Autonomous Region of the Azores

Regional Secretariat for the Environment and Climate Change

LIFE IP Azores Natura (LIFE17 IPE/PT/000010)

Progress Report

covering the project activities of sub-action C6.1

Reporting Date

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GOVERNO DOS AÇORES | Secretaria Regional do Ambiente e Alterações Climáticas

Life IP AZORES NATURA

NATURA 2000

Life

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List of key-words and abbreviations

ARU	Autonomous Recording Unit
BD	Bird Directive
HD	Habitat Directive
IAS	Invasive Alien Species

1. Technical part

1.1. **Action C6** – Implementation of integrated conservation works for seabirds

1.1.1. **Sub-action C6.1** – Restoring islet habitats for seabirds

This sub-action stipulates the implementation of a set of conservation measures that will allow improving the conservation status of 7 seabird species protected by the Bird Directive by improving habitat conditions and implementing other nesting support measures on several islets in the Azores archipelago. The implementation of these objectives is being carried out in joint work between the beneficiaries SPEA, DRAM, DRAAC and SRAAC, and the teams of the respective Natural Parks. Sub-action C6.1 focuses on 5 procellariiform species (*Calonectris borealis*, *Bulweria bulwerii*, *Hydrobates castro*, *Hydrobates monteiroi*, and *Puffinus lherminieri*) and 2 charadriiform species (*Sterna hirundo* and *Sterna dougallii*). The islets on which this task is being carried out are Praia and Baixo islets (Graciosa), Vila Islet (Santa Maria), and – after its expropriation – Topo Islet (São Jorge). Baixo Islet was not initially part of this sub-action, but given its relevant role in conservation and nesting of the targeted seabird species, it was subsequently included.

Planning of the specific tasks commenced in January 2020, when the Technical Assistant to the Project Manager was contracted. As a first step, the three accessible islets were visited (Topo Islet was still in the expropriation process at the time), and Operational Plans were subsequently devised per island, establishing the concrete conservation works to be implemented on each of the islets. The drafting of the Operational Plans was completed in October 2020. The present report will describe the activities carried out up until 31 December 2021, specified separately for each task, including mapping of all interventions.

Regarding Topo Islet, the expropriation process within the frame of sub-action C1.1 was only concluded with the administrative appropriation on 8 November 2021. Currently, 138 sheep and 1 bull remain on the islet, and the date of their removal is unknown, given that a new process has started in the Court of Appeal in Lisbon, in which the former leaseholder claims that he does not own any land on which he can keep the above-mentioned livestock. As long as the livestock remains on the islet, the implementation of the habitat restoration tasks on Topo Islet will be difficult. Nevertheless, the first prospecting trip is planned for April 2022, when weather conditions start improving, which will be followed by the adjustment of the respective OP draft, depending on the details of the baseline situation verified during this first prospecting visit.

In addition to what was foreseen in the proposal, a rope ladder and a lifeline were installed on Baixo Islet by the Operational Assistants, in order to be able to access the plateau that takes up most of the islet's surface, which is necessary for nest monitoring, invasive flora species removal, and restoration of native flora species (Figures 1 and 2).

Figure 1. Rope ladder installed on Baixo Islet, Graciosa, in May 2021.

