



LIFE ARCPROM



ΑΝΘΡΩΠΟΣ
UOMO
HUMAN

ΑΡΚΟΥΔΑ
ORSO
BEAR



LIFE18 NAT/GR/000768

Improving human-bear coexistence in 4 National Parks of South Europe

ACTION D4

Monitoring the impact of actions C3 and C6



JUNE 2025

Authors

Drafted by (alphabetical order):

Antonio Antonucci, Maiella National Park

Panagiota Argiraki, University of Thessaly

Charalambos Billinis, University of Thessaly

Dimitrios Chatzopoulos, University of Thessaly

Giovanna Di Domenico, Maiella National Park

Alexios Giannakopoulos, University of Thessaly

Antonio Pollutri, WWF Italy

Suggested citation

Final Report of Action D4 project LIFE18 NAT/GR/768 ARCPROM “Improving human-bear coexistence in four National Parks of South Europe”. June 2025.

Table of contents

<i>SUMMARY</i>	4
<i>ΠΕΡΙΛΗΨΗ</i>	5
<i>RIASSUNTO</i>	6
CHAPTER A MONITORING THE IMPACT OF ACTIONS C3 (ADUS).....	7
INTRODUCTION	7
ASSESSMENT OF THE IMPACT OF ADU PERFORMANCE IN THE NORTHERN PINDOS NP	7
ASSESSMENT OF THE IMPACT OF ADU PERFORMANCE IN THE PRESPA NP	9
ASSESSMENT OF THE IMPACT OF ADU PERFORMANCE IN THE RHODOPE MOUNTAIN RANGE NP.....	10
ADUS ACTION REPLICATION AND FUTURE STEPS	13
CHAPTER B MONITORING THE IMPACT OF PRODUCTION AND DISSEMINATION OF ANTI-POISON FIRST AID KITS	15
INTRODUCTION	15
FIRST AID ANTI-POISON KITS' USE AND ISSUES RAISED	17
CHAPTER C MONITORING THE EFFECTIVENESS OF VOLUNTEERS AGAINST POISON BAITS	18
<i>GREECE</i>	18
<i>ITALY</i>.....	18

SUMMARY

Action D4 of the program focused on monitoring the impact of two crucial actions: Action C.3, with the establishment and operation of the three Special Anti-Poison Dog Units and the distribution of First Aid Kits to deal with poisonings in field conditions, as well as Action C.6, which concerned the participation of volunteers.

The use of poisoned baits remains one of the most serious threats to wildlife in Greece, with victims including bears, wolves, shepherd dogs, and birds of prey. Within the project, three Anti-Poison Dog Units (ADUs) were created, using specially trained dogs. The Units carried out preventive and operational patrols, detected and removed poisoned baits, while at the same time collaborating with local authorities in collecting evidence to substantiate environmental crimes. The results were impressive since (a) in Pindos 14 poisoned baits and 28 poisoned animals were recorded, (b) in Rhodope 13 incidents were documented, with 8 poisoned baits and 112 dead animals, and (c) in Prespa a total of 12 incidents and 15 poisoned animals were recorded. At the same time, the distribution of 500 anti-poison First Aid Kits to livestock farmers and competent services strengthened the immediate response to incidents in the field and effectively mitigated the consequences of poisoned baits in 13 cases.

Action D4 also evaluated the effectiveness of Action C.6, namely the participation of volunteers in project activities in Greece and Italy. In Greece, the program was implemented mainly in Prespa, with parallel actions in Rhodope. Volunteers were trained in legal framework, biosecurity, and First Aid, and took part in patrols, path cleaning, awareness-raising actions, and bear presence monitoring. In Italy, the activities in Maiella NP had a strong awareness-raising character, with the participation of 14 volunteers in 2021, seven in 2022, and six in 2023. In addition, long-term volunteers (Guardie Particolari Giurate) collaborated with the Carabinieri Forestali, with 20 participants and 63 patrol hours in 2022 and 18 volunteers, 25 Carabinieri, and 80 patrol hours in 2023.

The overall evaluation of Action D4 showed that the interventions had significant results, both in documenting and reducing the threat of poisoned baits and in strengthening the awareness of local communities. The Special Anti-Poison Dog Units highlighted the true dimension of the problem and built networks of trust with livestock farmers, forest services, and citizens, while the First Aid Kits strengthened immediate response. Volunteer actions in Greece mobilized young people, providing them with training and an active role, while in Italy they served as a lever for social acceptance of the presence of the endangered Marsican Bear.

ΠΕΡΙΛΗΨΗ

Η Δράση D4 του προγράμματος ως αντικείμενο την παρακολούθηση του αντίκτυπου δύο κρίσιμων δράσεων, της δράσης C.3. με την ίδρυση και λειτουργία των τριών Ειδικών Μονάδων Ανίχνευσης Δηλητηριασμένων Δολωμάτων και τη διανομή Κυτίων Α΄ Βοηθειών για την αντιμετώπιση Δηλητηριάσεων σε συνθήκες πεδίου, καθώς και τη δράση C.6. που αφορούσε τη συμμετοχή εθελοντών.

Η χρήση δηλητηριασμένων δολωμάτων παραμένει μια από τις σοβαρότερες απειλές για την άγρια πανίδα στην Ελλάδα, με θύματα αρκούδες, λύκους, ποιμενικούς σκύλους και αρπακτικά πτηνά. Στο πλαίσιο του έργου δημιουργήθηκαν τρεις Ειδικές Μονάδες Ανίχνευσης Δηλητηριασμένων Δολωμάτων, με τη χρήση ειδικά εκπαιδευμένων σκύλων. Οι Μονάδες πραγματοποίησαν προληπτικές και επιχειρησιακές περιπολίες, ανίχνευσαν και απομάκρυναν δηλητηριασμένα δολώματα, ενώ ταυτόχρονα συνεργάζονταν με τις τοπικές αρχές στη συλλογή τεκμηρίων για τη στοιχειοθέτηση των περιβαλλοντικών εγκλημάτων. Τα αποτελέσματα ήταν εντυπωσιακά αφού (α) στην Πίνδο καταγράφηκαν 14 δηλητηριασμένα δολώματα και 28 δηλητηριασμένα ζώα, (β) ενώ στη Ροδόπη 13 περιστατικά, ανευρέθηκαν 8 δηλητηριασμένα δολώματα και 112 νεκρά ζώα και (γ) στην Πρέσπα καταγράφηκαν συνολικά 12 περιστατικά και 15 δηλητηριασμένα ζώα. Παράλληλα, η διανομή 500 κιτ Α΄ Βοηθειών κατά των δηλητηριάσεων σε κτηνοτρόφους και αρμόδιες υπηρεσίες ενίσχυσε την άμεση αντιμετώπιση περιστατικών στο πεδίο, ενώ συνείσφερε πραγματικά στο μετριασμό των συνεπειών των Δηλητηριασμένων Δολωμάτων σε 13 περιπτώσεις.

Η Δράση D4 αξιολόγησε επίσης την αποτελεσματικότητα της Δράσης C6, δηλαδή τη συμμετοχή εθελοντών σε δράσεις του έργου σε Ελλάδα και Ιταλία. Στην Ελλάδα, το πρόγραμμα εφαρμόστηκε κυρίως στις Πρέσπες, με παράλληλες δράσεις στη Ροδόπη. Οι εθελοντές εκπαιδεύτηκαν σε θέματα νομικού πλαισίου, βιοασφάλειας και Α΄ Βοηθειών και συμμετείχαν σε περιπολίες, καθαρισμούς μονοπατιών, δράσεις ενημέρωσης και καταγραφές παρουσίας αρκούδας. Στην Ιταλία, οι δράσεις στο Maiella NP είχαν έντονο χαρακτήρα ευαισθητοποίησης και σε αυτές συμμετείχαν το 2021 14 εθελοντές, το 2022 επτά εθελοντές και το 2023 έξι εθελοντές. Επιπλέον, εθελοντές μακράς διάρκειας (Guardie Particolari Giurate) συνεργάστηκαν με τους Carabinieri Forestali, με 20 συμμετέχοντες και 63 ώρες περιπολιών το 2022 και 18 εθελοντές, 25 Carabinieri και 80 ώρες περιπολιών το 2023.

