocation programme_Coenagrion.pdf
Restoking plan of *Graphoderus bilineatus*	06/2019	12/2019	14/11/2022 – **FR** – Folder: Deliverable \A7_ActionPlan+Restocking\ A7_Restocking_plan: • A7_Genetic_analysis _eng_summary.pdf • A7_Genetic_analysis _final_report.pdf • ENG_RestockingPlan_G_ bilineatus.pdf • ITA_RestockingPlan_G_bilineatus.pdf

ACTION C.1: Creation of habitat trees for Osmoderma eremita and Rosalia alpine

Foreseen start date	01/01/2017	Actual start date	03/2018
Foreseen end date	30/09/2020	Actual end date	31/12/2020

Beneficiary responsible for implementation: MEC

The interventions for the creation of habitat trees for *O. eremita* and *R. alpina* complied with the provisions of the action plan and the corresponding implementation projects. Environmental improvement measures for *O. eremita* were carried out in 22 Natura 2000 sites and those for *R. alpina* in 8 Natura 2000 sites.

The interventions for the creation of necromass in favour of *R. alpina* are aimed at speeding up the ordinary evolutionary processes of a forest that lead, in times normally long, to the formation of dead trees standing or dead trees on the ground. The interventions in favour of *O. eremita* are aimed at creating habitats suitable for the reproduction of the species, from hollowing to the installation of WMBs (Action C3).

The modalities of intervention for *R. alpina* were indicated in the action plan. Starting from the species point of occurrence, a radius of 3000 m was considered to evaluate the area. The radius equals the expected dispersal range of *R. alpina*, in order to obtain the maximum effectiveness of the conservation efforts and thus contribute to achieving the results of the project. The same method was also chosen for *O. eremita*, but considering circles with a radius of up to 2500 m.

The interventions in favor of *O. eremita* were n. 941, divided in: PNFC 158; PNATE 135; MEC 119; MEOC 105; MEOR 186; MAR 238.

The interventions in favor of *R. alpina* were n. 893, divided in: PNFC 352; PNATE 231; MEC 100; MEOR 210.

Along with the creation of new habitat trees, thinning and clearing interventions were also carried out around habitat trees created or surveyed as suitable with action A3.

The total area (sqm) affected by these interventions around the habitat trees is 109.115 sqm, of which 54.670 sqm to *O. eremita* and 52.815 sqm to *R. alpina*,

The interventions were implemented from March 2018 until December 2020 according to the schedule in the table below.

Partner	Sub-contractor	Starting date	End date
PNFC	Alberto Savini rete d'imprese "Alberi Sparsi"	December 2018	April 2019
PNATE	Company "Briganti del Cerreto"	December 2018	March 2019
MEC	Company Forestale Acque Chiare Soc. Coop.	March 2018	June 2018
MEOC	Company Cooperativa Territorio Ambiente Montano	March 2018	June 2018
MEOR	Company "Agricola Bernardini Matteo"	January 2020	June 2020
MAR	Alberto Savini - rete d'imprese "Alberi Sparsi"	October 2019	December 2020

The action ended with a three-months delay. The AB MAR experienced a delay in the implementation due to COVID-19 health restrictions; works started on February 17, 2020 and came to a forced halt on March 12, 2020. After the summer, all activities re-started and were completed by December 2020.

DELIVERABLE	Foreseen	Actual	DELIVERY DATE AND REFERENCES

	Deadline	**Deadline**	
Technical report including maps	09/2020	12/2020	14/11/2022 – FR – Folder: Deliverable \ C1_Report: • Report C1.pdf • folder Maps: C1_general_map_O_eremita.pdf C1_Interv_O.eremita_MEOC.pdf C1_Interv_O.eremita_MEC.pdf C1_Interv_O.eremita_MEOR.pdf C1_Interv_O.eremita_PNATE.pdf C1_Interv_O.eremita_PNFC.pdf C1_general_map_R_alpina.pdf C1_Interv_R alpina.pdf

ACTION C.2: Restoration of suitable ponds, lakes and streams

Foreseen start date	01/07/2017	Actual start date	01/01/2018
Foreseen end date	30/09/2020	Actual end date	05/03/2022

Beneficiary responsible for implementation: MAR

This action was carried out following the identification of suitable areas where to conduct the introductions and reintroductions of *Coenagrion castellanii* (action A4). Through this action, the environmental characteristics necessary for the species have been restored and improved. Ponds and lakes and streams fed by perennial springs have been recovered and improved, removing the causes of any local extinction or recreating the conditions for the settlement of the species.
The executive project drafted by Dr. Gabriele Cassani (internal staff) was approved with act no. 51 on 5/07/2018. The public procedure entailed a direct entrustment (below threshold as per Article 36 of Legislative Decree 50/2016) with the consultation of at least three economic operators. The subcontractor entrusted was "Montana Valle del Senio - società cooperativa". A first phase of interventions was carried out between February and March 2019, and in autumn-winter 2019-2020.
A second phase of supplementary interventions was carried out during winter 2021-2022, between November 2021 and March 2022, before the growing season.
This type of intervention was carried out alternately on short stretches of about 80 m with intervals of 30-50 m, so as to maintain a certain degree of naturalness of the watercourse and not negatively affect the flora and fauna of the area (e.g., amphibians and birds). These interventions have allowed a greater insolation on the riverbed and therefore greater development of the aquatic plants necessary for carrying out the biological cycle of the species. The woody material and the resulting waste have been removed from the waterways so as not to release plant debris inside the riverbed. It was necessary to carry out these interventions to restore the maximum ecological functionality before introducing the specimens, in order to expand the distribution area of the species (Action C5). The action was implemented only in the territory of the Macroarea Romagna (MAR), as the results of the ex-ante monitoring (Actions A2 and A4) confirmed the presence of the species and its habitat only in this portion of the regional territory. The interventions involved ten transects in nine watercourses, within the Natura 2000 network sites SAC-ZPS IT40700001Vena del Gesso Romagnola (6 watercourses corresponding to 7 transects) and SAC IT4090002 Torriana, Montebello, Marecchia River (3 water courses and 3 transects).

<table>
<tr><th>Natura 2000 site</th><th colspan="2">Intervention area and length of strips of land object of the interventions</th><th>Interventions implemented</th></tr>
<tr><td rowspan="6">IT4070001
"Vena del Gesso Romagnola"</td><td colspan="2">Rio Basino (150 m)</td><td rowspan="10">Cut of the vegetation to favor the sun lighting of the shores. Activities for the creation of open fields, adequate habitat of the species.</td></tr>
<tr><td colspan="2">Rio delle Solfatare (180 m)</td></tr>
<tr><td colspan="2">Rio Cavinale (255 m)</td></tr>
<tr><td colspan="2">Rio Gambellaro (900 m)</td></tr>
<tr><td>Rio Stella</td><td rowspan="2">(550 m)</td></tr>
<tr><td>Rio del Diavolo</td></tr>
<tr><td rowspan="3">IT4090002
"Torriana, Montebello, Fiume Marecchia"</td><td>Rio 1 di Pietracuta</td><td rowspan="3">(650 m)</td></tr>
<tr><td>Rio 2 di Pietracuta</td></tr>
<tr><td>Rio 3 di Pietracuta</td></tr>
</table>

It is to be specified that the interventions carried out in a second phase involved the same stretches of watercourses as in the first phase and consisted of repeated mowing to remove vegetation from the watercourses in order to bring lighter and warmth to the stream in the spring period by avoiding excessive shading and the felling of trees and the removal of plant material.
The other ABs did not carry out this type of interventions, for the above-stated reasons. For these beneficiaries, the budget foreseen in this action has been moved to action C1, favouring the increase of interventions in support of the two saproxylic species.

DELIVERABLE	**Foreseen Deadline**	**Actual Deadline**	**DELIVERY DATE AND REFERENCES**
Technical report including maps	09/2020	03/2022	14/11/2022 – FR – Folder: Deliverable\ C2_Report: • folder Maps with 1.C2__general_map.pdf 2.C2_lot_maps.pdf • folder Images with photos • Certificate of regular execution 04_12_2020.pdf • Certificate of regular execution 18_05_2020.pdf • Certificate of regular execution 28_03_2022.pdf • FinalStatus at 04_12_2020 • FinalStatus at 10_02_2020.pdf • Report C2.pdf

ACTION C.3: In-situ breeding

Foreseen start date	01/01/2017	Actual start date	01/09/2016
Foreseen end date	01/12/2020	Actual end date	01/12/2020

Beneficiary responsible for implementation: PNATE

The action was carried out in those sites where the presence of the species was ascertained thanks to Action A2 which provided a clear picture of the numerical consistencies of the populations and their structure. In situ reproduction of *O. eremita* has provided for breeding in semi-natural conditions which allows for the availability of larvae and adults to be used to reinforce the existing populations as well as for the timely reintroduction of the species. To this end, the installation of the wood mould boxes (WMB) was carried out, artificial boxes that simulate the cavity of a tree and contain the suitable soil for the reproduction of the species. The boxes were installed above all in the sites where the interventions on the trees were carried out (Action C1) to expand the availability of the habitat of the species and favour the creation of stepping zones between the different sites of presence of the species.
For *O. eremita* the action started in September 2016 with the drafting of the Technical Specifications (technical features, materials, dimensions...) to acquire 150 Wood Mould Boxes (WMB). The call has been centralised to the manager of the PNATE action. Each AB has set up the expense commitment for its own share. The supply has been assigned to Falegnameria di Bagnocavallo (RA). The TC has elaborated the technical guidelines for the preparation of the substrate to be inserted (wood mould) (annexed MR, Folder: Other documents, C3_wood_mould and FR, Folder: Folder: Deliverable\ A7_ActionPlan+Restocking\ A7_ Action_Plan_Annexes\ annexes_ch 9: files WMB_guidelines.pdf and WMB substrate.pdf). The ABs have acquired all the necessary materials as early as November 2016 and each has been involved in the preparation of the substrate. For the correct installation of the WMBs, guidelines have also been produced, annexed in the MR (Folder: Other documents, C3_ guidelines). Each WMB carries an identification ID and a metal plate, created with Action E4, bearing the project logo, together with the Life and the Natura 2000 logos.
The 150 WMBs were installed in accordance with the table below:

AB	No. WMB	Natura 2000 site	
PNATE	n. 27	IT4030002, IT4030003, IT4030005, IT4030001 (in areas adjacent to the site)	IT40700xx_PNATE_WMB_001 IT40700xx_PNATE_WMB_027
PNFC	n.35	IT4080003, IT4080002	IT40700xx_PNFC_WMB_001- IT40700xx_PNFC_WMB_035
MAR	n. 27	IT4070011, IT4050004, IT4070016, IT4090001	IT40700xx_MAR_WMB_001 IT40700xx_MAR_WMB_023
MEOR	n. 23	IT4050001, IT4050002, IT4050003, IT4050016, IT4050020	IT40700xx_MEOR_WMB_001 IT40700xx_MEOR_WMB_023
MEC	n. 25	IT4040001, IT4040002, IT4040003, IT4040004	IT40700xx_MEC_WMB_001 IT40700xx_MEC_WMB_025
MEOC	n. 13	IT4020001, IT4020003, IT4020026	IT40700xx_MEOC_WMB_001 IT40700xx_MEOC_WMB_013

All the WMBs were constantly monitored to assess their functionality and small maintenance interventions were implemented.
For *R. alpina*, the action was necessary to favor the presence of species in conditions of insufficient availability of dead beech trunks standing or perishing on the ground and

consequently to favor reproductive nuclei in situ. For this purpose, stacks of beech trunks were created to encourage the population of the species, where this has proved scarce (Action A2) compared to the other sites. The stacks have served indirectly to better monitor the species as, if placed in the sun, they easily attract specimens. For *R. alpina*, the presence of the species on the stacks was monitored for the duration of the project.
These interventions provide for the creation of stacks of sufficiently large logs (in diameter) to allow different generations of *R. alpina* to complete the biological cycle. This entails the construction of a pyramid of logs about 2 m long, with a diameter greater than 25 cm, with a shape that can be that of a pyramid 3-4 rows high, or of a cube, and raised 20 cm from the ground. This type of intervention to favour the in-situ reproduction has been carried out by PNFC, PNATE and MEOR, the beneficiaries who verified the presence of *R. alpina* during the ex-ante monitoring (Actions A2 and A3). A total of 108 stacks and tripods were built (PNATE:70; PNFC: 20; MEOR: 18).
The construction of stacks or tripods and the installation of WMBs occurred in conjunction with the interventions planned for action C1 and according to the technical characteristics, the identification of the best areas of intervention and estimates provided for by action C1.

DELIVERABLE	**Foreseen Deadline**	**Actual Deadline**	**DELIVERY DATE AND REFERENCES**
Technical report including maps	09/2020	12/2020	14/11/2022 – FR – Folder: Deliverable \C3_Report: • C3_WMB_Oeremita_general_map.pdf • C3_WMB_sites_EnteO.eremita.pdf • Report C3.pdf

ACTION C.4: Ex-situ (captive) breeding

Foreseen start date	01/10/2016	Actual start date	01/04/2016
Foreseen end date	31/12/2020	Actual end date	30/06/2022

Beneficiary responsible for implementation: MAR

As a result of Amendment No. 3, the breeding activity took place exclusively for *O.eremita*.
The temporary storage of *G.bilineatus* specimens prior to their release with action C5 was not necessary.
The breeding of *O. eremita* is aimed at obtaining a series of specimens starting from founding individuals taken from natural populations. The breeding makes it possible to have animals - larvae and adults - for reintroduction and repopulation activities. This allows a wide action of reinforcement of the populations and the expansion of the species distribution area in Emilia-Romagna in the medium and long term.
The activity started in April 2016, with the discussion and sharing of a specific breeding protocol for *O. eremita* (sent with the MR Folder: Other documents-C4_Breeding_protocol), which also identifies a series of instruments and materials to be acquired to equip the three facilities.

Ex situ breeding centres were set up and located in the National Park of the Tuscan-Emilian Apennines, in Ligonchio (RE), the National Park of the Casentinesi Forests, Monte Falterona and Campigna, in Santa Sofia (FC), and the Management body for the Parks and Biodiversity - Romagna, in Russi (RA). The facilities are also used for educational purposes, for informational activities, and for raising awareness as to the importance of insects and their ecological role. Each facility was equipped with the necessary equipment to carry out the breeding activity.
The following are the information on how the three breeding facilities were activated:

PNATE	Work assignment for the construction of the breeding structure: Resolution no. 166 of 26/06/2017. Structure completed on 27/07/2017 Contractor: FPV srl ", with headquarters in Via Isolella, 1 / D - 42032 Ventasso (RE) Breeding started on July 2017 and currently still ongoing for After Life activities
MAR	On 19 April 2016, EASME (now CINEA) was asked to modify the action by including the agreement for the construction of an ex-novo facility as per GA. The change has been notified by the CB to the PA Mr. Montero with the email of 14/04/2016 and was accepted by the PA with the email of 21/07/2016. Agreement with the Aquae Mundi Association, approved with resolution no. 64 of 30 November 2016 of the Executive Committee and signed on 15/12/2016. Breeding started on 01/11/2017 and currently still ongoing for After Life activities.
PNFC	The works project was entrusted through a tender procedure to engineer Giovanna Pondini with DD 713 dated 30/11/2016; the works were entrusted with DD 921 dated 30/12/2016 to the company "Le Arti" of Bonaventura Giulia of Bagno di Romagna, identified through the tender procedure. The works terminated on 01/08/2018. Breeding started on 01/11/2017 and is currently still ongoing for After Life activities.

The breeding activity in the three centres has achieved the following results:

PNATE Centre	**No. founders withdrawn= 52** (38 PNATE area + 13 MEC area) captured in the following sites: IT4030005; IT4030002; IT4030001; IT4030003 **No. of larvae produced (different stages):** 610L + 134A = **744** specimens **No. of larvae released:** in 4 Natura 2000 sites of PNATE: 380 (L3) and 74 (adults); in 4 Natura 2000 sites of MEC: 250 (L3) and 60 (adults).
MAR Centre	**No. founders withdrawn= 84** (63 MAR area + 9 MEOR area + 12 MEOC area) captured in the following sites: IT4070011; IT4070024; IT4090003; IT4050020; IT4020021 **No. of larvae produced (different stages):** 1743L + 371A = 2114 specimens **No. of larvae released:** in 4 Natura 2000 sites of MAR: 1132 (L3) and 225 (adults); in 3 Natura 2000 sites of MEOC: 166 (L3) and 51 (adults); in 5 Natura 2000 sites of MEOR: 353 (L3) and 110 (adults).
PNFC Centre	**No. founders withdrawn= 59** PNFC area captured in the following site: IT4080001 **No. of larvae produced (different stages):** 899 L + 213A = 1112 specimens **No. of larvae released:** in 2Natura 2000 sites of PNFC: 603 (L3) and 170 (adults).
Total	**No. of larvae produced (different stages):** 3252L + 718A = **3970** specimens **No. of larvae released: 3574** larvae and adults produced were used to populate 150 WMB and natural cavities. No. 396 larvae were retained for further breeding.

The Focus group for the target species *G. bilineatus*, in the implementation of the restocking plan, proceeded to assess the feasibility of a new work programme based on the hypothesis of finding the specimens of *G. bilineatus* to be introduced in the regional territory, starting from extra-national source populations.

In order to find the source populations abroad from which to take the founders, a networking with more than 15 research groups in Europe was activated, resulting in a collaboration with the research group in Latvia, coordinated by Mārtiņš Kalniņš, entomologist and specialist in environmental design for the "The State Forests of Latvia" organization, and Prof. Uldis Valainis of the Institute of Life Sciences and Technologies of the University of Daugavpils. The research team was chosen based on the above guidelines and on the availability of viable populations located in Latvia that could guarantee the collection of *G. bilineatus* founders.

This alternative strategy was unfortunately also hampered by the COVID-19 health emergency, which restricted international travel and prevented the entomologists of the Life Eremita project from traveling directly to Latvia to make the captures.

We then tried to activate a team of Latvian entomologists who could take the specimens and send them to Italy, but in 2020 the monitoring carried out directly by the Latvian research team, perhaps due to the late organization and specific ecological and climatic conditions, failed to collect sufficient individuals for the restocking operations in Italy. The results of the monitoring campaign are described in the report attached to this RF (annexed in FR Folder: Other documents: file C4_Latvia: Report_C4_Latvia_eng.pdf).

As it was impossible to foretell the concrete possibility of finding the specimens abroad, the work programme was again revised. Instead of the alternative scenario of using founders of *G. bilineatus* from other European populations, we chose to return to investigate some known Italian sites, particularly in Lombardy, still considered suitable for the presence of the species, based on the absence of the main threat factors.

Extensive sampling conducted in July 2020, by experienced entomologists, Roberto Fabbri, Gianluca Nardi, Stefano Aguzzi and Giovanni Carotti, with the authorization of the Ministry of the Environment (annexed in FR Folder: Other documents: C4_Authorisations_PiandiSpagna),

led to the confirmation of the occurrence of *G. bilineatus* in a site of the Natura 2000 Network at the border between the provinces of Sondrio, Como and Lecco (IT IT2040022 Lago di Mezzola - Pian di Spagna).
The first results of the catches made it possible to posit the occurrence of a population of a certain size, this consideration deriving from the relationship between sampling effort and capture of specimens.
The protocols regarding the method of sampling *O.eremita* founders for ex situ breeding and in situ and ex situ breeding are attached (annexed in FR Folder: Other documents\ C4_Protocols_Scient_article).
Moreover, the genetic analysis of the mitochondrial COI region of the samples taken in the Lombardy site, also carried out by the University of Padua, enabled to identify two different haplotypes, different from the one previously found in the individuals sampled in Emilia-Romagna Region, but within the diversity range observed in this species across Europe.
In 2021, the survey at the Lombardy site produced positive results, leading to the collection of no. 43 founders (23M+ 20F) for the restocking of a site in the north-eastern Apennines. This result was followed by an equally important outcome related to the collaboration, which had remained active also for 2021, with the research group of Prof. Uldis Valainis of the University of Daugavpils, which in August 2021 collected no. 89 specimens (55M + 34F) in ten different locations, Reserves and Parks in Latvia.
Thanks to the development of an effective transport method, the 89 specimens were shipped to Italy and released in other two lakes in the north-western Apennines of Emilia-Romagna Region.
Thanks to these results and the University of Padua, it was possible to produce a scientific article, published on the European Zoological Journal. The pdf file is available in attached in FR – Folder: Other documents\ C4_Protocols_Scient_article\ Scientific article_2020_UNIPD.pdf

DELIVERABLE	**Foreseen Deadline**	**Actual Deadline**	**DELIVERY DATE AND REFERENCES**
Agreement and breeding protocol	12/ 2016	12/ 2016	27/06/2017 – 1° PR – Folder: Other documents- C4 -Agreement_Acquaemundi
1° Technical report on ex-situ reproduction activities.	12/2018	12/2018	20/12/2018 – MR – Folder: Deliverable-C4_Techical_report
2° Technical report on ex-situ reproduction activities.	06/2022	06/2022	14/11/2022 – FR - Folder: Deliverable\ C4_D1_Report: Final_Report_Breeding_actions_C4_D1.pdf

MILESTONE	**Foreseen Deadline**	**Actual Deadline**
Beginning of the works to set up the three breeding facilities.	10/2016	November 2016 (temporary breeding structure). Permanent breeding structure. PNATE 26/06/2017; PNFC 30/12/2016; MAR 15/12/2016.

ACTION C.5: Introduction of species bred off site or relocated into the natural habitat

Foreseen start date	01/07/2017	Actual start date	05/2019
Foreseen end date	30/11/2021	Actual end date	30/11/2021

Beneficiary responsible for implementation: MAR

The release of specimens of *Osmoderma eremita, Coenagrion castellani* and *Graphoderus bilineatus* into the wild was carried out through three specific programmes, the main objective of which was to reinforce the existing population and extend the distribution area.
All were carried out according to the respective feasibility studies authorised under Presidential Decree 357/97.

O. eremita
For *Osmoderma eremita*, no. 2884 L3 larvae and no. 690 adults were released from 2019 to 2021 in 22 Natura 2000 sites of the Emilia-Romagna Region, falling within the project area. It was planned to release 1,000 larvae and 200 adults. The results were tripled.
The releases were carried out in wooded areas, within Wood Mould Boxes (installed with Action C3) and within natural cavities of suitable habitat trees according to the defined parameters (Action A3) or as a result of concrete interventions to obtain habitat trees for the species (Action C1). The protocol of the introduction is attached to this report (FR – Folder: Other documents\ C5_Protocols: file Annex_Prot_Restocking_Osmoderma eremita.pdf).
Before each release action, a health check of the larvae was carried out based on their mobility and body turgor. The larvae were transported and released from spring to late summer, and sometimes even in the autumn; the adults, on the other hand, were transported and released into the environment immediately after flickering in the ex-situ breeding, which normally took place between late May and early July, depending on altitude and climatic conditions. About 10 specimens per WMB were released.

In the following table the details of the releases in the areas of each ABs:

ABs	Larvae - L3	Adults	N. sites	Natura 2000 sites
MEOC	166	51	3	IT4020001; IT4020003; IT4020026
PNATE	380	74	4	IT4030001 (in areas adjacent to the site); IT4030002; IT4030003; IT4030005
MEC	250	60	4	IT4040001; IT4040002; IT4040003; IT4040004
MEOR	353	110	5	IT4050001, IT4050002, IT4050003, IT4050016, IT4050020
MAR	1132	225	4	IT4070011, IT4070016, IT4090001, IT4050004
PNFC	603	170	2	IT4080002; IT4080003
Total	**2884**	**690**	**22**	**3574**

C. mercuriale

For *Coenagrion castellani* no. 589 adults were sampled from the Rimini site (IT4090002) released in five streams in the Vena del Gesso Romagnola (IT4070011), of which 550 specimens were in good condition. It was planned to release 500 specimens, and the result was abundantly achieved.

To transport the specimens, 3-5 litre fauna boxes were used with some broken stems of various grasses inside, especially Equisetum, which offers many places for the adult dragonflies to cling to. A maximum of 20 adults were placed inside each fauna box. The release of the specimens was carried out in the spring from May to June, according to the phenological pattern of the species and climatic conditions. The number of specimens released into the individual streams was assessed case by case, according to the width of the suitable stretch, the environmental features, and the results of previous releases. The adults of *C. castellani* were transferred, by taking them from the "source population" of the Rimini site IT4090002, where several thousand individuals were present, as reported during the ex-ante monitoring. The protocol of the translocation is attached to this report (FR – Folder: Other documents\ C5_Protocols).

Below is the timetable of activities and details of the relocation to the individual streams:

Release period	**No. adults**	**No. streams**	**N. sessions**
June 2019	253	4	3
May 2020	235	5	2
June 2021	62	1	1
Total	**550**	**5**	**6**

During June 2019, 253 adults were translocated in 3 sessions; the individuals were taken from Rio 1 and 2 of Pietracuta (IT4090001) and released in the site IT4070011: Rio delle Solfatare, Rio Cavinale, Rio Stella, Rio del Diavolo and Rio Basino.

During May 2020, 235 adults were translocated in 5 sessions; the individuals were taken from Rio 1 and 2 of Pietracuta (IT4090001) and released in the site IT4070011: Rio delle Solfatare, Rio Cavinale, Rio Stella, Rio del Diavolo and Rio Basino.

During May 2021, 62 adults were translocated in a single session. The individuals were taken from Rio 1 and 2 of Pietracuta (IT4090001) and released in the site IT4070011: Rio Basino.

G.bilineatus

The feasibility study of *G.bilineatus* was drafted in August 2020 and forwarded by the Emilia-Romagna Region to the Ministry of the Environment with note n. 596199 del 14/09/2020. The Ministry authorised the restocking, following the positive advice of ISPRA with note no. 45040 of. 5/10/2020 (both the feasibility study of *G.bilineatus* and positive advice of ISPRA were annexed in FR Folder: Other documents\ C5_Feasibility study_Authorisations: files G_bilineatus feasibility study.pdf and Positive advice_Ispra.pdf).

For *G.bilineatus*, the 43 individuals (23 M and 20 F) sampled in Pian di Spagna (IT2040042) were immitted in lake La Martina IT4050015 at MEOR in August 2021 and the 89 (55 M and 34 F) individuals from Latvia were released in Capanna Bianconi IT4020020 and Lago Sfondato IT4030005 at PNATE. The protocol for the introduction is attached to this report (FR – Folder: Other documents\ C5_Protocols).

Lake name	**Natura**	**ABs**	**Altitude**	**Location**	**Date of release**	**no. specimens**

	2000 Site					
Lago Sfondato	IT4030001	PNATE	1430	Civago	08/09/2021	27 M - 17 F
Lago del Coccio	IT4030005	PNATE	1297	Vallisnera	08/09/2021	28 M - 17 F
La Martina	IT4050015	RER	818	La Martina	07/08/2021 28/08/2021	6 M - 5 F 17 M - 15 F
					Total	**132 (78M; 54F)**

DELIVERABLE	**Foreseen Deadline**	**Actual Deadline**	**DELIVERY DATE AND REFERENCES**
Final technical report including maps	30/11/2021	30/11/2021	14/11/2022 – FR – Folder: Deliverable\ C5_Report: • folder Maps with: C5_C_castellani.pdf C5_G_bilineatus.pdf C5_O_eremita.pdf • Report C5.pdf

ACTION C.6: Creation of an integrated computer system to support the conservation of the target species, including web tech solutions to involve stakeholders

Foreseen start date01/07/2016 Actual start date: 06/10/2017
Foreseen end date 30/06/2022 Actual end date: 30/06/2022

Beneficiary responsible for implementation: RER

The activity has been entrusted with order no. PG0647271/2017 to the company "Engineering - Ingegneria informatica SPA" as part of the Intercenter - ER agreement signed in November 2014 following a tender carried out by the ER Region for the provision of services aimed at developing, managing and evolving maintenance of information systems…".
3 databases integrated with georeferenced data were created: 1) BD of monitoring (species + habitats); 2) BD interventions; 3) BD documents.
The activity took place in two steps:
1) In the first phase an analysis was carried out of the needs of the project and the instruments held by the CB, with particular reference to a series of Access databases linked to the Natura 2000 network and in particular to the database called "Banca dati delle segnalazioni sulla biodiversità regionale" (Database of reports on regional biodiversity in English). The goal was to relate the DBs and to make the import and export operations between the two systems more practical. The web-technology was then structured with three access masks: 1) monitoring; 2) conservation actions; 3) documentation. The users were categorised (by user-administrator, compiler, validator, etc.) and all the information deriving from the monitoring of both the species and the habitats coming from the ABs were systematised; the metadata fields and the methods of insertion of the monitoring-related mask were defined.
2) In the second phase an analysis was carried out on the metadata structure of the various conservation actions: forestry interventions (C1); aquatic interventions (C2); WMB (C3); breeding farms (C4); introductions (C5). The relative access mask with metadata tables activated in relation to the different types of data to be inserted was structured. The metadata of the third mask relating to the documents was defined and a geometric field was created for the generation of shape-files to be imported on Q-GIS and ArcGIS. Therefore, all the information has been organised, systematised and centralised in a web-technology system, which at the date of this report is only accessible by the computers of the regional network of the Emilia-Romagna Region. An integrated environment was created with Federa (Digital Identity Management) for registration. On the home page of the Life Eremita website there is a dedicated space with instructions on how to connect to the database and the relative link (https://progeu.regione.emilia-romagna.it/it/life-eremita/temi/banca-dati/banche-dati).
The system is accessible by different categories of authorised users. The data can be entered by the compiling user but will be validated by the validating user. In this way the database can be used by the volunteers and the datum be validated by authorised professional entomologists as validators. All monitoring data, and data regarding conservation actions and documents were imported. Use cases include: insertion/modification of monitoring; monitoring display; conservation actions and documents; downloading of data; User Management. With reference to issue 10 of CINEA letter n. 2/MM/D (2021) 4130325 of 3rd June 2021 and CINEA letter ref D.2/MM/D (2022) 5519376, a WebGIS has been created. Through this tool it is possible to view all the data related to the monitoring activities and to the implemented interventions inserted in the online database. The WebGIS has been connected to the Database and is periodically and automatically updated. A page on the Life Eremita website is dedicated to the Database and allows for the access to the WebGIS (https://servizimoka.regione.emilia-romagna.it/mokaApp/apps/LifeEremita/index.html).

In accordance with CINEA letter ref. D.2/MM/D (2022) 5519376 following the 7th monitoring visit of June 2022, the quantitative data on the access to the WebGIS to date are 244. The report on the accesses has been attached to this FR (annexed in FR Folder: Other documents\ C6_Database: Database acceses_report.pdf).
Below the table that summarizes the accesses by month:

Life Eremita accesses	
Month	No.
October 2021	12
November 2021	62
December 2021	48
January 2022	14
February 2022	10
March 2022	11
April 2022	3
May 2022	15
June 2022	12
July 2022	3
September 2022	10
October 2022	27
November 2022	17
Average per month	*18,769*
TOT	*244*

The database contains sensitive data on the occurrence of species, which is why the detailed data is only accessible to insiders, while the larger scale WebGIS can be consulted openly on the web. To illustrate the structure of the database, a descriptive report is attached to this FR (annexed in FR Folder: Other documents: C6_Database: C6_report_DataBase.pdf).
The following initiatives were undertaken to promote and disseminate the use and consultation of the database and WebGIS:

- an article was written in the monographic issue of Storie Naturali dedicated to the Database. The magazine was distributed, through the Park Authorities of the Emilia-Romagna Region, to associations, local authorities, Park visitor centres, students, etc. In addition to being published on the project website, the magazine is also published on the Emilia-Romagna Region publishing products website, at: https://www.regione.emilia-romagna.it/urp/servizi-e-strumenti/novita-editoriali/storie-naturali-2. The magazine will also be distributed during the "Ecomondo" Exhibition in November 2022;
- a news has been published and highlighted on the Life Eremita project home page (https://progeu.regione.emilia-romagna.it/it/life-eremita/notizie/notizie-2022/banda-dati-e-webgis);
- a note promoting a wider use of the database was sent to the biology departments of the region's universities and to some environmental associations. The list of recipients and the note sent has been attached to this FR (annexed in FR Folder: Other documents\ C6_Database: files Database addresses.xls and Database acceses_report.pdf).

Updating the database is an action foreseen in the After Life Conservation Plan (action F4) that will involve all project beneficiaries. Furthermore, at the date of this report, RER has already allocated a budget for the maintenance of the tool, foreseeing an improvement in its consultation and use.

The total number of records inserted into the three sections of the database is 9731, divided in 4760 in “Monitoraggio specie” section, 331 in “Monitoraggio habitat” section and 1861min “Interventi” section.

DELIVERABLE	**Foreseen Deadline**	**Actual Deadline**	**DELIVERY DATE AND REFERENCES**
System of web interfaces 11/2016	11/2016	11/2018	20/12/2018 – MR – Folder: Deliverable-C6_System_Web_technology
Web-technology application	11/2016	11/2018	

ACTION C.7: Thematic workshops for training and internal information

Foreseen start date	01/07/2016	Actual start date	01/05/2016
Foreseen end date	30/09/2021	Actual end date	30/11/2021

Beneficiary responsible for implementation: RER

The action began in May 2016 with the preparation of the first training workshop.

Date	Location/target	speakers	Participants
6/06/2016	Carnè Visitor Center - Parco della Vena del Gesso Romagnola, Brisighella (RA). Aimed at technical project staff (internal and external) and the technical staff of all the Beneficiaries Materials are attached to **PR1**; folder other_documents / C7	Monica Palazzini, Cristina Barbieri, Stefano Bassi, Roberto Fabbri, Sonke Andersen	21
23/09/2017	Farneto (BO) Aimed to the guides involved in environmental education activities This workshop was held in conjunction with the events of the Palaeremita (E7) of the Eremita Festival (A5). Materials are attached to **MR**; folder other_documents / C7	Roberto Fabbri, Silvia Stefanelli, Davide Malavasi	20
28/10/ 2019	Abbazia di Marola - Tuscan-Emilian Appennine National Park addressed the Forestry Corps and the Provincial Supervisory Bodies	Giuseppe Vignali, Fausto Ambrosini, Francesca Staffilani, Stefano Bassi, Monica Palazzini, Giovanni, Renato, Fausto Minelli, Ten. Col. Giuseppe Piacentini	47
5/11/2019	Santa Sofia (FC) Casentino Forests National Park Monte Falterona and Campigna addressed the Forestry Corps and the Provincial Supervisory Bodies	Marcello Miozzo, Davide Alberti, Roberto Fabbri, Daniele Di Santo, Paolo Cantiani, Serena Petroncini, Gianluca Piovesan, Nevio Agostini, Alessandro Campanaro, Stefano Berti	51

During the project overall no. 4 technical workshops were organised and no. 139 people from the technical staff participated, as mentioned in the final report of the action (FR – Folder: Other documents\ C7_Workshops: file C7_Training workshop.pdf). No deliverables were expected for this action.

No. 2 training seminar for entomologists and technical project staff were carried out: March 31, 2017; September 26, 2017. Other meetings were carried out within the technical tables provided in Action F1. Discussion on methodologies the definition of monitoring, rearing and restocking

protocols were regularly discussed at least twice a year, before the monitoring season and at its conclusion.
In additional for the entire duration of the ex-ante monitoring, the TC carried out continuous training also in the field with the entomologists appointed by the ABs. The action also included 8 separate training experiences among the project staff of the associated beneficiaries. These activities were carried out within the technical tables provided in Action F1. Discussion on methodologies the definition of monitoring, rearing and restocking protocols were regularly discussed at least twice a year, before the monitoring season and at its conclusion.
The technical contact person of each associated beneficiary, together with the entomologist in charge, held specific meetings aimed at their internal staff, young trainees and forest management operators to present the project results and how forest environments are managed. The activities took place continuously each project year as internal training.
All the material (Photos, Programs, Presentations, etc…) related to the 3rd and 4th workshops are herewith attached in FR Folder: Other documents\ C7_Workshops, including also supplementary materials of the 1st and 2nd workshops, not previously submitted.

