



LIFE ARCPROM



ΑΝΘΡΩΠΟΣ
UOMO
HUMAN

ΑΡΚΟΥΔΑ
ORSO
BEAR



LIFE18 NAT/GR/000768

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

Action C7- Activity report for 2022 and 2023 including list and maps of sites where e-fences, bear-proof henhouses & iron doors and bear-proof refuse containers were installed



31/07/2024

Authors

Elpida Grigoriadou¹, Athanasios Korakis¹, Nikolaos Petsis¹, Giovanna Di Domenico², Antonio Antonucci²

¹ National Environment and Climate Change Agency – N.E.C.C.A.

² Maiella National Park

Suggested citation

Grigoriadou E., Korakis A., Petsis N., Di Domenico G., Antonoucci A. 2022. Activity Report 2022 and 2023 Action C7 LIFE NAT/GR/768 ARCPROM. Management Agency of Northern Pindos National Park/ Maiella National Park, 2024.

Front page pictures:

Left an anti-bear metal shell cover for waste collection bins build under the framework of the LIFE ARCPROM implementation in Greece ©NECCA

Right: A metal construction in a chicken coop installed in MNP, in order to prevent bear attacks ©Maiella NP

TABLE OF CONTENTS

SUMMARY	4
ΠΕΡΙΛΗΨΗ	5
RIASSUNTO	7
INTRODUCTION	9
NEW GARBAGE BIN COVERS IN NORTHERN PINDOS & PRESPE NATIONAL PARKS	11
INSTALLATION OF BEAR-PROOFING MEANS IN THE MAIELLA NATIONAL PARK	18
BACKGROUND	18
LIST AND MAPS OF CHICKEN COOPS PROTECTED IN 2022	19
NOTE ON FUNDS USE AND FUTURE IMPLEMENTATION OF ACTION C7 IN MNP	22

SUMMARY

The goal of Action C7 is to minimize the human-bear conflict by preventing access to anthropogenic food sources, especially near the villages. Preventing bears from accessing anthropogenic sources has a positive effect in the short term, preventing the arising of negative attitudes toward bears on the part of citizens, but also in the long term, avoiding the arising of the habituation phenomenon. In Greece, the main objective of the Action is to prevent access to garbage, a problem widespread throughout the bear range whose solution depends heavily on the waste management system and people's behavior. Although there are several designs of bear-proof bins available, they are often not easily accessible to people so that the staff of the Northern Pindos National Park decided to start the design of a new model of bear-proof container.

The project that was contracted in summer 2020, was drawn up using state funds and on 6 August 2021 the prototype was put to test in the village of Dikorfo in the municipality of Zagori. At the same time, targeted communication activities were carried out explaining the problem and how to use the anti-bear containers. The results obtained showed that the container installed is effective in preventing access to bears, are easy to use by people of all ages and is also accepted by the company that manages waste collection. On account of the container not being a solution applicable in the whole study area, due mainly to the specific requirements necessary for its installation, and after the effective use of the original cover, six more metal shells, besides the prototype, were scheduled to be installed in critical locations inviting people to use the containers inside these covers for «attractive to bears- waste disposal», rather than the unprotected ones. In 2022, the six bin covers were placed in different villages of Zagori Province at the North Pindos National Park where cases of frequent bear sightings were observed and using the information produced by Actions A1, A2 & C5. On 20 July 2023 another contract for the procurement of fourteen (14) similar cover bins was signed, with a time framework of seven months for the implementation of it and the installation of ten (10), fully functional, covers in the Prespes National Park and four (4) in the North Pindos National Park. The last 14 metal shells were financed under the implementation of the LIFE ARCPROM project.

In Italy, in the Maiella National Park, the main objective of the Action C7 is to prevent access to chicken coops. These latter, in fact, are an easy-to-access and very remunerative trophic resource for bears which, therefore, frequents the villages to feed on them. In 2021, the activity carried out with Action C7 had led to the distribution of 15 iron protections (5 more than the 10 foreseen in the proposal budget) and 11 e-fences (out of the 15 foreseen in the proposal budget). The ultimate result of this activity has been the bear-proofing of 39 out of the 42 chicken coops individuated as vulnerable to bears in the villages interested by this problem. In 2022 the problematic female F1.99 disappeared and the “new” problematic male bear M1.176 started to roam in MNP. These two events changed the scenario making it necessary to review the previous plans according to M1.176 behaviour and space use. Rather than protecting the 3 remaining “high risk” chicken coops and the identified “medium” and “low risk” chicken coops in the area used by F1.99, the delivery of e-fences followed M1.176 damages distribution in order to promptly intervene or prevent damages in the interested villages. E-fences were thus distributed to 6 damaged chicken coops in Ateleta and Roccaraso and 3 e-fences have been donated to the Mayor of Gamberale to be distributed for prevention in this village where M1.176 entered in the garage of an inhabited house. In addition, in 2022 5 additional e-fences were distributed to beekeepers to protect beehives from damages (10 in

total considering also the 5 distributed in 2021): an essential action to prevent economically relevant bear damages and manage human-bear conflicts.

M1.176 died hit by a car on January 23rd 2023. During spring-summer 2023 no protection means have thus been delivered to protect additional chicken coops given the absence of problematic bears in the territory. In August 2023, the female with 1 cub F1.143 damaged 4 chicken coops in the villages of Pescocostanzo (n.3) and Rivisondoli (n.1) in the south portion of the Park. The chicken coop damaged in Rivisondoli wasn't protected after the damage as no animals were left, 1 chicken coop in Pescocostanzo was already bear-proof (it was accessible to F1.143 only because the door had been left open) while the remaining 2 chicken coops damaged in Pescocostanzo were protected with Critter Gitters in the frame of Action C9.