Η συνολική αξιολόγηση της Δράσης D4 έδειξε ότι οι παρεμβάσεις είχαν σημαντικά αποτελέσματα, τόσο στην καταγραφή και μείωση της απειλής των δηλητηριασμένων δολωμάτων όσο και στην ενίσχυση της ευαισθητοποίησης τοπικών κοινωνιών. Οι Ειδικές Μονάδες Ανίχνευσης Δηλητηριασμένων Δολωμάτων ανέδειξαν την πραγματική διάσταση του προβλήματος και δημιούργησαν δίκτυα εμπιστοσύνης με κτηνοτρόφους, δασικές υπηρεσίες και πολίτες, ενώ τα Κιτ Α΄ Βοηθειών ενίσχυσαν την άμεση απόκριση. Οι δράσεις εθελοντών στην Ελλάδα κινητοποίησαν νέους, παρέχοντας εκπαίδευση και ενεργό ρόλο, ενώ στην Ιταλία λειτούργησαν ως μοχλός κοινωνικής αποδοχής της παρουσίας του απειλούμενου Marsican Bear.

RIASSUNTO

L'Azione D4 del programma ha avuto come oggetto il monitoraggio dell'impatto di due azioni cruciali: l'Azione C.3, con l'istituzione e il funzionamento delle tre Unità Cinofile Antiveleno e la distribuzione dei Kit di Primo Soccorso per affrontare avvelenamenti in condizioni di campo, nonché l'Azione C.6, riguardante la partecipazione dei volontari.

L'uso di esche avvelenate è rimasto una delle minacce più gravi per la fauna selvatica in Grecia, con vittime tra orsi, lupi, cani da pastore e rapaci. Nell'ambito del progetto sono state create tre Unità Cinofile Antiveleno con cani appositamente addestrati. Le Unità hanno effettuato pattugliamenti preventivi e operativi, individuato e rimosso esche avvelenate, collaborando al tempo stesso con le autorità locali nella raccolta di prove per la denuncia dei crimini ambientali. I risultati sono stati impressionanti: (a) nel Pindo sono state registrate 14 esche avvelenate e 28 animali avvelenati, (b) nella Rhodope 13 episodi con 8 esche avvelenate e 112 animali morti, e (c) nelle Prespa un totale di 12 episodi e 15 animali avvelenati. Parallelamente, la distribuzione di 500 Kit di Primo Soccorso antiveleno ad allevatori e servizi competenti ha rafforzato la risposta immediata agli episodi sul campo, contribuendo concretamente alla mitigazione degli effetti delle esche avvelenate in 13 casi.

L'Azione D4 ha inoltre valutato l'efficacia dell'Azione C.6, cioè la partecipazione dei volontari alle attività del progetto in Grecia e in Italia. In Grecia, il programma è stato realizzato principalmente nelle Prespa, con azioni parallele nella Rhodope. I volontari sono stati formati sul quadro giuridico, sulla biosicurezza e sul Primo Soccorso, e hanno partecipato a pattugliamenti, pulizia di sentieri, attività di sensibilizzazione e registrazioni della presenza dell'orso. In Italia, le attività nel Parco Nazionale della Maiella hanno avuto un forte carattere di sensibilizzazione, con la partecipazione di 14 volontari nel 2021, sette nel 2022 e sei nel 2023. Inoltre, volontari di lungo periodo (Guardie Particolari Giurate) hanno collaborato con i Carabinieri Forestali, con 20 partecipanti e 63 ore di pattugliamento nel 2022 e 18 volontari, 25 Carabinieri e 80 ore di pattugliamento nel 2023.

La valutazione complessiva dell'Azione D4 ha dimostrato che gli interventi hanno avuto risultati significativi, sia nella documentazione e riduzione della minaccia delle esche avvelenate, sia nel rafforzamento della consapevolezza delle comunità locali. Le Unità Cinofile Antiveleno hanno messo in luce la reale dimensione del problema e costruito reti di fiducia con allevatori, servizi forestali e cittadini, mentre i Kit di Primo Soccorso hanno rafforzato la risposta immediata. Le azioni dei volontari in Grecia hanno mobilitato i giovani, fornendo loro formazione e un ruolo attivo, mentre in Italia hanno rappresentato una leva per l'accettazione sociale della presenza dell'orso marsicano in pericolo.

Chapter A Monitoring the impact of actions C3 (ADUs)

Introduction

The illegal use of poisoned baits remains one of the most challenging and ongoing threats to wildlife in Greece. Although banned since 1993, these baits are still used in rural areas, mainly to eliminate large carnivores or other species seen as harmful. The ecological impact is broad and indiscriminate: domestic livestock-guarding dogs, wild carnivores such as wolves (*Canis lupus*) and brown bears (*Ursus arctos*), and iconic raptors and scavengers—including Golden eagles (*Aquila chrysaetos*) and Griffon vultures (*Gyps fulvus*)—have all been found among the victims, jeopardizing conservation efforts and human–wildlife coexistence in key protected areas. Reports from the LIFE ARCPROM project emphasize that this problem is ongoing and widespread, with poisoning identified as a leading cause of unnatural death for these species' taxa.

Beyond biodiversity loss, poisoned baits threaten ecosystem health and public safety. Recent evidence from Greece shows frequent use of highly toxic substances, including banned pesticides like Carbofuran and Endosulfan, legally restricted insecticides such as Methomyl, and cyanide salts. These agents are deadly not only to wildlife and domestic animals but also pose dangers to people who may come into contact with them during outdoor activities.

To address this persistent threat, LIFE ARCPROM funded the creation and operation of three Anti-Poison Dog Units (ADUs) under sub-action C.3.1. Each unit includes a specially trained detection dog and handler stationed in each of the three National Parks participating in the project. The ADUs main objectives are to systematically patrol, respond to incident reports, locate and secure poisoned baits or carcasses, and assist authorities through standardized protocols for recording, evidence handling, and follow-up. During patrols, dogs search independently within designated sectors and alert by sitting at the spot; handlers record coordinates, gather samples for potential toxicological testing, and coordinate with park staff and enforcement agencies. In addition, preventive (training) patrols maintain readiness and serve as a deterrent, while incident patrols aim to quickly clear affected areas and break the chain of mortality.

Assessment of the impact of ADU performance in the Northern Pindos NP

The ADU of the PINDNP was officially established through LIFE ARCPROM project and national co-financing provided by the Operational Programme “Transport Infrastructures, Environment and Sustainable Development” (2014–2020). After contracting was completed in December 2021, the unit became operational in June 2022, when the handler and the specially trained dog started their patrols in the mountainous area of the National Park. This initial phase mainly served as an acclimatization period, allowing the dog to adapt to the park's environment and helping the team develop effective work routines.

In 2023, the Northern Pindos ADU entered its first full year of operation. The team conducted a total of 41 patrols (11 training; 23 preventative patrols across high-risk areas of the

Natura 2000 network; and 7 patrols in response to reported poisoning incidents). During that year, 6 poisoning cases were confirmed, 2 poisoned baits recovered, and 18 poisoned animals identified— including livestock-guarding dogs, hunting dogs, and wildlife. These results provided concrete evidence of the scope of the threat and demonstrated that the ADU had already become an essential tool for detection and documentation.