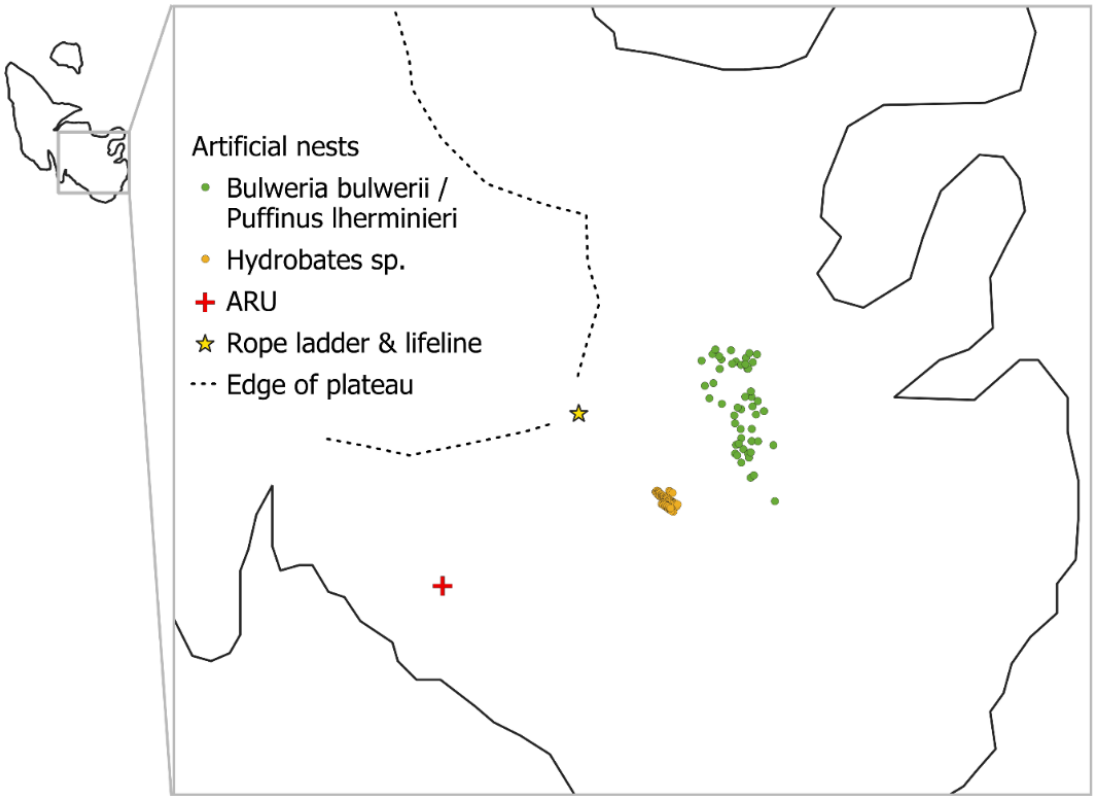

Figure 2. Location of the rope ladder and the lifeline installed on Baixo Islet, Graciosa between May and July 2021, the artificial nests installed in June 2021, and the ARU (autonomous recording unit) which has been continuously recording bird calls since January 2020, with the exception of some minor periods due to software problems.

Task 1 – Restoration of seabird habitat

This task targets habitat restoration through the reintroduction of flora species that would originally have formed part of the floristic composition of the islets through plantings or direct sowing (Table 1). On all islets, the original habitats would have been:

- 1210 – Annual vegetation of drift lines;
- 1220 – Perennial vegetation of stony banks;
- 1250 – Vegetated sea cliffs with endemic flora of the Macaronesian coasts.

It is possible that those species belonging to the priority habitat 4050*, that are particularly hardy in rough weather conditions (strong winds and saline spray), would have originally existed on the islets, although we were not able to find historical photographic records to support this notion. For this reason, it was decided that the woody species *Erica azorica* and *Morella faya* would be experimentally introduced to the islets through direct sowing, to test whether they would (re-)establish without having to waste resources by propagating them on Faial Island and transporting the seedlings back to Graciosa Island, with a potentially very low survival rate after planting.

Seed collection started during the 2020 seeding season (Table 2), and included the collection of over 750 g of seeds from 8 species, exceeding the 5 species initially foreseen. Species that produce a large quantity of seeds, which are easy to collect, will be reintroduced to the islets by direct sowing (i.e. *Daucus carota* subsp. *azoricus*, *Erica azorica*, *Festuca petraea*, *Frankenia pulverulenta*, *Morella faya*, *Solidago azorica*, and *Spergularia azorica*). These seeds are being stored in a ventilated place in the facilities of the respective Natural Park until sowing in spring 2022.

The seeds of the remaining species (*Azorina vidalii*, *Crithmum maritimum*, and *Tolpis succulenta*) have been sent to the Seed Bank on Faial Island, in order to be conserved *ex-situ* and propagated, for posterior planting on the islets. First planting interventions are planned for spring 2022, in order to achieve the milestone "1st restoration activity accomplished by 31 December 2022".

Table 1. Flora species to be reintroduced or reinforced on the islets targeted by sub-action C6.1.