ACTION C.8: Conservation Measures and Management Plan

Foreseen start date	01/01/2020	Actual start date	05/05/2020
Foreseen end date	01/09/2021	Actual end date	30/06/2022

Beneficiary responsible for implementation: RER

During the TT of 05/05/2020, the working group was identified, represented by the technical contact persons of the beneficiaries (F. Moretti for PNATE, D.Alberti for PNFC, L.Cangini for MAR, D.Bianco for MEOR, F. Minelli for MEC, R.Carini for MEOC and the two Entomologists R.Fabbri e G.Carotti), PM and the RER technical officers (M. Palazzini, Francesco Besio, Stefano Bassi and O.De Curtis).
On July 26, 2021, the PM (Cristina Barbieri) held a meeting with the CB technical staff (Francesco Besio, Ornella De Curtis) to define how the Measures would be defined and the administrative procedures to be followed.
The PM prepared a working grid that was shared and discussed at the TT of 7 September 2021. From September to April 2022, during the following TTs (05/10/2021, 15/12/2021 and 06/04/2022), each beneficiary proposed measures, that were discussed with the coordination of the PM and CB technical staff. After collecting all the contributions, a summary was prepared in which the proposed measures were standardised. At the technical round table on 06/04/2022 the measures were discussed and following this, with memo prot. 0376535.U of 14/04/2022 the measures were forwarded to the various bodies/beneficiaries for their formal approval. Prior to the adoption resolution, a meeting was organised with the Region's technical contact persons, during which each individual measure was discussed and refined. The meeting was held online on 04/05/2022. The Measures were adopted with Regional Council Resolution No. 815 of 23-05-2022. The Resolution was published on the website of the Regional Council, on the notice board of the municipalities territorially concerned, and transmitted to the Provinces, the Municipalities and other territorial government bodies, and to the economic and social associations. By the expiry of the publication deadline, sixty days, comments **(**attached to this FR - folder: Other documents\ C8_Comments_SDF and correspondence, folder: CommentsMSC**)** were made by the following entities:
- ASBUC - Civic Uses Association;
- CCER - *Associazione Consorzi Castanicoltura Emilia-Romagna* - Association of Chestnut Growing Consortia;
- CIA – *Confederazione Italiana Agricoltori* - Italian Farmers Confederation;
- PNFC - Casentino, Monte Falterona and Campigna forest National Park;
- UCAB - Union of Municipalities of Frignano;
- UCF - Union of Municipalities of Romagna Forlivese;
- URF - Union of Municipalities Terre di Castelli;
- UTC - Union of Municipalities Appennino Bolognese.

The comments were discussed during an additional meeting with the technical references, following the project end date, on 19 July 2022; the minute of the meeting is attached to this Final Report (FR - Folder\Other documents\ C8_CommentsMSC: file Minute_meeting_19_07_2022.pdf).
With DGR no. 1336 of 01/08/2022 the MSC were approved.
According to Issue n. 21 in CINEA letter ref D.2/MM/D (2022) 5519376 following the 7th monitoring visit of June 2022, we provide in the attachments a copy of the administrative act of the Regional Council approving (file DGR_1336_01_08_2022_Approval.pdf) and adopting (file DGR_815_23-05-2022_ Adoption.pdf) definitively the MSC.

In addition, in accordance with the issue 1 in the CINEA letter ref D.2/MM/D (2022) 5519376 on 7th monitoring visit of June 2022, during this last monitoring visit it was announced that the

Standard Data Forms (SDF) of Natura 2000 sites interested by the presence of the target species were updated and transmitted to the Ministry of Environment.
Following the ex-ante monitoring activity, it was updated of the 9 SDFs. Below the table with the Natura 2000 sites whose SDF updated:

Target specie	Natura 2000 sites
Osmoderma eremita	IT4030002, IT4030003, IT4030005, IT4050004, IT4070016, IT4090003, IT4080002, IT4070011
Rosalia alpina	IT4050002, IT4080002

Following the ex-post monitoring activity, the update of no. 15 additional SDFs: 9 for *O. eremita*; 3 for *R. alpina* and 3 for *G. bilineatus* was required. Therefore, the updated request of MITE (2020) is provided together with the request from the Region on the update of the 9 SDFs. Below the table with the Natura 2000 sites whose SDF update was requested (in progress year 2022):

Target specie	Natura 2000 sites
Osmoderma eremita	IT4020003; IT4020026; IT4040001; IT4040002; IT4050001; IT4050002; IT4050003; IT4050016; IT4090001
Rosalia alpina	IT4020012; IT4030003: IT4030005
Graphoderus bilineatus	IT4030001; IT4030005; IT4050015

We provide in attached copy of the updated Standard Data Forms (FR - folder: Other documents\ C8_SDF and correspondence\ SDF forms: files Site_IT4030002.pdf, Site_IT4030003.pdf, Site_IT4030005.pdf, Site_IT4050002.pdf, Site_IT4050004.pdf, Site_IT4070011.pdf, Site_IT4070016.pdf, Site_IT4080002.pdf, Site_IT4090003.pdf) and the correspondence between the Emilia-Romagna Region and the Ministry of Environment and the EC about their transmission (FR - folder: Other documents\ C8_SDF and correspondence\ Corrispondence: files MATTM_request_updateSDF_23_07_2019.pdf, MITE_request_updateSDF_19_07_2022.pdf, RER_SDF_upload_request_29_09_2019.pdf and RER_SDF_upload_request_29_09_2022.pdf).
Regarding the correspondence between Emilia-Romagna Region and the Ministry, it is to be noted that the annexed files refer to the SDF update requests from MATTM (2019) and to the reply of Emilia-Romagna Region that formalised the request for updating the forms for 9 Nature 2000 sites in which the presence of *O. eremita* and *R. alpina* was recorded.
Emilia-Romagna Region does not have a record of the correspondence between the Ministry and the EC. The SDFs have been updated and officially published on the website, at: Formulari dei siti Rete Natura 2000 — Ambiente (regione.emilia-romagna.it.

DELIVERABLE	Foreseen Deadline	Actual Deadline	DELIVERY DATE AND REFERENCES
Production of draft MSCs and Management Plans	30/06/2022	30/06/2022	14/11/2022 – FR – Folder: Deliverable – C8_MSC: • C8_Summary.pdf • DGR_815_23-05-2022_Adoption.pdf • DGR_1336_01_08_2022_Approval.pdf

MILESTONE	Foreseen Deadline	Actual Deadline
Start sharing MSC and Management Plans with stakeholders	31/03/2022	23/05/2022

ACTION D.1: Ex-post evaluation of ex-situ reproduction efficiency

Foreseen start date	01/04/2017	Actual start date	01/11/2017
Foreseen end date	30/06/2022	Actual end date	30/06/2022

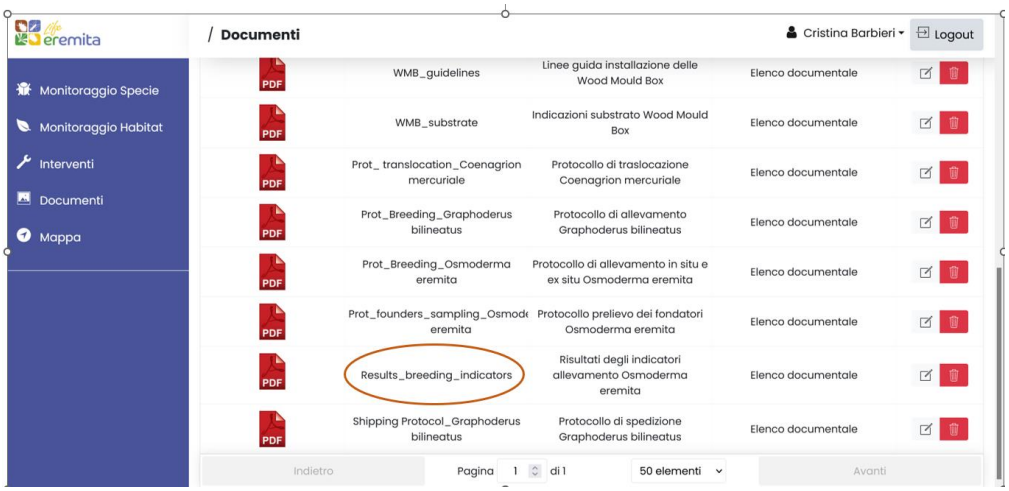
Beneficiary responsible for implementation: MAR

This action made it possible to evaluate the efficiency of the ex-situ breeding interventions carried out in action C4. The activity report (deliverable) was included in a single document that related both the breeding activity of action C4 and its evaluation under this action. The action was carried out in accordance with the breeding activity foreseen in action C4. The evaluation of the efficiency of the measures implemented was conducted through the application of a series of result indicators. The evaluation of the data of *Osmoderma* breeding, as *Graphoderus* was not bred, is shown in the following table:

Indicators	**description**
No. breeding sites created/planned.	planned 3 and were realised 3 in MAR, PNFC and PNATE, so 3 out of 3.
No. founders withdrawn for each species.	No. 194 founders withdrawn
No. larvae produced (different data) for each species/no. adult individuals captivated.	No. of larvae produced (different stages): 3252L + 718A = 3970 specimens
No. of progeny at sexual maturity/total no. of captivated individuals.	It was not possible to calculate this index since most of the mature L3 larvae reared were released in the wild. It was decided to use L3 larvae for releases to create the best conditions for successful repopulation.
Growth rate of species in captivity.	It was possible to estimate the weight increase of larvae over a year with the available data, because the species has a multi-year cycle and also because there will be releases of non-adult specimens (larvae). A calculation of the weight increase of the larvae on a sample of 296 larvae shows an increase by 363.6% for the passage from stage L1 to L2; by 244.1% for the passage from stage L2 to L3; by 1495.5% for the passage from stage L1 to L3.
Development of pathologies.	Some pathologies were found, such as necrosis of fungal origin on L3 larvae (about 1.8% of the larvae). The presence of commensal mites did not affect the rearing of either larvae or adults. When moulds were present in quantity, they were remedied by totally replacing the rosure (only in 4 cases).

All the indicators identified for the monitoring of action D1 rated the results obtained as extremely positive, demonstrating that the breeding carried out during the project was successful, exceeding the expected results and enabling the repopulation with 3574 individuals. A quota of larvae was retained to allow rearing in the 3 centers also during the After Life period.
Continued breeding will also consolidate the conservation of the species in the long term. The results so far confirm the effectiveness of ex-situ breeding as a good practice in species

conservation projects. The breeding has also deepened our knowledge of the life cycle of *O. eremita*, that will also be useful for further conservation programmers.
The results of the various indexes were archived in the DB created by Action C6. Below is the screenshot of the archived document (please note that the DB has limited access).
However, the deliverable with the results of the indexes is posted on the project website (https://progeu.regione.emilia-romagna.it/it/life-eremita/temi/documenti/reports)



DELIVERABLE	**Foreseen Deadline**	**Actual Deadline**	**DELIVERY DATE AND REFERENCES**
Activity report	06/2022	06/2022	14/11/2022 – FR - Folder: Deliverable-C4_D1_Report.pdf_

ACTION D.2: Ex-post evaluation of restocking efficiency

Foreseen start date	01/04/2018	Actual start date	01/04/2019
Foreseen end date	30/06/2022	Actual end date	30/06/2022

Beneficiary responsible for implementation: PNATE

The monitoring activity to verify the efficacy of the restocking/translocation of *O. eremita, C. castellani* and *G. bilineatus* was carried out only in the area of restocking, it was implemented staring from the year after the reintroductions and translocations, hence in 2021 for *O. eremita* and *C. castellani* and in 2022 for *G. bilineatus.*

For *O. eremita* and *C. castellani*, as specified in Action C5, the reintroduction and translocations were carried out from 2019 to 2020 monitoring the efficiency with qualitative surveys. The ex-post quantitative monitoring took place with the monitoring campaign in 2021.

For *O. eremita* the qualitative monitoring activities, carried out in 2020, discovered L1, L2 and L3 larvae, confirming the successful reproduction of the freed adults, and of the presence of cocoons that demonstrate the cycle completion of the larvae immitted in the WMBs. The quantitative monitoring was carried out between June and July 2021 accounting in total 835 larvae and 157 adults distributed over all the 37 areas; the results are detailed in the table below. The action was implemented following the specific protocol for the action (annexed in FR - Folder\Other documents\ D2_Protocol), set out by the technical staff of the project and entailing monitoring through Wood Mould Sampling (WMS). The monitoring of WMBs has been carried out both inside and outside, checking up to a depth of 20cm. All the ABs, through their teams of entomologists, checked the WMBs installed with action C3. Following the results of the monitoring activity in the areas of each beneficiary involved in the action:

ABs	**Larvae (L1, L2, L3) Larval stages**	**Adults/Others M= Male; F= Female; R: remains**	**Ex-ante – ex-post comparison**
PNATE (27 WMB in 7 areas)	180: 3L1 + 109L2 + 68L3	12: 4M; 4F; 4R	During ex-ante monitoring (2016-2017) in 4 out of 7 areas the species had not been detected, the ex-post monitoring (2021) the species populated all the 7 areas, therefore restocking has enabled the species' distribution range to be extended and the success of repopulation in all 7 areas of intervention.
MEC (25 WMB in 5 areas)	131: 7L1 + 28L2 + 96L3	4: 3M; 1F	During ex-ante monitoring (2016-2017) in 4 out of 5 areas the species had not been detected, the ex-post monitoring (2021) the species populated all the 5 areas, therefore restocking has enabled the species' distribution range to be extended and the success of repopulation in all 5 areas of intervention.
MEOC (13 WMB in 4 areas)	64: 31L2 + 33L3	3: 1M; 2R	During ex-ante monitoring (2016-2017) in none of the 4 areas the presence of the species had previously been recorded, the ex-post monitoring (2021) the species populated all the 4 areas, therefore restocking has enabled the species' distribution range to be extended and the

ABs	Larvae (L1, L2, L3) Larval stages	Adults/Others M= Male; F= Female; R: remains	Ex-ante – ex-post comparison
			success of repopulation in all 5 areas of intervention.
PNFC (35 WMB in 7 areas)	175: 18L1; 40L2; 117L3	72: 41M; 22F; 9R	During ex-ante monitoring (2016-2017) in 4 out of 7 areas the species had not been detected, the ex-post monitoring (2021) the species populated all the 7 areas, therefore restocking has enabled the species' distribution range to be extended and the success of repopulation in all 5 areas of intervention.
MAR (27 WMB - 7 areas)	181: 37L2; 144L3	39: 19M; 15F; 5R	During ex-ante monitoring (2016-2017) in 6 out of 7 areas the species had not been detected, the ex-post monitoring (2021) the species populated all the 7 areas, therefore restocking has enabled the species' distribution range to be extended and the success of repopulation in all 5 areas of intervention.
MEOR (23 WMB in 7 areas)	104: 13L1; 29L2; 62L3	27: 14M; 9F; 4R	During ex-ante monitoring (2016-2017) in 6 out of 7 areas the species had not been detected, the ex-post monitoring (2021) the species populated all the 7 areas, therefore restocking has enabled the species' distribution range to be extended and the success of repopulation in all 5 areas of intervention.
Tot.	**835**	**157: 82M; 51F; 24R**	

Overall, in the 150 WMBs divided in 37 areas in which the L3 larvae were reintroduced from the 3 breeding centers, 797 different larval stages (L3, L2, L1) and 140 adults (73M; 48F; 19R) were found. In 28 of the 37 areas the species had not been recorded during the ex-ante monitoring, while during the ex-post monitoring the species was present and reintroduced successfully; the finding of adults and larvae at different development stages proves the successful reproduction of the individuals released in the WMBs. The areal increase of *O. eremita* thanks to repopulation activities amounts to 311%.

During the monitoring in different WMBs the search in the frass allowed for the finding of other saproxylic invertebrate species, such as *Protaetia cuprea*, *Protaetia speciosissima*, *Cetonia aurata*, *Gnorimus variabilis*, *Elater ferrugineus*, but also of other coleoptera, lepidopteran, diptera, hymenoptera, crustaceans, etc., along with taxa of vertebrates like *Parus*, *Glis glis*, etc. In some of the WMBs it was not possible to carry out the monitoring activity due to the presence of wasps *(Polistes sp.)*, bumblebees *(Vespa crabro)* and beehives *(Apis mellifera)* that occupied an important part of the WMBs frass, reducing the space for the development of *O. eremita* larvae nevertheless without compromising the presence of the target species. The bumblebees, wasps and beeshives were removed and the holes at the entrance of the WMB re-opened; the frass was later reinserted.

For *C. castellani* the monitoring took place in the 5 streams of the site IT4070011 interested by the translocation operations carried out in June 2019, May 2020 and May 2021.

A qualitative survey was carried out from 11 June 2019 to 26 August 2019, during which it was possible to observe, through the re-capture of introduced adults, their survival at the new site. No quantitative data were collected.
Later, from 7 May 2020 to 29 May 2020, in the 5 streams of release of the relocated specimens, no. 80 individuals have been recaptured.

In 2021 the monitoring implemented after several sessions of translocation defined the results below:

Areas involved in the interventions of action C2 (environmental improvement) and C5 (translocations from IT4090001 to IT4070011)	**Ex-ante (2016 and 2017) – ex post (2021) comparison**
Rio Solfatare	2016: 1 individual; 2017: no individuals; 2021: 97 adults
Rio Cavinale	2016 and 2017: no individuals; 2021: 108 adults
Rio Basino	2016 and 2017: no individuals; 2021: 21 adults
Rio Stella	2016 and 2017: 4 individuals; 2021: 50 adults
Rio del Diavolo	2016 and 2017: no individuals; 2021: 23 adults
Rio Gambellaro (no translocations – only interventions of action C2)	2016: 23 individuals; 2017: 52 individuals; 2021: 422 adults

During the ex-ante monitoring in 2017 (before the interventions of Action C5) the species was present in 3 water courses of the site IT4090001 and in only 1 stream of the site IT4070011. After the translocation operations and the environmental improvement interventions (Action C2) the species in 2021, but also in 2022, was present in two Natura 2000 sites, in 9 streams, thereby settling permanently in 5 additional water courses. The increase of the area of *C.castellani* thanks to the translocation operations amounts to 125%.
The monitoring of *G.bilineatus* was carried out in the repopulation sites, in 3 lakes of the Emilia-Romagna Apennines: Lago Sfondato (IT4030001), Lago del Coccio (IT4030005) and La Martina (IT4050015). In every site the monitoring took place in four sessions between July and September 2022, out of the project period, given the biological cycle of the species at the considered latitudes entailing a reproductive period between May and June.

Site	**date**
Lago Sfondato (IT4030001)	27-28/07/2022; 02-03/08/2022; 17-18/08/2022; 16-17/09/2022
Lago del Coccio (IT4030005)	27-28/07/2022; 02-03/08/2022; 17-18/08/2022; 16-17/09/2022
La Martina (IT4050015).	25-26/07/2022; 11-12/08/2022; 30-31/08/2022; 12-13/09/2022

Therefore, the ideal period to verify the presence of larvae or adults would have been at the end of summer. The monitoring techniques deployed were the ones described in the monitoring protocol developed with action A2: triggered traps and nets were used. The catching sessions did not, for the time being, allow the finding of the species, probably due to two reasons. The first one regards the average spring and summer temperature of 2022: high temperatures, as proved at

European level between 2017 and 2020 (data from networking confrontations with other European states) seem to negatively affect the catching of adults. The species notoriously looks for deep and fresh waters and the abnormal raise of temperature probably leads to a lower survival at the pre-imaginal stages and to the in depth sheltering of adult individuals. The second reason is connected to the number of individuals released in the 3 lakes in August 2021. Arguably, the low number of reproducing individuals did not allow for the development and settling of a sufficiently individual-dense population to be positively sampled within the timings of the ex-post monitoring campaigns. The ex-post monitoring will continue during the After Life period, with the commitment of the involved Bodies (PNATE, RER, MEOR).

DELIVERABLE	**Foreseen Deadline**	**Actual Deadline**	**DELIVERY DATE AND REFERENCES**
Final report	06/2022	06/2022	14/11/2022 – FR - Folder: Deliverable\ D2_Report: D2_FinalReport.pdf

ACTION D.3: Evaluation of socio - economic impact

Foreseen start date	01/01/2021	Actual start date	01/09/2021
Foreseen end date	30/06/2022	Actual end date	30/06/2022

Beneficiary responsible for implementation: RER

An ex-post study was drafted to assess the impact of the project on the socio-economic context of the Emilia-Romagna Region Apennine portion. The study was based on the analysis of a set of indicators defined within the project (GA). The data for the description of the indicators were collected through interviews to the citizens, specific interviews to Local public bodies, forestry and civic-use enterprises. Other data were extracted from technical reports of Emilia-Romagna Region: regional Forestry Regulation (n.3/2018) and knowledge framework; Update on a regional scale of data on water needs, consumptions and availability (2021); Management Plans; Forestry Management Plans (2014-2020); Plan of recommendation, prevention and action against forest fires ex. L.353/00 (2022-2026).

The priority targets of the communication, information and environmental coordination activities have involved the following:
• schools, with priority given to those operating within the project area;
• local authorities with specific competences in the field of forest management, Natura 2000 Network and more in general in the field of "conservation of natural heritage";
• companies and trade associations in the agricultural and forestry sector (companies, cooperatives and forestry consortia, civilian use, and agricultural entrepreneurs);
• trade associations in the environmental field (environmental associations, animal welfare associations);
• all the citizens, with particular attention to residents in the Natura 2000 Network sites.
The increase of knowledge acquired by the Managing bodies (project beneficiaries) and of the awareness within the local community during the project, measured a higher tendency to preserve the habitats of the target species both in the definition of financing programmes and in the use of available funding resources. Already during the project funds have been used in favour of the conservation of the saproxylic species with Measure 8 of the Regional Rural Development Plan. The opportunity of applying Measure 8 to finance additional projects in the Natura 2000 Network sites which had already been involved in habitat improvement schemes for the two saproxylic insects, *Osmoderma eremita* and *Rosalia alpina*, was seized by some Authorities which were the beneficiaries of the Life Eremita projects, in order to expand the scope of the project by carrying out additional interventions to increase the overall ecological resilience and efficiency of their forestry assets, to foster stock diversity and variability.
Below is the number of projects implemented or in progress and the amount financed:

Abs	N. project	Amount
PNATE	2	€ 199.860,02
MEC	4	€ 472.604,01
MEOR	1	€ 59.960,13

The positive impact of the LIFE project has also been achieved at a planning level. Already in 2018, the consideration of the importance of deadwood for the component of biodiversity linked to it, as well as for the fertility of the forest, led to introduce in the forestry regulation of the Emilia-Romagna Region in art. 64, "General conservation measures in Natura 2000 Network sites for forests and other areas of forest importance". In art. 64 there is the obligation to leave at least three dead or rotting plants standing per hectare, chosen among the largest ones. The presence of deadwood has thus become a real forestry parameter and not only a feature of forest

habitats like, for example, old chestnut and wild beech forests. Therefore, the actions of the project have certainly influenced the planning and design of further interventions that can be generally included in the implementation of an ecosystem vision of the forest. This has been possible also thanks to the integration with the Community structural funds, but in general a greater commitment and a wide and thorough information are surely necessary to promote the use of different financial instruments necessary to implement the conservation measures envisaged in the Natura 2000 Network.

The good practices of the project have been included in the PAF, approved by Emilia-Romagna Region with Act no. 2021 of 29/11/2021, adding up to the Specific Conservation Measures defined within action C8. The involvement of the local socio-economic community will continue thanks the definition of specific action within the After Life Plan.
All the indicators foreseen by the Application form are summarized in the table below

N.	Indicator	Value
1	Forestry Regional surface managed properly for target species conservation.	Thanks to Conservation Measures approved the properly managed forestry surface is 132,435 ha, of which 9,429 ha for *O. eremita* and 33,006 ha for *R. alpina*.
2	Value of the costs incurred to ensure forest management appropriate to the target species conservation.	The highest cost actually invested by private parties to ensure forest management for conservation of the target species is € 68,000 (RDP measure 8.5.01)
3	Incidence and extent of forest fires at the regional level and the costs incurred in ensuring adequate fire-fighting plans and interventions	Regional level Extent of forest fires no. fires: 201; fires ha: 606 wooded sup: 429 ha unforested sup 177.1 ha average sup 5.3 Costs: Maintenance 2019: €2,704,704 Forest fires 2019: €1,195,550
4	Quantification, qualification and local distribution of forest use	Interest in forest use for energy purposes, firewood production coppice management is profitable in the short term but strong future interest in management for the multifunctionality of the forest.
5	Forest surface variation due to non profitability and consequently assigned to conservation	No data are available evaluate the, but only the most up-to-date data on the forestry surface area not in use in the Emilia-Romagna Region: 445,512 ha
6	Variotion of stumpage price, since generally, the owner sell the standing trees	The market survey among local operators showed that the cost of mixed chestnut and oak wood for firewood use has varied over the last twenty years from €85/tonne to €15/tonne.
7	No. of agricultural and forestry Companies participating in ecological measures/Total number of Companies	No. 14 Forestry Consortia have joined Measure 8 of the RDP for a total investment of € 1,596,847.91. The number of forestry companies registered in the Emilia-Romagna Region Register is 701.

8	Trends of local forestry companies in terms of annual turnover	Turnover year 2021 of local forestry companies: 217,474,575.00 € No. 41 companies in positive trend; No. 11 companies in negative trend; No. 5 companies stable trend
9	Annual water consumption at local level: (expressed in million of cubic metres/ha per year)	1,420 Mm3/y
10	Evaluation of costs increase resulting from a rational use of water resources in terms of intervention costs, lower flow captures, etc.:	The interventions carried out during the project did not affect the costs of water use, therefore it was not possible to evaluate the indicator.
11	Evaluation of the level of collaboration by the citizenship in terms of participation and sharing of actions A5 and C7: number of people involved, no. of associations involved, no. of forestry consortia involved, no. of businesses involved, etc.	A5: 136 volunteers C7: 139 participants including technical staff from managing bodies, forestry corps and provincial guides. E2: 2,001 articipants E5: 301 participants forestry companies and consortia

DELIVERABLE	**Foreseen Deadline**	**Actual Deadline**	**DELIVERY DATE AND REFERENCES**
Final report	06/2022	06/2022	14/11/2022 – FR - Folder: Deliverable\ D3_Report: D3_FinalReport.pdf

ACTION D.4: Ex-post evaluation of presence, distribution and abundance of the target species

Foreseen start date	01/01/2021	Actual start date	01/06/2020
Foreseen end date	30/06/2022	Actual end date	30/06/2022

Beneficiary responsible for implementation: RER

Action D4 was aimed at monitoring the presence and distribution of the target species throughout the project area for the evaluation of the conservation actions as a whole.
The data collected in the last year of the project enabled a comparison with those collected during Action A2 in the ex-ante monitoring.
The second, *ex-post*, monitoring campaign took place in 2020, 2021 and 2022 years in order to assess the efficacy of already-implemented conservation actions for the long-term growth of populations.
The *ex-post* monitoring techniques were the same being used in the preliminary stage of the project; in particular for *O. eremita* the following steps were taken:
• the visual search for adults on trunks and inside the hollows of habitat trees;
• the use of pheromone-baited traps;
• the search for larvae, adult specimens and pupae in the *Wood Mould Boxes* (WMB).
Regarding *R. alpina*, a visual search was carried out for adult specimens on habitat trees, established *ad hoc* through the implemented actions, together with a survey of any adults and

their remains on beech deadwood naturally occurring in the intervention area and its surroundings. The monitoring was carried out along previously identified transects (linear paths). Monitoring of the presence and distribution of the target species was carried out throughout the project area: at ex-ante monitoring sites (A2), at sites where habitat creation/improvement (C1) and repopulation/translocation interventions (C3, C4, C5) were carried out.

O. eremita

During the ex-ante monitoring, carried out between 2016 and 2017, no. 85 individuals of *O.eremita* were found, of which n. 10 in 2016 and n. 75 in 2017. Most part of the findings (n. 77) fall within the Natura 2000 Network (13 Natura 2000 sites); n. 8 individuals were recorded in areas outside of the SCI, but still adjacent to the N2K.
In 2021 *O. eremita* was found in 22 Natura 2000 sites with n. 1.058 individuals, considering also the individuals detected in the WMBs installed on the trees.

ABs	**Natura 2000 sites**	**Monitoring methodology**		**Total no. specimens**
		BCWT	**WMS**	
PNATE	No. 5 Natura 2000 sites: IT4030002; IT4030003; IT4030005; IT4030005; IT4030009	2019: 1M; 13F	--	2019: 14
		2020: 2F	--	2020: 2
		2021:1M; 20F	2021: 5M; 2F; 4R; 140L	2021: 172
MEC	No. 4 Natura 2000 sites: IT4040001; IT4040002; IT4040003; IT4040004	2019: 2M; 6F		2019: 8
		2021: 2M; 7F	5M; 2F; 131L	2021: 147
MEOC	No. 4 Natura 2000 sites: IT4020001; IT4020026	2021: 1M; 3F	2021: 1M; 3F; 3R; 62L	2021: 69
MEOR	No. 5 Natura 2000 sites: IT4050001; IT4050002; IT4050003; IT4050016; IT4050020	2021: 8F	2021: 14M; 9F; 4R 104L	2021:139
MAR	No. 4 Natura 2000 sites: IT4070011; IT4050004; IT4070016; IT4090001	2021: 2M; 11F	2021: 19M; 15F; 5R; 181L	2021:233
PNFC	No. 2 Natura 2000 sites: IT4080002; IT4080003	2021: 2M;25F	2021: 25M; 22F;9R; 175L	2021: 274
Total **2019**: 22**; 2020**: 2**; 2021**: 1034 = **No. 1,058**				

R. alpina

During the ex-ante monitoring, carried out between 2016 and 2017, no. 110 individuals were found in n. 3 Natura 2000 sites (n. 90) and in two stations outside the SCI but nearby (n.20).

In 2020 and 2021 *R. alpina* was found in 6 Natura 2000 sites and in 2 areas outside Natura 2000 with n. 314 individuals, both in previously known localities and in areas of new presence.

ABs	**Natura 2000 sites**	**Monitoring methodology**	**Total no. specimens**
PNATE	No. 3 Natura 2000 sites: IT4030004; IT4030003; IT4030005 and 3 transects in an outside Natura 2000 area	VES	2021: 8M; 2F

MEOR	No. 1 Natura 2000 site: IT4050002	CMR	2020: 2F 2021: 8F; 4M
PNFC	No. 2 Natura 2000 sites: IT4080002; IT4080003 and 3 transects in an outside Natura 2000 area	CMR, VES	2020: 75M; 20F; 6R 2021: 131M; 38F; 20R
Total **2020**: 103; **2021**: 211 **= No. 314**			

During 2020 a *Citizen Science* campaign was organized and promoted to collect possible reports of *R.alpina*. In fact, three reports were validated: two of confirmation in Natura 2000 sites for which there was already a record, and a third one in a Natura 2000 sites where the species had never been seen before (IT4020010 MONTE GOTTERO).
This significant increase both in the number of individuals observed and in the distribution area of the species, is undoubtedly the result of the conservation actions implemented with the project and aimed at creating suitable habitats for the species and at reinforcing. *R. alpina* expanded its population colonizing immediately the new habitats, doubling the number of Natura 2000 sites in which it occurs. *O. eremita* population increased and expanded its through *ex situ* and *in situ* breeding activities, the expansion is from 13 Natura 2000 sites to 22, furthermore the population is expected to have further increase thanks to the colonization of tree habitats (Action C1) which needs some years to the maturation of dead wood.
C. castellani
During the ex-ante monitoring of *C. castellani*, its presence was detected in only two Natura 2000 sites with the catch in 2016 and 2017 of 3.607 individuals (respectively 1.912 and 1.695). In 2021, during the ex-post phase, the caught individuals were 2.028. This increase enabled the confirmation of the efficacy of the environmental improvement and translocation actions in the areas where the species was more rarefied or absent.

G. bilineatus
For *G. bilineatus* the ex-ante monitoring, carried out in 22 Natura 2000 Network sites and in particular in 124 waterbodies, established that the only certain station of presence for the species in the region is the one of Lago di Pratignano, with an extremely reduced population and scarcely diversified from a genetical standpoint.
The monitoring of the efficacy of the conservation actions implemented for the species carried out during the summer of 2022 was carried out only in the basins of restocking; it did not confirm the presence in the 3 sites where the restocking plan was implemented.

DELIVERABLE	**Foreseen Deadline**	**Actual Deadline**	**DELIVERY DATE AND REFERENCES**
Final technical report	06/2022	06/2022	14/11/2022 – FR - Folder: Deliverable\ D4_Report: file FinalReport_D4.pdf

ACTION D.5: Ex-post analysis on main stakeholders' group opinion

Foreseen start date	01/01/2021	Actual start date	01/01/2021
Foreseen end date	30/06/2022	Actual end date	30/06/2022

Beneficiary responsible for implementation: PNATE

The beginning of the action was planned in the first quarter of 2021. In consideration of the lasting Covid-19 emergency, the investigation was initially carried out online through the sharing of the questionnaire with schools. The schools have been involved through a letter containing the indications for the filling in of the online questionnaire (https://forms.gle/DYxBTo62fPJxDhS3A). Direct interviews were then carried out with specific target groups (local policy makers, park guards and farmers). The distribution of the questionnaire took place during the 2021/2022 school year, by sharing the link with the same previously involved schools.
To increase the survey sample, the distribution of the questionnaire was expanded to the general public through online communication channels (website and social media).
The questionnaire was structured in 13 closed-ended multiple-choice questions, similar to those of the ex-ante questionnaire, in order to carry out an ex-ante/ex-post comparison and assess the effectiveness of the communication actions implemented during the project.
In the opening section of the questionnaire, information of socio-demographic nature was requested, as in the previous survey, and three questions were inserted to investigate the geographical areas of origin and the information tools most familiar to users, in order to better tune future communication actions.
The compilation - autonomous and anonymous - was set on an estimated time of about 15 minutes.
No. 356 questionnaires were collected. The target of respondents expanded the interest groups of the first survey; in addition to local administrators, supervisors, environmental associations, farmers, students, there were also teachers, cultural operators, workers, employees, professionals, researchers, retirees, unemployed, homemakers, salesclerks, health personnel and law enforcement personnel. The respondents were male and female of all age groups, almost equally distributed, probably due to the dissemination of the questionnaire through web channels. The answers enabled us to assess that the knowledge of the Natura 2000 Network and the LIFE instrument had increased. In the previous questionnaire 47% of answers focused on the link with the excessive use of insecticides as the main threat to these species, while only 31% of respondents had answered correctly. In the ex-post questionnaire, the percentages shifted to 35.3% for insecticides and 52.4% for wood removal from the forests, respectively. The willingness to invest in nature conservation increased, not leaving it exclusively to public institutions. There was still little awareness of the real cost of forest management or maintenance of waterways. Many answers stressed how public opinion perceives environmental protection as positive and stated a spontaneous request to carry out more activities for environmental education in schools, as well as activities aimed at more adult targets. As a measure of the effectiveness of the implemented communication actions, there was a clear increase in the percentage of respondents who were aware of the Life Eremita project and its implemented protection activities. The sample surveyed declared to have been contacted through web channels, social networks and awareness-raising events.

Some of produced materials are located in FR - Folder: Other documents\ D5_Expost_Questionnaire, such as the link to the survey and a chart with the questionnaire results.

DELIVERABLE	Foreseen Deadline	Actual Deadline	DELIVERY DATE AND REFERENCES
Final technical report	06/2022	06/2022	14/11/2022 – FR_Folder: Deliverable\ D5_Report: file D5_Final Report ex post survey.pdf

ACTION D.6: Evaluation of ecosystem functions

Foreseen start date	01/01/2021	Actual start date	01/01/2021
Foreseen end date	30/06/2022	Actual end date	30/06/2022

Beneficiary responsible for implementation: RER

The objective of this action is the evaluation of concrete actions on ecosystem functions, through the indicators provided by the Application Form (AF).
The AF identifies 16 indicators, composed of 2 sets, the first set is composed of 4 general indicators valid for the entire project:
1. no. of species involved in the concrete actions;
2. no. of Natura 2000 Network sites involved in the Project;
3. no. of project target species with an unfavourable/unsafe conservation status;
4. no. of species involved in the project that showed an improvement in their conservation status.
The second group instead consists of 12 indicators applied to the species; these indicators can be classified into a subset of 3 as follows:
a. Habitat availability;
b. Range of occurrence;
c. Number of specimens.

Considering the foreseen indicators summarized in the tables below, for general and species-specific, is highlighted a high positive impact of the project on the conservation of the target species, in terms of species-specific habitats, range expansion of new Natura 2000 sites and population increase.
Three out 4 target species have improved conservation status.