The operational tempo increased further in 2024. In total, 62 patrols have been completed (1 training; 52 preventatives; 9 incident-response patrols). Six incidents were confirmed, but detections increased to 14 poisoned baits and 28 poisoned animals. This rise is significant for two reasons: first, it shows that poisoned baits remain a persistent, serious problem in the region; second, it illustrates the growing efficiency of the ADU in finding cases that likely would have gone unnoticed.

During the first half of 2025, the unit carried out 45 (2 training, 35 preventative, and 8 incident-response patrols). Two poisoning cases were confirmed. One poisoned bait was recovered, and 9 poisoned animals were detected, including a wolf, five shepherd dogs, a hunting dog, and a cat.

Beyond the boundaries of the Northern Pindos NP, the established ADU also provided targeted support in areas where poisoned baits were detected, covering a great part of central Greece. In particular the ADU operated twice in Thessaly (cities of Kalambaka and Tyrnavos) region, operating in coordination with partners of the LIFE BEAR SMART CORRIDORS project and with local state authorities. These inter-project collaborations have strengthened social acceptance of the ADU among public institutions and private stakeholders alike, reinforced rapid-reporting networks, and broadened the geographic footprint of effective anti-poison interventions.

Apart from its strict operational duties, the Northern Pindos ADU has played a substantial role in public information and awareness-raising. The unit actively participated with live demonstrations of the detection dog's skills during the training seminars of Action C.2.2 at the premises of the Faculty of the Veterinary Medicine of the University of Thessaly, offering students, practitioners, and stakeholders a hands-on understanding of how canine teams detect poisoned baits and secure evidence in the field. It also showcased its methods during the project's three-day Final Conference, where the demonstrations helped communicate, to a broader audience, both the urgency of tackling wildlife poisoning and the practical effectiveness of ADUs as a conservation tool.

A key feature of the ADU's work in Northern Pindos has been the wide range of information sources that trigger incident-response patrols. The Forestry Service has provided notifications when its rangers find suspicious carcasses or bait during routine duties. In addition, livestock breeders often are the first to alert the ADU after discovering their livestock guarding dogs dead or ill. Local residents have also played an important role, calling Management Unit's wardens when they see dead animals or suspicious food remains during outdoor activities. The fact that the ADU gets reliable information from so many sources' underscores both its integration into the community and the trust it has earned.

Northern Pindos NP							
Year	Patrols	Training	Preventives	Incident-response	Poisoning incidents recorded	Poison baits found	Poisoned animals found
2022	ADU familiarization phase						
2023	41	11	23	7	6	2	18
2024	62	1	52	9	6	14	28
2025*	45	2	35	8	2	1	9

Table 1. Annual activity and outcomes of the ADU in Northern Pindos NP

*Data for 2025 refer to the period up to the end of June.

Assessment of the impact of ADU performance in the Prespa NP

The ADU of Prespa NP began operating in March 2022, when an already existing unit (originally formed by the Hellenic Ornithological Society, NGO) was officially integrated into the LIFE ARCPROM project framework. Prior to this date, the park's management authority did not conduct systematic monitoring of poisoned baits. Consequently, there are no comprehensive records of poisoned bait detection from before the ADU's establishment. The integration of the unit into LIFE ARCPROM marked the first structured effort to combat wildlife poisoning in Prespa through specialized canine detection.

During its first year of operation, from March to December 2022, the Prespa ADU conducted 40 patrols, including 33 preventive patrols and seven incident-response patrols triggered by reports of suspected poisoning. Information sources for these incident patrols varied, including livestock breeders reporting the loss of their LGDs, residents observing dead animals in the countryside, and Forestry Services staff informing Management Unit (MU). Across these seven incidents, 10 dead animals were documented, with six confirmed as poisoned. All confirmed cases involved LGDs.

In 2023, the Prespa ADU continued its efforts, completing 37 training and preventive patrols and responding to one confirmed poisoning incident. In that case, a livestock breeder alerted the Unit after a LGD consumed a poisoned goat. Unfortunately, no poisoned baits were recovered in the field. The fact that the Unit was directly informed by a breeder reflects improved communication channels between local stakeholders and MU. In addition, preventive patrols helped reinforce the ADU's presence in the field and acted as a deterrent by signaling active monitoring of poisoning activities.

The unit remained active in 2024, completing 35 and 5 incident-response patrols. These incidents were mainly reported by breeders and local citizens, with additional support from Forestry Services staff in the area. A total of four poisoned LGDs were identified during the year. For 2025, there are no available data for Prespa since the LIFE ARCPROM project ended and the contract for the unit was not renewed. This marked the end of the only structured anti-poison intervention ever carried out in the National Park.

Despite not recovering any poisoned baits, the frequent discovery of dead animals confirmed that poisoning remained a significant and ongoing problem in Prespa. The systematic

responses of the unit not only documented the issue but also enhanced cooperation with both public and private stakeholders in the region.

Prespa NP							
Year	Patrols	Training	Preventive	Incident-response	Poisoning incidents recorded	Poison baits found	Poisoned animals found
2022	40	-	33	7	6	0	10
2023	38	-	37	1	1	0	1
2024	40	-	35	5	5	0	4

Table 2. Annual activity and outcomes of the ADU in Prespa NP

Assessment of the impact of ADU performance in the Rhodope Mountain Range NP

The ADU of the Rhodope Mountain Range National Park (RMRNP) was established in January 2023, when the handler was formally contracted, and the dog “Laika” began its operations. Its creation filled a long-standing gap in the monitoring of poisoned baits in the area, providing for the first time a specialized canine team with the ability to carry out systematic patrols, respond immediately to reported incidents, and collect standardized data on poisoned baits and carcasses.

During its first full year of activity in 2023, the Rhodope ADU completed 78 patrols, which included 14 training patrols, 58 preventive patrols, and six incident-response patrols. In that year, five confirmed poisoning incidents were recorded, resulting in the discovery of three poisoned baits and the documentation of 38 dead animals. Notifications of these incidents were received from livestock breeders who reported the loss of their LGDs, from residents or visitors who encountered suspicious carcasses, and from the Forestry Service, which passed on suspected cases to the NP’s MU. The scale of the findings demonstrated both the persistence of the poisoning problem in the region and the capacity of the ADU to reveal it more accurately than ever before.

In 2024, operational activity remained intense, with 58 patrols carried out, including 43 preventive patrols and 15 incident-response patrols. Four confirmed poisoning incidents were recorded, during which one poisoned bait was recovered and 69 poisoned animals were identified. Once again, notifications came from diverse sources—breeders, citizens, and Forestry officials—reflecting the network of trust the ADU had built. The sharp increase in poisoned animals detected, compared to 2023, indicated not only that the practice of poisoning continued but also that the ADU had become more effective in detecting cases that otherwise would have remained hidden.

The first half of 2025 continued to confirm the value of the ADU. By the end of June, the unit had completed 43 patrols, consisting of 35 preventive patrols and eight incident-response patrols. Two incidents were investigated during this period, with four poisoned baits and five poisoned animals detected. Although the data cover only six months, they once again underline

that poisoned baits continue to pose a real threat and that the ADU remains essential for their detection and removal.

The fruitful performance of the Rhodope ADU has not been limited to the boundaries of the NP. In 2024, the unit was mobilized for four major incidents outside its jurisdiction, operating in villages of Erateino and Lekani in Kavala, in village of Messouni in Komotini, and in Ferres in Evros Prefecture. In each case, the ADU was invited by local Forestry Services or, in the case of Ferres, by the Society for the Protection of Biodiversity of Thrace NGO, which first alerted the authorities. At Erateino the unit investigated the poisoning of a lamb used as bait and found a dead Western Marsh Harrier. In Lekani, it documented the remains of a poisoned cow and several dead dogs. In Messouni, the ADU detected poisoned sardines and a dead fox, complementing the discoveries of citizens who had reported dead raptors and hedgehogs. In Ferres, a joint operation with two other ADUs removed forty-seven poisoned animals over a ten-day search, with the Rhodope ADU itself recovering several carcasses including a fox, a jackal, a buzzard, and a dog. These external missions confirmed the adaptability of the Rhodope ADU's methods and its ability to provide assistance wherever needed.