Species	Praia Islet	Baixo Islet	Vila Islet
Asplenium marinum			x
Azorina vidalii			x
Crithmum maritimum	x	x	x
Daucus carota subsp. *azoricus*		x	x
Erica azorica	x	x	x
Euphorbia azorica	x	x	x
Festuca petraea			x
Frankenia pulverulenta	x	x	x
Limonium vulgare			x
Morella faya	x		
Myosotis maritima	x	x	x
Solidago azorica	x	x	
Spergularia azorica	x	x	
Tolpis succulenta	x	x	

Table 2. Quantities of seeds of target species (in grams) collected up until December 2021.

Species	Graciosa	Santa Maria
Azorina vidalii	230	132
Crithmum maritimum	67	-
Erica azorica	38	-
Festuca petraea	40	24
Morella faya	191	-
Solidago azorica	34	-
Tolpis succulenta	-	0.5

Task 2 – Other nesting support measures

In June 2021, nest installation began on Baixo Islet. 100 nests were installed with two different entrance hole sizes, namely 50 nests with an entrance of 5 cm, and 50 nests with an entrance of 6 cm diameter, in order to reduce inter-specific competition, allowing only the two species of storm petrel (*Hydrobates* sp.) to access the smaller artificial nests. A further 103 nests, with the same allocation of varying entrance diameters, were installed on Praia Islet in late June 2021 (Figures 5-7). The nests were installed in rows in various locations (Figures 2 and 3), with the exception of the larger nests on Baixo Islet, which were distributed in the preferred nesting habitat of *Bulweria bulwerii* among large boulders (Figures 2 and 4). 103 further nests were installed on Vila Islet, Santa Maria, in early July 2021, in two locations and at each location in two rows (Figures 8 and 9).

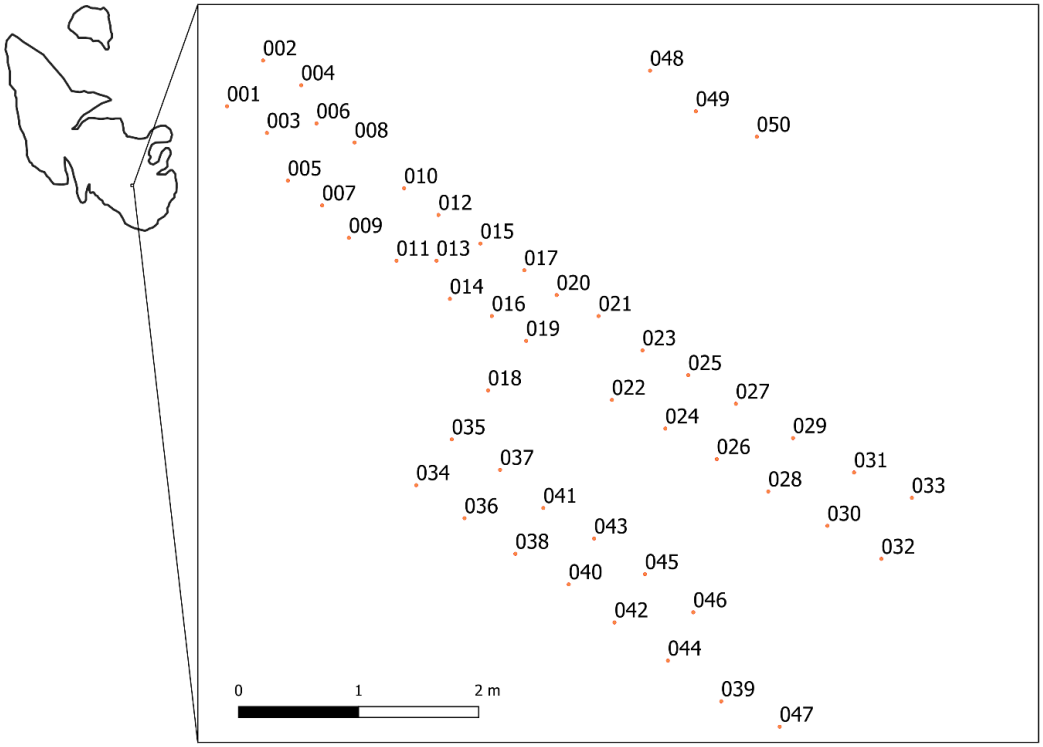

Figure 3. Artificial nests 001-050 installed for *Hydrobates* sp. on Baixo Islet, Graciosa, in June 2021.