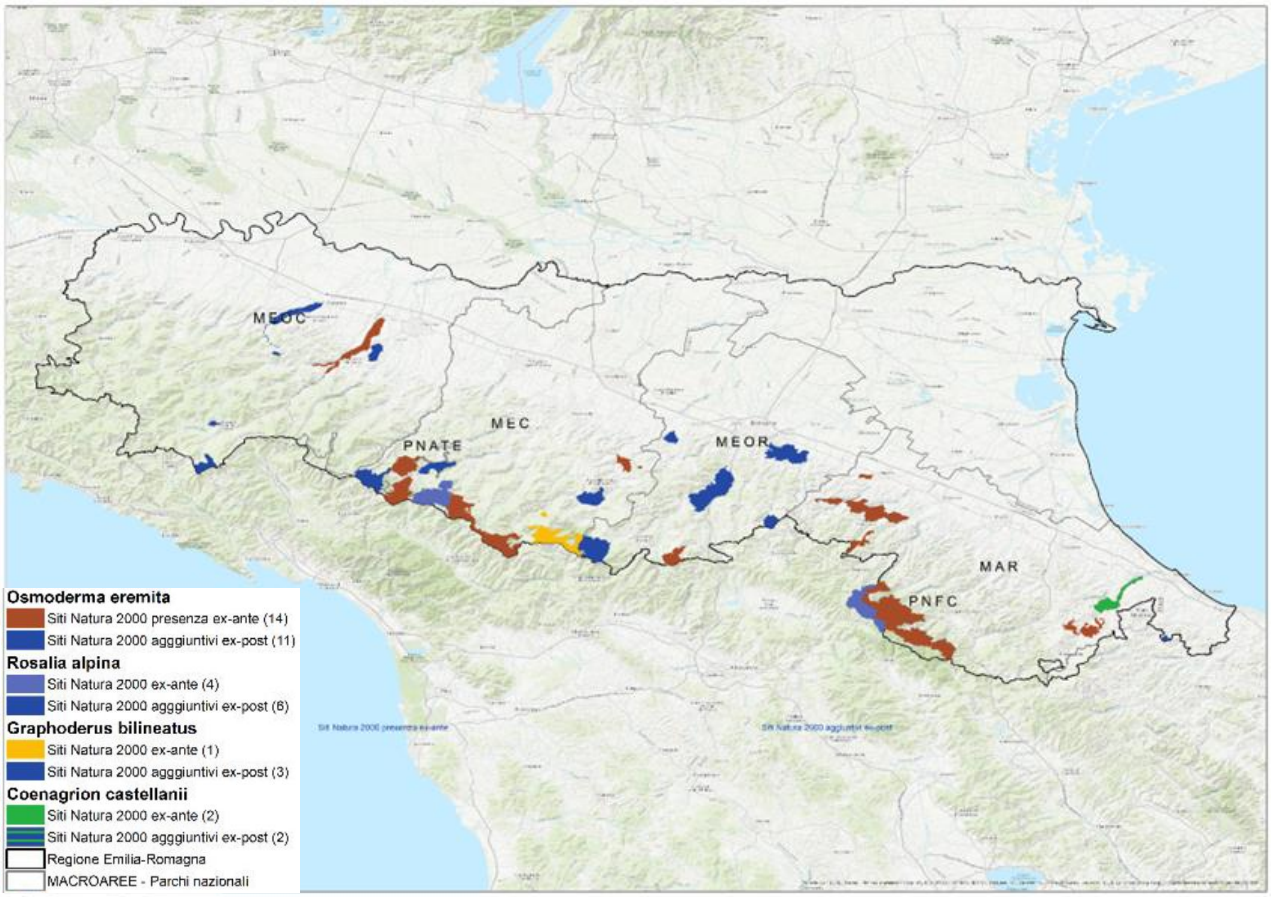
N.	Indicator	Value ex ante	Value ex post
1	n. species involved into concrete actions	4	4
2	n. of Natura 2000 sites involved by the project	54	78
3	n. of target species with an unfavorable conservation status	4	4
4	n. of target species which improved the conservation status	0	3

Two-thirds of the expected target values were not only achieved but far exceeded.
O. eremita and *R. alpina*, achieved the best results, as a matter of fact all indicators exceeded the target value by a large margin.
The aquatic species *G. bilineatus* and *C. castellanii* showed improvements, but only reached the target values in the case of increased numbers of *G. bilineatus*. The latter species during the course of the project proved to be the most at risk and also the species that needed the most work in terms of effort to achieve the expected results.
However, it is necessary to highlight the positive results of the project not only in terms of the planned indicators but also as an evaluation of the methodologies applied, which proved useful for application in other sites for the same species or species with similar ecological requirements.
Last but not least, it should be pointed out that the simultaneous application of several methods, species habitat increases, ex-situ reproduction, in-situ reproduction, achieved results beyond expectations, as in the case of the *O. eremita*.
Finally, it is necessary to highlight that *G. bilineatus* conservation status did not improve at the end of the project, but the status of the translocated populations remains to be verified for the reasons expressed in action D2. However, the project produced an unexpected result, namely the confirmation of its presence within Natura 2000 sites in the Lombardy Region, where it had not

been sampled for several decades. This finding clearly opens further possibilities for the conservation of the species in both Emilia-Romagna and Lombardy Region.
The table summarizes the indicators, for the range of occurrence it is considered the number of Natura 2000 site in which the species occurred at the beginning of the project (ex-ante) and the end of the project (ex-post). For *C. castellanii* this was not possible since the habitat suitability was evaluated too low except in the same Natura 2000 site in which it was already present, therefore the range of occurrence was extended to the same Natura 2000 sites but in terms of meters of water course.

N.	**Species**	**Indicator**	**Measure**	**Reference a**	**Area 2**	**GA**	**ex-ante (n.)**	**ex-post (n.)**	**Increase %**
1	*O. eremita*	Habitat availability	%	Emilia-Romagna Region		300%	283	941	333%
2		Range of occurrence	%	Project's area		50%	14	25	179%
3		Number of specimens	%	Project's area		100%	75	1.058	1.411%
4	*R. alpina*	Habitat availability	%	Emilia-Romagna Region		200%	318	1001	315%
5		Range of occurrence	%	Project's area		50%	4	10	250%
6		Number of specimens	%	Project's area		80-100%	110	314	285%
7	*G. bilineatus*	Habitat availability	%	Emilia-Romagna Region		900%	*deleted amendment n.3*		
8		Range of occurrence	%	Project's area	Italy	600%	1	4	400%
9		Number of specimens	%	Area di Progetto	Italy	400%	6	132	1.483%
10	*C. castellanii*	Habitat availability	%	Emilia-Romagna Region		900%	7	16	229%
11		Range of occurrence	%	Project's area		600%	3.842 (linear meters)	6.527 (linear meters)	170%
12		Number of specimens	%	Project's area		400%	1.695	2.028	120%

The impact on the target species range for the whole Natura 2000 network is represented in the figure below extracted from the Final technical report.



DELIVERABLE	Foreseen Deadline	Actual Deadline	DELIVERY DATE AND REFERENCES
Final report	06/2022	06/2022	14/11/2022 – FR – Folder: Deliverable\ D6_Report: file D6_Final report_ecosystem function.pdf

E ACTIONS
ACTION E.1: The project's website

Foreseen start date	01/04/2016	Actual start date	01/01/2016
Foreseen end date	30/06/2022	Actual end date	30/06/2022

Beneficiary responsible for implementation: RER

In January 2016, the CB created the website https://progeu.regione.emilia-romagna.it/it/life-eremita, structured in the sections described in the GA. Most of the contents of the website have been translated in English. The function of the website is to contain information about the project and to communicate to the wider public through articles, news about the actions carried out and the events planned. The website has been constantly updated and will continue to be updated in the five years following the project end, as per After-Life Plan.
Below some data from the website from 1/01/2019 to 30/06/2022:

Total visits Apr '16 – Jun '22	28.376
Average length of visit:	1,23 s
Total articles posted	83

All articles, news and events published in web site page were disseminated also thanks to the Facebook page of the project (https://www.facebook.com/liferemita). See below "Action E.8: Project press office and Facebook social page".

DELIVERABLE	**Foreseen Deadline**	**Actual Deadline**
Website	06/2016	05/2016
MILESTONE		
Website activation	06/2016	05/2016

ACTION E.2: Communication, distribution and environmental education actions

Foreseen start date	01/07/2016	Actual start date	01/07/2016
Foreseen end date	30/06/2020	Actual end date	30/06/2022

Beneficiary responsible for implementation: MEOC

The priority targets of the communication, information and environmental coordination activities included:

- schools, with priority given to those operating within the project area;
- local authorities with specific competences in the field of forest management, Natura 2000 Network and more in general in the field of "conservation of natural heritage";
- companies and trade associations in the agricultural and forestry sector (companies, cooperatives and forestry consortia, civilian use, and agricultural entrepreneurs);
- trade associations in the environmental field (environmental associations, animal welfare associations);
- all the citizens, with particular attention to residents in the Natura 2000 Network sites.

Environmental education

As regards schools, the educational project comprised the following stages:

- promotion of the educational project in schools;
- co-planning of the course with the teachers participating in the project;
- inclusion of the project in the curriculum of each individual class, in order to encourage students' learning and participation;
- meetings, lectures, laboratory activities and field trips with students.

Given the difficulties linked to the pandemic, which has impacted on the project in its most mature stage, the courses for the schools were rethought and readapted to the new school organization. In addition, a specific awareness-raising action was addressed to technicians in public entities (municipal administrations, reclamation consortia, river basin services, etc.) and interest groups (forestry companies and cooperatives, consortia for the administration of civilian use properties, agricultural cooperatives and companies, agricultural associations, etc.).
Below the results for each AB, from the beginning of the project:

PNFC	The environmental education activity has been assigned to the Coop. Sterna of Forlì. On 09/10/2017 a meeting was held in Forlì for the presentation of the Environmental Education programme with 4 participating teachers. Overall, 21 classes and 375 students joined: 5 pre-schools, 2 elementary, 2 high schools for science, and 1 secondary school coming from: Forlì, Faenza, Tredozio, Premilcuore, Rimini and Ravenna. Each class was involved in a class lesson and a field trip, for a total of 40 meetings. Among the recurring events, they organised an update of the active park GAE and a final festival of the environmental education project "Un Parco per te" (A Park for You in English), in which the classes of the comprehensive institutes of the Park's municipalities participate each year. Occasional events included a number of field trips by the Bologna Natural Science degree course with a visit to the National Park; collaboration with the Ferrara CAI 'Tutela Ambiente Montano' (Protection of the Mountain Environment) Commission; the annual thematic conferences in the context of the bramito deer census; naturalistic workshops organised in collaboration with the Pratovecchio UTCB. During the 2018/2019 school year a networking with the Life WetFlyAmphibia

	project on teaching was carried out, involving several comprehensive schools of the Park.
PNATE	The educational activity was carried out directly by the two entomologists appointed by PNATE: Giovanni Carotti and Iris Biondi. 130 classes and 3282 students joined: 6 kindergartens, 33 elementary, 24 secondary schools, 36 high schools. Classes were involved in classroom lessons at the Park Visitor Centre and in a field trip, for a total of 37 meetings in 2017 and 47 in 2018
MAR	The environmental education activity has been assigned to Cooperativa Ecosistema di Imola with determination 30 of 07 April 2017. The activities were carried out in the 2018 - 2019 school year and were included in the organisation's 2018/2019 school catalogue. 18 classes and 280 students joined: 33 elementary, 24 secondary schools.
MEOR	The environmental education activity has been entrusted to Hydrosynergy Soc. Coop. of San Lazzaro di Savena on 27 November 2017. The activities started in the 2017/2018 school year and involved 3 classes for a total of 76 students, belonging to 2 secondary and 1 primary school. In the 2018/2019 school year, 13 teaching modules were planned (2 for kindergartens and 11 for primary schools). Further 32 modules were implemented in the second part of the project. The activity included class lessons and field trips. These activities have been included in MEOR's catalogue of proposals for schools. Educational activities for children were organised in July and August 2021 at the Poranceto forest museum in Camugnano. No. 12 children were involved. In addition, 8 educational treks for adults and children were organised by MEOR in July, August and September 2021: LIFE Eremita SUMMERFEST. During the summer of 2021, the activity "What if a gnome lived in the chestnut grove?" was organised in the Poranceto forest, with games, stories, hikes and workshops for children aged 6 to 12. 14 adults and 33 children participated. The total number of classes involved is 59, while the number of students involved is 1310. A total of 58 classroom and 59 field interventions were carried out, totalling 16.5 hours of training.
MEC	One environmental education intervention was carried out, conducted by MEC internal staff, on 20/6/2018 at the Summer School of the Modena and Reggio Emilia University and Soc. Ital. Pedologia, within the course "Mountain development and support" with the participation of 20 students, at Lake Pratignano, in the Park of the Alto Appennino Modenese (Fanano, Mo). During the 2018-2019 academic year, the Park proposed the Mondo Insetti (Insect World) event, which involved a 2-hour classroom meeting and a 1-day field trip: the activities involved 17 classes for a total of 64 hours at schools in Fanano, Pievepelago, Fiumalbo, Fiorano and Canossa. A total of 17 classes and 394 students were involved.
MEOC	Environmental education activities have been entrusted to Esperta srl on 24/10/2017. The activities took place during the 2017-2018 school year from February to May 2018 and involved 270 students of nursery and primary schools. For the 2018/2019 school year, 22 classes -12 kindergarten and 10 of primary schools – for a total of 418 pupils booked the activity, which included: 1 class lesson of 2 hours and 1 half day field trip. The total number of classes involved is 83, while the number of students involved is 1875. A total of 166 classroom and 166 field interventions were carried out, totalling 16 hours of training.

A total of 7516 students and 328 classes have been involved in the activities.

All of the materials produced by AB are available on FR - Folder: Other documents – E2_Communication\Environmental edu: Photos and Leaflets.

Technical Symposia

The company Atlantide was commissioned with Det. no. 18911 of 18/10/2019 for the entire organisation of the two online seminars and for communication. Both the technical symposia were organised online, recorded and streamed via social network (Facebook) in October and December 2020. They could not be organised in person due to the covid emergency.

- **1st symposium** - Tuesday 13th October 2020 *Orienting Forest environments towards ecological maturity through silvicultural interventions* located in Sala Poggioli of the Emilia-Romagna Region headquarters. The event could be followed both in presence and via streaming. The symposium reached 3340 people, 963 views, 297 interactions, 12 shares, 7 comments and 43 likes on Facebook.
- **2nd symposium** on Tuesday 1st December 2020 *Managing aquatic environments to benefit rare and threatened components of biodiversity* taken place online and on the Life Eremita Facebook page. The symposium reached 2605 people, 997 views, 338 interactions, 16 shares, 19 comments and 35 likes on Facebook.

All of the materials produced by Atlantide are available on FR - Folder: Other documents – E2_Communication\ Symposia: Photo; Power point template; Power point presentations; Videos of the events; Programme and save the date.

Specific information and communication meetings

32 awareness-raising meetings have been held in the AB territories, presenting the project to several citizens' representative targets, about no. 1.888 participants. The calendar of events and targets involved for each AB and the material produced were transmitted with MR – 20/12/2018 in other documents/Technical_annex.pdf.

No.	Date	Partner and location	Title event	Participant	No. participants
1	29-30/10/2016	PNFC: Pian di Rocchi (Premilcuore)	Residential course	Ferrara CAI 'Protection of the Mountain Environment' Commission	24
2	11/04/2017	PNFC: Santa Sofia	Information meeting on the project and the target species	Park's environmental rangers	38
3	31/05/2017	PNFC	Final party of the "Un Parco per te"	Nursery schools, primary schools, 1st grade secondary schools	100
4	17/06/2017	PNFC	Information meeting on the project and the target species	UTCB in Pratovecchio and Life Mipp project	47
5	31/10/2017	PNFC: Santa Sofia	Information meeting on the project and the target species	Natural Sciences degree course in Bologna Students	34
6	13/03/2018	PNFC: Santa Sofia	XI Conference "Le Libellule in Italia"	Italian Society for the Study and Conservation of Dragonflies Onlus	30
7	21-	PNFC: Santa	Information meeting on	Citizens	56

	22/04/2018	Sofia	the project and the target species		
8	05/06/2018:	PNFC	Final party of the "Un Parco per te"	Nursery schools, primary schools, 1st grade secondary schools	90
9	06/2017	PNATE: Casina (RE)	Information meeting on the project and the target species	Hikers group	10
10	04/2018	PNATE: Parma	'La cultura degli animali'	Citizens	10
11	13-14/09/2018	PNATE	Information meeting on the project and the target species	Teachers	24
12	09/2018	PNATE: Cooperativa di Comunità Valle dei Cavalieri a Succiso (RE)	Information meeting on the project and the target species	Representatives of 4 Swedish MAB UNESCO Reserves, President of the Swedish MAB UNESCO Reserves Network	11
13	04/2018	PNATE	Information meeting on the project and the target species	Korean foresters	16
14	03-06-09/08/2018	PNATE: Sassalbo (MS) / Casina (RE)	"Le foreste a colori"	Summer school Students	62
15	04/06/2017	MAR: Centro Parco al Carnè - Brisighella	"Insetti & company al Carné"	Park Guides/Pangea Association 'Entomologists for a day	35
16	27/05/2018	MAR: Centro Parco al Carnè - Brisighella	"Insetti & company al Carné"	Citizens and children	41
17	25/06/2017	MAR: Riserva Bosco della Frattona – Imola	"Sei, otto, cento, mille zampe"	Citizens and children	38
18	24/06/2018	MAR: Riserva Bosco della Frattona – Imola	"Sei, otto, cento, mille zampe"	Citizens and children	40
19	24/09/2017	MEOR: San Lazzaro di Savena (BO)	Pala Eremita	Citizens	300
20	25/05/2018	MEOR: Parco dei Gessi Bolognesi e Calanchi dell'Abbadessa	Project presentation	Students and teachers	23
21	09-10/06/2018	MEOR: Monteveglio (BO)	Pala Eremita	Citizens	300
22	22/08/2020	MEOR: Parco	Perché proteggere gli	Citizens	10

		dei Laghi di Suviana e Brasimone	insetti del bosco?		
23	11/07/2021	MEOR: Parco regionale del Corno alle Scale.	*"Rosalia alpina* la regina degli ambienti forestali"	Citizens	10
24	25/07/2021	MEOR: Parco regionale dei Laghi di Suviana e Brasimone.	Why protect forest insects?	Citizens	10
25	07/08/2021	MEOR: Parco regionale del Corno alle Scale.	Insect world	Citizens and children	10
26	08/08/2021	MEOR: Parco regionale del Corno alle Scale.	Insects as indicators of environmental quality and climate change	Citizens	10
27	14/08/2021	MEOR: Parco regionale dei Laghi di Suviana e Brasimone.	Insect world	Citizens and children	10
28	21/08/2021	MEOR: Parco regionale del Corno alle Scale.	Why protect forest insects?	Citizens	10
29	04/09/2021	MEOR: Parco regionale dell'Abbazia di Monteveglio.	Discovering the hermit beetle houses	Citizens and children	10
30	18/09/2021	MEOR: Parco regionale dei Gessi Bolognesi e Calanchi dell'Abbadessa	Who lives in the treehouses?	Citizens and children	10
31	09/06/2018	MEC: Campogalliano (Mo)	"La vita segreta delle lucciole e Progetto Eremita"	Citizens	71
32	04/09/2017	MEOC	"ViVi il Verde. Alla scoperta dei giardini dell'Emilia-Romagna" - Presentazione "in campo" del Progetto LIFE EREMITA	Citizens	10
33	19/11/2017	MEOC	Presentation of the LIFE EREMITA project with educational/dissemination activities for families	Citizens and CAI members	27
34	03/03/2018	MEOC	Workshop "Sguardi sulla Biodiversità"	Citizens	42
35	04/05/2018	MEOC	Presentation of the LIFE EREMITA Project	'Ecological Systems Analysis'	18

				course at the University of Parma students	
36	21/05/2018	MEOC	Presentation of the LIFE EREMITA Project	Guides, park technicians and teachers	16
37	07/06/2018	MEOC: Corte di Giarola	Presentation of the LIFE EREMITA Project	Volunteers	12
38	09-10/06/2018	MEOC: Corte di Giarola / Parco dei Cento Laghi	The LIFE EREMITA project "in pills"	Citizens	34
39	05/08/2018	MEOC: Schia	Pala Eremita: Mountain sport festival	Citizens, childrens and families	100
40	28/06/2018	MEOC: Riserva Torrile Trecasali	"Una sera con l'Eremita"	Citizens	12
41	17-18/09/2016	RER	Entomodena	Technician	20
42	22-23/09/2018	RER	Entomodena	Technician	20
43	14/03/2022	PNATE	Agenda della Natura – presentazone del progetto Life Eremita	teachers and environmental guides	200
					Tot. 2001

Dissemination material and publications:
CB's staff has created a series of dissemination products thanks to the Region's typography. The material was printed starting from August 2016 and has been delivered to the ABs according to their requests. The material is printed with limited editions and when requested by the ABs. Here follows the list of what has been printed to date:

Dissemination product printed by RER typography	No. Prints as of 30/06/2022	Distribution list	Delivery date and reference
No. 1 Information leaflet - Italian	3252	Eremita tour – EntoModena- Information meetings of the ABs	20/12/2018 – MR – Folder: Other documents – E2 - Dissemination material. https://progeu.regione.emilia-romagna.it/it/life-eremita/temi/progetto-eremita/prodotti
No. 1 Information leaflet - English	500		
No. 4 Notebooks	200		
No. 4 Poster (70x50)	2675		
No. 4 Bookmarks	9600		
No. 4 Memory game	400		

The CB, following a tender, entrusted "Tutti Frutti" of Ravenna with the production of:

- **1 dissemination flyer** – Italian (8,500) and English (1,500) versions - 6 pages folded in three, 21x21 cm in four colours. The first one, produced in 2016, with a three-page format (an A4 divided into three parts) summarising the objectives and actions of Life Eremita; the second one produced in 2018 with a 21x21cm format describing the target species, the main project actions, the area involved, the aims of the Natura 2000 Network and LIFE projects in greater detail. Both available in Italian and English, they target a wide audience of adults and children;
- The two publications merged into a **technical-scientific single volume** by editorial choice but the number of pages (40 + 40 = 80) and the contents do not change. "Coordinated actions for the conservation in Emilia-Romagna of *O. eremita* (Scopoli, 1763), *Rosalia alpina* (Linnaeus, 1758), *C.castellanii* (Roberts, 1948), *G. bilineatus* (DE Geer, 1774)", 80 A4 pages, produced in 2018, which collects the results of the main project actions carried out in the first years, from ex-ante monitoring to ex-situ breeding of *O. eremita*, to the actions for the improvement and establishment of forest and aquatic habitats, and the genetic investigations of *G. bilineatus*. The publication was printed in Italian (no. 3500 copies) and English (no. 1500 copies) and is intended for operators from local authorities, protected areas and Natura 2000 Network sites, as well as the coordinators of other LIFE projects.

For schools, particularly for children in the last two years of primary school and those in the first two years of secondary school, an educational kit was designed, (see below Action E7- Stickers).

Special monographic issue of "Storie Naturali" magazine

With Det. 23144 of 02/12/2021 the Emilia-Romagna Region entrusted the service of organising the Final Seminar, the final dissemination event (Action E6), editing the special issue of Storie Naturali (Action E2), editing the Layman's report (Action E3) and the project press office work (Action E8) to the company Articolture srl.

All project partners, with the help of Articolture, produced the special monographic issue of the magazine Storie Naturali, in Italian and English. Graphics, layout and printing were carried out by Articolture. The articles were written by all partners under the supervision of the staff of CB and of the PM. No. 13 articles were written. The magazine is available on the project website at: https://ambiente.regione.emilia-romagna.it/it/parchi-natura2000/consultazione/pubblicazioni/storie-naturali/numero-14-2022-liferemita and can also be found in FR - Folder: Deliverable\ E2_VolMonogr_StorieNaturali. The magazine was provided in HD and HR for web and 4500 copies were printed (4000 ITA and 500 ENG). A set of original HD photos (28 in total) of the 4 target species and/or suitable habitats can be found in FR - Folder: Other Document\ E2_Communication \ HD Photos.

DELIVERABLE	Foreseen Deadline	Actual Deadline	DELIVERY DATE AND REFERENCES
Executive environmental education project activated	01/2017	01/2017	27/06/2017 – 1° PR – Folder: Deliverable E2_ Deliverable_1-Progetto educazione ambientale
1st Dissemination publication presenting the project and the target species	01/2017	08/2016	27/06/2017 – 1° PR – Folder: Deliverable E2_ Deliverable_2-E2_Depliant_LifeEremita
2nd Dissemination publication presenting the project and the target species	01/2017	08/2018	20/12/2018 – MR – Folder: Deliverable – E2 – Diss-pubblication - depliant 21x21ITA/ ENG def
Technical publication on	09/2017	12/2018	20/12/2018 – MR – Folder:

actions regarding habitat creation and management.			Deliverable – E2 E2_Techincal_pubblication ITA_ENG
Technical publication on in situ-ex situ conservation actions and reintroductions.	06/2018	12/2018	20/12/2018 – MR – Folder: Deliverable – E2 E2_Techincal_pubblication ITA_ENG
Publication of a monographic issue of the magazine 'Storie Naturali' dedicated to the project and including extracts in English	09/2021	06/2022	14/11/2022 – FR - Folder: Deliverable\ E2_VolMonogr_StorieNaturali: files StorieNaturali_publication_ENG.pdf StorieNaturali_publication_ITA.pdf

ACTION E3 Layman’s report

Foreseen start date	01/04/2022	Actual start date	01/04/2022
Foreseen end date	01/05/2022	Actual end date	30/06/2022

Beneficiary responsible for implementation: RER

Emilia-Romagna Region created a drive space, shared with the company Articolture, to facilitate the easy and quick retrieval of all the material necessary for the creation of the Layman's report. RER and all the project partners supported Articolture in the writing of the summary, the correction of the report drafts, the design of infographics and the retrieval of all the numerical data useful for the report. No. 400 Layman’s report in Italian and no. 150 in English were published. The Layman's report for a general public describing the objectives, actions and results of the project, was distributed locally through the Parks and during the last events organized (“Facciamo Festa” and “Final Conference”), and it was also shared on the project website through news and posts. The product is currently browsable and downloadable online by citizens.
We apologise for the data mismatch between this FR and the Layman's report. Some corrections to the final numerical data were made after the Layman's report was printed.

DELIVERABLE	Foreseen Deadline	Actual Deadline	DELIVERY DATE AND REFERENCES
Layman’s Report	05/2022	05/2022	14/11/2022 – FR - Folder: Deliverable\ E3_LaymansReport: file LaymansReport_LifeERemita_ENG.pdf and LaymansReport_LifeERemita_ITA.pdf

ACTION E.4: Project logo selection and creation of informational, educational and "best practices" notice boards

Foreseen start date	01/04/2016	Actual start date	01/04/2016
Foreseen end date	31/12/2018	Actual end date	31/12/2018

Beneficiary responsible for implementation: RER

The logo of the project was created by the CB's internal technical staff during the month of April 2016. During the first monitoring visit the decision was made to produce and install panels only after the definition of the Action Plan of the conservation actions (Action A7), in order to place notice boards in areas where it is possible to see the interventions, providing information on the types of interventions carried out. All notice boards have been created, delivered and installed in areas where interventions have been carried out (C1, C2, C3, C4).
The signs were enhanced with the production of a greater number of information panels of different types: 20 Roll-up information panels for interiors; 20 information panels for the outdoor; 3 information panels for breeding centres; 160 rectangular plates for the WMBs.

DELIVERABLE	Foreseen Deadline	Actual Deadline	DELIVERY DATE AND REFERENCES
Project logo	06/2016	04/2016	27/06/2017 – 1° PR – Folder: deliverable-E4-PojectLogo
Production of notice boards	12/2016	12/2018	20/12/2018 – MR – Folder: Deliverable- E4_notice_boards

ACTION E.5: Thematic workshop

Foreseen start date01/07/2018 Actual start date: 01/07/2018
Foreseen end date 01/01/2019 Actual end date: 30/11/2021

Beneficiary responsible for implementation: PNATE

A total of 12 workshops titled “Life Eremita project and forest management perspectives” organized by PNATE, MEOC, MAR and PNFC took place during the project, to qualify the professional profiles of forestry workers and promote the exchange of skills. The number of participants was no. 301.

No.	Date	Partner and location	Target	No. participants
1	12/02/2019	PNATE: Fivizzano (MS)	Forestry consortia, freelance forestry technicians, forestry technicians employed by forestry organisations and administrators.	15
2	12/06/2019	PNATE: Castelnovo ne’ Monti (RE)	Forestry police and environmental educators /guides.	19
3	29/08/2019	PNATE: Rigoso (PR)	Forestry companies and cooperatives, universities, local administrations (mayors, councilors and members of the Park Board), forestry police, first and second level forestry consortia, administrators of collective properties, representatives of environmental associations.	50
4	07/10/2019	PNATE: Vallisnera (RE)	Economic operators and forestry companies.	12
5	29/02/2020	PNATE: Castelnovo ne’ Monti (RE)	Legambiente Appennino di Castelnovo members.	23
6	19/02/2020	PNATE: Parma University Campus	Forestry consortia, freelance forestry technicians, forestry technicians employed by forestry organisations and administrators.	52
7	18/02/2019	MEOC: Sede Unione Montana Parma EST Langhirano	Agronomists/Foresters, Coop. Foresters, Carabinieri Forestali, Protected Areas.	14
8	21/01/2020	MEOC: Casinetto Boschi di Carrega (PR)	Forestry operators	20
9	11/06/2020	PNFC: online (zoom)	Hiking guides, operators of the Park's information facilities, members of the European Sustainable Tourism Charter and other operators.	80

10	22/10/2021	PNATE: Langhirano (PR)	Parma administrators of collective properties	4
11	18/11/2021	PNATE: Fivizzano	Carrara administrators of collective properties	6
12	29/11/2021	PNATE: Castelnovo Garfagnana	Lucca administrators of collective properties	6
				Tot. 301

The meetings promoted the exchange of skills, best practices and innovative management formats, with the transfer of know-how from the world of research in order to increase biodiversity of forested environments. It was an opportunity to present the project through the target species, their habitats and their main threats, reflecting on the fundamental role of the Natura 2000 Network in the conservation of biodiversity and the important contribution of institutions and companies in carrying out a careful management of the territory.

In the folder FR - Folder: Deliverable – E5_MinuteWS the report with summaries of the last 3 years of results (2019-2020-2021) is available.

DELIVERABLE	**Foreseen Deadline**	**Actual Deadline**	**DELIVERY DATE AND REFERENCES**
Minutes of thematic workshops in the first year of activation	12/2019	12/2019	FR - Folder: Deliverable\ E5_MinuteWS: file Action E5 at 31_12_2021.pdf
Minutes of thematic workshops in the second year of activation	12/2020	12/2020	
Minutes of thematic workshops in the third year of activation	09/2021	11/2021	

ACTION E.6: Final workshop

Foreseen start date	01/01/2022	Actual start date	01/01/2022
Foreseen end date	01/06/2022	Actual end date	10/06/2022

Beneficiary responsible for implementation: MEOR

No. **2 events** were created in Action E.6:

- **Dissemination event** "Facciamo festa!" on 28th of May, organised at Giardino Botanico of Valbonella, Santa Sofia (FC). A new web page was created on the project website, dedicated to the event and constantly updated in real time with all the information and organisational indications: https://progeu.regione.emilia-romagna.it/it/life-eremita/temi/convegni-workshop/copy_of_life-eremita-final-conference.
  The event involved a good number of participants, although the poor weather conditions compromised the actual turnout. Approximately 50 people, aged 3-65, from both local and regional backgrounds, participated. Participants included entomology scholars, trekking photography enthusiasts, children with families; in some cases, participants were already aware of the Life Eremita project and had already taken part in previous activities, thanks to the environmental education initiatives in schools;
- **Final conference** on the 10th of June organised at DAMSLab (BO). A new web page was created on the project website, dedicated to the event and constantly updated in real time with all the information and organisational indications: https://progeu.regione.emilia-romagna.it/it/life-eremita/temi/convegni-workshop/life-eremita-final-conference.
  The conference lasted approximately 5 hours. No. 18 speakers took part (8 of whom remotely and 10 in presence): at the opening of the seminar a naturalistic video documentary realised by Marco Tessaro was projected; at the end of the seminar a nationally renowned scientist, Emanuele Biggi, presented a narrated photographic projection on the theme of minor fauna. The event was recorded and is available at: https://www.facebook.com/watch/live/?ref=watch_permalink&v=1142552839652960.
  The conference was attended by a total of 83 people (42 in attendance - 41 online via zoom), from all over the region and with heterogeneous profiles: researchers, project managers, GEVs, entomologists, technicians, civil service volunteers, GAE guides, students and PhDs, from a variety of institutions, including the Emilia-Romagna Region, MEOR, MEOC, MEC, the Renana Land Reclamation Consortium, the Villa Ghigi Foundation, the Ferrara Civic Museum of Natural History, the Delta Institute, CREA, PNATE, PNFC,CAI Alpine Club, Carabinieri foresters, the Po River District Basin, AFNI, the University of Bologna, WWF Italy and Geolab. Simultaneous translation was provided throughout the conference. The live broadcast on the Facebook page peaked at 9 viewers, with a total of over 150 views, 190 users reached and over 30 interactions.

Emilia-Romagna Region created a drive space, shared with the company Articolture, to facilitate the creation of all the materials necessary for both events. All materials were produced both in Italian and English language (FR – Folder: Other documents\ E6_FinalWorkshop): Save the date; Flyer; Conference programme; List of participants in presence; Template for slides; Insights Facebook Live; List of total participants (live and remotely).
The following gadgets were produced for the distribution at events (photos are in the summary of the action E6 in FR – Folder: Deliverable\ E6_Gadgets): no. 1000 USB pens containing the project videos (see action E7); no. 99 capes; no. 250 water bottle; no. 300 bags; no. 800 magnet included in the educational kit (see action E7); no. 100 backpacks (see action A5).

DELIVERABLE	Foreseen	Actual	DELIVERY DATE AND

	Deadline	Deadline	REFERENCES
Gadgets: canvas bags, magnets and USB pens	03/2022	05/2022	FR - Folder: Deliverable\ E6_Gadgets: E6_Gadget summary.pdf
MILESTONE			
Final seminar realisation	06/2022	06/2022	On 10/06/2022 in Bologna

ACTION E.7: The EREMITA Tour: a travelling awareness campaign

Foreseen start date	01/01/2017	Actual start date	01/03/2017
Foreseen end date	31/12/2020	Actual end date	30/11/2021

Beneficiary responsible for implementation: PNATE

EREMITA tour

The Eremita awareness-raising campaign was launched together with the first EREMITA Festival (A5), on 24/09/2017 in Bologna. The Palaeremita, an inflatable modular structure previously dedicated to the wolf species, has been covered and equipped with information contents regarding the 4 target species of insects. In particular, the following were produced: 12 sheets used as removable graphics and 8 sails printed on recycled polyester with images of the project target species, 4x0.70 m in size, and equipped with support rod and a cast-iron base/counterweight.

The organisation of the action was under the control of PNATE from 2017 to 2019; subsequently PNFC, another beneficiary involved in the organisation of this specific activity, entrusted an external company (Coopertiva Atlantide), through a specific tender, for the organisational and entertainment service of the editions that would have taken place in the Eastern sector of the ER Region, in the territory of PNFC and MAR.

During 2020 and 2021, the events decreased due to the covid-19 pandemic, but a few outdoor events called “Antennae” were organised to bring the action forward. To date the tour made no. 46 editions with approximately no. 3880 participants. Approximately no. 28,000 citizens/stakeholders werw contacted through the multimedia products produced as part of the project of the project and the social pages of the associated partners. Below is the calendar of events.

No.	Date	Partner	Location
1	24/09/2017	PNATE	San Lazzaro di Savena
2	28/10/2017	PNATE	Bagno di Romagna
3	15/12/2017	PNATE	Sillano
4	16/12/2017	PNATE	Ciano d’Enza
5	13/04/2018	PNATE	Parma
6	11.12.13/05/2018	PNATE	Forlimpopoli
7	16/05/2018	PNATE	Neviano degli Arduini
8	17/05/2018	PNATE	Lesignano de Bagni
9	18/05/2018	PNATE	Ligonchio
10	31/05/2018	PNATE	San Romano in Garfagnana
11	09/06/2018	PNATE	Monteveglio
12	10/06/2018	PNATE	Cerreto Alpi
13	16/06/2018	PNATE	Filetto
14	03/07/2018	PNATE	Bioparco Frignoli
15	04/07/2018	PNATE	Busana
16	05/08/2018	PNATE	Schia
17	01/10/2018	PNATE	Fivizzano
18	05/10/2018	PNATE	Cerreto Laghi
19	14/10/2018	PNATE	Quattrocastella
20	26/10/2018	PNATE	Sillano
21	11/11/2018	PNATE	Viano
22	23.24.25/11/2018	PNATE	Forlì
23	01/12/2018	PNATE	Orecchiella – Rifugio Isera

No.	Date	Partner	Location
24	15/03/2019	PNATE	Castelnuovo Garfagnana
25	15/03/2019	PNATE	Castelnovo né Monti (sciopero clima)
26	20/07/2019	PNATE	Corfino
27	22/09/2019	PNATE	Parco dello Stirone
28	27/10/2019	PNATE	Marola
29	14/03/2020	PNATE	Evento on-line
30-37	August – October 2021	PNATE	Outdoor performance “Antenne”
38	27/09/2020	PNFC	San Piero in Bagno
39	11/10/2020	PNFC	Premilcuore
40	28/08/2021	PNFC	Bagno di Romagna
41	04/09/2021	PNFC	Cervia
43	02/10/2021	PNFC	Bagnacavallo
44	09/10/2021	PNFC	Casola Valsenio
45	07/11/2021	PNFC	Tredozio
46	19/12/2021	PNFC	Santa Sofia

The following materials were produced for the latest events, as photos and leaflet (FR – Folder: Other documents\ E7_EremitaTour).