Further, the ADU made a substantive contribution to outreach, capacity-building, and demonstration activities throughout the project timeline. In June 2022, it first showcased its operational capabilities during training seminars implemented under Action C.2.2, reinforcing standard operating procedures and knowledge transfer to practitioners. On 22 February 2023, coinciding with the National Day against Poisoned Baits, the unit delivered a targeted presentation at Paranesti High School, promoting prevention, early detection, and reporting pathways. From 4 to 6 December 2023, it contributed to a thematic workshop in Ioannina, where detection protocols and applied methodologies were presented and discussed with stakeholders to strengthen inter-institutional coordination. On 22 February 2024, again on the National Day against Poisoned Baits, the ADU conducted an awareness-raising session at the 5th Primary School of Drama, emphasizing risk mitigation and community engagement. On 3 June 2024, marking World Environment Day, the team presented its work at the MELINA Information Centre in Drama, followed on 6 June 2024 by field-oriented activities in the Erymanthos area that demonstrated operational readiness under real-world conditions. In February 2025, the ADU participated in the concluding three-day LIFE ARCPROM conference, disseminating results, lessons learned, and recommendations to an international community of experts and decision-makers. On 3 June 2025, World Environment Day, the unit briefed local authorities and the public at the Drama Regional Administration Building, consolidating outcomes and outlining pathways for sustained implementation beyond the project's lifespan.

The true contribution of the ADU becomes evident when its results are compared with those from the period prior to its establishment. Based on the records kept by the MU, by 2009 and 2020, only 24 incidents of poisoned baits had been spotted in the wider Rhodope region; 14 within the National Park and 10 outside it. The contrast is striking as in just two and a half years of ADU operation, 13 incidents within the park boundaries have been officially confirmed, eight poisoned baits recovered, and 112 poisoned animals documented. Collectively, these numbers clearly show that earlier monitoring significantly underestimated both the frequency and severity of poisoning, while the ADU has provided solid, systematic evidence of its true extent.

Rhodope Mountain Range NP							
Year	Patrols	Training	Preventive	Incident-response	Poisoning incidents recorded	Poison baits found	Poisoned animals found
2022	ADU not yet operational – incidents managed by NP staff						
2023	78	14	58	6	5	3	38
2024	58	0	43	15	4	1	69
2025*	43	0	35	8	2	4	5

Table 3. Annual activity and outcomes of the ADU in RMRNP

*Data for 2025 refer to the period up to the end of June.

Placing the data into charts, two key points can be noted. First, annual incident counts are mainly influenced by patrol effort, response speed, and the size of the reporting network; therefore, higher counts often reflect better detection rather than a decline in the underlying pressure. Second, a consistent ADU presence provides a measurable preventive effect, but poisoning remains a persistent, recurring threat in areas with entrenched human–wildlife conflict. For instance, in Prespa NP, the ADU’s 2022 rollout coincided with six incidents—an expected “visibility effect” as systematic patrols revealed pre-existing practices—followed by a sharp decrease in 2023 (one incident) and a rebound to five in 2024. Also, in Northern Pindos NP, systematic monitoring effectively began in 2023, with six incidents in both 2023 and 2024, and two in the first half of 2025. This pattern is best interpreted as a stable baseline reliably captured by routine and on-demand patrols, rather than an operational shortfall. Finally, in Rhodope NP, three incidents were recorded even before the ADU in 2022, then five in 2023, four in 2024, and two early in 2025. Although the counts are similar to those in other parks, the qualitative impact is much heavier, with single events causing dozens of poisoned animals—indicating a high-risk situation where rapid removal of baits and carcasses is vital to prevent secondary mortality. Overall, the cross-park trend shows that ADUs turn hidden mortality into actionable data, stabilize detection year-to-year, and—when combined with quick notification and strong inter-agency cooperation—create the conditions for lasting reductions in wildlife poisoning.

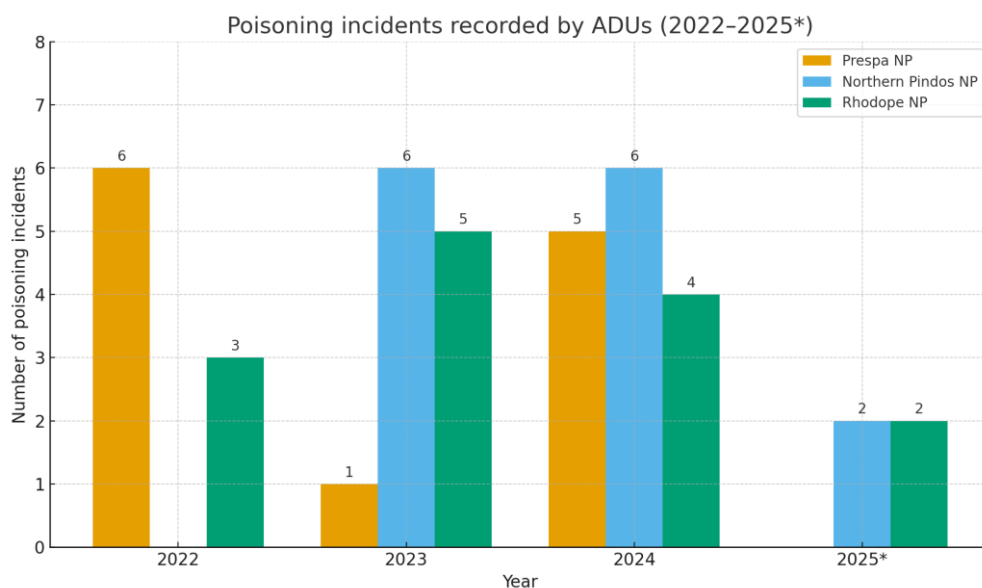


Figure 1. Number of poisoning incidents recorded each year (2022–2025*) by the ADUs in Prespa, Northern Pindos, and Rhodope National Parks. (*2025 data refer to the first half of the year)

ADUs Action Replication and Future Steps

Without doubt, the use of Anti-Poison Dog Units has been one of the most influential and symbolic actions of the project. Although the use of specially trained dogs had already been introduced in Greece to a limited extent before the LIFE project—mainly through environmental NGOs such as the Hellenic Ornithological Society—the project marked the first time that detection dogs were deployed by public authorities. This pilot implementation of the institution received broad acceptance from state bodies and, in turn, supported its institutionalization and adoption by other actors, both private organizations and public–private partnerships.

To date, a total of 18 ADUs are operational in Greece, compared to only four at the beginning of the project. Of these, seven are operated by NECCA, while the remaining eleven are run by private organizations such as the Hunting Federations, the Natural History Museum of Crete, the Biodiversity Conservation Society of Thrace, and the Hellenic Ornithological Society. Finally, through the inclusion of the project “Control of the Illegal Use of Poisoned Baits in the Countryside” in the national Programme “Environment and Climate Change 2021–2027,” NECCA plans to establish three (3) additional ADUs in areas under intense pressure from poisoned bait use.



Figure 2. Map of Greece showing the operational ADUs and their respective areas of responsibility, including units managed by NECCA as well as those operated by collaborating Organizations.