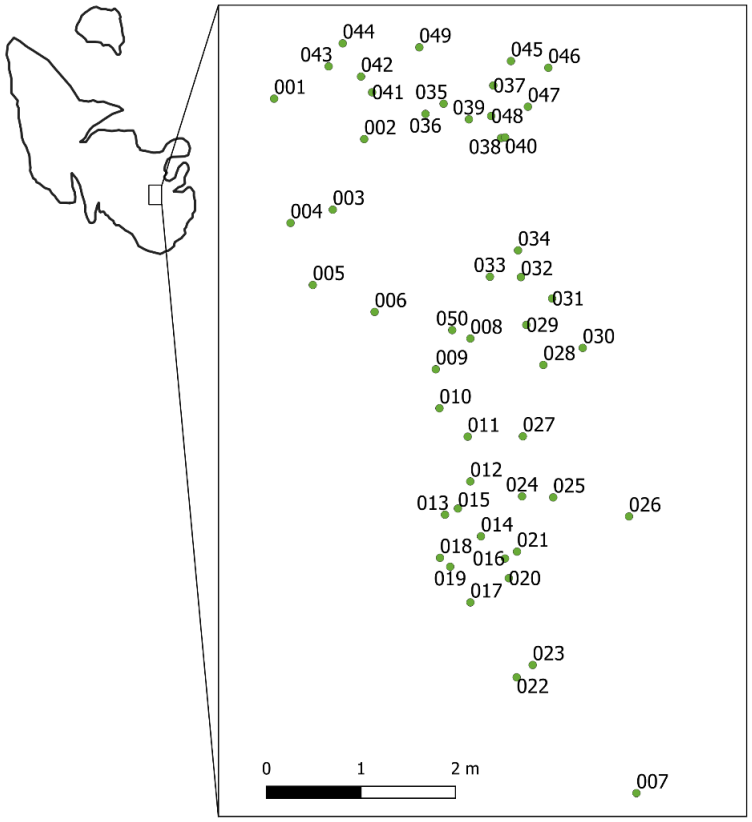

Figure 4. Artificial nests 001-050 installed for *Bulweria bulwerii* and *Puffinus lherminieri* on Baixo Islet, Graciosa, in June 2021.