Video

The first videos created are no. **8 video clips** (5 from PNATE, and 3 from PNFC) about the species, the breeding sites, the conservation interventions made with the project reported in the last report:

- Which species are involved and what the project consists of
- Discovering beetles
- *Osmoderma eremita* - One of the four species protected by the project
- *Rosalia alpina*: Europe's most elegant beetle
- *Graphoderus bilineatus* - One of the four species protected by the project
- *Coenagrion mercuriale* - One of the four species protected by the project
- The breeding grounds of *Osmoderma eremita*
- Conservation interventions

The videos can be found on the website at the following link https://ambiente.regione.emilia-romagna.it/it/gallery/video/parchi-e-riserve-naturali/video-sul-progetto-life-eremita .

In addition, were created no. 7 videos more:

- **No. 1 video** on the breeding of *Osmoderma eremita* in the Aquae Mundi Oasis, lasting about 7 minutes, posted on the project website: https://ambiente.regione.emilia-romagna.it/it/gallery/video/parchi-e-riserve-naturali/video-progetti-europei/video-life-eremita/osmoderma-life-eremita_aquaemundi.
- **No. 1 video** produced by the Emilia-Romagna Region's Protected Areas, Forests and Mountain Development Service, presenting the Project through images with background music. The video was posted on the project website: https://ambiente.regione.emilia-romagna.it/it/gallery/video/parchi-e-riserve-naturali/video-progetti-europei/video-life-eremita/life-eremita-volontari.
- **No. 3 events videos** about the Eremita Festival on 27/10/2019 - Marola Carpineti in the Tuscan-Emilian Apennines National Park; about the Workshop in Marola "The management of forest ecosystems: mitigation and adaptation to climate change and protection of biodiversity" on 28/10/2019 and about the Workshop in Santa Sofia "Getting to know good practices for the conservation of forest biodiversity" on 5/11/2019. The videos are available on the project

website: https://ambiente.regione.emilia-romagna.it/it/gallery/video/parchi-e-riserve-naturali/video-sul-progetto-life-eremita .

- **No. 2 educational videos** created by PNATE for kindergarten environmental education activities. The videos are in FR – Folder: Deliverable\ E7_DVD_Project_Video_Clips: files EDU_Life_Eremita_kindergarten1.mp4 and EDU_Life_Eremita_kindergarten2.mp4 in ITA language.

Furthermore 1 video storytelling, 4 video "pills", 1 video "pills" dedicated to the "Facciamo festa!" dissemination events, 1 video for the conclusion of the seminar and 1 video documentary were produced:

- **No. 1 Video storytelling**: with Articolture and the project partners, 10 interviews with the protagonists of the project, were realised and subsequently edited together with some original footage. The video is 12 minutes long, in Italian and English versions and with subtitles. The videos can be found in FR – Folder: Deliverable\ E7_DVD_Project_Video_Clips in ITA and ENG version.
- **No. 5 Video "pills":** Articolture produced 4 video pills of 1 min 30 sec each, dedicated to the project target species. The pills were delivered in a double version: in Italian and with English subtitles. A 1 min 20 sec video pill was also produced dedicated to the story of the 'Facciamo festa!' dissemination event at the PNFC on 28 May. The videos can be found in FR – Folder: Deliverable\ E7_DVD_Project_Video_Clips in ITA and ENG version.
- **No. 1 Final video:** based on the footage of the conference held on 10 June at the DAMSLab in Bologna, a 5-minute and 20-second video reportage was produced, alternating images of the day and interviews with some of the protagonists. The video was made in mixed language, with English subtitles and Italian subtitles. The videos can be found in FR – Folder: Deliverable\ E7_DVD_Project_Video_Clips in ITA and ENG version.
- **No. 1 Video documentary:** Starting with some past footage and new footage conducted during the latest monitoring, Istituto Delta hired video-maker Marco Tessaro to produce 1 documentary video. The video was published and shared on all project websites and social pages, and also kicked off the final project conference. The video can be found in FR – Folder: Deliverable\ E7_DVD_Project_Video_Clips: file VIDEO_Inseguendo una libellula.mp4.

The total number of project videos rises to no. **23**. The deliverable "1000 DVDs with project video clips" foreseen in the action, was therefore replaced with the production of no. 1000 USB pens containing project videos. The decision was made because the use of the DVD is currently obsolete. The USB were included inside the bags handed out to participants, general public, students, teachers and citizens, during the last events organised by the project: Eremita Tour, "Facciamo festa!" and the Final Conference.

Educational kit: stickers, posters and magnets

In the Proposal it was envisaged to create a stickers album. In the executive phase, thanks also to cost savings deriving from other communication actions, it was decided to create no. 200 educational kit. Each educational kit consists of:

• No. 25 **didactic notebook**, addressed to the students of the Primary and I degree Secondary school, with contents specifically designed for this type of user: no. 5500 didactic book were printed. The notebook describes, through photos and original illustrations, the insects and their role in the animal kingdom; the four project target species, their role in the ecosystem, conservation status, the main threats; the importance of ecological networks and the Natura 2000 network, project actions for the conservation of target species (monitoring, habitat recovery interventions, in situ and ex situ conservation) in 26 pages. The notebook contains an **informative album insert** with no. 2 **stickers** for each didactic notebook, to paste "Le Figurine dell'Eremita" (*The Eremita picture cards*);

• No. 1 70x100 cm colour **poster** on recycled paper, folded into four, which has the aim of disseminating the project: no. 200 posters were printed. Moreover, no. 100 more poster were printed;
• No. 4 **magnets**: 800 3x3.7 cm colour magnets representing the 4 target species (200 per species).
The didactic kit was designed specifically for children, in order to overcome commonplaces and paradigms about insects and to raise the awareness of the importance of the role of invertebrates for humans and the ecosystem. The kit was created and completed in November 2018.

DELIVERABLE	**Foreseen Deadline**	**Actual Deadline**	**DELIVERY DATE AND REFERENCES**
Album and picture cards printing	12/2017	11/2018	20/12/2018 – MR – Folder: Deliverable-E7_kit_didattico
Video clip on target species	01/2017	09/2017	20/12/2018 – MR – Folder: Deliverable- E7_video clip
Sheets and flags printing	01/2017	09/2017	20/12/2018 – MR – Folder: Deliverable-E7_eremita_tour_Sheets_flags
USB pen with project video clips	12/2019	06/2022	FR – Folder: Deliverable\ E7_DVD_Project_Video_Clips: • E7_Summary.pdf • EDU_Life_Eremita_kindergarten1.mp4 • EDU_Life_Eremita_kindergarten2.mp4 • Final Video sub eng_1.mp4 and Final Video sub ita_1.mp4 • PILL_Damigella_1920x1080_ENG.mp4 and PILL_Damigella_1920x1080_ITA.mp4 • PILL_Ditisco_1920x1080_ENG.mp4 and PILL_Ditisco_1920x1080_ITA.mp4 • PILL_facciamo festa EVENT_1920x1080.mp4 • PILL_Osmoderma-eremita_1920x1080_ENG.mp4 and PILL_Osmoderma-eremita_1920x1080_ITA.mp4 • PILL_Rosalia-alpina_1920x1080_ENG.mp4 and PILL_Rosalia-alpina_1920x1080_ITA.mp4 • Storytelling_1920x1080_ENG.mp4 and Storytelling_1920x1080_ITA.mp4 • VIDEO_Inseguendo una libellula.mp4
MILESTONE			
Launch of travelling awareness-raising campaign Eremita tour	02/2017	09/2017	on 24/09/2017 in Bologna

ACTION E.8: Project press office and Facebook social page

Foreseen start date	01/04/2016	Actual start date	01/04/2016
Foreseen end date	31/12/2020	Actual end date	30/06/2022

Beneficiary responsible for implementation: RER

The Press Office of the EREMITA project was activated in March 2016. Simultaneously with the completion of the tender for the PM position, the project communication service was also assigned to the **Istituto Delta – Ecologia Applicata**. The coordination of communication is therefore conducted by the PM in consultation with the communication contact persons appointed by each AB. A **Communication Plan** was established, which defines the methods for circulating information within and outside the partnership, the communication organisational chart, the project identity, the activity plan and the communication products plan. The plan was approved in December 2016 during the TT.

In 2022 Emilia-Romagna Region assigned the service of project press office to **Articolture srl**. Introductory meetings were organised with the new company, and a shared and organised drive space was created, where all the materials (logos and brand identity, photos, videos, previous dissemination material and mailing list) necessary for the creation of all the deliverables requested from Articolture was inserted.

In the last period the **Facebook page** has been managed jointly by Istituto Delta and Articolture.
All press released, published articles, news and events published in web site page (https://progeu.regione.emilia-romagna.it/it/life-eremita/notizie/notizie) was disseminated thanks to the Facebook page of the project (https://www.facebook.com/liferemita). The FB page has been constantly updated and will continue to be updated in the five years following the project, as written in the **After-Life Plan**. The page is followed by 1924 people, 1722 people like it, no. 240 post were written, published or re-shared.
From 1 February to 30 June, a **social campaign** (Facebook ADV) was also carried out on Facebook, by the company Articolture: sponsored Facebook posts, video and image promotion on Instagram with the aim of generating traffic to the project site and, at the same time, increasing visits to the page. These actions were agreed through the sharing of a **new Communication Plan** between RER and Articolture. All results of the monitoring campaign and Communication Plan (2022) can be found in FR – Folder: Other documents\ E8_ Press_Office: files E8_Articolture_Final Report.pdf and E8_Articolture_CommunicationPlan.pdf.
The Facebook page had an increase of 150 likes, i.e. an increase of +305.4% compared to the previous months. The traffic campaign produced a total of 995,642 impressions with a coverage of 265,162 and 24652 clicks on the project website link. At the same time as the traffic campaign, 10 posts were promoted, which generated a total of 442,656 impressions, a coverage of 213,049 and 11,602 clicks on the links. The implemented campaigns also brought an increase in visibility and traffic on the Facebook page, increasing interactions on the page:

- Likes and reactions: 1414 (ads) +624 (organic)
- Comments: 131 (ads) +15 (organic)
- Shares: 225 (ads) +11 (organic)

Given the high number of shares, likes and interested comments, the general sentiment on the campaign can be considered positive.
Furthermore, a new article in the same “Storie Naturali” magazine, has been drafted by the PM in support of RER, where a summary of the LIFE Eremita project is given, for those reading about the project for the first time. FR – Folder: Other documents\ E8_Press_Office: file N15_2022_StorieNaturali.pdf.

In addition, two pages were acquired in **Simbiosi Magazine** and a 3200-word article on the history and results of the project was produced, accompanied by some photos. The magazine is published quarterly, so the article will be published (printed and online) by 30 August 2022. The article can be found in FR – Folder: Other documents\ E8_Press_Office: file E8_SIMBIOSI_Magazine.pdf.

DELIVERABLE	**Foreseen Deadline**	**Actual Deadline**	**DELIVERY DATE AND REFERENCES**
Communication plan	12/2016	12/2016	27/06/2017 – 1° PR – Folder: deliverable- E8_Piano_comunicazione
MILESTONE			
Activation of Project Press Office	06/2016	05/2016	05/ 2016

ACTION E (NOT FORESEEN)

- **Further dissemination events**

MEOR organised no. 8 events to present the project and visit places involved in the conservation actions. Various age groups were involved in the activity, from children to adults, adopting the appropriate methodologies according to the target group of the event. A total of 80 people participated in the additional dissemination events.

No.	Date	Partner and location	Title	Target	No. participants
1	11/07/2021	MEOR: Parco regionale del Corno alle Scale.	*"Rosalia alpina* la regina degli ambienti forestali"	Citizens	10
2	25/07/2021	MEOR: Parco regionale dei Laghi di Suviana e Brasimone.	Why protect forest insects?	Citizens	10
3	07/08/2021	MEOR: Parco regionale del Corno alle Scale.	Insect world	Citizens and children	10
4	08/08/2021	MEOR: Parco regionale del Corno alle Scale.	Insects as indicators of environmental quality and climate change	Citizens	10
5	14/08/2021	MEOR: Parco regionale dei Laghi di Suviana e Brasimone.	Insect world	Citizens and children	10
6	21/08/2021	MEOR: Parco regionale del Corno alle Scale.	Why protect forest insects?	Citizens	10
7	04/09/2021	MEOR: Parco regionale dell'Abbazia di Monteveglio.	Discovering the hermit beetle houses	Citizens and children	10
8	18/09/2021	MEOR: Parco regionale dei Gessi Bolognesi e Calanchi dell'Abbadessa	Who lives in the treehouses?	Citizens and children	10
					Tot. 80

- **"i-Rosalia" citizen-science campaign**

In June 2021 a **citizen-science campaign "i-Rosalia"** was set up to raise awareness on the target species *Rosalia alpina;* publicity materials, infographics, videos and a specific page on the website were created. A suitable open-source application was identified (in collaboration with InNat project) to receive reports from citizen scientists. Following the development of the image of the campaign, it was advertised in all communication channels of the project.

The promotion of citizen science continued for the entirety of the last project year on the social pages and website. In addition, documentation and quarterly data on the monitoring of *Rosalia alpina* were requested from InNat.

The results of the Facebook campaign (12 posts) showed 193921 people reached, 1000 interactions, 505 reactions/remarks/sharing and 487 clicks on the posts.

On 21 July 2022, i-Rosalia and the "Citizen science" activity were presented, in the context of an initiative of Agenda Digitale dell'Emilia-Romagna, during a workshop on citizen science in the Emilia-Romagna Region. All materials including the presentation used for the workshop are available in FR – Folder: Other documents\ E_iRosalia.

ACTION F.1: Administrative-accounting and technical project management

Foreseen start date	01/01/2016	Actual start date	01/06/2016
Foreseen end date	31/12/2020	Actual end date	30/03/2022

Beneficiary responsible for implementation:RER

The Project Manager was Cristina Barbieri of Istituto Delta Ecologia Applicata. The activity was not continuous, as 3 tenders were carried out. The PM was selected for the first time through public tender and appointed with Resolution n. 8573 of 27/05/2016. The PM and TC contract didn't cover the entire duration of the project. The first contract terminated in June 2017. The second contract, again following a tender procedure, was assigned in December 2017 with resolution no. 21061/2017, and ended on 30/11/2018.
The third contract was assigned to the Delta-Ethic Institute Temporary Joint Venture by act no. 6625 of 20/04/2020. In the interval between one assignment and the next, the project management activity was carried out by the staff of the coordinating beneficiary. In an initial project phase, the technical coordinator (Mr. Roberto Fabbri) was selected by tender and appointed with resolution n. 5010 of 31/03/2016. The contract concluded in June 2017.
In consideration of the figure envisaged for scientific supervision, two supervisors were appointed: one specialised in saproxylic insects and one in aquatic insects. Professor Renato Carchini, for the aquatic insect's component, was appointed with resolution no. 18418 of 22/12/2015. Professor Marco Uliana, for the saproxylic insect's component, was appointed with resolution no. 20843 of 23/12/2016. The technical and administrative tables were officially established with resolution no. 8673 of 30/05/2016, with the first formal meeting.

The technical table consisted of:

Names	***Role***
Monica Palazzini	Project Coordinator
Elena Chiavegato	Support to the Project Coordinator
Ornella De Curtis	Technical-scientific aspects support
Cristina Barbieri	Project manager and Technical Coordinator
Massimiliano Costa replaced by Lorenzo Cangini	MAR Technical manager
Fausto Minelli	MEC Technical manager
Renato Carini	MEOC Technical manager
David Bianco	MEOR Technical manager
Francesca Moretti	PNATE Technical manager
Davide Alberti	PNFC Technical manager
Roberto Fabbri and Giovanni Carotti	Entomologists

The administrative table consisted of:

Names	***Role***
Monica Palazzini	Project Coordinator
Cristina Barbieri	Project manager
Diego Mattioli	MAR Financial manager
Alessandra Galli	MEC Financial manager
Marcella Ghiretti replaced by Patrizia Marani and then Marcella Ghiretti again	MEOC Financial manager
Lucia Bolognesi	MEOR Financial manager
Willy Reggioni	PNATE Financial manager
Roberta Ricci	PNFC Financial manager

However, even before their formalisation, the partners met within two tables. The first joint meeting was held on 10 February 2016.
The administrative table periodically monitors the progress of the expenditure, collects the administrative documentation of all the partners and resolves all the administrative problems involved. The table meets every 3-4 months, depending on the needs, compared to the six-monthly meetings planned in the application form.
The meetings of the administrative table took place on the following dates: 08/03/2106, 30/05/2016, 28/09/2016, 23/01/2017, 31/03/2017, 01/03/2018, 14/05/2018, 19/11/2018, 25/03/2020, 05/05/2020, 29/06/2020, 28/01/2021, 31/03/2021, 05/07/2021, 07/09/2021, 15/12/2021 and 26/04/2022.

Technical table meeting dates: 10/02/2016 and 8/3/2016 (unofficial phase), 30/05/2016, 21/06/2016, 18/07/2016, 12/09/2016, 28/09/2016, 25/10/2016, 23/01/2017, 03/03/2017, 31/03/2017; 18/05/2017, 10/07/2017, 10/08/2017, 02/11/2017, 05/12/2017, 22/01/2018, 01/03/2018, 14/05/2018, 03/10/2018, 12/11/2018, 28/02/2019, 30/05/2019, 09/07/2019, 05/09/2019, 25/03/2020, 05/05/2020, 29/06/2020, 02/09/2020, 23/10/2020. 28/01/2021, 31/03/2021, 05/07/2021, 07/09/2021, 05/10/2021, 15/12/2021 and 06/04/2022.

Internal coordination meetings, between Project Coordinator and PM were held regularly.
The PM was also involved, with the manager and staff of the CB, in writing texts for dissemination, technical publications and the monographic volume "Storie Naturali", defining the fields of web technology, and preparing action reports by organising and standardising the various contributions of the ABs. The PM organised and coordinated networking operations for the *G.bilineatus* repopulation plan and monitoring actions in Lombardy at the Pian di Spagna site, and coordinated the project financial reporting.

DELIVERABLE	**Foreseen Deadline**	**Actual Deadline**	**DELIVERY DATE AND REFERENCES**
Minutes of the meetings of technical and administrative tables and of the first-year meetings	12/2016	12/2016	27/06/2017 - PR1 Folder: F1_Deliverable_1/ Tavoli amministrativi; F1_Deliverable_1/ Tavolo Tecnici
Minutes of the meetings of technical and administrative tables and of the second-year meetings	12/2017	12/2017	27/06/2017 - PR1 Folder: F1_Deliverable_2/ Tavoli amministrativi; F1_Deliverable_2/ Tavolo Tecnici 20/12/2018 – MR – Folder: Deliverable-F1_TT_TA_minute-2017
Minutes of the meetings of technical and administrative tables of the third year	12/2018	12/2018	20/12/2018 – MR – Folder: Deliverable-F1_TT_TA_minute-2018
Minutes of the meetings of technical and administrative	31/12/2019 31/12/2020 31/12/2021	31/12/2019 31/12/2020 31/12/2021 30/06/2022	14/11/2022 – FR – Folder: Deliverable\ F1_MinuteTT_TA: • folder 2019 with files 1.Minute TT 28_02_2019.pdf

tables of the fourth, fifth and sixth years			2.Minute_TT_30_05_2019.pdf 2.Minute_TT_30_05_2019_annex.pdf 3.Minute_TT_09_07_2019.pdf 4.Minute_TT_05_09_2019.pdf • folder 2020 with files 1.Minute TT_TA 25_03_2020.pdf 2.Minute_TT_TA_05_05_2020.pdf 3.Minute_TT_TA_29_06_2020.pdf 4.Minute TT_FG_02_09_2020.pdf 5.Minute TT_23_10_2020.pdf • folder 2021 with files 1.Minute TT_TA_28_01_2021.pdf 2.Minute TT_TA_31_03_2021.pdf 3.Minute TT_TA_05_07_2021.pdf 4.Minute TT_05_10_2021.pdf 5.Minute TT_TA_07_09_2021.pdf 6.Minute TT_TA_15_12_2021.pdf • folder 2022 with files 1.Minute TT_06_04_2022.pdf 2. Minute TA_26_04_2022.pdf
MILESTONE			
Appointment of the project manager	03/2016	05/2016	
Appointment of the scientific supervisor	06/2016	12/2016	

ACTION F.2: Establishment of the technical table

Foreseen start date	01/04/2016	Actual start date	01/03/2016
Foreseen end date	31/12/2020	Actual end date	30/03/2022

Beneficiary responsible for implementation: RER

The technical table was officially established with resolution no. 8673 of 30/05/2016. The technical table was periodically convened to allow a measure of progress on the actions and solutions of the technical issues that occurred. The table is composed of the Project Coordinator, the PM, the TC and the technical representatives of all the ABs.
The table met throughout the project regularly with different frequencies depending on the progress of the project activities. The dates of the technical table meetings are listed in the description of Action F1, as the meeting minutes are deliverables for that action. Indeed, the minutes of the technical table are attached as deliverables of action F1.
Two Focus Groups meeting have taken place: on 18/10/2016 and on 03/07/2018. The second Focus group was established permanently (appointment n. 13250 del 13 08 2018 – annexed in this Report, Folder Other documents F2) to partake and plan activities on *G. bilineatus*.
In particular, the group defined, with the support of Dr Piero Genovesi of ISPRA and Prof. Paolo Audisio, an alternative plan for the *G.bilineatus* breeding activity as already described in actions C1, C2, C4. In order to better define the plan, a Focus group was set up with the participation of the technical representatives, the Project Coordinator, the PM, some entomologists (Mr. Roberto Fabbri, Mr. Giovanni Carotti, Mr. Gianluca Nardi), prof. Leonardo Congiu and prof. Paolo Audisio. The Focus group supported all (scientific and organisational) activities on *G.bilineatus* as defined in the request for substantial modification of the project.
Focus Group meeting dates: 18/10/2016, 03/07/2018, 28/05/2020, 02/09/2020, 23/10/2020, 25/03/2021.
The activity was carried out regularly, without criticalities.

MILESTONE	**Foreseen Deadline**	**Actual Deadline**	**DELIVERY DATE AND REFERENCES**
Appointment of members and activation of the project Technical table.	03/2016	05/ 2016	27/06/2017 - PR1 Folder: F1_Millestone2

ACTION F.3: Networking with other projects, LIFE and non-LIFE

Foreseen start date	01/07/2016	Actual start date	01/04/2016
Foreseen end date	30/06/2022	Actual end date	30/06/2022

Beneficiary responsible for implementation: MEC

The action was anticipated to April 2016 through the networking request to the managers of LIFE WetFlyAmphibia and LIFE MIPP. Meetings and the exchange of technical information with the representatives of the two projects periodically continue to take place.
The following activities formed part of the networking with the LIFE MIPP project: definition of the possible capitalisation on the project results, sharing of the monitoring protocols, collaboration between PNFC and UTB Pratovecchio, participation in the EntoModena fair on 17 and 18 September 2016, participation of the LIFE MIPP coordinator in the first seminar addressing volunteers on 25/10/2016 (action A5), participation in the final MIPP Life Conference in Mantova, 24-26 May.
The following activities formed part of the networking with the LIFE WetFlyAmphibia project: definition of intervention points of common interest, participation of the LIFE EREMITA technical coordinator in the initial conference of the WetFlyAmphibia project, organisation of a weekend with national CAI-TAM at the PNFC.
Further networking was activated with the LIFE14NAT / DK / 000606 RigKilde, with the Lazio Region on monitoring of *C. mercuriale* and with the University of Zagreb on monitoring of *G. bilineatus*.
The support letter (form A8) was requested and released to two LIFE candidate projects with the 2016 call on *O. eremita*: one in the Czech Republic and one in Lithuania.
On 5 April 2017 the representatives of LIFE EREMITA participated in the StudyVisit Life Slovenija - LIFE14CAP / SI / 000012.
On 4 August 2016 Cristina Gualandi (MEOR) participated in a networking meeting in Marzabotto (MO) with the LIFE Soccer project.
On April 19, 2018 the Project Coordinator, the PM and the technical representative of MAR participated in the StudyVisit - HUNGARIAN LIFE-LIFE14 CAP / HU / 000010.
On 18-19 September 2018 the PNFC entomologist Margherita Norbiato participated in the “BRINGING BUGS BACK TO LIFE: action for threatened invertebrates” and in the LIFE platform meeting on invertebrates "BRINGING BUGS BACK TO LIFE: action for threatened invertebrates" in Stirling, Scotland.
For the supply of *G.bilineatus* specimens necessary for the comparative genetic analysis, networking was activated with Dr. Martina Temunovic in Croatia, Dr. Dalia Bastytė in Lithuania and Dr. Zoltán Csabai in Hungary.
To investigate the availability of research groups to collaborate on a repopulation plan with founders to be withdrawn abroad, 15 contacts were activated, of which: 6 derive from Life projects completed or still in progress, identified through research on the Life Data Bank; 3 from contacts already started for the supply of *G. bilineatus* specimens for genetic analysis; 6 contacts from direct and indirect knowledge on research groups in Europe.
Then, considering the impossibility to organize a study visit due to the pandemic emergency, and after several mail exchanges and online meetings, an online workshop was held on the conservation status of *G. bilineatus* in Europe on September 30th 2021. The workshop recorded a large participation of the various research groups, with fruitful sharing and convergence of objectives, in view of the increasingly urgent need to preserve this elusive Dytiscid beetle, which raises red flags on the sudden change of climatic and environmental conditions.
The following institutions have participated: CINEA – European climate, infrastructure and environment executive agency; Department of Biology, University of Padua, Padua; Department

of Biology and Biotechnologies “C. Darwin”, Sapienza University, Rome; JSC - “Latvia’s State Forests”, Latvia; Nature Studies and Environmental Education Centre, Daugavpils University, Latvia; NIB - National Institute of Biology, Department of Organisms and Ecosystems Research, Slovenia; Department of Forest Genetics, Dendrology and Botany, Zagreb University, Croatia; CAS - Institute of Entomology, Biology Centre, Czech Republic; University of South Bohemia České Budějovice, Czech Republic; Department of Systematic Zoology, Faculty of Biology, Adam Mickiewicz University, Poland; ISPRA – Higher Institute for Environmental Protection and Research; Lombardy Region – Environment Sector; Piedmont Region - Biodiversity and Natural Areas Sector; Tuscany Region - Environment and Biodiversity Sector; ISPLA spa.
Workshop documentation is attached to the FR- Folder: Other documents\ F3 _Workshop_G_bilineatus

DELIVERABLE	**Foreseen Deadline**	**Actual Deadline**	**DELIVERY DATE AND REFERENCES**
Minutes of networking activities years 2016-2018	12/2018	12/2018	20/12/2018 – MR – Folder: Deliverable- F3_networking
Minutes of networking activities years 2019-2022	30/06/22	30/06/22	14/11/2022 – FR - Folder: Deliverable \F3_MinuteNetworking_19-22, file F3_Networking.pdf

ACTION F.4 After Life Conservation Plan

Foreseen start date	01/04/2021	Actual start date	01/04/2021
Foreseen end date	30/06/2022	Actual end date	30/06/2022

Beneficiary responsible for implementation: RER

On the basis of the interventions carried out and the actions performed, an analysis was made for each individual beneficiary of the future conservation actions, the resources that could be allocated and the timeframe for implementation. All the activities necessary for the drafting of the post-Life plan involved close contact with the beneficiaries both by telephone and through video-calls.
The plan was drafted according to the indications provided by the CINEA Agency and by viewing the plans already drafted in other Life experiences.
A work grid was provided to each beneficiary and subsequently analysed and implemented with the missing data. All the actions were grouped in a single table that is the future reference for the actions to be taken for the conservation of the 4 species.
The structure of the plan is as follows: target species; type of activity (monitoring; conservation; communication); actions/interventions/activities - (short description); Natura 2000 site; location; responsible body; participating body (RER; PNATE; MEOC; MEC; MEOR; MAR; PNFC; ALL); period; funding; project action reference; priority.

Through a meeting held on 19/07/2022, the After Life Plan was discussed until its approval.
Indeed, beneficiaries such as MEOC, MEOR, PNATE, PNFC and RER have already approved the Plan through formal acts of their authorities. All these acts are attached to this report in the folder FR: Other Documents\F4_Acts_After_Life. In addition, MEC and MAR, which have not yet formally approved the After Life Plan, have already finalised the formal act of approval, but are waiting for the first useful meeting of the Executive Committee to approve this documentation, which will be held by November 2022. These two remaining formal acts of approval will be uploaded on the "Documenti" page of the project website, under the link: https://progeu.regione.emilia-romagna.it/it/life-eremita/temi/documenti
(section "Atti"), as soon as available.

DELIVERABLE	Foreseen Deadline	Actual Deadline	DELIVERY DATE AND REFERENCES
After LIFE Plan	06/2022	06/2022	FR - Folder: Deliverable\ F4_AfterLife: • After Life EREMITA_ENG.pdf • After Life EREMITA_ITA.pdf • After Life chart_ENG.pdf • After Life chart_ITA.pdf

6.2.Main deviations, problems and corrective actions implemented

The GA has been amended 3 times;

- 1st Amendment notified with EASME letter (ref. B.3/AS/AREAS (2015) 6183951 of 13/01/2016), regarding the correction of clerical/material errors;
- 2nd Amendment notified with EASME letter (ref. b.3 (2018) 3792965 of the 29/06/2018) regarding the modification of the definition of conditions for natural persons, submission of VAT certificate and threshold for the submission of the certificate on the financial statements;
- 3rd Amendment notified with EASME letter (ref. B.3 4029848 of the 4/06/2019), regarding the modification of the forms: A1; B1; C1a; C1c (Actions: A7, C2, C4, C5, D1, F2, F3); C2, C3.

During the first year of the project, the first deviation encountered concerned Action C4 and the change proposed to use an existing private structure, managed by Acquaemundi, in the partner's area (in the same province of Ravenna, located about 35 Km from the natural park and from the place where the new building is envisaged by the project), dealing with aquatic wild animal farming (fishes, amphibians, reptiles) for reintroduction and restocking. The use of the Aquaemundi center replaces the realization of the structure in the Centro Visita Ca' Carnè, included in the area of MAR. On 19 April 2016, EASME was asked to modify the action by including the agreement for the construction of an ex-novo facility as per GA. The change has been notified by the CB to the Project Advisor, Mr Montero, with the email of 14/04/2016 and was accepted by the PA with the email of 21/07/2016. The agreement with the Aquae Mundi Association was approved with resolution no. 64 of 30 November 2016 of the Executive Committee and signed on 15/12/2016 (annexed with PR1 on 27/06/2017; Folder: other documents C4_Acquemundi).

The second difficulty encountered concerned the timeline of the ex-ante monitoring actions: A2, A3, A4. The sharing of methodologies, the practice of monitoring, the extension of the area of investigation and the lack of previous knowledge on the distribution and consistency of the populations of the 4 target species, required more effort than expected in the Proposal, and the monitoring activity was in fact carried out over two years instead of one (EASME B3/MMR/ D(2017) 3790763 of the 03/07/2017 and EASME B3/MMR/hm/D(2018)4243625 of the 17/07/2018). The delay of these actions caused the consequent delay of Action A7, which foresaw a "Plan of conservation actions" and therefore the beginning of actions C1, C2, C3, C4 and C5. With Amendment 3, the timeline was updated. The expected results for Actions C1, C2, C3, C4 and C5 were largely achieved as described in Chapter 6.

The third difficulty concerned the target species *G. bilineatus*, for which an amendment to the GA was requested. The impossibility of withdrawing founders from Lago Pratignano, already foreseen in the GA as a risk, has determined the definition of an alternative plan that was the subject of a request for substantial modification in terms of technical change and duration of the project.
The 3rd amendment made it possible to plan and implement a restocking plan with specimens from other source sites of Europe, particularly in Latvia, but also from a new site of occurrence of the species in Italy (Pian di Spagna, Lombardy), known thanks to specific monitoring carried out by the project entomologists.
The restocking plan was drafted thanks to the activation of a European networking, which allowed the exchange of technical and scientific practices, to be transferred to other European realities.

The fourth difficulty was related to finding founders of *G. bilineatus* in concomitance with the Covid-19 limitations of the 2020-2021 biennium that did not allow the organisation of trips to the networking countries.
During the summer of 2020, the contacts initiated with Sweden (Tommy Karlsson) and Latvia (Martins Kalnins) did not lead to the hoped-for outcomes. Activities in Sweden were stalled by the necessary authorization timing, that subsequently affected the overall collaboration.
In Latvia, in the Summer 2020, monitoring campaigns were carried out by the working group of Martins Kalnins, leading to the collection of a few individuals (no. 6), not sufficient for the repopulation in Italy. In 2021 a new working group was organized and directed by Prof. Valainis. Simultaneously; 43 individuals of *G. bilineatus* were collected in the second site of presence in Italy - the Natural Reserve of Pian di Spagna, where the species was found during the summer of 2020. The action was positively concluded with the recovery of a total of 132 founders (89 from Latvia + 43 from Pian di Spagna) that were used for the reintroduction in 3 lakes: 2 at PNATE and 1 at MEOR.

The fifth difficulty was related to the delays in training and communication activities: due to the Covid-19 restrictions, some of the communication activities, such as the Pala Eremita (E7) and the Symposiums (Action E2) were either delayed or redesigned by preferring the remote modality.
In addition, the training activity foreseen with Action A5 was delayed due to the Covid-19 limitations; to recover for the delay the theoretical lessons were held online.
The final event “Festa dell’Eremita” was held on September 18th 2021, concluding the action with a short delay. The study visit (Action F3) could not be organized due to the pandemic emergency, and was therefore replaced by an online workshop held on the conservation status of *G. bilineatus* in Europe on September 30th 2021. The workshop recorded a large participation of the various research groups, with fruitful sharing and convergence of objectives. The Covid-19 limitations made it also impossible to produce other gadgets following specific instructions of Emilia-Romagna Region, hence communication activities were enhanced with extra video productions and a sponsored social campaign.

6.3.Evaluation of Project Implementation

The project methodology is based on the typical phases of conservation target species, and can be summarised as: analysis of residual population, analysis of suitable environments for the species, possible improvement of species habitat, ex-situ breeding, breeding and/or translocation restocking. The basic methodology proved to be adequate. We point out how the contingency plan, in case of lack of individuals for repopulation, revealed to be of strategic relevance, as well as the genetic variability analyses have been a useful tool to realise the contingency plan for *G. bilineautus*.

A specific comparation of the obtained results have been summarized in the table below.

(Projects funded under the Call 2014 onwards must use this format)

Action	Foreseen in the revised proposal	Achieved	Evaluation
A1	**Objectives**: Implementation of procedures necessary for the proper start of the project **Expected results**: Within the first three months: - Identification/appointment of internal staff members of the project staff (technical and administrative officer of each partner, technical coordinators and other staff in different capacities). - Stipulation of agreements between the partners and the associated beneficiary. - All partners are informed about the standard administrative rules to be followed for proper and timely administrative reporting of the project. Within the first six months: - Realization of a detailed work plan/program. - Initiation of administrative procedures for the selection of personnel specifically contracted for the implementation of the project and/or for assignments to external staff as well as for the identification of the project manager and the scientific project supervisor.	Yes	- Administrative and technical representatives were appointed by each individual beneficiary within March 2016. - All Partnership Agreements were signed between the CB and the ABs within February 2016. - All partners were informed about the standard administrative rules to be followed for proper and timely administrative reporting of the project, during the first joint meeting was held on 10 February 2016 (Action F1). - The work plan was drawn up within May 2016, where all project actions were analysed, and protocols required to implement the activities were agreed upon. - All entomologists (involved in Actions A2, A3, A4) were selected through selection procedures within the month of May 2016 and signed their assignments within June 2016. - Permits necessary for the start of preliminary monitoring activities have been requested from the Ministry of Environment (MATTM). The procedures required to start the project were carried out on schedule.