Chapter B Monitoring the impact of Production and Dissemination of Anti-Poison First Aid Kits

Introduction

In the framework of the project's Action C.3.2, a total of 500 First-Aid Anti-Poison Kits were properly formed and distributed by the relevant Management Units—200 by the Prespa NP MU and 300 by the Rhodope Mountain Range NP MU. Each kit was assembled strictly in accordance with detailed specifications developed by UTH, ensuring comprehensive and step-by-step instructions for safe and efficient use in the field. In practical terms, the kits were designed to enable immediate stabilization of a poisoned dog (up to 50 kg) while awaiting veterinary care, thereby filling a critical time gap between suspected exposure and attendance in veterinary facilities.

Distribution patterns were deliberately aimed at those most likely to encounter poisoning incidents first, such as livestock breeders operating within the Parks, as those are often present in remote areas, frequently accompanied by dogs, and thus positioned to act as first responders. In practice, 82 livestock breeders in Prespa and 49 livestock breeders in Rhodope were supplied directly with kits. Beyond protecting dogs by poisoning, First-Aid Anti-Poison Kits also served as engagement tool among stakeholders, enhancing early detection and reporting through established communication channels.

To broaden readiness beyond field users and build capacity within the institutional network responsible for biodiversity protection and enforcement, the project also decided to provide public and partner agencies with a portion of the Kits assembled. Thus far, in the Rhodope Mountain Range National Park, 139 of the 300 kits were delivered—upon request—to agencies directly involved in wildlife protection. Recipients included the (i) Directorate of Agricultural Economy and Veterinary of Xanthi; (ii) Forestry Services of Stavroupoli, Paranesti, Drama, Kilkis and Prosotsani, (iii) Municipalities of Paranesti, Drama and Nevrokopi and (iv) Hunting Associations of Drama, Xanthi, Stavroupoli, and Nevrokopi. By distributing kits across this network, the project strengthened inter-agency coordination, ensured coverage across jurisdictional boundaries, and increased the likelihood that suspected incidents would prompt swift, well-organized responses. All kits, whether delivered to private beneficiaries or to Institutions, were handed over by UTH vets or collaborating veterinarians of the MUs, following a brief training session on their proper use.

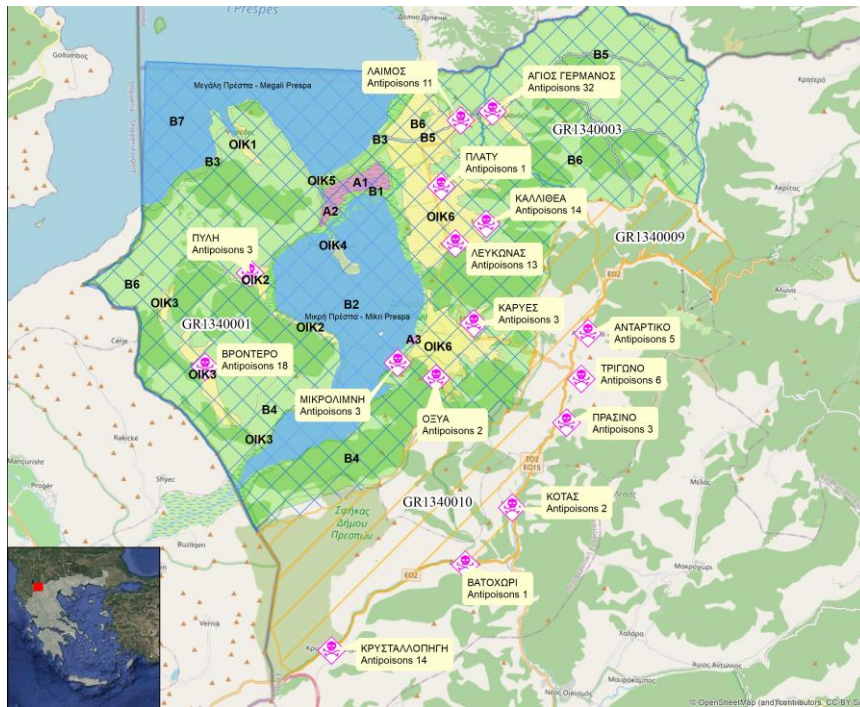


Figure 3. Geographic distribution of First-Aid Anti-Poison kits in Prespa NP. The map illustrates the spatial allocation of the 200 kits delivered within the Park. Symbols indicate the approximate locations of kit recipients across the Park's territory.

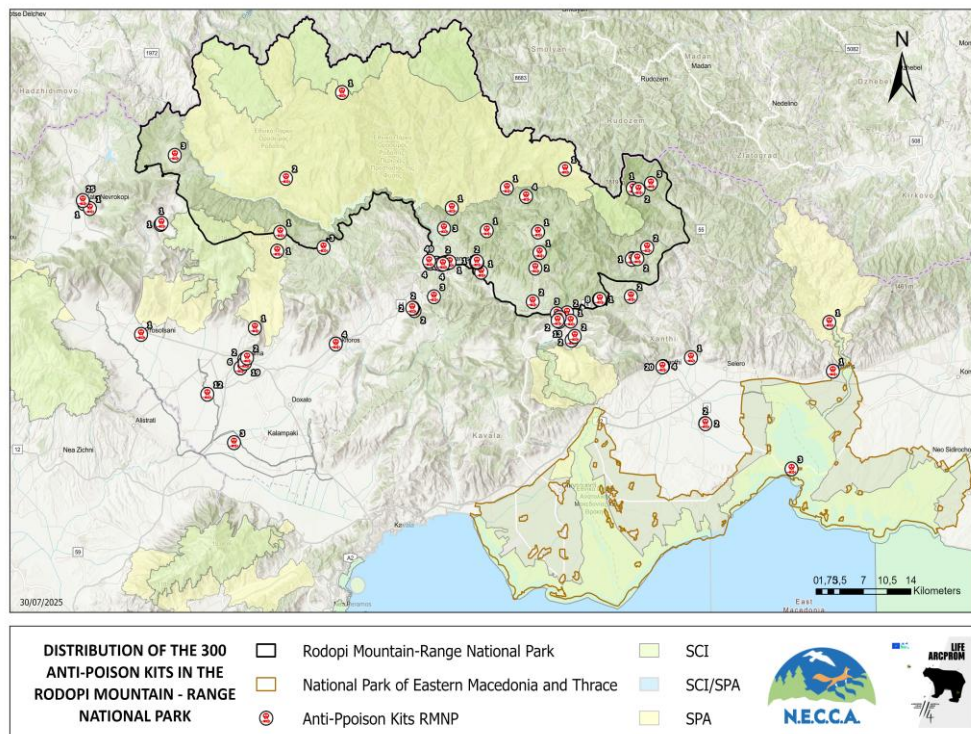


Figure 4. Geographic distribution of First-Aid Anti-Poison kits in RMNRP. The map illustrates the spatial allocation of the 300 kits delivered within the Park. Symbols indicate the approximate locations of kit recipients across the Park's territory.

First Aid Anti-Poison Kits' Use and Issues Raised

During the project, the Anti-Poison First Aid Kits were used on five occasions in Prespa National Park: twice in the village of Vrontero, once in Lefkonas, once in Krystallopigi, and once in Agios Germanos. In total, 14 kits were administered, as livestock breeders—following the training they had received—applied the veterinary drugs to all of their dogs immediately after observing symptoms suspected to be caused by poisoning, even if only a single animal initially showed signs of illness. Out of the five dogs that developed poisoning related symptoms, four recovered while one died a few days later despite the use of the kit. The owner of the deceased dog did not consent to a necropsy, and therefore no further diagnostic information could be collected.