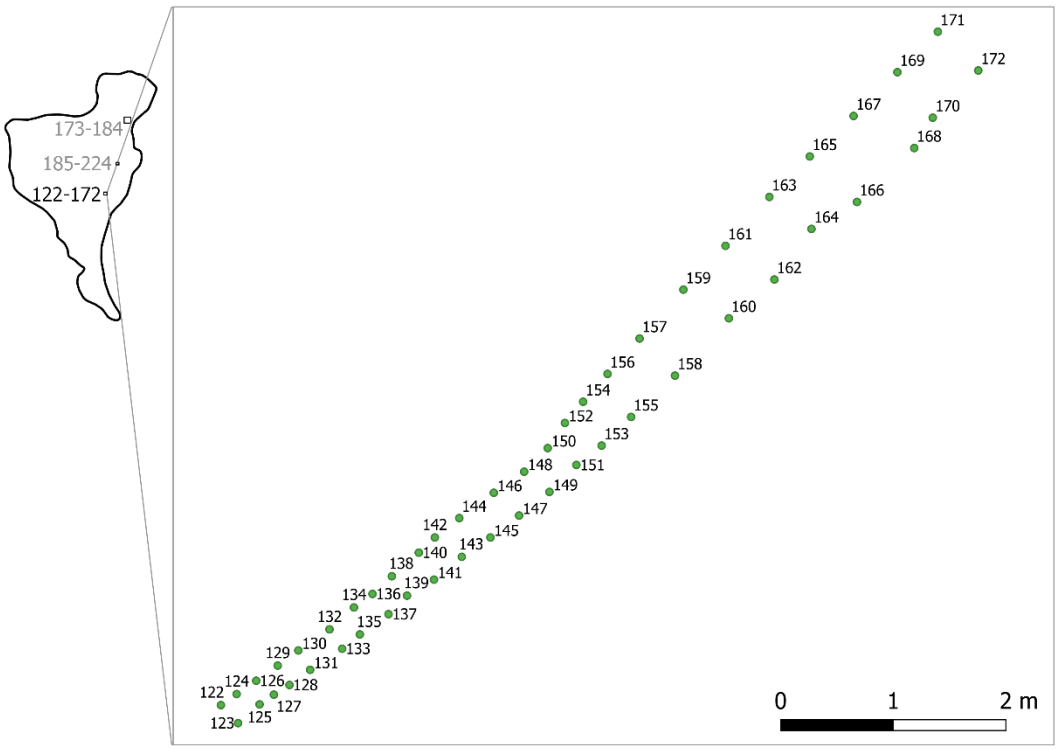

Figure 5. Artificial nests 122-172 installed on Praia Islet, Graciosa, for *Hydrobates* sp., *Bulweria bulwerii* and *Puffinus lherminieri*, in June 2021.

Figure 6. Artificial nests 173-184 installed on Praia Islet, Graciosa, for *Hydrobates* sp., *Bulweria bulwerii* and *Puffinus lherminieri*, in June 2021.

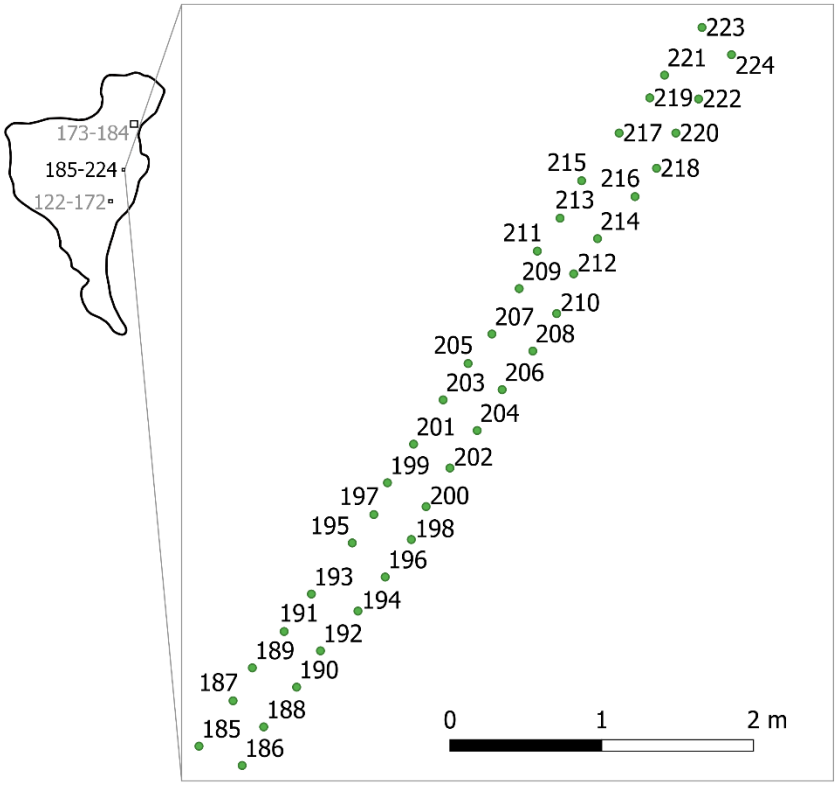

Figure 7. Artificial nests 185-224 installed on Praia Islet, Graciosa, for *Hydrobates* sp., *Bulweria bulwerii* and *Puffinus lherminieri*, in July 2021.