Action	Foreseen in the revised proposal	Achieved	Evaluation
A2	**Objectives**: obtain a framework of the conservation state of the population maximize the results of concrete conservation actions and in particular actions C1, C2, C3 and C4 **Expected results**: specific localisation of species presence; numeric estimation of the sub-population consistence; environmental suitability model at regional scale; abundance index of *C. mercuriale* and *G. bilineatus.*	Yes	The distribution and conservation of all 4 species has been defined. The specific occurrence has been mapped on web-GIS and in the database/webtecnology (action C6). *O. eremita* The presence of 85 specimens was recorded, including no. 10 in 2016 and no. 75 in 2017. Most of the specimens (No. 77) were found within 14 Natura 2000 Network sites and No. 8 specimens in areas outside but still adjacent to the Natura 2000 Network. *R. alpina* The presence of 110 specimens was recorded. Most of the specimens (No. 90) were found within 3 Natura 2000 Network sites and No. 20 specimens in areas outside SCIs but still adjacent to the Natura 2000 Network. The ex-ante monitoring has allowed updating of 7 Standard Data Forms of Natura 2000 sites: 5 in which the *O. eremita* species was found and 2 in which *R. alpina* was found. *C. castellani* No. 3607 individuals of *C.castellani* (no. 1.912 in 2016 and no. 1.695 in 2017) in 2 Natura 2000 sites and 1 individual outside – most probably a wandering individual outside of the Natura 2000 site, near the SCI IT4070011. No. 6 individuals of *G. bilineatus* (no. 5 in 2016 and no. 1 in 2017) in the site IT4040001 “Monte Cimone, Libro Aperto, Lago di Pratignano”. The monitoring has been extended for 2 years, instead of only one, however, the extension permitted the gathering of better data on the species and a number of monitored SACs which was twice the one originally planned. The standardisation of methods revealed to be crucial in order to obtain data

Action	Foreseen in the revised proposal	Achieved	Evaluation
			at a wider scale and that could be utilised as future benchmark. The capture - mark – recapture method for numeric estimation proved to be not viable.
A3	**Objectives**: identification of all potential suitable areas for species reproduction of target species (*O. eremita* and *R. alpina*) on the entire project area **Expected results**: Technical report and framework cartography	Yes	The potentially suitable areas for the target species reproduction have been correctly identified. The monitoring has produced a catalogue, as shapefile, of all habitat trees recorded, which permitted the production of detailed cartography. Each tree has been assigned a suitability degree per species and has been mapped on web-GIS and in the database/webtecnology (action C6). *O. eremita:* monitoring took placed in 38 Natura 2000 sites and were surveyed no. 1760 habitat trees: no. 283 high suitability; no. 605 medium suitability; no. 125 low suitability. *R. alpina:* monitoring took placed in 18 Natura 2000 sites and were surveyed no. 1112 habitat trees: no. 318 high suitability; no. 198 medium suitability; 491 low suitability.
A4	**Objectives**: identification of all potential suitable areas for target species (*C. castellani, G. bilineatus*) reproduction on the whole project area propaedeutic for conservation actions C2 and C5 **Expected results**: - Identification of basins and rivers with maximum suitability for the species (circa 5-10 for *C. castellani* and circa 5-8 for *G. bilineatus*). - List of more water points (as backup) where it's possible to carry out interventions	Yes	*G. bilineatus:* no. 101 watercourses, along no. 127 transects, inside 19 sites of the Natura 2000 network: no. 25 transects presented high suitability; 18 medium suitability; 16 low suitability and 68 no suitability. *C. castellani:* no. 81 basins, along no. 113 transects, inside 15 sites of the Natura 2000 network: no. 20 transects presented high suitability; 14 medium suitability; 16 low suitability and 63 no suitability. The monitoring has produced a list, as shapefile, of all basins and rivers surveyed, using transects; all points have been provided with a suitability degree according to a 4-level scale. The list has permitted the production of detailed cartography. The monitoring has produced the expected results and has been done as foreseen with useful results for the implementation of action C2. The

Action	Foreseen in the revised proposal	Achieved	Evaluation
			methodology is therefore considered effective, applicable and replicable in other like projects.
A5	**Objectives**: involvement of stakeholders, volunteers such as amateur entomologists, Voluntary Ecological Guards (GEV) and other environmental volunteers, nature enthusiasts, photographers, university students, etc.), in tehe project activities and increment growth to the numerical and qualitative growth of new professionals and technicians in a sector that is currently very marginal. **Expected results**: Organisation of 1 preliminary seminar and 8 six-monthly coordination meetings between contact persons (for volunteering) of the different partners. Realisation of 16 training workshops addressed to the identified targets. Management and animation for 4 years of a specific groupware dedicated to the activities of the project volunteers LIFE. No. 4 editions of the "Catalogue of volunteering	Yes	- Organisation of no. 1 preliminary seminar and no. 11 six-monthly coordination meetings between contact persons (for volunteering) of the different partners. - Realisation of no. 7 training workshops addressed to the identified targets and some more field activities. - Continuing training activities carried out by entomologists on project areas - No. 4 "Catalogue of volunteering opportunities within the LIFE Eremita Project". - Management and animation for 3 years of a specific facebook group dedicated to the activities of the project volunteers LIFE. - No. 4 editions of the "Hermit Day - Volunteers for LIFE". - No. 74 volunteers participated in training courses - No. 136 volunteers involved and trained - No. 11 university thesis were produced The number of workshops carried out are fewer than foreseen, due in part to limitations due to Covid-19 emergency, but they have been offset by training activities directly on project sites with entomologists.

Action	Foreseen in the revised proposal	Achieved	Evaluation
	opportunities within the LIFE Eremita Project". No. 4 editions of the "Hermit Day - Volunteers for LIFE".		
A6	**Objectives**: Obtain an ex-ante baseline for evaluating the effectiveness of the training and information campaigns implemeted in the project to be compared with ex-post survey (Action D5) **Expected results**: No. 1 Activity Report: describes the state of knowledge and opinions on the management of forests, the spring catchments and small channel cleaning and their impact on biodiversity conservation and with special reference to the four project target species. No. 1 standard questionnaire for the entire project area.		A questionnaire was made and distributed to collect the opinions on the management of forests, the spring catchments and small channel cleaning and their impact on biodiversity conservation and with special reference to the four project target species. A report was produced with the results in the ex-ante survey, which involved 3.891 persons between 16 and over 66 y-o, with a coverage of the entire project territory. The involvement of the action target was three times more than expected: 3.891 persons vs. 1000 expected.
A7	**Objectives**: the elaboration of the plan will be fundamental and propaedeutic to the concrete conservation actions foreseen by the following project (with particular reference to actions C1, C2, C3, C4 and C5)	Yes	The action plan has been realised with all the foreseen details. As concerns the breeding of *G. bilineatus*, it was established that the population in Lago di Pratignano, the only site with verified species presence in the whole Emilia-Romagna Region, does not have sufficient consistency for the withdrawal of founders. Therefore, it was necessary to move to an emergency plan, which led to a

Action	Foreseen in the revised proposal	Achieved	Evaluation
	Expected results: 1 action plan action C1, C2, C3, C5. Restocking plan of *G.bilineatus.*		project extension request. As a result of Amendment No. 3, a restocking plan was designed with specimens from other source sites of Europe, particularly in Latvia, but also from a new site of occurrence of the species in Italy (Pian di Spagna, Lombardia), known thanks to specific monitoring carried out by project entomologists. The results were achieved as scheduled.
C1	**Objectives**: ensure the surviving during time of *O. eremita* and *R. alpina* by guaranteeing and adequate availability of reproduction sites **Expected results**: In the Emilia-Romagna Region: min. 800 habitat trees for *O. eremita.* Increase of the 300% of the habitat availability. Min. 800-900 habitat trees for *R. alpina*. 200% increase of the habitat availability.	Yes	No. 941 habitat for *O. eremita* have been created, including: creating hollows, pollarding, felling or thining of the suckers. Habitat availability: ex-ante (n.): 283 (high suitability trees as by A3 action) ex-post (n.): 941 (C1 and C3) Increase of the **333**% of the habitat availability. No. 1001 interventions in favour of *R. alpina* have been implemented, including: girding and partial ring-barking, leaning dead trees, broken stermsstanding, basal slits, uprooted trees, broken stems on the ground, waste piles, tripods. Habitat availability: ex-ante (n.): 318 (high suitability trees as by A3 action) ex-post (n.):1001 (C1 and C3) Increase of the **315**% of the habitat availability.
C2	**Objectives**: interventions aimed to restore the maximum functionality of the suitable places for introduction/reintroduction (C5)	Yes,with a lower target	Suitable habitats were restored along 9 watercourses where the species was not present, or present in low numbers, but where it was translocated with Action C5. The actual assessment as a result of the project is as follows:

Action	Foreseen in the revised proposal	Achieved	Evaluation
	Expected results: Technical report Restoration of areas suitable for C. castellani In the Emilia-Romagna: 900% increase of habitat availability for *C. castellani*.	than expected	Habitat availability: ex-ante (n.): 7 ex-post (n.):16 watercourses Increase of the **229**% of the habitat availability. A Technical Report of the interventions was produced. The expected results evaluated in the GA (increase of 900%) could not be reached due to the low suitability of streams monitored during action A4. The result is the maximum possible considering the initial condition.
C3	**Objectives**: increase of the size of *O. eremita* population and testing of the expansion and colonising capacity by using artificial sites. For what concerns *R. alpina* the action is necessary in order to favour the occurrence of the species in conditions of insufficient availability of dead beech logs either standing or decaying on the ground and consequently to favour in situ reproductive nuclei **Expected results**: 50% increase of the area of presence of *O. eremta* and 100% increase of numerical consistency. 50% increase of the area of presence of *R. alpina* and 80-100% increase of numerical consistency.	Yes	For *O. eremita* 150 WMBs installed in 22 Natura 2000 sites, available for in situ reproduction of *O. eremita* <u>Range of occurrence</u> ex-ante (n.): 14 Natura 2000 sites ex-post (n.): 25 Natura 2000 sites Increase of the 179% <u>Number of specimens</u> ex-ante (n.):75 ex-post (n.): 1.058 Increase of the 1.411% Data are obtained from evaluation carried out under Action D4 (ex-post monitoring). For *R. alpina* were been created stacks and tripods suitable for the species, in order to allow the completion of the biological cycle of different generations. <u>Range of occurrence</u>

Action	Foreseen in the revised proposal	Achieved	Evaluation
	Installation of 150 WMBs.		ex-ante (n.): 4 Natura 2000 sites ex-post (n.): 10 Natura 2000 sites Increase of the 250% <u>Number of specimens</u> ex-ante (n.): 318 ex-post (n.): 1001 Increase of the 285% Data are obtained from evaluation carried out under Action D4 (ex-post monitoring). For both species, the data are significantly increased than expected. In the case of *O. eremita*, due to in situ breeding activities, the percentage increase was higher.
C4	**Objectives**: produce an adequate quantity of *O. eremita* with the purpose of allowing an efficient reintroduction into the wild **Expected results:** 2 ex-situ coleoptera reproduction facilities, which include aquariums, terrarium-aquariums, and terrariums. Circa 1500 last generation larvae (L3) and circa 300 adults of *O. eremita.* Temporary storage of no. 100 individuals of *G. bilineatus* captivated abroad and intended for the restocking activities at the target sites.	Yes	No. 3 ex-situ breeding of *O. eremita* carried out. No. 3970 of larvae produced (different stages): 3252 L3 + 718 Adults. It was possible to confirm of the efficiency of *O. eremita* ex-situ breeding as good action for further conservation projects. Breeding will continue in the Afterl Life: no. 396 larvae were retained for further breeding. Increase the knowledge of the life cycle of *O. eremita*, through observation of the species over three years of experience on breeding. Temporary storage of No. 100 individuals of *G. bilineatus* was not necessary because they were directly released at restocking sites.

Action	Foreseen in the revised proposal	Achieved	Evaluation
C5	**Objectives**: Increase of target species populations **Expected results:** Release of circa 1.500 last generation larvae (L3) and 300 adults starting from circa 20-30 captive individuals of *O. eremita*. Capture within the IT4090002 site and immediate transferring and releasing of circa 500 *C. castellani* adults (sex ratio 1:1) in suitable habitats created under Action C2. Restocking with 100 *G.bilineatus* founders from source sites in Europe in two ponds. .	Yes	For *O. eremita*, no. 2884 L3 larvae and no. 706 adults (no. 3574) were released from 2019 to 2021 in 22 Natura 2000 sites of the Emilia-Romagna Region, which were used to populate 150 WMB and natural cavities. It was planned to release 1000 larvae and 200 adults. The results were tripled. 589 adults of *C.castellani* were sampled from the Rimini site (IT4090002) released in five streams in the Vena del Gesso Romagnola (IT4070011), of which 550 specimens were in good condition. The results for C. *castellani* are in line with what was estimated in GA. For *G.bilineatus* 132 specimens made it possible to restock in 3 ponds and 3 different sites Natura 2000 in the Emilia-Romagna Apennines. The number of *G.bilineatus* founders sampled and used for restocking is greater than that stipulated in Amendment No. 3.
C6	**Objectives**: creation of an integrated information system to support the conservation actions. **Expected results:** Implementation and management of 3 integrated databases and a supporting GIS layer. Realization of 1 system of Web interfaces for remote consultation/implementation of data. Realization of 1 application in Web-technology for laptops, tablets and smatphones. Involvement of volunteers trained during Action A6.	Yes	3 DataBases integrated with georeferenced data were created; 1) DB of monitoring (species + habitats); 2) DB interventions; 3) DB documents. The DB is accessible to enabled user through a system of Web interfaces for data consultation/implementation. The integrated DB is of dynamic type and linked to a WebGIS, this can be accessed freely from the project website https://servizimoka.regione.emilia-romagna.it/mokaApp/apps/LifeEremita/index.html Volunteers have been involved in updating the data.
C7	**Objectives**:	Yes	Realisation of 4 training courses and no. 139 technical staff were involved.

<table>
<tr><th>Action</th><th>Foreseen in the revised proposal</th><th>Achieved</th><th>Evaluation</th></tr>
<tr><td></td><td>Organisation of specific meetings aimed at project internal staff, young trainees and forest management operators to present the project results and how forest environments are managed.

Expected results:
Realisation of 3 training courses;
Realisation of at least 8 exchanges of experience between the project staff of the associated partners and workshops of synthesis.</td><td></td><td>No. 2 training seminar for entomologists and technical project staff were carried out. Other meetings were carried out within the technical tables provided in Action F1.
For the entire duration of the ex-ante monitoring, the TC carried out continuous training also in the field with the entomologists appointed by the ABs.
4 training workshops were conducted instead of 3.
A continuous exchange of experience was carried out between senior and junior entomologists and project technical staff, preceded by 2 workshops.</td></tr>
<tr><td>C8</td><td>Objectives:
Update of specific conservation measures for the preservation of the project's target species and the conservation and improvement of habitats and other conditions favourable to the maintenance of viable populations of the same species.

Expected results:
Conservation Measures and management lines favourable to the species to be submitted to the competent bodies for approval.
Adoption by the relevant entities of the Conservation Measures and Plans prepared.</td><td>Yes</td><td>By Act No. 1336 of 01/08/2022, the Specific Conservation Measures for the 4 species were approved, divided into two types: obligations and prohibitions and active measures.
<table>
<tr><th>Species</th><th>Obligations/directives</th><th>Active Interventions</th></tr>
<tr><td>O. eremita</td><td>no. 3</td><td>no. 6</td></tr>
<tr><td>R. alpina</td><td>no. 3</td><td>no. 2</td></tr>
<tr><td>C. castellani</td><td>no. 4</td><td>no. 8</td></tr>
<tr><td>G. bilineatus</td><td>no. 2</td><td>no. 4</td></tr>
</table>
In additional:
9 SDFs of Natura 2000 sites (sites IT4030002, IT4030003, IT4030005, IT4050002, IT4050004, IT4070011, IT4070016, IT4080002 and IT4090003) were updated with the presence of the target species. It is foreseen that within</td></tr>
</table>

Action	Foreseen in the revised proposal	Achieved	Evaluation
			the next years other 15 SDF of Natura 2000 sites, 9 for *O. eremita*; 3 for *R. alpina* and 3 for *G. bilineatus*, will be updated for the presence of the target species: IT4020003; IT4020026; IT4040001; IT4040002; IT4050001; IT4050002; IT4050003; IT4050016; IT4090001; IT4020012; IT4030003: IT4030005; IT4030001; IT4030005; IT4050015.
D.1	**Objectives**: verification of Action C4 efficiency aimed at its continual improvement and the following elaboration of management guidelines. **Expected results**: final technical report where activities, results and critical issues observed in action C4 will be described.	Yes	Technical report with the evaluation of indicators. • N° of reproduction sites realised/planned = 3/3 • No. 194 founders withdrawn for each species • No. of larvae produced (different stages): 3252L + 718A = 3970 specimens • A calculation of the weight increase of the larvae on a sample of 296 larvae shows an increase: by 363.6% for the passage from stage L1 to L2; by 244.1% for the passage from stage L2 to L3; by 1495.5% for the passage from stage L1 to L3. • Some pathologies were found, such as necrosis of fungal origin on L3 larvae (about 1.8% of the larvae). The presence of commensal mites did not affect the rearing of either larvae or adults. When moulds were present in quantity, they were remedied by totally replacing the rosure (only in 4 cases).
D2	**Objectives**: verification the efficacy of the restocking and translocation of *O. eremita*, *C. castellani* and *G. bilineatus.*	Yes	<u>*O. eremita*</u> Overall, in the 150 WMBs divided in 37 areas in which the L3 larvae were reintroduced from the 3 breeding centres, 797 different larval stages (L3, L2, L1) and 140 adults (73M; 48F; 19R) were found. <u>Assessment of the establishment</u> (on base of areas where the specie had been

Action	Foreseen in the revised proposal	Achieved	Evaluation
	Expected results: Assessment of the establishment of the species at reintroduction sites and an increase in populations of at least 50%; Assessment of the improved status of the populations present after release and reinforcement activities		recorded): ex-ante (n.): 9 areas ex-post (n.): 37 areas Increase of the **311**% (five times the result) *C.castellani* In 2021, in ex -post monitoring, there were 2,028 individuals captured. Assessment of the establishment (on base of areas where the specie had been recorded): ex-ante (n.): 4 water courses ex-post (n.): 9 water courses Increase of the **125**% (1,5 times the result) *G. bilineatus* The species has not been found. Arguably, the low number of reproducing individuals did not allow for the development and settling of a sufficiently individual-dense population to be positively sampled within the timings of the ex-post monitoring campaigns. The ex-post monitoring will continue during the After Life period, with the commitment of the involved Bodies (PNATE, RER, MEOR).
D3	**Objectives**: Evaluate the impact of the project on the socio-economic context of the Apennine portion of the Emilia-Romagna region. **Expected results:**	Yes	A report was produced that analyzed the indicators, some of which were not quantified due to lack of data.

Action	Foreseen in the revised proposal	Achieved	Evaluation
	No. 1 final report containing quantifications of indicators.		
D4	**Objectives**: Action D4 was aimed at monitoring the presence and distribution of the target species throughout the project area for the evaluation of the conservation actions as a whole. **Expected results**: A final report containing the estimated distribution and abundance of the target species in the regional territory Increased distribution and abundance of target species populations	Yes	*O. eremita* was found no. **1,058** individuals in 22 Natura 2000 sites, considering also the individuals detected in the WMBs installed on the trees. Range of occurrence ex-ante (n.): 14 Natura 2000 sites ex-post (n.): 25 Natura 2000 sites Increase of the 179% Number of specimens ex-ante (n.):75 ex-post (n.): 1.058 Increase of the 1.411% *R. alpina* was found no. **314** individuals in 8 Natura 2000 sites, both in previously known localities and in areas of new presence. Range of occurrence ex-ante (n.): 4 Natura 2000 sites ex-post (n.): 10 Natura 2000 sites Increase of the 250% Number of specimens ex-ante (n.): 318 ex-post (n.): 1001 Increase of the 285%

Action	Foreseen in the revised proposal	Achieved	Evaluation
			During 2020 a *Citizen Science* campaign was organized and promoted to collect possible reports of *R.alpina*. In fact, three reports were validated: two of confirmation in Natura 2000 sites for which there was already a record, and a third one in a Natura 2000 sites where the species had never been seen before. In 2021, during the ex-post phase, the caught individuals of *C.castellani* were no. 2,028 <u>Range of occurrence</u> ex-ante (n.): 3.842 (linear meters) ex-post (n.): 6.527 (linear meters) Increase of the 170% <u>Number of specimens</u> ex-ante (n.): 1.695 (year 2017) ex-post (n.): 2.028 Increase of the 120% The monitoring of the efficacy of the conservation actions implemented for the *G. bilineatus* carried out during the summer of 2022 was carried out only in the basins of restocking; it did not confirm the presence in the 3 sites where the restocking plan was implemented.
D5	**Objectives**: evaluate the effectiveness of training and information campaigns carried out. **Expected results**: No. 1 technical report describing the state of	Yes	**No. 356 questionnaires** were collected. As a measure of the effectiveness of the implemented communication actions, there was a clear increase in the percentage of respondents who were aware of the Life Eremita project and its implemented protection activities. The sample surveyed declared to have been contacted through web channels, social networks and awareness-raising events.

Action	Foreseen in the revised proposal	Achieved	Evaluation
	knowledge and opinions of the local community on project issues		A data analysis report was produced.
D6	**Objectives**: Quantification and qualification of the effects of concrete actions of the project on ecosystem functions. **Expected results**: *O. eremita* 300% increase in habitat availability 50% increase in the range of occurrence 100% increase in the numerical consistence *R. alpina* 200% increase in habitat availability 50% increase in the occurrence range 80-100% increase in the numerical consistence *G. bilineatus* 900% increase in habitat availability 600% increase in the range of presence 400% increase in the numerical consistence *C. castellani* 900% increase in habitat availability 600% increase in the occurrence range 400% increase in the numerical consistence of	yes	*O. eremita* Habitat availability: 333% Range of occurrence:179% Number of specimens: 1,411% *R. alpina* Habitat availability: 315% Range of occurrence:250% Number of specimens: 285% *G. bilineatus* Habitat availability: n.3 basins (*amendment)* Range of occurrence:400% Number of specimens:1,483% *C. castellani* Habitat availability: 229% Range of occurrence:170% Number of specimens:120% For the two saproxyl species, the expected results were largely exceeded. For aquatic species were lower than expected due to the critical condition of the residual populations present
E1	**Objectives**: Set up and put online the project website within 6	Yes	The website was put online on time with the aim of informing and sharing the activities realised and the results achieved during the project years: 23.663

<table>
<tr><th>Action</th><th>Foreseen in the revised proposal</th><th>Achieved</th><th>Evaluation</th></tr>
<tr><td></td><td>months, to raise the visibility of the project and make its products available to a wide audience quickly and easily
Expected results: Project website active within the first six months of the project.</td><td></td><td>total visits; 31.864 unique visitors.
The site will remain active for 5 more years.
Facebook page opening (not foreseen): 1.750 likes and 1.953 followers.</td></tr>
<tr><td>E2</td><td>Objectives:
Raise awareness among the population, and certain stakeholders (schools, local authorities, businesses and associations), with regard to the proper management of forests and waterways.

Expected results:
Elaboration and implementation of an <u>environmental education/Specific information and communication meetings</u> shared with schools and stakeholders.

<u>Dissemination material and publications</u> presenting the project: colour leaflet, printed on ecological paper - Italian version + English version - indicative print run 10,000 copies.

<u>Technical publication</u> on habitat creation and management actions (printed 30-40 colour pages, plastic-coated cover, ecological paper) - indicative print run 5,000 copies.</td><td>Yes</td><td><u>Environmental education</u>
No. 7.516 students and 328 classes have been involved in the activities.

<u>Specific information and communication meetings</u>
No. 2.001 participants in 43 awareness-raising meetings have been held in the AB territories.

<u>Dissemination material and publications</u>
<table><tr><td>Dissemination product printed by RER typography</td><td>No. Prints as of 30/06/2022</td></tr><tr><td>No. 1 Information leaflet - Italian</td><td>3252</td></tr><tr><td>No. 1 Information leaflet - English</td><td>500</td></tr><tr><td>No. 4 Notebooks</td><td>200</td></tr><tr><td>No. 4 Poster (70x50)</td><td>2675</td></tr><tr><td>No. 4 Bookmarks</td><td>9600</td></tr><tr><td>No. 4 Memory game</td><td>400</td></tr><tr><td>No. 1 dissemination depliant 21x21 cm in four colours</td><td>8,500 ITA and 1,500 ENG</td></tr></table></td></tr>
</table>

Action	Foreseen in the revised proposal	Achieved	Evaluation
	Technical publication on in situ-ex situ conservation actions and reintroduction activities (printed 30-40 pages in colour, plastic-coated cover, ecological paper) - indicative print run 5,000 copies. Publication of a monographic issue of the magazine "Storie Naturali"(ITA-ENG).		Technical publications Two publications merged into a technical-scientific single volume by editorial choice but the number of pages (40 + 40 = 80) and the contents do not change. 3.500 copies in ITA and 1.500 ENG. Technical Symposia No. 2 technical symposia were organized online, recorded and streamed via social network (Facebook) on 13/10/2020 and 01/12/2020. The symposium reached 5945 people. Monographic issue “Storie Naturali” no. 5000 copies (ITA-ENG) The expected results were far exceeded in terms of communicative products and numbers of participants involved in the activities
E3	**Objectives:** At the end of the project, the Layman's report is produced for the general public, which will contain the objectives, actions and main achievements of the project. **Expected results:** Layman's report of 5-10 pages in Italian and English (5000 copies) will be produced at the end of the project.	Yes	Layman's report No. 400 Layman’s report in Italian and no. 150 in English were carried out, No. 400 Layman’s report in Italian and no. 150 in English were carried out, which were distributed locally through the Parks and during the last events organized (“Facciamo Festa” and “Final Conference”), and it was also shared on the project website through news and posts. The number of Layman's printed is less than expected due to limitations caused by the Covid-19 emergency. Regional dispositions did not allow printing for large-scale distribution; however, the product is online.
E4	**Objectives:** Within 6 months choice of project logo; by the end	Yes	No. 1 Project logo The logo of the project was created by CB’s internal technical staff during the

Action	Foreseen in the revised proposal	Achieved	Evaluation
	of the first project year realisation of no. 44 information panels. **Expected results:** No. 1 Project logo; Printing of 44 outdoor colour information panels of various sizes, including graphics, layout and English translation.		month of April 2016. Information panels No. 20 Roll-up information panels for interiors were produced and installed; No. 20 information panels for the outdoor; No. 3 information panels for breeding centres; No. 160 rectangular nameplates for WMBs (of which 150 placed on boxes). A total of no. 203 information panels were printed compared to the foreseen 44.
E5	**Objectives:** During the third, fourth and fifth years of the project, at least 12 specific thematic workshops are held for forest use sector workers (forestry companies, agricultural companies, forestry cooperatives, forestry consortia, etc.) to obtain a higher professional qualification. **Expected results:** Minimum of 4 thematic training/awareness-raising workshops specifically targeted at forestry enterprises/cooperatives	Yes	A total of 12 workshops entitled "Life Eremita project and forest management perspectives" organized by PNATE, MEOC, MAR and PNFC took place during the project, to qualify the professional profiles of forestry workers and promote the exchange of skills. The number of participants was no. 301. The number of workshops exceeded the minimum number expected.
E6	**Objectives**: During the last year of the project, a one-day national seminar will be organised to share the experiences and results gained in this project.	Yes	Project conference No. 2 events were organised: "Facciamo festa!" on 28th of May at Valbonella (Santa Sofia) and Final conference on the 10th of June organised at DAMSLab (BO).

Action	Foreseen in the revised proposal	Achieved	Evaluation
	Expected results: Project conference; Publication of the conference proceedings on the website. Gadget: 3000 ecological canvas bags, customised with the Project logo and monochrome silhouettes of the different target species to be distributed as gadgets; 3000 full-colour magnetic fridge/blackboard magnets customised with the Project logo and design of the target species to be distributed as gadgets, rectangular (7.5 x 4.8 cm); 500 USB pens with wooden casing, customised with the Project logo to be distributed as gadgets.		Conference proceedings Final conference and power point presentation was recorded and uploaded on website project page. The following gadgets were produced for distribution at events: no. 1000 USB pens containing the project videos (see action E7); no. 99 capes; no. 250 water bottle; no. 300 bags; no. 800 magnet included in the educational kit (see action E7); no. 100 backpacks (see action A5). The results achieved are in line with what was expected.
E7	**Objectives**: Organisation of the EREMITA Tour awareness and information campaign to draw the attention of different target groups to the issue and to achieve an improvement in the level of public information, which may also lead to more active and conscious participation in biodiversity conservation. **Expected results:** Min. no. 50 editions of the information campaign called EREMITA Tour.	Yes	EREMITA Tour No. 46 editions with approximate no. 3880 participants. Approximately no. 28.000 citizens/stakeholders were contacted through the multimedia products produced as part of the project of the project and the social pages of the associated partners. Sheets and sails No. 12 sheets used as removable graphics and no. 8 sails printed on recycled polyester with images of the project target species, 4x0.70 m in size, and equipped with support rod and cast-iron base / counterweight were printing.

Action	Foreseen in the revised proposal	Achieved	Evaluation
	Printing No. 12 sheets for removable graphics of the modular inflatable structure "PALA EREMITA"; Printing of 8 sails on the project target species. Production of 8 video clips on target species. Printing of 1,000 DVDs with project video clips. Purchase of functional equipment. No. 8,000 citizens/stakeholders directly participate in the initiatives promoted within the framework of the awareness/information campaign and at least another 15,000 residents in critical areas for the purposes of the project (residents in the project's RN2000 sites) are contacted through the multimedia products produced as part of the project of the project and the social pages of the associated partners. Educational kit: stickers, posters and magnets 2,000 copies of the publication "Le Figurine dell'Eremita", a popular album with stickers to paste focusing on the project's target species and their habitats (12 colour pages, with no less than 20		Video clips/ video documentary/ video pills/ edu video/ DVD The total number of project videos rises to no. 23. The deliverable "1000 DVDs with project video clips" foreseen in the action, was therefore replaced with the production of no. 1.000 USB pens containing project videos. Purchase of functional equipment: it has been partially purchased, that which is necessary for the proper execution of the activities Educational kit: stickers, posters and magnets No. 25 didactic notebook, addressed to the students of the Primary and I degree Secondary school, with contents specifically designed for this type of user: no. 5.500 didactic book were printed. The notebook contains an informative album insert with no. 2 stickers for each didactic notebook, to paste "Le Figurine dell'Eremita" (The Eremita picture cards); No. 1 70x100 cm colour poster on recycled paper, folded into four, which has the aim of disseminating the project: no. 200 posters were printed. Moreover, were printed no. 100 more poster; No. 4 magnet: 800 3x3.7 cm colour magnets representing the 4 target species (200 per species). The results achieved are in line with what was expected, 23 videos were produced compared to the planned 8, which were also used for social dissemination campaigns.

Action	Foreseen in the revised proposal	Achieved	Evaluation
	stickers) to be distributed as gadgets.		
E8	**Objectives**: Coordination for the communication and dissemination of news and initiatives related to the project, for informing the public about the content and implementation status of the planned actions. **Expected results:** Communication strategy and plan; Activation of the agency/ press office; Coordination of communication/ information activities; Development of the coordinated image of communication activities; A communication contact person is identified among the project staff of each Partner.	Yes	The Press Office of the EREMITA project was activated in March 2016. Simultaneously with the completion of the tender for the PM position, the project communication service was also assigned to the Istituto Delta – Ecologia Applicata; a Communication Plan was established, which defines the methods for circulating information within and outside the partnership, the communication organisational chart, the project identity, the activity plan and the communication products plan. all press released, published articles, news and events published in web site page was disseminated thanks to the Istituto Delta and Articolture, who managed social page of the project. The results achieved are in line with what was expected.
F1	**Objectives**: general management of the project **Expected results:** Assignment of project manager (by 31/03/2016) and administrative coordinator. Identification of scientific supervisor. Appointment/selection of project staff by each associated partner (by 31/03/2015). Carrying out project activities according to the modalities and timelines indicated in the proposal project proposal; Project reports: inception, mid-term, progress and	Yes	Assignment of project manager and administrative coordinator: 27/05/2016 Identification of scientific supervisor: professor Renato Carchini and professor Marco Uliana. No. 3 progress reports, no.1 Mid term Report and 1 Final report were carried out. No. 36 minutes of technical meetings No. 17 minutes of administrative meetings Management has been more challenging than scheduled both because the project five and a half years instead of 4 and because the emergency from Covid-19 forced the rescheduling of several activities

Action	Foreseen in the revised proposal	Achieved	Evaluation
	final report. Minutes of technical and administrative meetings.		
F2	**Objectives**: Establishment of a Technical Table for ongoing coordination of project activities **Expected results:** No. 1 Technical Table established 8by March 31, 2016). No. 10 meetings with internal project staff and at least 5 focus groups with national or international experts.	Yes	The technical table was officially established with resolution no. 8673 of 30/05/2016 N. 36 meetings with internal project staff N. 8 focus groups Connected to project needs, more meetings were held than planned
F3	**Objectives**: sharing and exchange experiences **Expected results:** Information collection and no. 6 experience exchanges	Yes	No. 24 exchanges of experience with other projects, managing bodies and universities at national and European levels.
F4	**Objectives**: Long-term management of activities initiated by the project **Expected results:** 1 After LIFE conservation plan**.**	Yes	An After Life Plan with identification of activities to be carried out at the end of the project to ensure maintenance of the actions carried out and continuous improvement of the conservation status of the 4 species. The Plan has been approved or is in the process of being approved (MAR and MEC) by the beneficiaries.

Visible project results

The immediately visible results are the new habitat of species for *O. eremita*, *R. alpina* and *C. castellanii* distributed among the Natura 2000 sites, plus the three ex-situ breeding facilities for *O. eremita*. Furthermore 9 Standard data form (SDF) of Natura 2000 sites (sites IT4030002, IT4030003, IT4030005, IT4050002, IT4050004, IT4070011, IT4070016, IT4080002 and IT4090003) were updated with the presence of the target species.

It is foreseen that within the next years other 15 SDF of Natura 2000 sites, 9 for *O. eremita*; 3 for *R. alpina* and 3 for *G. bilineatus*, will be updated for the presence of the target species: IT4020003; IT4020026; IT4040001; IT4040002; IT4050001; IT4050002; IT4050003; IT4050016; IT4090001; IT4020012; IT4030003: IT4030005; IT4030001; IT4030005; IT4050015.

The data of the project are visible on the WebGIS at the following address: Life eremita (regione.emilia-romagna.it)

Other visible results are:

• No. 20 noticeboards, installed in the sites where the project interventions were carried out;

• No. 20 *rollups* displayed in the premises of the Region and Park Authorities, and in the main visitors' centre;

• No. 3 information panels installed in the three breeding facilities made by the project;

• No. 150 information nameplates placed on the WMB for *O. eremita*;

• No. 23 video about the species, the breeding sites, the conservation interventions made with the project (https://ambiente.regione.emilia-romagna.it/it/gallery/video/parchi-e-riserve-naturali/video-sul-progetto-life-eremita)

Effectiveness of the dissemination activities

Regarding the dissemination and awareness raising activities of the project, important results can be observed in terms of increased visibility and reach to the public:

- The creation and the regular update of the official website (https://progeu.regione.emilia-romagna.it/it/life-eremita), which registered: 23.663 total visits; 31.864 unique visitors;
- The contextual creation of an interactive webpage and of a Facebook page amplified the chances of interaction with the activities of the project: https://www.facebook.com/liferemita;
- The FB page has been constantly updated. The page is followed by 1.953 people, 1.750 people like it, no. 240 post were written, published or re-shared.

In order to raise awareness and to provide support for the various information and educational activities, specific materials were produced:

- No. 1 leaflet of the project and no. 1 dissemination *depliant*, for a total of 13.752 copies printed;
- No. 1 technical-scientific publication in Italian (no. 3.500 copies) and English (no. 1.500 copies);
- No. 1 educational kit with no. 25 didactic notebooks, 1 poster and 4 magnets; in total produced no. 5.500 didactic notebooks, no. 200 posters, no. 800 magnet and no. 100 more poster;
- No. 1 Memory game (in total 400 copies);
- No. 4 different types of notebooks (for a total of 200 copies) and bookmarks (for a total of 9.600 copies);
- No. 2.718 copies of prints including posters (2675 copies), roll-ups (20 copies), information panels outdoors (20 copies) and in breeding facilities (3 copies);
- No. 150 information nameplates placed on the nest boxes for *O. eremita*;

- No. 23 project videos about the species, the breeding sites, the conservation interventions made with the project (https://ambiente.regione.emilia-romagna.it/it/gallery/video/parchi-e-riserve-naturali/video-sul-progetto-life-eremita);
- No. 18 technical-dissemination meetings promoted: 2 symposia and 16 workshops (12 in E5 and 4 in C7), with a total of 6.385 participants;
- No. 43 awareness-raising meetings held and no. 2001 people involved;
- No. 46 edition of EREMITA Tour, with approximate 3.880 participants;
- No. 2 final event, with 133 participants;
- No. 7.516 students and no. 328 classes involved;
- No. 138 volunteers involved in activities, with no. 4 recruitment catalogues published, 21h of theory + 88h on field lessons;
- No. 1 Citizen-science campaign "i-Rosalia";
- No. 3.700 ex ante questionnaires and no. 356 ex post questionnaires collected;
- No. 7 different types of gadgets, for a total of 3.049 items;
- No. 2 publications: the *Layman's report* (550 copies) and the special monographic issue of "Storie Naturali" magazine (5.000 copies);
- No. 83 online news in the project official website;
- No. 2 articles about the project were published in Storie Naturali and Simbiosi magazine.
- No. 1 scientific article published on the European Zoological Journal.
- No. 11 university thesis were produced.

Amendment to the GA

With reference to *G.bilineatus* a request of Amendment to the GA was necessary. The 3rd Amendment was notified with EASME letter (ref. B.3 4029848 of the 4/06/2019). Art. I.2 of the Grant Agreement was revised, modifying the conservation actions in favour of the species as well as the overall project duration, from 60 to 78 months.