In Rhodope National Park, the Anti-Poison First Aid Kits were used in four confirmed poisoning incidents. Two of these occurred in the village of Ptelea, while six affected dogs were treated in different parts of the wider Rhodope Mountain range. These latter cases could not be precisely located, as they took place in the summer pastures of livestock breeders scattered across remote forested and mountainous areas. In total, 20 kits were administered, since breeders consistently applied the veterinary drugs to all their guarding dogs as soon as poisoning symptoms were observed, following the training protocol provided by the project. Despite the immediate use of the kits, two dogs—both from the village of Ptelea—did not survive and died shortly after the incidents.

Although the implementation of the Action C.3.2. did not face major difficulties and all beneficiaries welcomed the donation of the kits, its application in the two NPs highlighted areas for improvement to achieve greater effectiveness in the future. Initially, the Action planned to distribute kits to livestock breeders and hunters. However, follow-up evaluations showed that, over time, several dog owners either forgot to carry the kits with them or stored them improperly. For future Action's replication, it is recommended that the kits be stored in designated, easily accessible locations so that each breeder or hunter can access them immediately when needed. For example, they could be stored in public places such as cafés, monuments, or villages' squares, where anyone facing a poisoning incident would be able to access them quickly and easily. This setup would also allow for better monitoring of veterinary medicine expiration dates and quick detection of poisoning incidents in the wider area, also enabling the ADUs teams to respond promptly.

Another concern is the expiration dates of the medicines. Although the procurement contract required all medicines to have a shelf life of at least 18 months from delivery, some items expired eventually. In such cases, Management Units could receive training in stock rotation, including returning near-expiry medicines and receiving replacements, collaborating with veterinary practices or pharmaceutical companies.

In any case, and beyond the numerical results, the Action can only be considered a success, as it fostered a spirit of cooperation between breeders, hunters, and the Management Units, while also strengthening their trust in the central administration.

Chapter C Monitoring the effectiveness of volunteers against poison baits

Greece

Action C.6 in Greece aimed to mobilize volunteers to contribute to the reduction of the illegal use of poisoned baits and to improve human–bear coexistence. The action was implemented mainly in the Prespa NP, with the first year also including activities in the Rhodope Mountain Range NP. In 2021, twenty-two people expressed interest, eight volunteers were finally selected (four in each park), and two additional local participants joined. In 2022, about thirty people applied, twelve were selected, and eleven eventually participated in three volunteer periods lasting a total of twenty-one days. In addition, two long-term volunteers supported the action that year, one from June to July and one from October to November. In 2023, the program again focused on Prespa NP, with three volunteer periods between early and late July; in total, thirty-one volunteers participated across the three years, seven of them coming from local communities.

Volunteers were trained on the legal framework, biosecurity measures, and first aid for poisoned animals. They took part in patrols in areas with a history of poisoned baits, recorded signs of bear presence, cleaned paths and streams, and carried out awareness-raising events. Notably, in 2021 in Prespa, volunteers recorded two dead crows and one dead pig suspected to be linked to poisoning. Each year, the program combined fieldwork with community engagement, creating new links between conservation teams and local residents, while also strengthening prevention and early detection efforts against the use of poisoned baits.

Italy

Short-Term Volunteers (STV)

The awareness-raising activity on human–bear coexistence, aimed at the residents and visitors of the Maiella National Park during the summer, was designed to activate the participation of young volunteers, giving them the opportunity to become protagonists of the communication effort.

Because of the young age of the target group and the national geographical scope of the initiative, the recruitment process necessarily took place through the Organization's social media platforms, with both advantages and disadvantages. On the one hand, there was the speed of information circulation and the ability to reach a large number of potentially interested people; on the other hand, it was a less favorable mode of interaction for carefully selecting candidates, considering the specific nature of the activity proposed, which required skills that are not very common (such as self-confidence, communication skills, and resourcefulness). For this reason, it was necessary to proceed through several steps: 1) a curriculum-based selection, 2) an oral interview to test the candidates' communication abilities, 3) the distribution of

informational material to study before the week of activities, and 4) training provided on the first day of the stay, before the start of the activities. In addition, the constant presence of two WWF activity coordinators was ensured throughout the week of work, both to monitor the volunteers' engagement, to provide support on more technical aspects of managing conversations, and to handle unforeseen circumstances.

Regarding recruitment, what was not done—but should be attempted in the future—was to direct the invitation to participate toward social groups of people with common interests, potentially similar or connected to the purpose of the activity being developed, but who did not already belong to WWF groups. In fact, in this case, by using the Organization's social media channels, the outreach was automatically addressed to young people already close to WWF, thereby limiting the selection pool compared to a broader number of potential candidates.

In order to better understand the motivations driving short-term volunteers to join WWF conservation initiatives within the framework of LIFE projects, a survey was launched in late autumn 2023 through a Google platform. Ten questions were asked, and twelve volunteers who had participated in awareness activities in the last two years (2022 and 2023) responded. Among the main motivations that led volunteers to take part in this type of activity were their interest in conservation issues and their desire to act in favor of them (10 out of 12). On the other hand, 9 out of 12 stated that this had been their first experience. Considering the main objective of the action, this was a good result. From the point of view of impact, participants with more prior experience might have achieved stronger individual communication results.

The volunteers also found the constant presence of the organizers to be very useful (9 out of 12) or useful (3 out of 12). The individual interview before arriving at the camp was considered helpful in understanding the purpose of the activity and the organizers' expectations of the participants (9 out of 12). Thanks to the constant presence of the coordinators, who maintained a formative dialogue throughout the days of work and supported the volunteers in the most challenging moments, all participants evaluated the experience positively. Eleven out of twelve declared that they were definitely willing to take part in similar initiatives again and to promote them among their friends. Finally, regarding the results they believed they achieved, 3 out of 12 stated they were not fully convinced, probably due to the attitude of some citizens approached, who showed total disinterest in the issue, as often happens.

Another aspect addressed in the evaluation of the activity was the support that the staff of Maiella National Park gave to WWF, both during the planning phase (e.g., selecting locations and sites to carry out the activities, knowing which were most strategic for reaching a meaningful result, both in terms of numbers and in relation to the human–bear conflict issue) and during implementation. The Park staff also facilitated access to and use of the sites and helped publicize the events through its social media and institutional website. The involvement of the Park Authority was also fundamental in providing accommodation for the volunteers and WWF staff, offering a guesthouse where participants could not only stay overnight but also share group dinners, which fostered mutual understanding and further strengthened the spirit of collaboration among volunteers and WWF staff. Consequently, in the future, this type of communal accommodation should be preferred over others that do not guarantee the same group experience.

As for the activity itself, carrying out a tour of the municipalities most involved in the human–bear relationship was advantageous, both in terms of the number of citizens contacted and the visibility of the LIFE project in the territory. The municipal administrations of these small towns welcomed the proposal to host a stage of the tour, showing interest in replicating the event in their communities. This choice increased the organizational complexity for WWF and

Park staff but was undoubtedly the most distinctive and generally appreciated aspect of the activity. In the future, therefore, it will be necessary to invest more and better in this aspect of the initiative, for example by increasing the number of towns reached, extending its duration, or hiring additional vehicles to manage the logistics.

The inclusion of afternoon educational activities was also a notable success, again thanks to the support of the Park’s education office staff in managing the play groups, which were highly attended throughout the event. During the design phase, bear-themed games were chosen to involve both children and parents. The board game My Orsella, developed by the WWF and Park education teams in collaboration with professional graphic designers, was one of the highlights of the afternoons in the squares. In the future, a large-scale version of the game board (at least 4m x 4m) could be created for children to play on barefoot.

Looking to the future, proposals could include enriching the “bear week” by adding evening events, as was started in the last year, and expanding the activities of volunteers, who could also be involved in tasks directly useful for the conservation of the Marsican brown bear, such as inspecting areas reported as potentially dangerous for the species. In this way, the initiative would become a broader “bear festival” that would gain more traction and visibility year after year. Related projects could also be included, such as the promotion of Bear Friendly products and producers through local tastings in town squares or on-site visits, or guided tours along the bear trail.