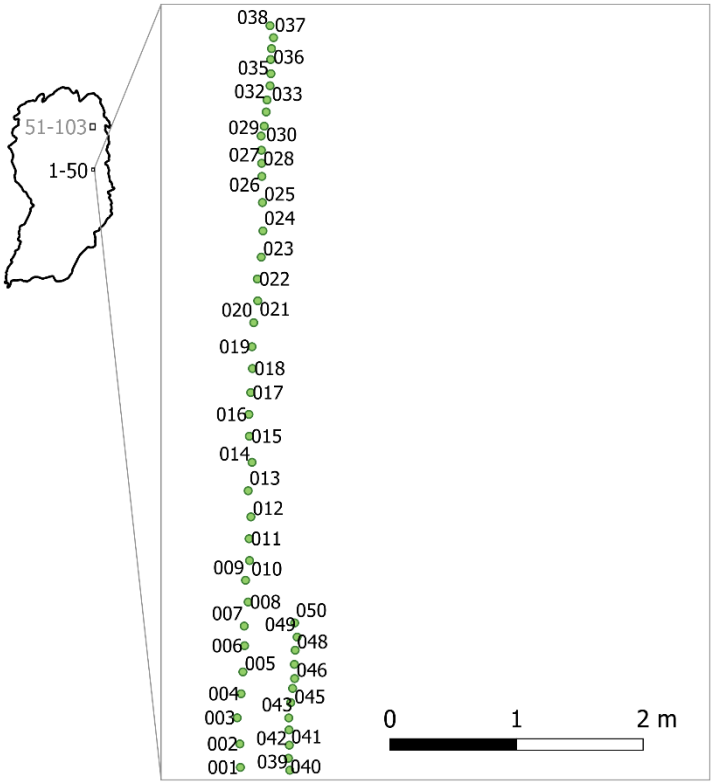

Figure 8. Artificial nests 001-050 installed on Vila Islet, Santa Maria, for *Hydrobates* sp., *Bulweria bulwerii* and *Puffinus lherminieri*, in June 2021.

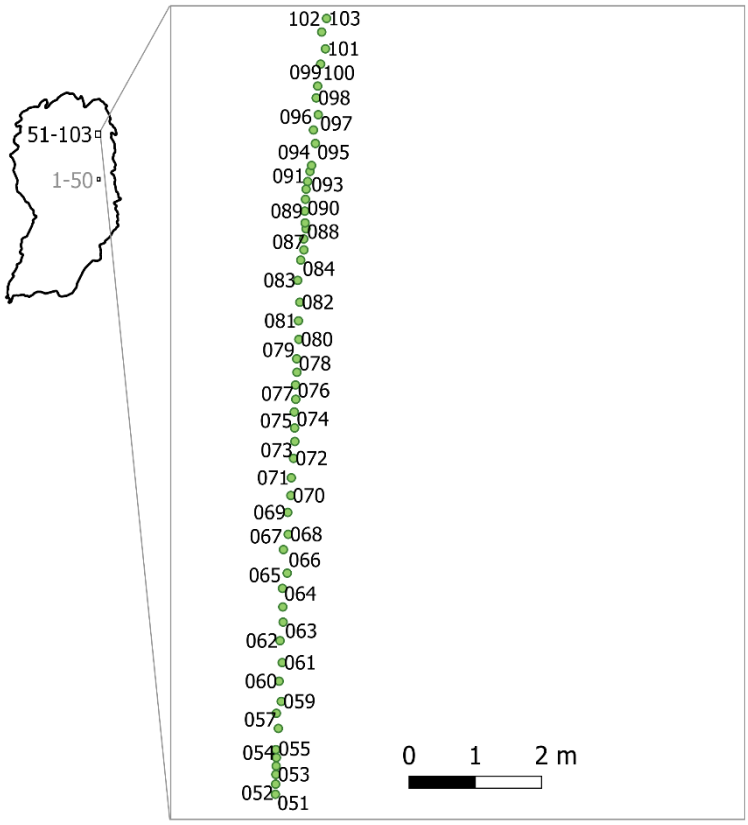

Figure 9. Artificial nests 051-103 installed on Vila Islet, Santa Maria, for *Hydrobates* sp., *Bulweria bulwerii* and *Puffinus lherminieri*, in June 2021.

Nests were settled into the soil and fitted with stones around them, in order to imitate natural nesting burrows (Figure 10). Lids were fabricated using cement and gravel in order to place them onto the artificial nests (Figure 11), both to avoid them from being affected by strong winds and to hinder access of potential predators, such as the yellow-legged gull (*Larus michahellis*).

Figure 10. Artificial nests on Praia Islet, Graciosa, before installing cement lids, June 2021.

Figure 11. Artificial nests with cement lids on Praia Islet, Graciosa, September 2021.