The Amendment request was necessary as, following the monitoring action A2, a much more critical situation had been detected for *Graphoderus bilineatus* compared to the one reported in the Natura 2000-Standard data form on which the project scheme was based. Even though the investigation on *G.bilineatus* (Action A2) had been developed on 14 Natura 2000 sites and in particular on 110 basins during the 2016 and 2017 years, the species had been detected with 6 individuals in total of which 5 in 2016 and 1 in 2017, only in one site: Lago Pratignano (MO). These numbers clearly showed that the population in Lago Pratignano was too weak to allow the withdrawal of founders for the breeding activities as foreseen by Action C4 in the 2 breeding facilities of MAR and PNATE.

Through the Amendment it was possible to implement an alternative strategy with a positive outcome, notwithstanding the difficulties connected to the Covid-19 emergency and to the subsequent logistic difficulties.

Emilia-Romagna Region set up a special *focus group*, composed of technical representatives of all the project beneficiaries, the *project manager* and entomologists in charge, under the scientific direction of Prof. Paolo Audisio of La Sapienza University in Rome, and Prof. Leonardo Congiu of Padua University. This *task force* then proceeded to assess the feasibility of a new work programme based on the hypothesis of finding the specimens of *G. bilineatus* to be introduced in the regional territory, starting from extra-national source populations.

However, it was necessary to identify populations in a good state of conservation that were compatible with the Italian population from an ecological and genetic point of view.

In order to find the source populations abroad from which to take the founders, a networking with more than 15 research groups in Europe was activated, resulting in a collaboration with the research group in Latvia, coordinated by Mārtiņš Kalniņš, entomologist and specialist in environmental design for the "The State Forests of Latvia" organization, and Prof. Uldis Valainins of the Institute

of Life Sciences and Technologies of the University of Daugavpils. The research team was chosen based on the above guidelines and on the availability of viable populations located in Latvia that could guarantee the collection of *G. bilineatus* founders.
This alternative strategy was unfortunately also hampered by the COVID-19 health emergency, which restricted international travel and prevented the entomologists of the Life Eremita project from traveling directly to Latvia to make the captures. The alternative plan to activate a team of Latvian entomologists who could capture the specimens and send them to Italy, proved not be effective during the first year (2020).
The objective, in compliance with the authorizations of the Latvian Agency for Nature Conservation for the capture and collection of individuals of *G. bilineatus*, was to get 120 live specimens in various locations across Latvia.
Three methods were used to capture the beetles: displacement with a hydrobiological net in the coastline area of the water bodies - envisaged as the main method in the guidelines prepared by the LIFE project (Sampling protocol for the collection of individuals of *G. bilineatus*); placement of modified 5l bottle traps and shrimp traps.
In 2020, only 6 individuals of *G. bilineatus* were captured during fieldwork, a number of individuals insufficient for the restocking activity, probably stemming from the merging of several circumstances: seasonal differences in the population dynamics, a relatively small number of days of trap activation, and the presence in the traps of larger and more aggressive dytiscid beetle species (*Cybister lateralimarginalis*).
As it was impossible to foretell the concrete possibility of finding the specimens abroad, the work programme was again revised. Instead of the alternative scenario of using founders *of G. bilineatus* from other European populations, we chose to return to investigate some known Italian sites, particularly in Lombardy, still considered suitable for the presence of the species, based on the absence of the main threat factors. Although the occurrence of the water beetle had not been confirmed in the last thirty years in this region, considering the suitability of some sites, we questioned whether the absence of the *taxon* was not due to an actual disappearance, but rather to an inadequate sampling, in terms of sampling efforts and technical skills.
Extensive sampling conducted in July 2020, by experienced entomologists, Roberto Fabbri, Gianluca Nardi, Stefano Aguzzi and Giovanni Carotti, with the authorization of the Ministry of the Environment, led to the confirmation of the occurrence of *G. bilineatus* in a site of the Natura 2000 Network at the border between the provinces of Sondrio, Como and Lecco.
The first results of the catches made it possible to posit the occurrence of a population of a certain size, this consideration deriving from the relationship between sampling effort and capture of specimens. Moreover, the genetic analysis of the mitochondrial COI region of the samples taken in the Lombardy site, also carried out by the University of Padua, enabled to identify two different haplotypes, different from the one previously found in the individuals sampled in Emilia-Romagna Region, but within the diversity range observed in this species across Europe.
In 2021, the survey at the Lombardy site produced positive results, leading to the collection of a sufficient number of founders for the restocking of a site in the north-eastern Apennines.
This result was followed by an equally incredible outcome related to the collaboration, which had remained active also for 2021, with the research group of Prof. Uldis Valainis of the University of Daugavpils, which in August collected several specimens of *G. bilineatus* in ten different locations, Reserves and Parks in Latvia, thanks to an improved sampling technique.
G. bilineatus was searched in the following water bodies in Latvia: Lake Mācītājmuižas, Ruģeļi fish ponds, Lake Ivušku, Lake Ismeru, Lake Sāls, Lake Muižnieku, Lake Ummeru, Lake Gauja. *Graphoderus bilineatus* was searched in the following water bodies: Lake Mācītājmuižas, Ruģeļi fish ponds, Lake Ivušku, Lake Ismeru, Lake Sāls, Lake Muižnieku, Lake Ummeru, Lake Gauja. Thanks to the development of an effective transport method, 89 specimens were shipped to Italy and released in other two lakes in the north-western Apennines of Emilia-Romagna Region.

The environments suitable for the release were chosen starting from the results of the *ex-ante* monitoring of the species' habitat, carried out in Emilia-Romagna within the Life Eremita project. On the basis of a set of parameters for the assessment of suitability, one hundred and twenty-four basins distributed across twenty-two Natura 2000 Network sites and four, already monitored, external sites were analysed.
The chosen sites, following appropriate inspections, had the following features: absence/low persistence of threats for the target species; eco-morphological characteristics more similar
to the source sites; long-term guarantees of the maintenance of a regime of protection for the species; logistical features suitable for the restocking operations, as well as their being publicly owned.
In conclusion, although the initial assumptions of the LIFE project were based on the optimistic view of being able to easily restore the conservation *status* of the Emilian population, we were soon confronted with a situation that turned out to be more critical than expected. In fact, the general reduction of the species' range is an aspect which also emerged from the networking with other European countries, a situation underlining the importance of what was carried out within the LIFE programme. In particular, in the years of the project, a second station of ascertained occurrence of the species was confirmed in Italy, in addition to the one in Emilia, assigning to Italy the role of southern limit of distribution of the species.
Future releases of additional specimens of *Graphoderus bilineatus* in the sites participating in the project will be carried out only after a thorough assessment of the already-implemented restocking operations.
The experience of the LIFE project, which we can claim to be the first in-depth research carried out in Italy on this *taxon*, confirmed that *G. bilineatus* is a very problematic species from every point of view, both in terms of monitoring and conservation, breeding, and restocking.

Results of the replication efforts
The Project was applied for in 2014 and approved in 2015, when there was still no mandatory replication activity for Life Nature projects. Nonetheless, the effort for replication was developed on three levels: Regional, National and European.
Regional level:
The result for replication inside the Region was a group of 74 volunteers trained (Action A5) through outdoor training and coaching activities on the project sites and 139 people between project staff, protected areas of the Emilia-Romagna Region, environmental guides, forestry corps and provincial guides were informed and trained on the project objectives and activities. In both types of training, the topics covered included the management of the Natura 2000 network, the biology and ecology of the 4 target insect species, the conservation techniques implemented through the project with reference to the importance of maintaining old-growth forests and the need to improve the quality of regional water bodies. The results on the monitoring of aquatic habitats (Action A4) showed a very critical situation, with few watercourses and basins in a suitable condition to host *G. bilineatus* and *C. castellani*.
Each trained person managing and/or involved in conservation activities in the regional Nature Network, belonging to institutions and/or associations, was a vector for replication activities also in other regional areas outside the project. This will be especially measured in After Life. The experience gained in the project has increased both knowledge about the target species and awareness of the need to maintain and improve their habitats, which has favoured the planning of measures in the new 2021-2027 programming of financial instruments such as the EAFRD. The practices developed by the project will be replicated by the trained staff thanks to activities financed by the EAFRD fund within the Emilia-Romagna Region.
National level:
The criticalities widely described in the previous section concerning *G. bilineatus*, extended the action outside the project area, involving two other regions: Lombardy and Piedmont. The sectors

responsible for the management of protected areas were contacted to verify the presence of the species in the historical sites where it was reported. Networking activities led to the identification of some more suitable areas on which specific monitoring was carried out by the Life Eremita entomologists. The activities were concentrated in the Natura 2000 site IT2040022, located in the Pian di Spagna Regional Reserve in Lombardy. As is well known, the species was found thanks to this survey and enabled some of the project's repopulation operations.
The involvement of the staff of the Natura 2000 Network management bodies of the Lombardy Region will allow both monitoring techniques and restocking operations to be replicated outside the project area. In fact, a strategic Life Natura project involving several regions of the Po basin is currently being applied for, which envisages the replication of techniques, methods and practices of the Life Eremita project not only at a regional level but also externally to foster the expansion of the ecological network of the four target species.
European level:
The networking activity at the European level implemented through Action F3 was very fruitful in terms of transferring good project practices. In particular, the monitoring protocols of *O eremita* and the guidelines for the implementation of the WMB and the breeding protocols of *O eremita* were transferred to the following projects Life Rosalia, Life4OakForests, Life Osmoderma, Life GoProFor. Volunteer involvement methodologies and monitoring protocols for the 4 target species were transferred to Life ESC360.
The networking carried out for *G. bilineatus* enabled the development of a protocol for the long-distance transport of *G. bilineatus* specimens between European countries, which was transferred to research and management bodies in several European countries: Croatia, Lithuania, Hungary and Sweden. The workshop on the conservation of *G.bilineatus*, which took place on 30 September 2021, enabled the sharing of strategies and research methods on the species at a European level thanks to the networking that took place.

Policy impact
In several project phases, the results of the actions contributed to the definition of standards and measures to ensure the implementation of the Habitats Directive in the Emilia-Romagna Region.
With the ex-ante monitoring of species distribution, a large-scale survey of insect species was implemented for the first time, a category of fauna that had previously been little investigated, mostly the preserve of a few university research groups or sporadic amateur entomologists or in rare cases professional entomologists.
The base line has been a regional historical archive that has collected bibliographic and local census records over the last century. For the two saproxylic species, *O. eremita* and *R. alpina*, the results on their distribution allowed the SDF of 9 Natura 2000 sites to be updated. These are sites where, previously, their presence had never been reported.
The update, requested and obtained by the Ministry (MATTM) in 2019, allows for the proper implementation of protection regulations for the two species, such as the Specific Conservation Measures, at these 9 sites.
The ex-post monitoring, carried out between 2020 and 2021, found the presence of the target species in an additional 15 Natura 2000 sites, thanks to the conservation measures implemented with the project. The request for an update was sent to the Ministry (MITE) (see charter Action C8 and annexes in Folder Other documents) and is currently being processed.

With certainty, it can be said that the monitoring contributed to providing data for the updating of 24 SDFs, 24 sites where previously either no species were known to be present or not present. In addition, the Emilia-Romagna Region the 4 species are specifically protected by the Regional Law n. 15/2006 “Measure for the protection of minor fauna in Emilia-Romagna”, providing for adequate forms of protection and conservation for animal species which may be small in size.

Therefore, the updated species distribution framework ensures that the area of implementation of legislation is extended.
The implementation of habitat improvement, in-situ and ex-situ breeding and repopulation/translocation operations allowed for the accurate identification of Specific Conservation Measures to implement the correct protection policy for the 4 species and to reverse the negative trend in their conservation status. By Act No. 1336 of 01/08/2022, the Specific Conservation Measures for the 4 species were approved, divided into two types: obligations and prohibitions and active measures.

Species	Obligations/directives	Active Interventions
O. eremita	no. 3	no. 6
R. alpina	no. 3	no. 2
C. castellani	no. 4	no. 8
G. bilineatus	no. 2	no. 4

The knowledge and experience acquired during the project made it possible to identify at least 14 priority measures (Table E) for the 4 species in the regional PAF, approved by act no. 2021 of 29/11/2021.
The consideration of the importance of deadwood for the component of biodiversity linked to it, as well as for the fertility of the forest, led to introduce in the Forestry Regulation of the Emilia-Romagna Region (2018) in art. 64, "General conservation measures in Natura 2000 Network sites for forests and other areas of forest importance". In art. 64 there is the obligation to leave at least 3 dead or rotting plants standing per hectare, chosen among the largest ones. The presence of deadwood has thus become a real forestry parameter and not only a feature of forest habitats like, for example, old chestnut and wild beech forests.

Main barriers
The conservation action of the project has not encountered any particular barriers; most of the interventions have been carried out in publicly owned areas (regional state property). On the contrary Apennine forests of Emilia-Romagna are fragmented into a myriad of private properties, making any plan quite difficult to implement, but the opportunity to overcome the issue is offered by Rural Development Program (RDP). As a matter of fact, establishing specific operations to make investments on these areas in synergy with conservation goals is definitely the best way forward. Managing Authorities should encourage the use of these resources through widespread information to private landowners and by promoting public/private agreements for the management of intervention areas. During the project such an example was implemented thanks to a call of the 2014-2020 Rural Development Program (RDP) under operation 8.5.01 "Investments aimed at increasing the resilience and environmental value of forest ecosystems". EOR has promoted the use of the Measure to owners of the critical area of the chestnut trees of Porranceto, called "Conservation of the century-old chestnut woods of Porranceto".
The implementation of the RDP project and some ancillary interventions cost over € 68.000. In the late spring of 2021, *O. ermita*, whose larvae were deposited in the project WMBs, flew among the century-old veteran trees. RDP funding has created a synergy with Life.

Policy developments
The opportunity of applying Measure 8 to finance additional projects in the Natura 2000 Network sites which had already been involved in habitat improvement schemes for the two saproxylic insects, *Osmoderma eremita* and *Rosalia alpina*, was seized by some Authorities which were the beneficiaries of the Life Eremita projects, in order to expand the scope of the project by carrying out additional interventions to increase the overall ecological resilience and efficiency of their forestry assets, to foster stock diversity and variability. This is the case of the Managing Authority of the

Parks and Biodiversity of Central Emilia, which in four Natura 2000 Network sites (SAC/SPA IT4040002, SAC IT4030007, SAC IT4030010, SAC IT4030014) has invested in schemes to initiate high-trunk beech forest, by thinning out the surplus suckers with the release on the ground of the branches arranged in heaps or strips. The conversion of the coppice into a forest and the achievement of an uneven-age mix in the forest will favour the expansion of the distribution area of *R. alpina*. In addition, other interventions aimed at increasing the structural diversity of the forest, thanks to the structural and specific differentiation of the tree stands, will later lead to an evolutionary aging process fostering the establishment of more suitable habitats for *O. eremita* In the Eastern Emilia Macro-area, and in particular in the state-property forest of Lizzano in Belvedere, within the area of the National Park of Corno alle Scale and the Regional Park of Abbazia di Monteveglio, other implemented schemes within the scope of Measure 8 have widened the reach of the Life Eremita project through the setting up of several wood piles to increase the provision of deadwood mass.

The influence of Life Eremita on local administrations has made possible the involvement of some local entities, such as the Municipality of Monchio delle Corti (PR) within the Western Emilia Macro-area. In effect, thanks to a project aimed at the creation and diversification of chestnut woods micro-habitats, actions involving the clearing up of cultivated or abandoned chestnut trees were carried out, keeping dead trees on the ground in order to promote deadwood mass.

Other indirect results of Life Eremita have been found in the forest planning programme, financed in this case with regional funds and carried out through the implementation of specific conservation actions targeted to *O. eremita*, *R. alpina* and the main saproxylic organisms. Specifically, the programme outlines three forest management plans recently approved for the state-property forests of Lizzano in Belvedere (BO) and for the woods of Pievepelago and Piandelagotti-Maccheria (MO). In these sites, the relationship between biomass and deadwood mass is not only being studied, but specific actions aimed at ecosystem maintenance are introduced, working in synergy with current forestry practices.

By means of bark-ringing, hollowing and the set-up of small deadwood piles, action has been taken precisely where excessive structural uniformity and the traditional removal of deadwood limit the availability of this precious element. For the first time, we are working to increase deadwood as a resource for the main decomposers (for the conservation of species of Community interest that are also primary indicators of the health of forest ecosystem), with the ultimate goal of developing and maintaining the long-term resilience of the forest system.

These measures, mapped, supervised and monitored by the Management Authority for Parks and Biodiversity of Eastern Emilia, have upended some misperceptions of forest management and have brought about a vision of the forest that is undoubtedly new, even for the ordinary hikers passing through the woods. The maintenance of rotting wood and veteran trees has become concrete, demonstrating the role and usefulness of the trees having suitable features to become habitat of species, for their size or hollows, even if dying, damaged, misshapen and lacking phenotype or mere commercial interest.

All this represents an investment for the benefit of the environment and the forest capital. The planning of the new funding period of the structural funds 2021-2027 has ambitious goals in this sense: the harmonization of regional planning and enhancing territorial diversity, in order to promote maximum application to the specific conservation measures (MSC) for the 4 species.

The PAF (Prioritized Action Framework), the framework of priority actions for the Natura 2000 Network, agreed with the various managing Authorities of the different funds, is the complete guide of these actions.

EU added value of the project and its actions

The project has a high EU value, because had implemented Dir. 92/43/EEC, through the improvement of the conservation status of 4 species - Annex II H.D. Nella seguente tabella vengono descritti i risultati ottenuti rispetto a quelli previsti e definiti nel Form B3 of the GA "EU ADDED VALUE OF THE PROJECT AND ITS ACTIONS".

Expected results (Form B3)	Delivered results
For *G. bilineatus* first ever European ex situ breeding and reintroduction into the wild.	The breeding activity was modified by 3rd Amendment notified with EASME letter (ref. B.3 4029848 of the 4/06/2019). The activity on *G. bilineatus* has focused exclusively on restocking, through the search for founders in other Italian regions and other European countries. <u>Results</u> • Knowledge of a second station of ascertained occurrence of the species was confirmed in Italy (Natura 2000 site IT2040022), in addition to the one in Emilia, assigning to Italy the role of southern limit of distribution of the species; • Specific genetic study conducted by the University of Padua on the genetic variability of *G. bilineatus* at European level, that had produced a scientific article, published in 2020 on the Vol. 87 no. 1 of the scientific journal "European Zoological Journal"; • Definition of a protocol for the long-distance transport of *G. bilineatus* specimens between European countries (annex in folder: FR\Other documents\C4_Latvia: file Shipping Protocol_Graphoderus bilineatus.pdf); • 132 specimens, from Latvia and the Pian di Spagna site in the Lombardy Region, made it possible to restock in 3 ponds and 3 different sites Natura 2000 in the Emilia-Romagna Apennines.
For *O. eremita* first attempt at ex situ breeding and large-scale reintroduction	Ex situ breeding and large-scale reintroduction was successfully achieved: • no. 3970 of larvae produced (different stages): 3252 L3 + 718 Adults; • no. 2884 L3 larvae and no. 706 adults (no. 3574) were released from 2019 to 2021 in 22 Natura 2000 sites of the Emilia-Romagna Region; • increase of the knowledge of the life cycle of *O. eremita*, through observation of the species over three years of experience on breeding; • no. 396 larvae available for further breeding in After Life. • definition of a protocol of breeding *O. eremita*, transferred to other Life beneficiaries during networking activities (annex in MR\Other documents\C4\

Expected results (Form B3)	Delivered results
	C4_Breeding_protocol.pdf). • definition of a protocol of restocking *O. eremita*, transferred to other Life beneficiaries during networking activities, (annex in folder FR\Other documents\C5_Protocols\ Prot_Restocking_Osmoderma eremita.pdf)
For *C. castellani* second attempt to translocate the species in Europe and first in Italy	The translocation the species in Europe and first in Italy was successfully achieved: • 589 adults of *C. castellani* were sampled from the Rimini site (IT4090002) released in five streams in the Vena del Gesso Romagnola (IT4070011), of which 550 specimens were in good condition; • definition of a protocol of traslocation or C.castellani (annex in folder FR\Other documents\C5_protocols: file Prot_translocation_Coenagrion mercuriale.pdf).
First *in-situ* breeding of *O. eremita* in Italy through the use of WMB 'wood mould boxes' after its trial in Sweden and Poland (Jansson et al., 2009; Hilszczański et al., 2014). The large geographical scale of the *in-situ* breeding action undoubtedly represents a unique experience for the European context.	First in-situ breeding of *O. eremita* in Italy and its implementation on a large scale was successfully achieved: 150 WMBs installed in 22 Natura 2000 sites where successful in-situ reproduction was realised: during the ex-post monitoring in the 150 WMBs divided in 37 areas in which the L3 larvae were reintroduced from the 3 breeding centres, 797 different larval stages (L3, L2, L1) and 140 adults (73M; 48F; 19R) were found. Increase in populations of 311%
Project in line with the priority themes of the Life 2014 call: • deals, on a large scale and in a shared and coordinated manner, with 2 priority Annex II H.D. species; • improve the (forest) management of many Natura 2000 Network sites in the hilly and mountainous areas of Emilia-Romagna; • improve the conservation status of the 4 target species, through increasing the availability of habitats and the direct involvement of stakeholders.	• The project dealt extensively with *O. eremita* and *R.alpina*, two priority annex II H.D. species. • The forest management of many Natura 2000 Network sites in the hilly and mountainous areas of Emilia-Romagna was improved, through: - the implementation of demonstration forestry operations for the creation of deadwood that increase the resilience of forest environments; - the definition of specific conservation measures for forest species that will influence forest management in the Emilia-Romagna Region; - the Introduction in the Forestry Regulation of the Emilia-Romagna Region (2018) of the obligation to leave at least three dead or rotting plants per hectare. • The improvement of the conservation status of the 4 target species, through increasing the availability of habitats was successfully achieved: - improvement and the creation of no. 941 habitat for *O. eremita* have been created, including: creating hollows, pollarding, felling or thining of the suckers, that increase

Expected results (Form B3)	Delivered results
	of the 333% of the habitat availability; - improvement and the creation of no. 1001 interventions in favour of R. alpina have been implemented, including: girding and partial ring-barking, leaning dead trees, broken stermsstanding, basal slits, uprooted trees, broken stems on the ground, waste piles, tripods, that increase of the 315% of the habitat availability. - the restoration of 9 watercourses where *C. castellani* was not present, or present in low numbers, but where it was translocated. The improvement of the conservation status of the 4 target species, through direct involvement of stakeholders: - no. 301 forestry workers involved in 12 workshops entitled "Life Eremita project and forest management perspectives" were realised to qualify the professional profiles. - Realisation of 4 training courses, attended by 139 people (project staff and protected areas of the Emilia-Romagna Region, environmental guides, forestry corps and provincial guides), who were informed and trained on the project objectives and activities and who will be able to make the best use of future funds for the implementation of new interventions in favour of the 4 target species.
Carrying out demonstration actions capable of triggering an indirect effect for the improvement of the conservation status of the species also beyond the project area	The conservation actions implemented for the four species have been the subject of networking activities at both national and European level. The techniques for implementing actions to improve and increase the availability of forest and aquatic habitats, breeding techniques, repopulation and translocation were transferred to Natura 2000 network management bodies and shared with experts in the field well beyond the project area. All protocols implemented during the project were transferred.

In the Grant Agreement Form B1, the project has been labelled as no significantly climate related. However, we can state that the availability of habitat for the target species was achieved through a more conscious and sustainable, large-scale, of the use of forests in the project area inevitably contributing to improve the carbon balance. Forest management in a more naturalistic way will continue to contribute in the After life to developing a higher capacity to absorb carbon than the current one.

(Projects funded under the Call 2014 onwards must use this format)

6.4.Analysis of benefits

1.Environmental benefits

a. Direct / quantitative environmental benefits

The distribution data of the 4 species have been updated in the Emilia-Romagna Region, in the 78 Natura 2000 sites investigated (ex-ante and ex-post monitoring), thus allowing the update the SDFs of the following 24 sites:

Target specie	Natura 2000 sites
Osmoderma eremita	already updated IT4030002, IT4030003, IT4030005, IT4050004, IT4070016, IT4090003, IT4080002, IT4070011
	undergoing updating IT4020003; IT4020026; IT4040001; IT4040002; IT4050001; IT4050002; IT4050003; IT4050016; IT4090001
Rosalia alpina	already updated IT4050002, IT4080002
	undergoing updating IT4020012; IT4030003: IT4030005
Graphoderus bilineatus	IT4030001; IT4030005; IT4050015

By Act No. 1336 of 01/08/2022, the Specific Conservation Measures for the 4 species were approved, allowing the correct implementation of the Habitats Directive in favour of the 4 species in the Natura 2000 network of the Emilia-Romagna Region.

Below are the conservation benefits for 4 target species.

Osmoderma eremita
They were realised interventions in forestry environments (no. 941 habitat) in order to increase and trigger processes that in the long term will make the habitat trees more suitable for the specie, which has increased the availability of habitat for the species by 333%.
No. 3 ex-situ breeding of *O. eremita* were carried out, which made it possible to release 3574 of larvae produced (in different stages), which has led an increase in populations of 311%.
Overall, the conservation actions implemented led to an increase in the species' distribution by 179% (in 25 Natura sites compared to 14 sites at the start of the project) and an increase of in the number of 1.411% *O. eremita* in the project area.

Rosalia alpina
They were realised interventions in forestry environments (no. 1001 habitat) in order to increase and trigger processes that in the long term will make the habitat trees more suitable for the specie, which has increased the availability of habitat for the species by 315%.
The conservation actions implemented led to an increase in the species' distribution by 250% (in 10 Natura sites compared to 4 sites at the start of the project) and an increase of in the number of 285% *R. alpina* in the project area.

Coenagrion Castellani

Suitable habitats were restored along 9 watercourses where the species was not present, which have the availability of habitat for the species by 229%

589 adults of *C. castellani* were sampled from the Rimini site (IT4090002) released in five streams in Vena del Gesso Romagnola (IT4070011) which has led an increase in populations of 125%.

Overall, the conservation actions implemented led to an increase in the species' distribution by 170% (6,527 linear meters of water courses compared 3,842 lm) and an increase of in the number of 120 % C. *castellani* in the project area.

Graphoedrus bilineatus

It has been confirmed that in the Emilia-Romagna Region and in Italy *G. bilineatus* is detected only in one site, Lago Pratignano, where the population is numerically poor and, as highlighted by an adequate genetic investigation carried out during the project, is in a bottle-neck situation with reproductive isolation and decrease of genetic variability. The site where *G. bilineatus* has been found in the Emilia-Romagna Region is at the low border of its distribution area in Europe.

The project, following the Amendment, made it possible to confirm, after 30 years, the presence of a population in site IT2040042 in the Lombardy Region. The species had been recorded as extinct in Lombardy.

132 specimens, collected in Latvia and the Lombardy site. made it possible to restock in 3 ponds and 3 different sites Natura 2000 (IT4030001; IT4030005; IT4050015) in the Emilia-Romagna Apennines.

During the ex-post monitoring, the species has not been found. Arguably, the low number of reproducing individuals did not allow for the development and settling of a sufficiently individual-dense population to be positively sampled within the timings of the ex-post monitoring campaigns. The ex-post monitoring will continue during the After Life period, with the commitment of the involved Bodies (PNATE, RER, MEOR).

b. Qualitative environmental benefits

Osmoderma eremita

In form B2d, the local disappearance or decrease in suitable habitat and the isolation of residual populations were identified as the main causes of the species' decline.

The project increased the availability of habitat by 333% and thanks to restocking the species has expanded its distribution area by 179%.

The threat has not been removed, but the project has certainly contributed to a local improvement in the conservation status of the species, especially in the Apennine belt of the species' distribution, where project actions were concentrated.

To assured the longer-term management of the specie, some actions, deemed effective, will continue after the end of the project and are included in the After Life Plan:

- Management of Action C1 and C3 intervention areas: maintenance and control of WMBs; creation of new "habitat trees"; creation of new stations suitable for the species, also by laying new WMBs;
- Population reinforcement through the introduction into the WMB of specimens obtained by breeding; breeding at the 3 Centres (PNATE; PNFC; MAR) and the introduction of about 80 individuals per year are envisaged;
- Continuation of ex situ breeding of *Osmoderma eremita* by producing a minimum number of larvae and adults each year (around 80-100 specimens) to be placed in the WMB or in tree cavities to reinforce populations.

- Monitoring in the LIFE project implementation areas and in other areas to improve the knowledge framework on the species.

Rosalia alpina

In form B2d, it has been identified as main cause of the decline of the species is attributed to the destruction or significant contraction of the habitat.

The project increased the availability of habitat by 315%, which led to an increase of in the number of 285% *R. alpina* in the project area.

The threat has not been removed, but the project has certainly contributed to a local improvement in the conservation status of the species.

To assured the longer-term management of the specie, some actions, deemed effective, will continue after the end of the project and are included in the After Life Plan:

- Management of Action C1 areas: creation of new 'habitat trees'; creation of new stations suitable for the species in potentially suitable areas.
- Monitoring in the LIFE project implementation areas and in other areas to improve the knowledge of the species and the effectiveness of action C1.
- Population monitoring also through Citizen Science.

Coenagrion Castellani

In form B2d, they have been identified as main cause of the decline of the species: the geographical isolation of the only two stations with a documented presence of the species and the significant contraction and alteration of suitable habitats.

The project increased the availability of habitat by 229% and thanks to the translocation the species has expanded its distribution area by 125%.

The threat has not been removed, but the project has certainly contributed to a local improvement in the conservation status of the species.

To assured the longer-term management of the specie, some actions, deemed effective, will continue after the end of the project and are included in the After Life Plan:

- Mowing to contain the shrub and tree vegetation in watercourses populated by the species in several watercourse in the 2 sites of project.
- Population monitoring in the 2 sites of project.

Graphoedrus bilineatus

In form B2d, they have been identified as main cause of the decline of the species: the poor suitability of aquatic habitats; the isolation of the only known population in the Emilia-Romagna Region and the impossibility of natural recolonisation.

The threat has not been removed, but the project has certainly contributed to knowledge about the conservation status of the species not only on a national but also on a European level.

Although the initial assumptions of the LIFE project were based on the optimistic view of being able to easily restore the conservation status of the Emilian population, we were soon confronted with a situation that turned out to be more critical than expected. In fact, the general reduction of the species' range is an aspect which also emerged from the networking with other European countries.

During the project a second station of ascertained occurrence of the species was confirmed in Italy (in Lombardia), assigning to Italy the role of southern limit of distribution of the species.

The experience of the LIFE project, which we can claim to be the first in-depth research carried out in Italy on this taxon, confirmed that *G. bilineatus* is a very problematic species from every point of view, both in terms of monitoring and conservation, breeding, and restocking.

To assured the longer-term management of the specie, some actions, deemed effective, will continue after the end of the project and are included in the After Life Plan:

- Monitoring to verify the effectiveness of restocking in the three basins: Lago Sfondato. Lago del Coccio, La Martina.
- Interventions to improve the suitability of certain basins for increased habitat availability.

2. Social benefits

The relationship between the conservation of habitats and species, the specific objectives of the Natura 2000 Network and the development demands for forestry activities is multifaceted, especially in an anthropic context such as the Emilia-Romagna Region.
The scenarios that the Life Eremita project has provided to the beneficiaries, institutions and as a consequence to local governments, technical staffs and businesses, have focused on management models of forests and inland freshwater marshes fostering the life of target insects, but more generally aimed at ensuring the complexity of the relationships between living organisms without hampering existing production activities.
Two meetings were organized around these topics: the first held in October 13th, 2020 "Driving Forest environments toward ecological maturity through forestry interventions"; the second in December 1st, 2020, "Managing aquatic environments to benefit rare and threatened components of biodiversity". Local authorities, the scientific community and companies have shared the need to operate within a broad and integrated strategy, where each component is part and parcel of a mosaic of interests to be safeguarded and balanced; components coming together in a clear design, intrinsically sustainable and long-lasting, for the conservation of biodiversity and careful management of ecosystems.
One of the most remarkable aspects of the project is the extensive information and training campaign carried out. As a result of the Amendment, the project had an 18-month extension of time, during which, despite limitations due to the Covid emergency, the information campaign nevertheless continued with excellent results. Conservation actions have gone hand in hand with the need to reduce prejudices and increase in professionals and in the general public a cultural growth on the ecology of the target species and the eco-systemic role they play, from which better management of both forests and regional water bodies will follow.
Comparison of ex-ante and ex-post results on the opinion of key stakeholders showed an increase in knowledge and awareness for example on the cause of the decline of target species.
In the ex-ante questionnaire 47% of answers focused on the link with the excessive use of insecticides as the main threat to these species, while only 31% of respondents had answered correctly. In the ex-post questionnaire, the percentages shifted to 35.3% for insecticides and 52.4% for wood removal from the forests, respectively.
Raising awareness among the public was effectively accomplished through the system action of the Life Eremita project. With the exception of the Po Delta Protected Areas Managing Authority, the project beneficiaries are the same managers of the Emilia-Romagna Region's Natura 2000 Network: the Region's Protected Areas Service, the 4 Macroareas Managing Authorities, and two National Parks. Not only the conservation action but also the communication activities were simultaneously and synergistically implemented on almost the entire regional territory using different tools and modalities, such as the Eremita tour, information meetings, training workshops, volunteer parties, technical and educational meetings and videos disseminated through the web and at events.
Special attention was paid to the training and involvement of volunteers: 74 volunteers attended the 3 training courses and 136 volunteers participated in project activities. The involvement of this group has considerable value both for the management of Natura 2000

sites and from a socio-economic point of view. The volunteer belongs to the social fabric of an area and can be a vector for the dissemination of correct information.
Indirectly, the project created some opportunities for the local socio-economic fabric. Sites where habitat availability for target species has been implemented become attractive places various activities that involve schools, volunteers and citizens in general. The overall level of interactions is expected to increase not just for the contribution of the local population but also for the appeal of the site on nature tourist.
The activities carried out through the project involved several local cooperatives in the implementation of habitat improvement measures, who acquired techniques and practices for creating deadwood. The educational activities involved several environmental guides, who were also trained through specific meetings (action C7).

ABs	Description	N. FTE
MEC	Silvia Maria Stefanelli in full time as entomologist involved in action A2, A3, A4, A7, C3, C7, E5 and F2, Malavasi Davide in full time as entomologist involved in action A2, A3, A4, A7 and C1, Giovanni Carotti in full time as entomologist involved in action C3, C4, C5, D2, D4, E7 and F1	0,23
MEOC	Malavasi Davide in full time as entomologist involved in action A2, A3, A4, A7 and C1, Giovanni Carotti in full time as entomologist involved in action C3, C5, D2, D4 and F1	0,13
PNATE	Iris Biondi in full time as entomologist involved in action A2, A3, A4, A5, A7, C1, C3, C4, C7, E2, E7, F1, F2 and F3, Giovanni Carotti in full time as entomologist involved in action A2, A3, A4, A5, A7, C1, C3, C4, E2, E5, E7, F1 and F2	1,09
	TOTAL	1,5

3. Economic benefits

The Project has not generated economic benefits; it is a project that has implemented interventions aimed at improving the conservation status of the 4 target species and has not developed any business opportunities. All activities, methods and practices implemented are disseminated and transferred with the sole purpose of expanding the ecological network of the 4 target species and improving their conservation status.

4. Replicability, transferability, cooperation

No. 14 protocols were defined, describing techniques, methodologies and practices implemented in the Life project. These are protocols for monitoring species and habitats (no.4); a protocol for the preparation of rosura, a protocol for the creation and setting up of WMBs (in-site breeding), a protocol for the breeding of *O. eremita*; a protocol for the sampling of *O. eremita* founders, a protocol for the restocking of *O. eremita*, a protocol for the translocation of *C. castellani*, a protocol for the transport of *G. bilineatus* specimens, a protocol for the restocking of *G. bilineatus*, a protocol for the monitoring of in-situ breeding efficiency for *O. eremita*.
These tools have been and still are the subject of transfer and potential replication both within other Life projects and in programmes for the conservation of target species that can be implemented by management bodies. In After Life the PAF instrument and the new programming of EARDF funds will be the means through which interventions similar to those

implemented with the LIFE project can be replicated both in the project areas but also in other areas outside the project.
A strategic NAT- SNAP project, involving the regions of the Po Valley Basin and envisaging the transfer of various Life Eremita practices to other territorial contexts, is currently being applied for.
The increased awareness achieved thanks to the information and training campaign carried out with the project has resulted in the ability of certain key actors in the institutions to programme and plan measures to make funds available for the maintenance and restoration of old-growth and resilient forests, and subsequently it will provide the possibility of implementing projects following the practices already defined in Life Eremita.

5 Best practice
As described in Form B3 of the GA, the following practices used in the project and made available are confirmed. For each, a protocol was defined their transferability:
1. Recovery of habitats for the survival of saproxylic insects *O. ermita* and *R. alpina;*
2. Habitat recovery for *C. castellani*;
3. In-situ reproduction with installation of WMB;
4. Implementation of innovative breeding to produce *O. eremita* larvae;
5. Restocking of *E. eremita* and *G. bilineatus*; translocation *C. castellan;*
6. Public awareness of saproxilic entomofauna conservation;
7. Involvement of volunteers.