Year	No. of volunteers	No. of active days	Average daily contacts	Total contacts
2021	14*	5	70	350
2022	7	6	100	600
2023	6	6	≈105	650

Table 4: Short-Term Volunteer (STV) activity data by year of implementation

**The number of volunteers refers to all participants involved during each year. In 2021, the 14 volunteers did not participate simultaneously but in rotation, meaning that different individuals alternated during the five days of activity.*

LONG-TERM VOLUNTEERS (LTV)

Action C.6 aimed at long-term volunteers, due to the pandemic, could only be carried out in 2022 and 2023. Furthermore, the original objective of this action was the mitigation of the threat of poisoned baits in the Maiella National Park (PNM) with the support of both short- and long-term volunteers.

The action was modified due to several factors that emerged during project implementation, in particular, the evident rarity of episodes of wildlife poisoning, which were truly sporadic, and the unplanned involvement of the *Carabinieri Forestali* (CF), a large military unit specialized in environmental and wildlife crimes, which monitors, prevents, and prosecutes such crimes, also within the boundaries of the NP. As for the LTV, WWF focused on involving its *Guardie Particolari Giurate* (GPG).

The GPG are volunteers and activists who, in addition to having participated in the theoretical/practical training courses organized by WWF, also took part in an additional training phase organized by the competent Public Authorities, with a final exam. The GPG obtain a qualification issued by the competent Public Authorities that defines the limits and competencies—both territorial and thematic—within which the guard may operate, and which recognizes them as Public Officials in the exercise of their functions.

In light of all this, for the evaluation of the overall results of the action, it was preferred to draw up a list of strengths and weaknesses of this action addressed to the LTV, as the outcome of a WWF internal discussion among organizers and implementers of the action.

Strengths

- The involvement of the CF in the activities increased the institutional value and the effectiveness of the surveillance, thanks also to the prior knowledge of the territory by the local Commands involved;
- Selecting a range of threats to verify during patrols (anti-poaching, control of traps and snares, monitoring of organic waste disposal, management of owned dogs, management of guardian dogs, and inspection of dangerous structures) made it possible to intervene also against various environmental threats and elements of habitat degradation for the bear;
- The joint dissemination (by CF and GPG) of correct information to citizens about the behaviors to adopt in order to respect the bear's habitat during patrols, something not originally foreseen in the project design.

Weaknesses

- The involvement of GPG specialized in combating hunting-related crimes did not fully meet the expectations of the volunteers with respect to the actual targets of the patrols;
- The voluntary nature of the GPG's activity and the regulated work schedule of the CF created organizational problems concerning the choice of weekdays on which to operate;
- Difficulties for some GPG due to the long travel distances required within a single day, as they came from outside the region or from distant areas;
- The lack, on the part of the GPG, of adequate off-road vehicles for moving on rough mountain paths limited, in some patrols, the number of GPG who could participate, since they had to find space in CF vehicles.

The replicability of this specific action in the PNM and in other protected areas is desirable and could be facilitated by some improvements, such as:

- The involvement of WWF Tuscany's GPG anti-poison dog unit, whose presence would facilitate control and decontamination actions of the territory from any poisoned baits on days when it is not possible to involve the anti-poison dog unit of the *Carabinieri Forestali* of the Abruzzo, Lazio and Molise National Park, which in 2023 provided support in three specific patrols;
- Scheduling patrols throughout the year, in order to increase the effectiveness of surveillance also during the hunting season (September–January), a period of higher likelihood of illegal activities in the peripheral areas of the Park;

- Planning activities with patrols concentrated in blocks of days, allowing for simplified logistics of movements and the possibility of overnight stays in the activity area for volunteers;
- Involving STV without specific training as voluntary guards in some target activities (e.g., inspection of dangerous structures, control of waste disposal, and management of owned dogs in sensitive bear areas). In this way, the number of volunteers involved could be significantly increased, and consequently also the number of patrol days;
- Acquiring an off-road vehicle to facilitate the movements and activities of WWF Guard units.

Year	No. of volunteers	No. of Carabinieri	No. of active days	No. of hours
2022	10	20	15	63
2023	18	25	19	80

Table 5. Long-Term Volunteer (LTV) activity data by year of implementation.

**Figures refer to WWF LTVs patrolling jointly with the Carabinieri Forestali. "No. of hours" indicates cumulative patrol time in the field.*

Modulo di valutazione attività di sensibilizzazione

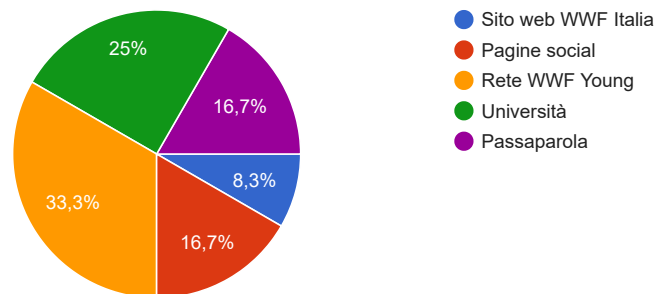
12 risposte

[Pubblica i dati di analisi](#)

Come hai saputo di questa attività?

 Copia

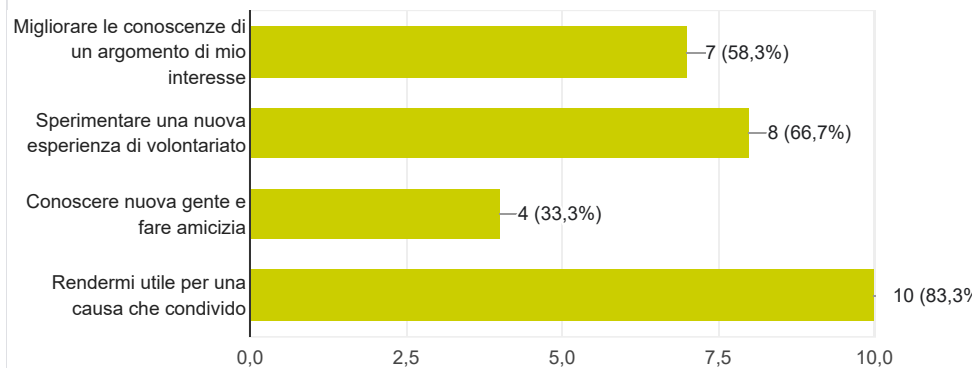
12 risposte



Perché hai partecipato a questa attività?

 Copia

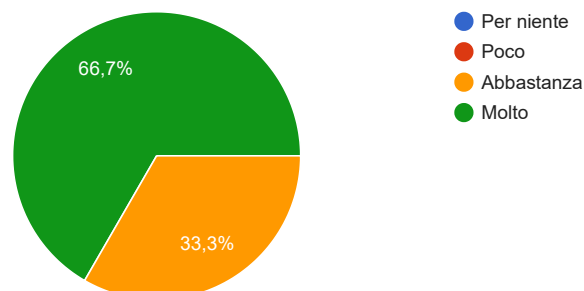
12 risposte



L'attività ha soddisfatto le tue aspettative?

 Copia

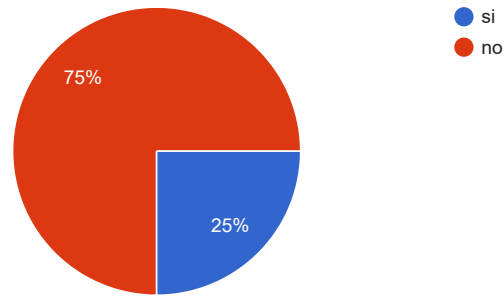
12 risposte



Avevi già partecipato ad attività simili?