All nests were georeferenced, and the related maps and their coordinates are delivered with this report. Despite the number of installed artificial nests already exceeding the initial target of 150 nests for procellariiformes, they will still be increased with the planned installation of 100 artificial nests on Topo Islet.

Regular monitoring of natural and previously installed artificial nests (the latter ones only on Praia Islet) has been carried out since the beginning of the project, in order to collect data on survival and nesting success of the target species, as part of sub-action D5.1 (Monitoring of terrestrial habitats, species and conservation problems). Of these newly installed artificial nests, three were already occupied by incubating *Hydrobates castro* in the beginning of December 2021, a mere 5 months after installation – two on Praia Islet, Graciosa (see Figure 12), and one on Vila Islet, Santa Maria, which is a very encouraging result.

Figure 12. Artificial nest occupied by incubating *Hydrobates castro* in December 2021, Praia Islet, Graciosa, five months after installation.

Regarding the installation of shelter boxes for terns (*Sterna hirundo* and *Sterna dougallii*) to provide the chicks with shelter from extreme climatic events and predation, a total of 50 were foreseen in the proposal. In the meantime, shelter boxes have been built on all islands, and are ready to be installed just before the 2022 breeding season (April). On Graciosa Island, 30 shelter boxes (15 for Praia Islet and 15 for Baixo Islet) were built using local wood in collaboration with the participants of the

Volunteer Camp (action E5) and local school children in July 2020. On Santa Maria and São Jorge, 15 boxes per islet were constructed, respectively.

Figure 13. Construction of shelter boxes for tern chicks during volunteer camp, July 2020, Graciosa

In addition to the construction of chick shelters, and given that decoys and sound lures (often both together) are commonly used to try to attract terns to new or restored habitat or to specific areas, we are currently in the process of fabricating a total of 20 tern decoys (5 decoys per islet). This idea resulted from networking with members of the LIFE Roseate Tern project (action E3), and the instructions published on their website are being followed in order to fabricate the decoys, which will be placed on or near the shelter boxes after their installation. In addition, a sound lure will be installed in the area for the duration of the breeding season. In the end of the breeding season, the shelter boxes will be collected and stored until the year after.

2. Overall progress of sub-action C6.1

Overall progress of the implementation of sub-action C6.1 is generally within the timeframe defined in the project (Table 3), and some of the milestones, such as the installation of 150 artificial nests, were even exceeded (306 artificial nests installed so far, 100 further nests ready to be installed on Topo Islet, as soon as the livestock is removed from the islet; 60 tern shelter boxes built, fabrication of tern decoys in progress).

Table 3. Milestones and deliverables for sub-action C6.1.

Milestone	Due date	Achieved
1st seed collection accomplished	31/12/2019	✗
100 litres of seeds collected for use in habitat restoration	31/12/2021	✗
1st nest placement	30/04/2022	✓
1st restoration (autochthonous species planting) action accomplished	31/12/2022	
All nests placed	31/12/2023	
Habitat restoration on 32.76 ha accomplished	31/12/2025	
At least 200 plant seedlings in each location	31/12/2025	
Deliverable		
Intermediate report	31/12/2021	✓
Map showing placement of artificial nests	31/12/2022	✓
Intermediate report	31/12/2023	
Intermediate report	31/12/2025	
Final report	31/12/2027	

The first milestone (1st seed collection accomplished) was achieved in July 2020, despite the due date for achievement of this milestone being 31 December 2019. However, the Technical Assistant to the Project Manager was only contracted in January 2020, and the start of the implementation of this action was planned for January 2020, wherefore seed collection could not have started before the 2020 seeding season.

The present report constitutes the first intermediate report describing the developments in the implementation of this sub-action and the associated results (deliverable D92), including the detailed and specific mapping of all the nests placed (deliverable D117a and D117b) up until December 2021.

Table 4 illustrates the actual progress of the implementation in relation to the proposed timeframe.

Table 4. Gantt-chart illustrating overall progress of sub-action C6.1.

Action		2020				2021				2022			
		1T	2T	3T	4T	1T	2T	3T	4T	1T	2T	3T	4T
C6.1	Foreseen												
	Executed												

Legend:

- Period defined in application
- Delayed, without repercussions (through adopted mitigation)
- According to plan
- Exceeding the targets