6 Innovation and demonstration value
The project's level of innovation, but above all its demonstrative character, as already partly described in Form B3 of the GA, derives from activities that can guarantee a positive trend for the species' conservation status in the long term.

Ex-situ breeding of *O. eremita*
The project enabled the successful definition and implementation of the breeding practice of this beetle. The results obtained and described in this report prove this. Three breeding centres have been set up and will continue their activities in the After Life. The centres will be able to become a national reference for breeding and restocking of the species. Collecting specimens in the wild and breeding them separately by place of origin also guarantees the genetic identity of the different sub-populations.

In situ breeding for *O. eremita*
The methods for the creation of suitable rosura as a breeding substrate, the construction of WMBs, revised during the course of the project, and the in situ breeding technique were defined. As described in this Final Report, the technique was successful and resulted in both the numerical increase of the O. ermita sub-population at the different sites in the project area and the extension of its distribution area.

Translocation of *C. castellani*
Here too, the project made it possible to define and implement for the first time in Italy the translocation of specimens between two Natura 2000 sites within the species' distribution area. The operations demonstrated the success of the technique used.

Transport of *G. bilineatus* founders
The project made it possible to define and successfully implement a protocol for the transport of specimens over long distances.

Project activities showed that 89 specimens were transported from Latvia to Italy via area, with 100% survival.

7 Policy implications

The approval of the Specific Conservation Measures by the Emilia-Romagna Region, in implementation of the Habitats Directive, and the updating of the SDFs and the definition of priority measures of the regional PAF in favour of the 4 species will be the regulatory and programmatic instruments for the implementation of the After Life Plan, among others approved or being approved by all beneficiaries.

Regarding obstacles, during the project a possible limitation was addressed to the possible implementation of interventions to improve, if necessary, the habitat of the only site of presence of *G. bilineatus* in Emilia-Romagna Region. Lake Pratignano is within the Natura 2000 Network but also a zone A of "strict respect," according to the Park Plan of the Upper Apennines of Modena. The implementation rules of the Park Plan in this area allow only: "observation from scientific and educational purposes, subject to the authorization of the Park Management Authority." The regulations were approved by act of the Emilia-Romagna Region No. 3337 of 12/23/1996. The issue is being discussed between the Emilia-Romagna Region and the Management Entity (MEC) to identify the easiest path to solve this possible obstacle.

7. Key Project-level Indicators

In the table is provided an analytical comparison with the targets at the beginning of the project, using the snapshot 2016 extracted from KPI webtool, with the end of the project value. Some values were not provided at the beginning of the project.
The most significative values regard the wildlife species indicator for which the end of the project values outnumber the foreseen at the beginning, both in term of areas occupied by the species and by number of adults, even in the case of *G. bilineatus*, the most troublesome species. It is worthwhile to mention also the raising awareness and training indicators in which the targets values were outnumbered as well.

Indicator code	Indicator name	First level descriptor	Second level descriptor	2016 snapshot	end of the project value	Unit
1.5	Project area/length	Area of environmental /climate implementation actions (e.g. development, testing, demonstration, application of best practices /innovations).			88.443,00	ha
1.6	Humans (to be) influenced by the project	Persons who changed their behaviour or practices due to the project actions			440,00	Number of other persons influenced /impacted independently of the project area
1.6	Humans (to be) influenced by the project	Persons who may have been influenced via dissemination or awareness raising project-actions (reaching)			12.009,00	Number of other persons influenced /impacted independently of the project area
7.1	Ecosystem assessment	Ecosystem Assessment			94.624,00	ha
7.1	Ecosystem assessment	Ecosystem Condition			Moderate	
7.1	Ecosystem assessment	Ecosystem Trend			Some improvement	
7.2	Ecosystem services assessment	Ecosystem Service Condition			Moderate	
7.2	Ecosystem services assessment	Ecosystem Service Trend		Improving	Some improvement	
7.4	Wildlife species	Annex IV Habitats Directive species	*Graphoderus bilineatus*/ Arthropods	10 m2	5.7	ha
7.4	Wildlife species	Annex IV Habitats Directive species	*Rosalia alpina*/ Arthropods	50	314	number of adults

Indicator code	Indicator name	First level descriptor	Second level descriptor	2016 snapshot	end of the project value	Unit
7.4	Wildlife species	Annex II Habitats Directive species	*Coenagrion mercuriale*/ Arthropods	100 m2	6.5	length of inhabited feature in km
7.4	Wildlife species	Annex IV Habitats Directive species	*Rosalia alpina*/Arthropods	100 m2	4775	ha
7.4	Wildlife species	Annex II Habitats Directive species	*Coenagrion mercuriale*/ Arthropods	150	2,028	number of adults
7.4	Wildlife species	Annex IV Habitats Directive species	*Osmoderma eremita*/ Arthropods	100	1,058.00	number of adults
7.4	Wildlife species	Annex IV Habitats Directive species	*Graphoderus bilineatus*/ Arthropods	10	132	number of adults
7.4	Wildlife species	Annex IV Habitats Directive species	*Osmoderma eremita*/Arthropods	200 m2	7,656.00	ha
10.2	Involvement of non-governmental organisations (NGOs) and other stakeholders in project activities	NGO		3	3	number of stakeholders involved due to the project
11.1	Website (mandatory)	No. of unique visits		2000	28,376.00	Number of unique website visits
11.2	Other tools for reaching /raising awareness of the general public	Number of different publications made (Journal/conference)			4	Number of outcomes (e.g. nr of reports, events, etc)
11.2	Other tools for reaching /raising awareness of general public	Number of events/exhibitions organised		5	105	Number of outcomes (e.g. nr of reports, events, etc)
11.2	Other tools for reaching /raising awareness of general public	Number of different displayed information created (posters, information boards)			5	Number of outcomes (e.g. nr of reports, events, etc)
11.2	Other tools for reaching /raising awareness of general public	Number of articles in print media (e.g. newspaper and magazine articles)			1	Number of outcomes (e.g. nr of reports, events, etc)
11.2	Other tools for reaching /raising awareness of general public	Other distinct media products created (e.g. different videos/ broadcast/leaflets)			23	Number of outcomes (e.g. nr of reports, events, etc)
12.1	Networking (mandatory)	Professionals - experts in the field		60	58	No. of individuals

Indicator code	Indicator name	First level descriptor	Second level descriptor	2016 snapshot	end of the project value	Unit
12.2	Professional training or education	Members of interest groups / lobby organisations		100	74	No. of individuals
12.2	Professional training or education	Professionals - experts in the field		-	139	No. of individuals
12.2	Professional training or education	Pupils (of school age)		5000	7,516	No. of individuals
12.2	Professional training or education	Other		4000	2,001	No. of individuals
13	Jobs	Jobs		-	1.5	No. of FTE

8. Comments on the financial report

The Individual Financial Statements from the 7 project partners and consequently the Consolidated Financial Statement are completed for the reporting period covering the project activities from 01/01/2016 to 30/06/2022, both for the technical and financial side.
The CB supported the ABs by monitoring and analysing quarterly the expenditures reported in the Individual Cost Statements and comparing them to the cost lines of the approved budget, in order to:

- verify the correctness of the forms and store the relative supporting documents;
- verify if the cost was foreseen;
- monitor minor deviations, by verifying if the reported cost is necessary, clearly linked to the project, technically justified and from which cost line the amount is moved without jeopardizing the expected results;
- monitor at the level of single partner and project the compliance with art. II.22 of the General Conditions on the cost flexibility;
- ask the monitor for advice if any doubts about the eligibility of some changes may occur.

The 7 Individual Cost Statements are annexed to this report as follows in the "Financial Annexes/Individual financial statement and NAT certif" folder, with the Certificates for Nature and Biodiversity projects for those beneficiaries that purchased/manufactured durable goods during the project period, to be used in the future exclusively for nature conservation activities:

BENs	**Name of the file**
MAR	MAR_EREMITA_reporting_30062022.xlsm (xls version) MAR_EREMITA_ICS.pdf (electronically Q-signed) MAR_EREMITA_NATCertif.pdf (electronically Q-signed)
MEC	MEC_EREMITA_reporting_30062022.xlsm (xls version) MEC_EREMITA_ICS.pdf (electronically Q-signed) MEC_EREMITA_NATCertif.pdf (electronically Q-signed)
MEOC	MEOC_EREMITA_reporting_30062022.xlsm (xls version) MEOC_EREMITA_ICS.pdf (electronically Q-signed) MEOC_EREMITA_NATCertif.pdf (electronically Q-signed)
MEOR	MEOR_EREMITA_reporting_30062022.xlsm (xls version) MEOR_EREMITA_ICS.pdf (electronically Q-signed) MEOR_EREMITA_NATCertif.pdf (electronically Q-signed)
PNATE	PNATE_EREMITA_reporting_30062022.xlsm (xls version) PNATE_EREMITA_ICS.pdf (electronically Q-signed) PNATE_EREMITA_NATCertif.pdf (electronically Q-signed)
PNFC	PNFC_EREMITA_reporting_300620222.xlsm (xls version) PNFC_EREMITA_ICS.pdf (electronically Q-signed) PNFC_EREMITA_NATCertif.pdf (electronically Q-signed)
RER	RER_EREMITA_reporting_30062022.xlsm (xls version) RER_EREMITA_ICS.pdf (electronically Q-signed) RER_EREMITA_NATCertif.pdf (electronically Q-signed)

The replies to the letters received after each monitoring visit were sent to the monitor during the following visit. In accordance with CINEA Letter ref. D.2/MM/D (2022) 5519376 following the 7th monitoring visit of June 2022, the replies provided on the financial issues, raised in CINEA letter of 3 June 2021 (6th monitoring visit), have served to clarify all the points. No further issues have been raised in this last letter.

The Consolidated Cost Statement Excel and pdf files are attached to this report in the "Financial Annexes/Consolidates costs statement" folder:

- EREMITA_Consolidated financial statement.xlsm (xls version)
- EREMITA_Consolidated FS_Consolidated FS.pdf (electronically Q-signed)
- EREMITA_Consolidated FS_Costs_summary.pdf (electronically Q-signed)
- EREMITA_Consolidated FS_Funds_Distribution.pdf (electronically Q-signed)
- EREMITA_Consolidated FS_Income_Summary.pdf (electronically Q-signed)
- EREMITA_Consolidated FS_Payment_Request.pdf (electronically Q-signed)

8.1. Summary of Costs Incurred

The coordinating beneficiary supported the associated beneficiaries by analysing periodically the expenditures reported in the Individual Financial.
The following table shows the project costs incurred by the end of June 2022 compared to the approved budget according to the Grant Agreement.
It is specified that, as Amendment n. 3 (note EASME. B.3. 4029848 – 04/06/2019) did not modify the budget, the reference budget remains that of the Grant Agreement.

PROJECT COSTS INCURRED				
	Cost category	Budget according to the grant agreement in €*	Costs incurred within the reporting period in €	%**
1.	Personnel	761.718,00	827.914,65	108,69%
2.	Travel and subsistence	88.941,00	15.192,29	17,08%
3.	External assistance	901.504,00	1.085.128,48	120,37%
4.	Durables goods: total non-depreciated cost			
	- *Infrastructure sub-tot.*	84.800,00	62.652,83	73,88%
	- *Equipment sub-tot.*	112.956,00	46.233,93	40,93%
	- *Prototype sub-tot.*	0	0,00	0,00%
5.	Consumables	25.846,00	14.216,74	55,01%
6.	Other costs	15.700,00	3.722,32	23,71%
7.	Overheads	**135.522,00**	**135.522,00**	**100,00%**
	TOTAL	**2.126.987**	**2.190.583,24**	**102,99%**

The expenditure level reach by 30/06/2022 for the whole project is 102,99%, with an expenditure of 100% of the EU co-financing quota received.

A different expenditure level in relation to the total project budget has been registered in different cost categories.
An **exceeding expenditure** level than foreseen has been recorded for the following cost categories:

Personnel, due to two reasons:

- increase in the number of hours of internal staff members due to the extension granted by Amendment No. 3 (note EASME. B.3. 4029848 – 04/06/2019), that entailed an additional project period of 18 months;
- a general increase in the number of hours needed to carry out the activities necessary to properly deal with the delays resulting from the COVID 19 pandemic emergency.

External Assistance, due to three reasons:

- the shift of budget for entomologists from staff to external assistance in accordance with CINEA note no. EASME D.3/MM/D (2020)2744508 of the fifth monitoring visit (MEOC, MEC, PNATE, PNFC);
- the shift of budget from infrastructure to external assistance for the use of the Aquaemundi centre that replaced the realization of the structure in the Centro Visita Ca' Carnè, included in the area of MAR, accepted by the PA, Manuel Montero, with the email of 21/07/2016;
- a general increase in the participation of the entomologists during the ex-ante monitoring activities (A2, A3, A4) and for activities covered by Amendment No. 3 (C4).

Bellow table shows some shifts accorded with CINEA Agency between cost categories.

Beneficiary	**Budget shifts**
MAR	€ 30.000 from Infrastructures for Action C4 to external assistance (agreement with Acquemundi already notified to PA with mail 14/4/2017).
RER	€10.031, €12.392, €4.550,60 respectively from travel, equipment and consumables to personnel and to external assistance to balance the higher expenditure.
MEC	€49.400 from personnel to external assistance for the expenditure of entomologists, Malavasi and Stefanelli, in according with the solution of financial issue n°25 from the letter note no. EASME D.3/MM/D (2020)2744508 of the fifth monitoring visit.
MEOC	€ 2.500 from personnel to external assistance for the expenditure of entomologist, Della Rocca, in according with the solution of financial issue n°25 from the letter note no. EASME D.3/MM/D (2020)2744508 of the fifth monitoring visit.
PNATE	€ 26.650 from personnel to external assistance for the expenditure of entomologist, Norbiato, in according with the solution of financial issue n°25 from the letter note no. EASME D.3/MM/D (2020)2744508 of the fifth monitoring visit.

Not foreseen and not communicated to the Agency, but necessary during the project implementation project, the expenditure in external assistance of the entomologists, Giovanni Carotti and Roberto Fabbri, for the ex-post monitoring activity D1, D2, D4 and as expert support for the implementation of conservation actions C3, C4, C5, C7 was accounted for.
In the GA these activities were to be carried out in part by internal staff who were actually untrained and unavailable for this extensive commitment.
In the following table, the cost of assignments for entomologists are detailed:

Entomologist	**Cost**
Roberto Fabbri	€ 60.935,00 (MAR: 34.150,00; MEOR 11.785,00; PNFC 15.000,00)
Giovanni Carotti	€ 35.237,20 (PNATE)

For the following cost categories there was a **reduction in expenditure**:
Travel, due to two reasons:

- RER, MAR and PNFC were not accounting travel and subsistence expenditures. For MAR in accordance with note EASME.B3 (ref.A.1782606 – 07/03/2019) travel expenses were reallocated because the beneficiary had not accounted for personnel expenses and consequently could not report travel expenses;
- MEC, MEOC, MEOR, PNATE accounted for less travels due to the pandemic restrictions and the shift of the cost of entomologists from personnel to external assistance meant that this cost line could not be used for the monitoring activities.

Equipment: due to the fact that not all the foreseen equipment was purchased, especially by RER and PNATE, as it was not needed during the implementation and alternative options were identified, which did not lead to any consequences in relation to the expected project results.
Consumable: due to two reasons:
- RER and PNATE not all the foreseen consumables were purchased, because they were no longer needed during the implementation of the project
- savings were registered in the purchase of the foreseen consumables for PNATE.

Other costs, due to the CB audit costs that were not necessary, but were incorrectly provided for in the GA, as well as due to the savings from the printing of removable sails for the Palaeremita (E.7).
Overheads: not all partner's overheads are calculated with the flat rate of 7%, because partners such as MEC and MAR, spent a lower budget than foreseen and, consequently, reported a lower amount of overheads. For these two partner the overheads are calculated with 7% rate on the reported amount. For other beneficiaries we added to the initial amount foreseen in the proposal an apportioned share in percentage on the base of the incurred expenditures, resulting from the savings of MEC and MAR.

Cost flexibility and compliance with art. II.22 of the General Condition was constantly monitored at the single beneficiary and project level. The total variance of final budget is € 249.821,13 (variance indicate in consolidated with budget shifts under the 20% threshold in accordance with art.II.22 GC. Higher costs of personnel and external assistance were balanced by transfers between expenditure categories (travel, equipment, consumable and other cost).
At single level partner the 2% rule is not always respected (MEC, MEOC and PNATE), but it is respected overall at partnership level.

General statements on Personnel

The number of employees hours worked, in accordance with Article II.19 of the General Conditions, on the project per year and the TOTAL number of hours worked per year (columns D5 and D6) refer to the productive hours actually worked by the employees and that can be inferred by the timesheets.

Exceptions:
MAR: **Lorenzo Cangini**, from 2021, was assigned to the project for a fixed contractually defined percentage of time, amounting to 20%. It wasn't therefore necessary to maintain the timesheets, according to Annex X, art. II.1.2. EXPECTIONS, case b);
MEOR: during 2020-2022 period, **David Bianco** did not fil-in the timesheet, as he worked on the project less than 2 days per month in a given calendar year, according to Annex X, art. II.1.2. EXPECTIONS, case b).

A default value of 1720 total annual productive hours is used for staff members exempted from keeping the timesheets, according to Anne X, art VIII.1.a PERSONNEL COSTS. Of course, the annual hours have been rescheduled to the number of months worked.

The annual gross salary of the employees has been calculated by summing the following components:

- Annual gross salary, which consists of the annual gross salary, any contractual holiday indemnity, any sub-fund indemnity and any remuneration for positions of responsibility (ref. Financial Issues 21 raised in the EASME letter of 07/03/2019 on the 4th visit and MtR and on the 5th letter of 05/05/2020 and solved as acknowledged in the CINEA letter on the 6th visit of the 03/06/2021);
- Annual obligatory social charges, which include the social security contributions of the INAIL and pension contribution, which consists of the social security contributions of the CPDEL or INADEL body.

The value for the "Daily working hours" (column D4) is equal to 7.12 in decimals (7,20 in sexagesimals), calculated on 5 work days per week (actual value).
The cells in the C2 column of personnel sheets of each financial reporting, when left empty, indicate that the contract has no end date, as reported in "Explanation of the content of each Column" of the excel files.

Detail costs incurred by beneficiary

Emilia -Romagna Region – RER

Personnel
The costs actually incurred amount to € 287.931,60 whereas the personnel costs declared in the Grant Agreement amounted to € 239.935.
During the project period, 5 staff members were accounted for on the project:
- the Project Coordinator and financial responsible - Monica Palazzini (Organizational position of the Protected Areas Sector), reported on the poject from 2016 to 2022;
- the technical project assistant and support for technical and scientific activities, Ornella De Curtis, reported on the project from 2016 to 2022;
- the administrative assistant and support to regional Project Coordinator, Elena Chiavegato, reported on the project from 2016 to 2022;
- the administrative/accounting project management collaborator, Daniela Battazza, reported on the project from 2016 to 2021;
- the technical support for press office and general communication, Maria Vittoria Biondi, reported on the project from 2016 to 2017 and in the final 6 months of the project, in 2022. M.V, Biondi worked in the initial and final stages to initiate and close the communication actions of the project. During the project implementation, communication and dissemination activities were coordinated by the external PM.

The daily costs accounted are 20% higher than the daily costs foreseen during the submitting phase for all employees and for all the due to a mistake during the submission of the project proposal, as the personnel costs had been estimated on the base of standard costs of regional personnel updated to 2011. In 2016, these costs were updated, with an overall increase. As a demonstration of the increase in the daily cost starting in 2016, a report has been attached to the Mid Term Report (MR- Folder Financial annexes\supporting documents\RER). In addition, when the project started, some colleagues of the Province administration of Bologna (following the law that eliminated Provinces) entered in the regional staff. This allowed for a higher utilisation of internal staff (not foreseen during the submitting phase). While this

avoided the inclusion of additional staff (as foreseen by the GA), on the other hand it resulted in a discrepancy with the wage references used during the application phase.

Travel

The travel expenditure, foreseen for an amount €10.031,00 were not accounted for the project. The unused amount was balanced by higher reporting of personnel costs.

External assistance

The "External Assistance" sheet accounts for expenditure not foreseen during the submission of the project proposal: the costs sustained for the genetic analysis (action C4), an expenditure necessary to evaluate the possibility of a restocking programme of *G. bilineatus* using samples from European populations. The CB appointed the University of Padua (identified following a previous comparation of estimates with other Universities) and the related costs were financed through savings from the communication activities, mainly due to the involvement of internal regional personnel.

Two foreseen external entrustments were not implemented because they were carried out with internal staff:

- the project website implementation, including the acquisition of the domain name, host space on remote server and web mastering for the entire duration of the project (€16.300 for action E1);
- the elaboration of the Logo/Brand of the project and its coordinated graphic line (€2.380,00 for action E4);

In this line of budget, for Action E7, the printing of the gadget "The Hermit Figurines" was foreseen in the GA, with an indicative print run of 2000 copies.

In the executive phase, il was decided to create no. 200 copies of the educational kit, consisting of:

• no. 25 copies of a didactic notebook with an informative album insert with stickers to paste "Le Figurine dell'Eremita" (The Eremita picture cards);
• no. 300 copies a 70x100 cm colour posters on recycled paper, folded into four, with the aim of disseminating the project;

- promotional objects: 800 3x3.7 cm colour magnets representing the 4 target species (200 per species).

Invoice n° FVS41 from Articolture, although issued on 23/08/2022, is the overall payment of the integrated communication campaign (actions E2, E3, E6), service provided until the end of the project. In addition, invoices n°36 and 70 from Istituto Delta Ecologia Applicata srl – RTI and n°37/2022 and 44/2022 from Ethic SRL – RTI are the payment of the extension of the service of Project manager and technical support, provided starting from 23/04/2020 until the end of the project.

Equipment

Only no. 2 PC desktop complete with monitor and webcam were purchased. The other types of equipment, needed mainly for the monitoring activities, in the executive phase of the project, did not need to be purchased. Monitoring was carried out by entomologists assigned by the beneficiaries, who already had the necessary equipment. A total of €1.464,00 was reported for the budget line equipment, instead of the envisaged €13.856,00. Savings were shifted to cover for expenditures in other budget categories exceeding the foreseen GA budget (external assistance and personnel).

Consumable

There has been a lower level of spending in the Consumable budget line, € 2.525,40 against € 7.076,00. In Action E6 the purchase of gadgets was planned, but the tender for the

organization of the final conference and for the supply of gadgets took place in the period when there were still limitations from Covid-19. Emilia-Romagna Region stopped the purchase and distribution of gadgets as a consequence, and the purchase was replaced by additional video productions and sponsored social campaigns. Savings have been shifted to the external assistance budget line. In the pre-pandemic phase, 50 backpacks were purchased for volunteers. In addition, canvas bags were still made for the June event to distribute the publications made within the project.

Other cost

In the category of other costs, expenses for an Audit (Independent Audit – F4 action) engagement had been erroneously included in the proposal though not necessary, resulting in savings of €10.200,00, shifted to the external assistance budget category.

Ente di Gestione per i Parchi e la Biodiversità Romagna

Personnel

Personnel of MAR until 2020 was paid by Emilia-Romagna Region. For this reason, during the third monitoring visit, it was concluded not to account for personnel costs, from 2016 to 2020, as they were not directly incurred by the AB.
Starting October 1st, 2021, the employee Cangini Lorenzo has been assigned to the project activities (actions C, D, E and F) with a total commitment of approximately 20% of working days until the completion of the actions (30/06/2022). Indeed, Cangini didn't maintain the timesheets because a contractually defined percentage of time was documented through determination n° 173/2021. Mr Cangini, despite being a permanent employee at the organisation, is listed as ADDITIONAL, following the indications in the section "Explanation of the content of each Column: Additional personnel includes all employees (permanent or temporary) of public bodies whose contracts or contract renewals start on or after the start date of the project or on or after the date of signature of the grant agreement by the Agency in case this date takes place before the project start date".

Although not accounted for, 4 other staff members worked on the project:

- Massimiliano Costa, technical contact person for the MAR and Director of the Park Authority;
- Gabriele Cassani, technician, responsible for the implementation of actions C1, C2 and C3;
- Fiorenzo Rossetti, technician, responsible for communication activities;
- Nevio Agostini, director of the Park Authority.

Travel cost

No expenditures were reported for travel costs (€3.390,00). By not accounting for personnel costs, travel expenses could not be accounted for.

Infrastructures

The amount foreseen in infrastructures (€30.000,00), was not spent for the construction of a structure because the Acquaemundi Association gave its availability to provide its structure, know-how and experience for the breeding activity (action C4 - ex situ reproduction). This project modification was submitted during the first monitoring visit (on 09/06/2016) and later through e-mail correspondence with the EC Project Advisor of the project. These exchanges allowed for the reallocation of the amount foreseen for the purchase to the signing of a contract with the Acquaemundi Association reported in the "External assistance" category, and accepted by the PA, Manuel Montero, with the email of 21/07/2016.

External assistance

A total of € 246.399,05 was accounted against the initially envisaged budget of € 168.640,00 foreseen by GA. This was due to two reasons:

- In this category the costs sustained for a senior Entomologist, foreseen in GA in additional personnel were accounted for: an Entomologist from Ecosistema for the monitoring activities ex-ante (actions A2, A3, A4, A5 and A7) and the Entomologist Roberto Fabbri (activities for actions C7, D1, D2, D4 and E5), with a total amount of € 63.610;
- € 30.000 was reported in the cost category after being reallocated from the budget line Infrastructures, to cover for the collaboration with Acquemundi Association (see Infrastructures description).

Equipment

In the equipment cost category two items were not foreseen in the originally approved budget (1 refrigerator and 1 camera NIKON – total of € 491,66) but proceeding with the project implementation they proved to be necessary for the proper realization of actions A and C in order to:

• collect photographic material and data during the monitoring phase of the species, as described in the approved AF;

• properly storage the pheromone purchased for the *Osmoderma eremita* monitoring operations (action A2).

The new items have been purchased using savings in this cost category. The expenditure accounted for is € 7.445,62 against the foreseen € 12.350.

Consumable

In order to properly implement the project actions (in particular actions A), MAR also purchased unforeseen consumable materials including gloves, waders, laboratory materials, trowel, test tubes, marking pens, headtorches and batteries to be used by the staff and experts involved in field, monitoring and breeding activities. The new items, for a total of € 1.075,28, have been purchased using savings in other cost categories. The expenditure accounted for is € 1.272,92 rather than the foreseen € 1.000.

Ente di Gestione per i Parchi e la Biodiversità Emilia Centrale

Personnel

The MEC accounting reports permanent staff (Personnel employees) and additional personnel (Personnel non-employees).

Personnel employees: as a staff member, only the Technical Manager of MEC, Fausto Minelli, who performs all the planned technical and administrative activities, is reported from 2016 to 2022. Though in the application form there were three professional figures, with three different hourly costs, during the execution phase the work was carried out exclusively by the technical manager, who corresponds to the figure with the highest daily cost (€168). The daily cost accounted of the permanent employee is 20% higher than the daily costs foreseen during the submission phase for all the years, because, due to a clerical mistake, during the submission of the project proposal, the AB's personnel cost had been estimated on the base of standard costs without accounting for the social security charges.

The cost of the Technical Manager of the MEC Fausto Minelli was calculated as follows:

- Annual gross salary: annual gross salary without reimbursements;
- Annual obligatory social charges & other eligible statutory costs: Pension contribution which consists of the social security contributions of CPDEL and INADEL.

Personnel non employees: in the early stages of the project (years: 2016, 2017, 2018, 2019) these additional personnel costs derive from 2 professional figures of entomologists (Mr. Davide Malavasi and Ms. Silvia Maria Stefanelli), selected through public tender, employed in the ex-ante monitoring activities, in the identification/inventory of habitat trees and in the conservation activities. Both Malavasi and Stefanelli have not filled-in the timesheets, because they worked full-time on the project, and are therefore exempted from the time registration obligation. These two entomologists were then succeeded by Dr. Giovanni Carotti from 2020 to 2022.
The total personnel costs accounted for is € 114,847.40 against the foreseen € 158,580.00, due to the shift of part of the expenditure of the Entomologists Malavasi and Stefanelli from staff to external assistance (see description in External assistance).

Travel
In the Travel budget line, when the company car has been used, only fuel costs are accounted for. Specifically, the costs are calculated by multiplying the Kms covered by the costs per Km, deriving from the consumption data of the car (taken from the booklet) and the cost of fuel supplied by the Ministry of Transport on a monthly basis. € 3,298.80 was accounted for, rather than the foreseen €15.555,00. The period of limitations for Covid reduced the travelling activities of the beneficiary.

External assistance
In accordance with the solution of financial issue n°25 from the letter note no. EASME D.3/MM/D (2020)2744508 of the fifth monitoring visit, the expenditure (€49.400) for the Entomologists Dr. Stefanelli Silvia Maria and Dr. Malavasi Davide (first contract) were shifted from personnel cost to external assistance, because the contract does not specify the time to be worked by the employee on the project.

Equipment
The reported costs for the budget line “Equipment” are in line with what was originally planned; the equipment necessary for the monitoring activities of the target species has been purchased.

Other cost
The “Other cost” sheet accounts for expenditure not foreseen in the budget of the GA: the costs sustained (€396,00) for the publication of an article about *Graphoderus bilineatus* on the European Zoological Journal (action C4), a publication necessary to formalise the results of the genetic survey of *G.bilineatus* samples found at Lago Pratignano, analysis that has increased our knowledge of some of the genetic characteristics of the Italian population. The unforeseen costs have been covered through savings.

Ente di Gestione per i Parchi e la Biodiversità Emilia Occidentale

Personnel
The MEOC accounting reports permanent staff (Personnel employees) and additional personnel (Personnel non employees).
Personnel employees, as staff members, seven people were accounted:
The Technical Project Manager for MEOC, Sergio Tralongo, reported only in 2016, and replaced by Renato Carini, following Tralongo's request for leave of absence as of 01/08/2016 (see Determination 544 of 2016 and references therein).
Renato Carini held the position of Technical collaborator for MEOC in 2016. From 2017 to 2022, he took over as Technical Project Manager.

The administrative role was covered by Marcella Ghiretti from 2016 to 2022. As administrative support Patrizia Marani was reported on the project from 2021 to 2022 (who has a part-time contract with 9hrs per week, for just 2 days a week, beginning from 01/09/2021 to 31/03/2022). The Communication Manager, Enrica Montanini, reported on the project from 2016 to 2022. The technical collaborator role was covered by Ms. Antonia Cavalieri and Sonia Anelli from 2016 to 2021.
The reported daily costs exceed in some cases the foreseen daily costs by more than 20%, in particular for Enrica Montanini, Marcella Ghiretti and Sonia Anelli.
Specifically, the hourly costs are much higher because the employees have taken on organizational position roles and the amount of their salaries have increased.
Personnel non employees: included in this category are two entomologists reported as additional staff:

- Davide Malavasi from 2017 to 2018, entomologist, selected through public tender, employed in the ex-ante monitoring activities, in the identification/inventory of habitat trees and in conservation actions.
- Giovanni Carotti from 2020 to 2022, entomologist, employed in the ex-post monitoring activities

Personnel expenditure was higher than foreseen - € 58.232,23 against € 36.478,00 - due to:

- higher hourly costs, as specified
- extension of the project duration for an additional 18 months.

Travel
Costs incurred for the purchase of public transportation tickets and food costs were accounted for, for a total of € 1,049.35 (against the foreseen €10.000,00). The period of limitations for the pandemic emergency, reduced the travelling activity for the beneficiary.

External assistance
In accordance with the solution of financial issue n°25 from the letter note no. EASME D.3/MM/D (2020)2744508 of the fifth monitoring visit, the expenditure (€ 2.500) for the entomologist Della Rocca Francesca were shifted from personnel costs to External assistence, because the contract does not specify the time to be worked.
The amount foreseen for action C1 (in total €2.000,00) is accounted on three different sub-contractors: Barbarotti (Drafting of work safety plan), Malavasi (Work direction) and Cooperativa Territorio Ambiente Montano (forestry work for tree cavitation habitat).
The amount accounted for, for action C1, was higher than expected € 6.434,51 instead of € 2.000. The higher cost was balanced by not using the amount for action C2.
The amount for Action C2 was not spent because it was not necessary to carry out the interventions for *G. bilineatus*, as the species was not found in the MEOC area. The budget foreseen in this action has been moved to action C1, favouring the increase of interventions in support of the two saproxylic species, as already communicated with the MtR.
Invoice n°27_22 from ESPERTA, although issued on 07/14/2022, is the final balance for training and dissemination activities with schools (action E2) carried out in school years, before the end of the project.
Although not foreseen in the proposal, an activity was added for the involvement of two guides for the visit of the MUMAB museum "Museo Mare Antico Biodiversità" at the headquarters of the Parco Stirone Piacenziano in Millepioppo, Salsomaggiore Terme (PR), on the occasion of the Volunteers' Day, scheduled at the end of the volunteers training course (action A5). The company Around Srl, manager of the museum, made itself available to provide this service, as it was considered useful to combine the planned activities with those of visiting the MUMAB museum.

Equipment
In the execution phase of the project, it was not necessary to purchase some equipment (no. 1 binoculars; no. 1 aluminium folding ladder; no. 1 GPS); n° 2 multi-function testers where instead purchased, as useful in the carrying out of the monitoring activities (€ 280,60).
The amount for the purchase of the WMBs was € 493,78 higher than foreseen.

Consumable
Materials useful for the monitoring activities has been purchased, including n 30 rectangular bottles, n 25 funnels, n 8 rectangular basins, n 1 pack of test tube, n 2 packs of test tube with caps, Ether and nebulizer, 1L ethyl alcohol, manure nutron, soil and pellets for substrate.

Ente di Gestione per i Parchi e la Biodiversità Emilia Orientale

Personnel employees, as a staff member, three people were reported:
- the technical manager, David Bianco, reproted from 2016 to 2022. As mentioned above, during 2020-2022 period Mr. David Bianco did not maintain the timesheets, because he had worked on the project less than 2 days per month on average in a given calendar year, according to Annex X, art. II.1.2. EXPECTIONS, case b).
- the administrative technician, Lucia Bolognesi, reported on the project from 2016 to 2022 (until May 2022);
- the technical collaborator, Cristina Gualandi, reported on the project from 2016 to 2022.

For the calculation of the salary costs for 2022, the same values of 2021 were used conventionally, as the final costs for the year 2022 were not yet available. Specifically, for Ms. Bolognesi, a parameterised digit was used for only five months, due to the fact that the employee has not been with the organisation starting May 2022.
The daily costs accounted for the administrative and technical collaborators are 20% higher than the daily costs foreseen because, for a clerical mistake, during the submission phase the AB's personnel cost had been estimated on the base of the standard costs without accounting for the social security charges. In addition, for all three employees the salary amount from 2016 to 2022 has increased. The supporting documents for the calculation of the cost of technical collaborator Cristina Gualandi for the year 2017 (timesheets, monthly payslips, staff costs calculation) were sent with MtR.
Personnel expenditure was higher than foreseen, € 38.826,79 against € 22.510,00, due to:
  - higher hourly costs, as specified
  - extension of the project term for an additional 18 months.

External assistance
The budget foreseen in C2 action has been moved to action C1, favouring the increase of interventions in support of the two saproxylic species, as already communicated with MtR.
Not foreseen but necessary during the project implementation project, the expenditure of the entomologist for the ex-post monitoring activity D2, D4 and as expert support for the implementation of actions C7 and C8 was accounted for. For this reason, the amount accounted for was higher, € 54.366,90 instead of € 49.800,00 foreseen.

Equipment
In the execution phase of the project, it was not necessary to purchase some equipment (Binoculars, optics, camera, aluminum folding ladder, computer equipment).
The amount for the purchase of the WMBs was € 1,354.38 higher than foreseen.

Consumable
The amount accounted for is in line with what is foreseen

Parco Nazionale Appennino Tosco Emiliano

Personnel
The costs actually incurred amount to € 239,389.16 whereas the personnel costs declared in the Grant Agreement amounted to € 142.635,00.
During the project period, 5 people were accounted for on the project: three staff members as permanent staff and two as additional staff.
Permanent staff:

- the technical manager of the Project, Francesca Moretti, reported on the project from 2016 to 2022;
- the administrative manager and technical collaborator, Willy Reggioni, reported on the project from 2016 to 2022;
- the technical collaborator, Nadia Fattori, reported from 2016 to 2020.

The final hourly costs are in line with the ones foreseen in the GA for Nadia Fattori, Francesca Moretti and Willy Reggioni until 2018. From 2019, the salary is increased due to the recognition of new allowances and organizational positions for the different professional figures.
The supporting documents for the calculation of the cost of technical collaborator Nadia Fattori for the year 2017 (timesheets, monthly payslips, staff costs calculation) were sent with MtR.
Additional staff: the entomologists, Giovanni Carotti and Iris Biondi, were selected through public tender, employed in the ex-ante monitoring activities, in the identification/inventory of habitat tree and in the conservation actions.
The additional personnel is reported in the "Personnel_EMPLOYEES" sheet of the financial statement as they are under Co.Co.Co project contract, and therefore to all effects linked to the Park Authority through a collaboration and employment relation.