[Copia](#)

12 risposte



Se si, quali?

3 risposte

Campo wwf torre guaceto

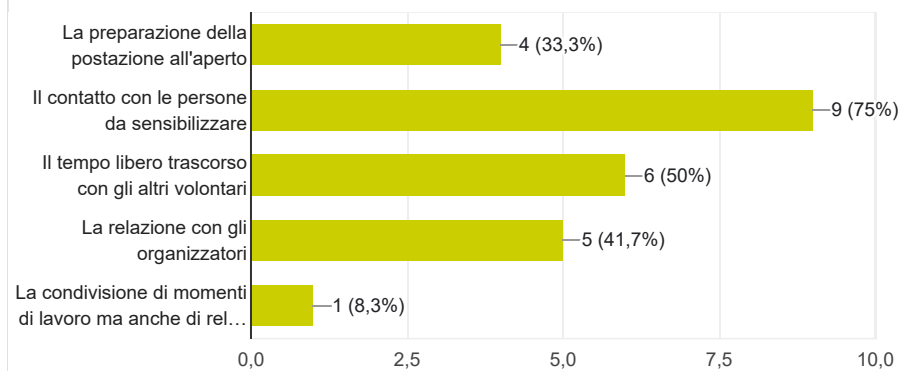
Quelle da dialogatore

Al Campo di volontariato a Policoro

Quali sono stati i momenti dell'attività che più hai apprezzato?

[Copia](#)

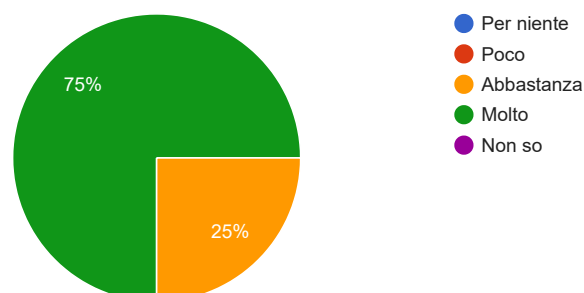
12 risposte



Quanto è stata utile la presenza continuativa degli organizzatori ai fini del risultato dell'attività?

[Copia](#)

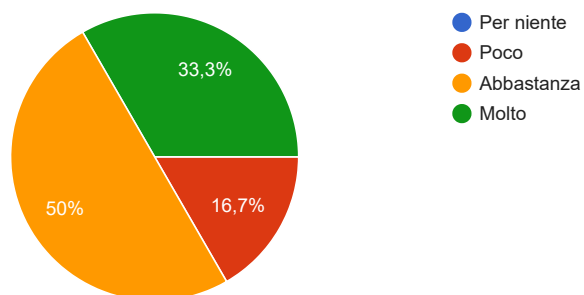
12 risposte



Al tuo arrivo, avevi già sufficientemente chiaro cosa ti sarebbe stato richiesto di fare?

 Copia

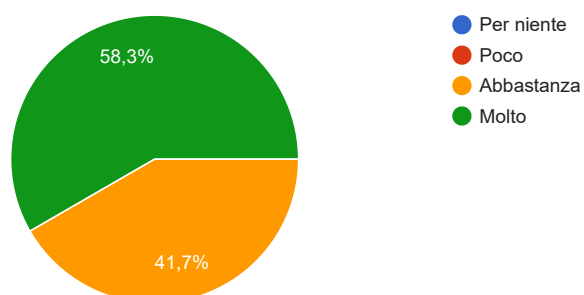
12 risposte



Sei stato soddisfatto dell'organizzazione complessiva dell'attività?

 Copia

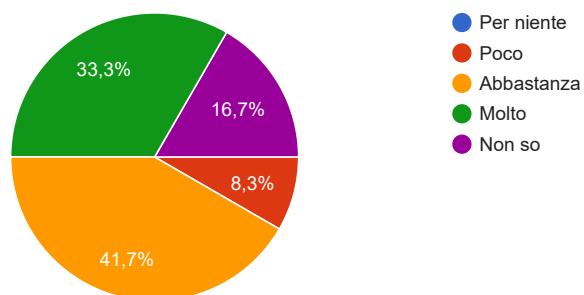
12 risposte



Quanto ritieni sia stata utile l'attività per la sensibilizzazione delle persone avvicinate?

 Copia

12 risposte



Vorresti suggerire qualche idea per migliorare questa attività?

2 risposte

Nulla da aggiungere

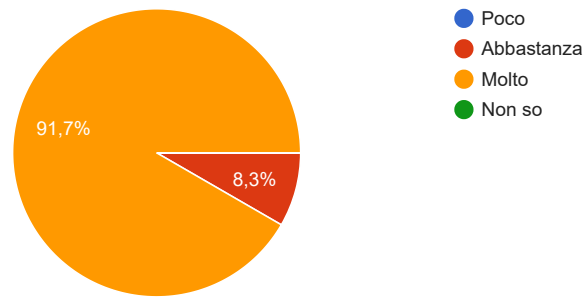
Portare più curiosità a livello zoologico su quello che è l'orso bruno marsicano e ciò che lo circonda (consigliando magari anche delle letture)



Quanto è probabile che parteciperai in futuro ad altre attività di volontariato per la conservazione della natura?

 Copia

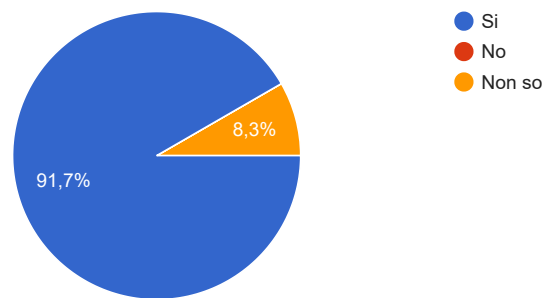
12 risposte



Dopo questa esperienza, consiglieresti la partecipazione a questo tipo di attività ad un amico?

 Copia

12 risposte



Perché?

9 risposte

È una esperienza formativa e di sensibilizzazione che può arricchire tantissimo l'individuo, facendogli conoscere tematiche importanti.

Esperienza di crescita ed arricchimento personale. Aiuta a migliorare la consapevolezza sulle tematiche in oggetto e sulla sensibilizzazione delle altre persone

Semplicemente perché, non tutto ciò che ho fatto capire dal modulo, è un'esperienza soddisfacente.

La consiglieri perché è un'esperienza che ti arricchisce dentro, a 360°. Non solo conosci persone con punti di vista analoghi e differenti, ma impari a capire il ruolo del dialogo e della giusta informazione riguardo tematiche così sensibili; oltre alle tantissime cose che impari a livello scientifico, umano e relazionale.

È un'esperienza che ti trasmette tanto e ti dà la possibilità di conoscere altre persone che condividono i tuoi valori e i tuoi interessi. Avere la possibilità di rivolgersi ad un pubblico vasto e variopinto (dai bambini agli anziani) è stata per me un'opportunità di crescita. Poter partecipare attivamente nella divulgazione e nella difesa di un'ideale che sta a cuore riempie di orgoglio.

È un ottimo modo per confrontarsi con chi non appartiene al mondo naturalistico. Senza divulgazione, poi, l'impatto positivo delle azioni di conservazione e della ricerca rischia di ridursi col tempo esponenzialmente

È un momento di formazione importante, utile per sviluppare abilità di comunicazione e creare rete con altri volontari, anche se a parer mio dovrebbero esserci attività più diversificate

La considero utile e formativa

Sono esperienze formative che aiutano a crescere e a svilupparsi come persona e a arricchire il proprio bagaglio culturale.

Questi contenuti non sono creati né avallati da Google. [Segnala abuso](#) - [Termini di servizio](#) - [Norme sulla privacy](#).

Google Moduli