Travel
In the Travel and Subsistence budget line only, the costs effectively sustained by the entity for business trips are reported. When the company car has been used, only fuel costs are accounted. Specifically, this is calculated by multiplying the Kms covered by the costs per Km, the latter calculated from the consumption data of the car (taken from the booklet) and the cost of fuel published by the Ministry of Transport on a monthly basis.
A total of € 10.407,29 was accounted for, against the foreseen €24.805,00, due to the period of limitations for Covid that reduced travelling, and because the second contract of Giovanni Carotti for the ex-post monitoring was accounted for in external assistance.
Savings were shifted to cover the increased costs of external assistance.

External assistance
The budget foreseen in C2 action has been moved to action C1, favouring the increase of interventions in support of the two saproxylic species, as already communicated with MtR.
Not foreseen but necessary during the project implementation, the expenditure of the entomologist, Giovanni Carotti, for the ex-post monitoring activity D1, D2, D4 and as expert support for the implementation of conservation actions C3, C4, C5, C7 and communication actions E2 and E7, was accounted for.

The tender procedure for the administrative management of the project (€15.000) was not assigned; the reporting was carried out directly by the administrative manager Willy Reggioni.
The unforeseen cost of €305,00 for the rental of a conference room was reported (assigned to Seminario Vescovile di Marola, with direct award) due to the need to have an adequate room to ensure the best conditions for the realisation of the technical workshop "The management of forest ecosystems: mitigation of and adaptation to climate change and protection of biodiversity", achieved with action C7.

Equipment
The lower cost € 11,038.37, compared to the foreseen amount of € 47,650.00 is attributable to two reasons:

- cost savings when purchasing materials;
- avoided purchased of the informatic and video equipment foreseen by GA for the set-up of the Palaeremita (3-camera video surveillance system with remote control; No. 02 Watchout WatchPax media server 2 outputs and No. 01 Notebook i5 with HD SSD and dedicated 1GB video card; No. 2 Video projector cases, No. 1 Media server case and removable super-light aluminium stand for allocation in position of video projectors; No. 2 video projectors 12000 lumens, Wide with 1.2 interchangeable optics).

Wheares, although not initially foreseen in the equipment budget line, it was necessary to purchase n 1 multi-parameter tester pHMetr kit - coduttivimeter - thermometer (direct award to MPIM srl, after a request for offers, for a total amount of €228,38) to be used in actions A2 and C3.
Given the absolute necessity of having a tank for the transport of *G. bilineatus* in order to proceed with C5 activities, No. 1 'Newa MIRABELLO MIR 60 Aquarium' (€158,04) was purchased through direct assignment to Acquari Caraibi di Bini Miria, not foreseen in proposal.

Consumables
The lower cost € 3,568.56, compared to the foreseen amount of 12,700.00 is mainly due to cost savings when purchasing materials.
No. 2 headlamps, no. 100 plastic containers, and hardware minute material were foreseen, but not purchased because not needed during the implementation of the project activities.
In accordance with the monitoring protocol for the species, articles for making traps for *Osmoderma eremita* (bottles, crates, jars, thermal bags, tape, gloves, etc.) were purchased from Gom Plast srl, for a total of € 998,20, not initially budgeted. Another expenditure not foreseen was the purchase of tree climbing materials (€482,90) necessary in order to safely access the WMBs and thus verify the developmental status of *O. eremita* larvae and the state of browning, controls that are essential for the success of D1 monitoring activities.

Other cost
The lower cost € 2.281,32, compared to the foreseen amount of 5.500,00 is mainly due to cost savings for printing panels and sails (action E7).
In this budget line it's includes also the expense (not foreseen in the proposal) of the buffet at the Forno di Ligonchio (€261,00), for inauguration breeding facility.

Parco Nazionale delle Foreste Casentinesi

Personnel

The costs actually incurred amount to € 79,794.89 whereas personnel costs declared in the Grant Agreement amounted to € 86,670.00.

During the project period, 4 people were accounted for on the project:

- the technical manager of the Project, Davide Alberti, reported on the project from 2016 to 2022;
- the administrative manager, Roberta Ricci, reported from 2016 to 2022;
- the two administrative assistants: Cinzia Gorini, reported on the project from 2018 to 2022 and Lorella Farini, reported from 2016 to 2022.

The reported daily costs exceed for every employee in every project year by 20% the daily costs envisaged in the GA, for a mere calculation error during the application phase. A standard cost of €110 was assigned to all personnel figures without distinction of category and role.

The supporting documents for the calculation of the cost of Davide Alberti for the year 2017 (timesheets, monthly payslips, staff costs calculation) was sent with MtR.

The hourly rate for all employees is higher in 2022 because it also includes the financial arrears from the previous years.

Travel

Travel costs were not reported on the project (budgeted in the GA: € 17.870,00), and were used to balance the higher expenditure in external assistance.

External assistance

In accordance with the solution of financial issue n°25 from the letter note no. EASME D.3/MM/D (2020) 2744508 of the fifth monitoring visit, the expenditure for the entomologist Margherita Norbiato (€ 26.650,00), was shifted from personnel costs to External assistance, because the contract does not specify the time to be worked.

The budget foreseen in action C2 has been moved to action C1, favouring the increase of interventions in support of the two saproxylic species, as already communicated with MtR.

Some expenses were not planned but were necessary during the project implementation:

- work direction for the renovation of a place at Corte del Palazzo Nefetti intended to host the breeding of *O. eremita* (assignment to "Studio Tecnico Associato Ghini – Podini" - Action C.4);
- drafting of the executive project of conservation action C1 and for the authorisation procedure and work direction (assignment to "Studio Verde associazione professionale"- Action C1);
- the expenditure of the entomologist of Sterna and Roberto Fabbri, for the ex-post monitoring activities D1, D2, D4 and as expert support for the implementation of conservation actions C3, C4, C5.

The service of administrative management of the project (€15.000) was not entrusted; the financial reporting was carried out directly by the administrative personnel, Lorella Farini and Cinzia Gorini.

The tendering of the service for the addition with images Project app was not necessary during the implementation of the project.

Infrastructure: the renovation of a place at Corte del Palazzo Nefetti intended for the breeding of *O. eremita* accounted for a higher than foreseen cost (€ 7.174,10 more), due to the state of the building verified at the design stage.

Equipment

The lower costs reported (€ 8.403,78), compared to the foreseen amount of €15.250,00, are due to the fact that the video equipment was not purchased (no. 3 camera video surveillance system with remote control and No. 2 indoor video projectors) and neither was the monitoring equipment (No. 4 entomological nets, No. 1 binoculars, No. 1 aluminium folding ladder, No. 1 forestry tripod, No. 1 harness including ropes and carabiners).

On the other hand, some unforeseen equipment became necessary during the implementation of the project: a small fridge for the proper storage of the pheromone purchased for *Osmoderma eremita* monitoring operations (action A2) and analytical electronic balance, necessary for the breeding activity (Action C4), as well as a GPS for the monitoring activities (Action A3).

Consumables

The higher costs reported (€3.797,84) compared to the GA's provision of €1.650,00, are connected to the unforeseen cost for the purchase of no. 25 boxes with cover (€114,9, purchased through a direct award to IKEA), no. 300 pieces of 16 gr of Beetle jelly: fruit jellies for animal feed (€183, purchased through a direct award to Natura Edizioni Scientifiche) and various consumables for monitoring such as screens, pliers, probe, bottles, test tubes, alcohol (€1.604,06, purchased through a direct award to Natura Edizioni Scientifiche). These expenses were necessary to carry out the breeding activities planned in Action C4.

On the other hand, the no. 2 headlamps and the carpentry scraps were not purchase, as they were not necessary during the implementation phase.

Summary of costs per action

The following table shows the costs incurred per action during the reporting period covering the project activities from 01/01/2016 to 30/06/2022, compared to the approved budget.

ALLOCATION OF COST PER ACTION										
Action Number	**1. Personnel**	**2. Travel and subsistence**	**3.External assistance**	**4.a Infrastructure**	**4.b Equipment**	**4.c Prototype**	**5. Purchase or lease of land**	**6. Consumables**	**7.Other costs**	**Tot. Per action**
A1	8.993	49	0	0	0	0	0	0	0	9.042
A2	45.313	972	60.115	0	8.589	0	0	7.656	0	122.645
A3	50.051	1.188	23.125	0	1.491	0	0	0	0	75.855
A4	21.944	344	38.496	0	105	0	0	4	0	60.894
A5	17.616	48	36.856	0	0	0	0	2.525	1.045	58.090
A6	1.798	0	6.100	0	0	0	0	0	0	7.898
A7	24.255	136	0	0	0	0	0	0	0	24.391
C1	24.120	283	136.121	0	315	0	0	0	0	160.839
C2	3.873	12	57.010	0	478	0	0	0	0	61.373
C3	24.862	923	32.230	0	31.659	0	0	0	0	89.674
C4	49.209	1.696	100.144	62.653	390	0	0	1.969	396	216.457
C5	11.954	820	41.880	0	0	0	0	0	0	54.654
C6	17.705	0	39.910	0	2.183	0	0	0	0	59.797
C7	17.136	489	37.240	0	0	0	0	0	0	54.866
C8	8.299	14	3.000	0	0	0	0	0	0	11.313
D1	8.251	36	8.935	0	0	0	0	483	0	17.705
D2	8.319	20	9.701	0	0	0	0	0	0	18.039
D3	4.760	0	0	0	0	0	0	0	0	4.760
D4	8.701	196	7.229	0	0	0	0	0	0	16.127
D5	5.968	0	6.100	0	0	0	0	0	0	12.068
D6	1.339	0	0	0	0	0	0	0	0	1.339
E1	18.235	0	0	0	0	0	0	0	0	18.235
E2	79.096	1.548	150.002	0	1.025	0	0	0	261	231.932
E3	294	0	12.200	0	0	0	0	0	0	12.494
E4	7.345	0	23.330	0	0	0	0	0	0	30.675
E5	3.018	80	0	0	0	0	0	0	0	3.098
E6	10.876	113	3.520	0	0	0	0	0	0	14.509
E7	30.104	1.502	65.184	0	0	0	0	1.579	2.020	100.389
E8	17.616	24	29.000	0	0	0	0	0	0	46.640
F1	239.955	2.341	157.700	0	0	0	0	0	0	399.996
F2	42.407	2.070	0	0	0	0	0	0	0	44.478
F3	12.267	288	0	0	0	0	0	0	0	12.554
F4	2.235	0	0	0	0	0	0	0	0	2.235
Tot. per cost category	**827.915**	**15.192**	**1.085.128**	**62.653**	**46.234**	**0**	**0**	**14.217**	**3.722**	**2.055.061**
							Overheads			**135.522**
							Total project budget			**2.190.583**

8.2. Accounting system

All money transferring from the European Commission towards the CB, from the CB to the ABs, as well as the recording of expenditure commitments and the payment of expenses in the balance sheet, are recorded on specific budget headings, identified within the analytic accounting system of the beneficiaries by utilising the code of the project itself. In this way it is possible to track all accounting movements linked to the project.
The accounting records of the CB and the ABs are filled in and kept updated on the basis of national accounting rules. For Italian Public Bodies the commitment of expenditures is activated by the competent function and, following, the accounting regulatory stamp of the various treasury offices is affixed.
All beneficiaries have indicated the income and expense budget chapters in which the financial sums of the project transit, as detailed below:

(Projects funded under the Call 2014 onwards must use this format)

N°	Name of beneficiaries	Cost account (e.g. code name or number)	Name / function of person authorising expenditure	Name / function of person authorising payment at present	Name / function of person responsible for financial project management
1	Regione Emilia-Romagna	Chapter 38255 "Spese per il conferimento di incarichi professionali - quota regionale"; capitolo 38263 "Spese per il conferimento di incarichi professionali - quota UE"; Chapter 38253 "Spese per l'acquisizione di beni - quota regionale"; Chapter 38251 "Spese per servizi di lavoro flessibile - quota regionale"; capitolo 38249 "Spese per prestazioni professionali e specialistiche - quota regionale"; Chapter 38257 "Spese per prestazioni professionali e specialistiche - quota UE"; Chapter 38280 "Organizzazione e realizzazione di eventi - quota UE"; Chapter 38282 "Servizi di consulenza e assistenza informatica - quota UE".	Enzo Valbonesi (Manager of the service "Aree Protette Foreste e Sviluppo della Montagna") From 2020 replaced by Gianni Gregorio	Enzo Valbonesi (Manager of the service "Aree Protette Foreste e Sviluppo della Montagna") From 2020 replaced by Gianni Gregorio	Monica Palazzini (Project coordinator)
2	Ente di Gestione per i Parchi e la Biodiversità Romagna	Income Chapter: Voce di P.E.G 140 1 0 - Contributi Straordinari Progetto LIFE EREMITA Expenditure chapter: Voce di P.E.G. 2600 1 0 – Fondo per interventi in rete natura 2000 progetto LIFE EREMITA	Director Massimiliano Costa From 2020 replaced by Nevio Agostini	Director Massimiliano Costa From 2020 replaced by Nevio Agostini	Director Massimiliano Costa From 2020 replaced by Nevio Agostini Financial Manager Diego Mattioli
3	Ente di Gestione per i Parchi e la Biodiversità Emilia Centrale	Missione 09 Programma 0902 Tit I Cap. 7101200 "Acquisti Progetto Life". Missione 09 Programma 0902 Tit I Cap. 7203001 "Progetto Life incarichi". Missione 09 Programma 0902 Tit I Cap. 7203002 "Progetto Life Servizi". Missione 01 Programma 06 Tit I Cap. 4600101 "Retribuzione personale a tempo indeterminato". Missione 01 Programma 06 Tit I Cap. 4600201 "Competenze accessorie personale a tempo indeterminato". Missione 01 Programma 06 Tit I Cap. 4600301 "Contributi obbligatori personale a tempo indeterminato". Missione 01 Programma 06 Tit I Cap. 4600500 "Indennità di posizione organizzativa".	Director Valerio Fioravanti	Alessandra Galli Responsible of service "Finanziario Personale e Bilancio"	Alessandra Galli Administrative responsible

N°	Name of beneficiaries	Cost account (e.g. code name or number)	Name / function of person authorising expenditure	Name / function of person authorising payment at present	Name / function of person responsible for financial project management
4	Ente per la Gestione dei parchi e della biodiversità Emilia Occidentale	Chapter n. 2077 LIFE EREMITA	Director: Delio Folzani From 2021 replaced by Giuseppe Vignali	Alessandra Maestri – Financial Responsible	Marcella Ghiretti – Administrative collaborator
5	Ente per la Gestione dei parchi e della biodiversità Emilia Orientale	"Life Eremita acquisto di beni" Cap. 9231/114 U 1.03.02.99.999 "Life Eremita prestazione di servizi" Cap. 9232/114 U 1.03.02.99.999	Bianco David Responsible	Bianco David Responsible	Bianco David Responsible
6	Ente Parco nazionale dell'Appennino tosco-emiliano	Income chapter 1.1.2.2.09 "Cofinanziamento progetto LIFE EREMITA (da Regione E.R.) Expenditure chapter 1.1.2.1.56 denominato “LIFE EREMITA”.	Director Giuseppe Vignali	Responsible of financial service: Rag. Patrizia Rubertelli	Willy Reggioni
7	Parco Nazionale delle Foreste Casentinesi,	Chapter11590 LIFE/14/NAT/IT/000209 EREMITA	Director Sergio Paglialunga From 2022 replaced by Andrea Gennai	Director Sergio Paglialunga From 2022 replaced by Andrea Gennai	Administrative responsible Roberta Ricci

The individual costs statements and the Certificates of Nature and Biodiversity Projects were signed by the same function/person who signed the A3 and A4 forms in the Application Form. Some roles have changed, specifically: Paolo Ferrecchi is the new Director of RER, Antonio Venturi is the new President of MAR, Andrea Gennai is the acting director of PNFC.
Timesheet are filled in electronic forms by using the form requested by the Commission and downloaded from the LIFE website; the form has been personalised by each beneficiary with their logos and the LIFE project logo. The CB, at the beginning of the project, provided the timesheet scheme to be used and gave information to the beneficiaries about the correct compilation system.
At the end of the each passing month, the electronic sheet is printed and the date is written manually at the signing moment. When compiling the timesheet, the action or actions on which the worker has worked at the indicated hours are listed so as to be able to complete the table of costs per action. The timesheets are filled in also by the external personnel, the entomologists in charge, even if not specifically foreseen by the GA.
As an internal system, all beneficiaries are equipped with automatic detection systems of service attendance. Some beneficiaries have a system of approval of the attendance cards for the individual employees, while others receive the details in digital or paper format or together with the paycheck. The in-charge professionals, participating in the project as personnel not permanently employed, record the time worked for the project manually and fill in the timesheets accordingly.
The worked hours for the project are registered on timesheets in a systematic way by all the partners. At the beginning of each month the employee signs the timesheet reporting the hours worked the month before and sends it for the countersigning of the higher responsible.
Below is the specification on the countersignature modalities for each partner.
Specifically, timesheets of Emilia–Romagna Region are countersigned by the Project Coordinator Ms Monica Palazzini. The Project Coordinator's timesheets are countersigned by the service managing Director Mr Enzo Valbonesi and Mr Gianni Gregorio.
The timesheets of AB MEC are countersigned by Director Mr Valerio Fioravanti, the entomologists' timesheets are countersigned by the AB project coordinator.
The timesheets of AB MEOR are countersigned by the AB's project coordinator Mr David Bianco, his are countersigned by the Director Mr Massimo Rossi.
The timesheets of AB MEOC are countersigned by the AB's project coordinator Mr Renato Carini, his are countersigned by the Director Mr Delio Folzani and Giuseppe Vignali.
The timesheets of AB PNATE are countersigned by the Director Mr Giuseppe Vignali.
The timesheets of AB PNFC are countersigned by the Director Mr Sergio Paglialunga and Andrea Gennai.
To make sure that the invoices contain the reference to the project code, at the beginning of the project specific training was given to all the partners on the rules and methods for accounting expenditures. A session was dedicated to how to request invoices, focusing in particular on the fact that all invoices must bear specific reference to the LIFE project. If this does not happen, the connection to the project and to the specific action can be inferred from the determinations of payment of the expenditure, in which explicit reference is made to the details of the invoice. In some cases, the managing bodies communicate the code and acronym of the project in the invoice header.

The tender of external assistance for public bodies were entrusted in accordance with the rules on credit lines provided for by the national legislation and by the internal regulations of the Bodies.

8.3. Partnership arrangements

Transactions between the CB and the ABs take place with the same timing as the Grant Agreement, so a first pre-financing of 30% is granted when the individual beneficiary sends a specific request and demonstrates that it has started operations. The second pre-financing of 40% is granted after the successful collection by the CB, and following a letter of request from each individual AB. The financial reporting is filled in by each beneficiary, and the PM checks all costs that have been reported, based on the transmitted supporting documentation, archived by the CB. The financial report of the CB is filled in by the PM. In the financial reporting, only the expenses incurred and paid by each beneficiary are recorded. The consolidated financial state is filled in by the PM starting from the single financial reports of the beneficiaries. A financial reporting of the project is set up from which data are obtained to compile the "Consolidated cost statement" sheet of the CB financial report. A supporting management file is periodically compiled, in order to have a financial framework per partner and per action. These 2 files are compared for a last verification of the accounted values.

For the payment of the last tranche of the European co-financing, the PA will be amended based on the expenses reported to and approved by the CINEA Agency.

8.4. Certificate on the financial statement

In accordance with Amendment No. 2, and Article II.23.2 of the General Conditions, no beneficiary receives a total contribution in the form of reimbursement of the actual costs that is at least EUR 750,000. The certificate concerning financial statements is therefore not necessary and the external auditor should not be designated.

8.5. Estimation of person-days used per action

Action type	Budgeted person-days	Estimated % of person-days spent
Action A: Preparatory actions	1521	106,06%
Action B: Purchase/lease of land and/or compensation payment for payment rights	-	-
Action C – Concrete conservation actions	1832	65,99%
Action D: Monitoring and impact assessment	385	56,97%
Action E: Communication and Dissemination of results	1061	116,60%
Action F: Project management (and progress)	974	178,86%
TOTAL	**5773**	101,19%

For A actions there was an increased involvement of internal staff members in the early stages of the project, which was not foreseen in the Proposal, due to a greater commitment required in the ex-ante monitoring activities lasting two years instead of one.
For C and D actions a general decrease in the number of hours was recorded due to the engagement of entomologists accounted for in the budget category “external assistance”, that allowed for the participation of figures that were professionally better equipped to carry out the conservation and monitoring actions of the target species.
For E and F actions the increase in the number of hours recorded stems from the additional project period of 18 months following the extension of the project end date.

9. Annexes

9.1. Deliverables

Deliverable	Action	File(s) folder name
3° Catalogue of Volunteers' opportunities within the LIFE Eremita Project	A5	FR_Folder: Deliverable\ A5_Training courses: • 3° Catalogue Volunteers opportunities 2019.pdf • A5_Summary.pdf
4° Catalogue of Volunteers' opportunities within the LIFE Eremita Project	A5	FR_Folder: Deliverable\ A5_Training courses: • 4° Catalogue Volunteers opportunities 2020.pdf • A5_Summary.pdf
Minutes of volunteers' training courses, second phase	A5	FR_Folder: Deliverable\ A5_ Training courses: • A5_Minutes_2020.pdf • A5_Summary.pdf
Action Plan of Interventions C1, C2, C3, C4, C5 and annexxes	A7	FR – Folder: Deliverable\ A7_ActionPlan+Restocking: • file A7_Action Plan_Summary.pdf • A7_Action_Plan.pdf • folder A7_ Action_Plan_Annexes: files included in the annexes to Chapter 7: • Executive project C1_C3 MEOC • Executive Project C1_C3 MEC • Executive Project C1_C3 MEOR • Executive Project C1_C3 MAR • Executive Project C1_C3 PNFC • Executive Project C1_C3 PNATE files included in the annexes to Chapter 8: • Executive Project MAR_C2 • final project MAR_C2 • SUMMARY Action C2.pdf files included in the annexes to Chapter 9: • WMB substrate.pdf • WMB_guidelines.pdf files included in the annexes to Chapter 10: • Enviromental_minister.pdf • Feasibility study_Osmoderma eremita.pdf • ISPRA_captivebreeding Osm_ 10 _10_17.pdf • Prot_Breeding_Osmoderma eremita.pdf files included in the annexes to Chapter 11: • Advice_ISPRA.pdf • Coenagrion_program_submission.pdf • Translocation programme_Coenagrion.pdf
Restoking plan of Graphoderus bilineatus	A7	FR – Folder: Deliverable\ A7_ActionPlan+Restocking\ A7_Restocking_plan: • A7_Genetic_analysis _eng_summary.pdf • A7_Genetic_analysis _final_report.pdf • ENG_RestockingPlan_G_ bilineatus.pdf

		• ITA_RestockingPlan_G_bilineatus.pdf
Technical report including maps	C1	FR – Folder: Deliverable\ C1_Report: • Report C1.pdf • folder Maps: C1_general_map_O_eremita.pdf C1_Interv_O.eremita_MEOC.pdf C1_Interv_O.eremita_MEC.pdf C1_Interv_O.eremita_MEOR.pdf C1_Interv_O.eremita_PNATE.pdf C1_Interv_O.eremita_PNFC.pdf C1_general_map_R_alpina.pdf C1_Interv_R alpina.pdf
Technical report including maps	C2	FR – Folder: Deliverable\ C2_Report: • folder Images with photos • folder Maps with 1.C2__general_map.pdf 2.C2_lot_maps.pdf • Certificate of regular execution 04_12_2020.pdf • Certificate of regular execution 18_05_2020.pdf • Certificate of regular execution 28_03_2022.pdf • FinalStatus at 04_12_2020 • FinalStatus at 10_02_2020.pdf • Report C2.pdf
Technical report including maps	C3	FR – Folder: Deliverable\ C3_Report: • C3_WMB_Oeremita_general_map.pdf • C3_WMB_sites_EnteO.eremita.pdf • Report C3.pdf
2° Technical report on ex-situ reproduction activities	C4	FR - Folder: Deliverable\ C4_D1_Report: Final_Report_Breeding_actions_C4_D1.pdf
Final technical report including maps	C5	FR – Folder: Deliverable\ C5_Report: • folder Maps with: C5_C_castellani.pdf C5_G_bilineatus.pdf C5_O_eremita.pdf • Report C5.pdf
Production of draft MSCs and Management Plans	C8	FR – Folder: Deliverable\ C8_MSC: • C8_Summary.pdf • DGR_815 del 23-05-2022_Adoption.pdf • DGR_1336 del 01_08_2022_Approval.pdf
Activity report	D1	FR - Folder: Deliverable\ C4_D1_Report: Final_Report_Breeding_actions_C4_D1.pdf
Final report	D2	FR - Folder: Deliverable\ D2_Report: • Folder Annex_protocols with: Prot_mont_Osmoderma eremita WMB_D2.pdf • D2_FinalReport.pdf
Final report	D3	FR - Folder: Deliverable\ D3_Report:

		D3_FinalReport.pdf
Final technical report	D4	FR - Folder: Deliverable\ D4_Report: • FinalReport_D4.pdf
Final technical report	D5	FR – Folder: Deliverable\ D5_Report: D5_Final Report ex post survey.pdf
Final report	D6	FR – Folder: Deliverable\ D6_Report: D6_Final report_ecosystem function.pdf
Publication of a monographic issue of the magazine 'Storie Naturali' dedicated to the project and including extracts in English	E2	FR – Folder: Deliverable\ E2_VolMonogr_StorieNaturali: • StorieNaturali_publication_ENG.pdf • StorieNaturali_publication_ITA.pdf
Layman's Report	E3	FR – Folder: Deliverable\ E3_LaymansReport: • LaymansReport_LifeERemita_ENG.pdf • LaymansReport_LifeERemita_ITA.pdf
Minutes of thematic workshops in the 1st year of activation, Minutes of thematic workshops in the 2nd year of activation, Minutes of thematic workshops in the 3rd year of activation	E5	FR – Folder: Deliverable\ E5_MinuteWS: • Action E5 at 31_12_2021.pdf • Summary E5.pdf
Gadgets: canvas bags, magnets and USB pens	E6	FR – Folder: Deliverable\ E6_Gadgets: E6_Gadget summary.pdf
DVD with project video clips	E7	FR – Folder: Deliverable\ E7_DVD_Project_Video_Clips: • E7_Summary.pdf • EDU_Life_Eremita_kindergarten1.mp4 • EDU_Life_Eremita_kindergarten2.mp4 • Final Video sub eng_1.mp4 and Final Video sub ita_1.mp4 • PILL_Damigella_1920x1080_ENG.mp4 and PILL_Damigella_1920x1080_ITA.mp4 • PILL_Ditisco_1920x1080_ENG.mp4 and PILL_Ditisco_1920x1080_ITA.mp4 • PILL_facciamo festa EVENT_1920x1080.mp4 • PILL_Osmoderma-eremita_1920x1080_ENG.mp4 and PILL_Osmoderma-eremita_1920x1080_ITA.mp4 • PILL_Rosalia-alpina_1920x1080_ENG.mp4 and PILL_Rosalia-alpina_1920x1080_ITA.mp4 • Storytelling_1920x1080_ENG.mp4 and Storytelling_1920x1080_ITA.mp4 • VIDEO_Inseguendo una libellula.mp4
Minutes of technical and	F1	FR – Folder: Deliverable\ F1_MinuteTT_TA:

administrative table meetings and meetings of the 4th year meetings, Minutes of technical and administrative table meetings and meetings of the 5th meetings, Minutes of technical and administrative table meetings and meetings of the 6th year meetings		• folder 2019 with files 1.Minute TT 28_02_2019.pdf 2.Minute_TT_30_05_2019.pdf 2.Minute_TT_30_05_2019_annex.pdf 3.Minute_TT_09_07_2019.pdf 4.Minute_TT_05_09_2019.pdf • folder 2020 with files 1.Minute TT_TA 25_03_2020.pdf 2.Minute_TT_TA_05_05_2020.pdf 3.Minute_TT_TA_29_06_2020.pdf 4.Minute TT_FG_02_09_2020.pdf 5.Minute TT_23_10_2020.pdf • folder 2021 with files 1.Minute TT_TA_28_01_2021.pdf 2.Minute TT_TA_31_03_2021.pdf 3.Minute TT_TA_05_07_2021.pdf 4.Minute TT_05_10_2021.pdf 5.Minute TT_TA_07_09_2021.pdf 6.Minute TT_TA_15_12_2021.pdf • folder 2022 with files 1.Minute TT_06_04_2022.pdf 2. Minute TA_26_04_2022.pdf
Minutes of networking activities years 2019-2022	F3	FR - Folder: Deliverable \F3_MinuteNetworking_19-22: F3_Networking.pdf
After LIFE Plan	F4	FR – Folder: Deliverable\ F4_AfterLife: • After Life EREMITA_ENG.pdf • After Life EREMITA_ITA.pdf • After Life chart_ENG.pdf • After Life chart_ITA.pdf

9.2. Other documents

Other documents	Action	File(s) name
Materials produced during the last volunteer's recruitment campaign 2020	A5	FR – Folder: Other documents\ A5_Training courses\Volunteers with folders: • Flyer_programme • Lessons_18-19_09_2020 • Photos • certificate of attendance.pdf file
Materials produced during the Eremita festivals	A5	FR – Folder: Other documents\ A5_Training courses\Eremita festival with folders: • 18-09-21 with photos and program • 25-10-20 with photos and program
Thesis' abstract	A5	FR – Folder: Other documents\ A5_Training courses: Abstract_thesis_2017-2020.pdf
Authorization of the Ministry of the Environment	C4	FR – Folder: Other documents\ C4_Authorisations_PiandiSpagna:

		• Advice_ISPRA_1037446_signed.pdf • Authorisations_MATTM_2021.0048293.pdf
Report on *G. bilineatus* in catching activities in Latvia	C4	FR – Folder: Other documents\ C4_Latvia: • Report_C4_Latvia_eng.pdf • Shipping Protocol_Graphoderus bilineatus.pdf.pdf
Protocol with method of sampling *O .eremita* founders for ex situ breeding and in situ and ex situ breeding protocols, Scientific article by UNIPD	C4	FR – Folder: Other documents\ C4_Protocols_Scient_article: • Ex situ breeding protocol_Osmoderma.pdf • Prot_founders_sampling_Osmoderma eremita.pdf • Scientific article_2020_UNIPD.pdf
Feasibility study of *G.bilineatus* and positive advice of ISPRA	C5	FR – Folder: Other documents\ C5_Feasibility study_Authorisations: • G_bilineatus feasibility study.pdf • Positive advice_Ispra.pdf
Protocols for restocking of *G.bilineatus* and for translocation of *C.mercuriale castellanii*	C5	FR – Folder: Other documents\ C5_Protocols: • Prot_Restocking_Graphoderus bilineatus.pdf • Prot_Restocking_Osmoderma eremita.pdf • Prot_translocation_Coenagrion mercuriale.pdf
Database materials	C6	FR – Folder: Other documents\ C6_Database: • C6_report_DataBase.pdf • Database acceses_report.pdf • Database addresses.xls • Database letter.pdf
Material related to the 3rd an 4th workshops (including also supplementary materials of the 1st and 2nd workshops, not previously submitted)	C7	FR – Folder: Other documents\ C7_Workshops: • C7_Training workshop.pdf • Folder Annex with folder containing photos, presentations and programs: 2016_06_06 2017_09_23 2019_10_28 2019_11_05
Comments about MSC measures	C8	FR -Folder\Other documents\ C8_CommentsMSC: • Folder Comments_MSC: ASBUC_observation.pdf CCER_observation.pdf CIA_observation.pdf PNFC_observation.pdf UCAB_observation.pdf UCF_obesrvation.pdf URF_observation.pdf UTC_observation.pdf • Minute_meeting_19_07_2022.pdf
Copy of the updated Standard Data Forms (SDF) and files with the correspondence between the Emilia-Romagna Region and	C8	FR -Folder\Other documents\ C8_SDF and correspondence: • Folder Corrispondence with: MATTM_request_updateSDF_23_07_2019 MITE_request_updateSDF_19_07_2022

the Ministry of Environment and the EC about their transmission		RER_SDF_upload_request_29_09_2019 RER_SDF_upload_request_29_09_2022 SDFs_request.xlsx • Folder SDF forms with: Site_IT4030002.pdf Site_IT4030003.pdf Site_IT4030005.pdf Site_IT4050002.pdf Site_IT4050004.pdf Site_IT4070011.pdf Site_IT4070016.pdf Site_IT4080002.pdf Site_IT4090003.pdf
Materials produced from ex post questionnaire	D5	FR - Folder\Other documents\ D5_Expost_Questionnaire: • Link.txt • Results.pdf
Citizen science "iRosalia" campaign, Materials produced	E	FR - Folder: Other documents\ E_iRosalia: • iRosalia video.mp4 • iRosalia_Citizer Science_1.png • iRosalia_Citizer Science_2.png • iRosalia_Citizer Science_3.png • iRosalia_Citizer Science_4.png • iRosalia_Citizer Science_presentation.pdf • iRosalia_Observator Rules_HR.pdf • Logo.jpeg
Environmental education, Materials produced	E2	FR - Folder: Other documents\ E2_Communication\ Environmental edu: folders with photos and leaflets
Symposium, Materials produced	E2	FR - Folder: Other documents\ E2_Communication\ Symposia: photos, presentations, videos of the events, programs and save the date
A set of original 28 HD photos	E2	FR - Folder: Other Documents\ E2_Communication\ HD Photos: 28 photos in total
Final conference/workshop materials	E6	FR - Folder: Other Documents\ E6_FinalWorkshop: • Flyers_Progam_Save the date • Interventions • Lists of participants
Eremita Tour, Materials produced	E7	FR - Folder: Other Documents\ E7_Eremita Tour: photo and poster of: • Bagnacavallo_2-10-21 • Bagno di Romagna_2021 • Casola valsenio_2021 • Santa Sofia_19-12-21 • Sapore di sale - cervia_2021 • Tredozio_2021
All results of the monitoring social campaign	E8	FR – Folder: Other documents\ E8_Press_Office: E8_Articolture_Final Report.pdf
Communication Plan 2022 by Articolture	E8	FR – Folder: Other documents\ E8_Communication: E8_Articolture_CommunicationPlan.pdf

Simbiosi Magazine	E8	FR – Folder: Other documents\ E8_Press_Office: E8_SIMBIOSI_Magazine.pdf
Last publication of Storie Naturali	E8	FR – Folder: Other documents\ E8_Press_Office: N15_2022_StorieNaturali.pdf
Workshop *G.bilineatus* materials	F3	FR – Folder: Other documents\ F3_Workshop_G_bilineatus: • Folder slides • Folder video • photo album.pdf • SaveTheDate.png • WS_G.bilineatus_FinalProgram.pdf
After LIFE Plan Approval	F4	FR – Folder: Other documents\ F4_AfterLife_Acts: • MEOC_approved_Act_AfterLife.pdf • MEOR_approved_Act_AfterLife.pdf • PNATE_approved_Act_AfterLife.pdf • PNFC__approved_Act_AfterLife.pdf • RER_approved_Act_AfterLife.pdf

9.3. Financial annexes

Document type	Action	File(s) name
Consolidated financial statement, including Payment Request, both in pdf and excel format	F1	EREMITA_Consolidated financial statement.xlsm EREMITA_Consolidated FS_Consolidated FS.pdf EREMITA_Consolidated FS_Costs_summary.pdf EREMITA_Consolidated FS_Funds_Distribution.pdf EREMITA_Consolidated FS_Income_Summary.pdf EREMITA_Consolidated FS_Payment_Request.pdf
Individual financial statement of all beneficiaries, including certificate for natura projects, both in pdf and excel format	F1	RER_EREMITA_reporting_30062022.xlsm RER_EREMITA_ICS.pdf RER_EREMITA_NATCertif.pdf MAR_EREMITA_reporting_30062022.xlsm MAR_EREMITA_ICS.pdf MAR_EREMITA_NATCertif.pdf MEC_EREMITA_reporting_30062022.xlsm MEC_EREMITA_ICS.pdf MEC_EREMITA_NATCertif.pdf MEOC_EREMITA_reporting_30062022.xlsm MEOC_EREMITA_ICS.pdf MEOC_EREMITA_NATCertif.pdf MEOR_EREMITA_reporting_30062022.xlsm MEOR_EREMITA_ICS.pdf MEOR_EREMITA_NATCertif.pdf PNATE_EREMITA_reporting_30062022.xlsm

Document type	Action	File(s) name
		PNATE_EREMITA_ICS.pdf PNATE_EREMITA_NATCertif.pdf PNFC_EREMITA_reporting_300620222.xlsm PNFC_EREMITA_ICS.pdf PNFC_EREMITA_NATCertif.pdf