At the end of 2023 a total of 20 e-fences and 15 iron protections were in place to protect chicken coops (plus 16 e-fences delivered to protect beehives), 5 e-fences more than the 15 foreseen in the budget proposal and 5 iron protections more than the 10 foreseen in the budget proposal. However, since the idea to purchase patented anti-bear chicken coops had to be abandoned, funds from Action C7 are still available. Since we expect F1.143 to continue damaging chicken coops in MNP villages, these funds are being used to buy new e-fences and have them available for the protection of chicken coops in the villages that will be interested by the presence of F1.143.

ΠΕΡΙΛΗΨΗ

Ο στόχος της Δράσης C7 είναι να ελαχιστοποιήσει τη σύγκρουση ανθρώπου και αρκούδας αποτρέποντας την πρόσβαση σε ανθρωπογενείς τροφικές πηγές, ειδικά κοντά στα χωριά. Η αποτροπή της πρόσβασης των αρκούδων σε ανθρωπογενείς πηγές έχει θετική επίδραση βραχυπρόθεσμα, μειώνοντας την εμφάνιση αρνητικών στάσεων προς τις αρκούδες από την πλευρά των πολιτών, αλλά και μακροπρόθεσμα, αποφεύγοντας την εμφάνιση του φαινομένου της εξοικείωσης.

Στην Ελλάδα, ο κύριος στόχος της Δράσης είναι να αποτραπεί η πρόσβαση στα σκουπίδια, ένα πρόβλημα που είναι διαδεδομένο σε όλο το εύρος εξάπλωσης των αρκούδων, του οποίου η λύση, εξαρτάται σε μεγάλο βαθμό από το σύστημα διαχείρισης απορριμμάτων και τη συμπεριφορά των ανθρώπων. Παρόλο που υπάρχουν διαθέσιμα πολλά σχέδια για κάδους προστασίας από τις αρκούδες, συχνά δεν είναι εύκολοι στη χρήση από τον κόσμο και για το λόγο αυτό, το προσωπικό του Εθνικού Πάρκου Βόρειας Πίνδου αποφάσισε να σχεδιάσει ένα νέο μοντέλο καλύμματος κάδου, ανθεκτικό στις αρκούδες.

Το έργο που ανατέθηκε το καλοκαίρι του 2020, εκπονήθηκε με κρατικούς πόρους και στις 6 Αυγούστου 2021 το πρωτότυπο τέθηκε σε δοκιμή στο χωριό Δίκορφο του Δ. Ζαγορίου, με μεγάλη επιτυχία. Παράλληλα, πραγματοποιήθηκαν στοχευμένες επικοινωνιακές δράσεις εξηγώντας το θέμα και τον τρόπο χρήσης του καλύμματος. Τα αποτελέσματα που προέκυψαν έδειξαν ότι το κάλυμμα είναι αποτελεσματικό στην αποτροπή της πρόσβασης σε αρκούδες, είναι εύκολο στη χρήση από άτομα όλων των ηλικιών και είναι επίσης αποδεκτό από την εταιρεία που διαχειρίζεται τη συλλογή απορριμμάτων. Λόγω του ότι το κάλυμμα δεν είναι μια λύση που μπορεί να εφαρμοστεί σε ολόκληρη την περιοχή μελέτης, γεγονός που οφείλεται κυρίως στις ειδικές απαιτήσεις της εγκατάστασής του, προγραμματίστηκε να εγκατασταθούν άλλα έξι (6) καλύμματα, εκτός από το πρωτότυπο, στα πιο κρίσιμα σημεία προτρέποντας τους ανθρώπους να

χρησιμοποιήσουν τους κάδους εντός των καλυμμάτων για την απόρριψη απορριμμάτων «ελκυστικών προς την αρκούδα» και όχι τους αντίστοιχους μη προστατευόμενους, εκτός αυτών. Το 2022, τα έξι επιπλέον καλύμματα κάδων τοποθετήθηκαν σε διαφορετικά χωριά του Δ. Ζαγορίου εντός του Εθνικού Πάρκου Βόρειας Πίνδου όπου παρατηρήθηκαν περιπτώσεις συχνής εμφάνισης αρκούδας ακολουθώντας και τα αποτελέσματα που προέκυψαν από τις Δράσεις A1, A2 & C5. Στις 20 Ιουλίου 2023 υπογράφηκε νέα σύμβαση για την προμήθεια δεκατεσσάρων (14) παρόμοιων καλυμμένων κάδων, με χρονικό πλαίσιο επτά μηνών για την υλοποίησή της και την εγκατάσταση δέκα (10), πλήρως λειτουργικών, καλυμμάτων στον Εθνικό Πάρκο Πρεσπών και τεσσάρων (4) από αυτά στο Εθνικό Πάρκο Βόρειας Πίνδου. Τα τελευταία 14 καλύμματα κάδων χρηματοδοτήθηκαν από το έργο LIFE ARCPROM.

Στην Ιταλία, στο Εθνικό Πάρκο Maiella, ο κύριος στόχος της Δράσης C7 είναι να αποτραπεί η πρόσβαση των αρκούδων σε κοτέτσια. Τα τελευταία, στην πραγματικότητα, αποτελούν έναν εύκολο στην πρόσβαση και πολύ ανταποδοτικό τροφικό πόρο για τις αρκούδες που, ως εκ τούτου, συχνάζουν στα χωριά για να τραφούν από αυτά. Το 2021, η υλοποίηση της Δράσης C7 είχε οδηγήσει στη διανομή δεκαπέντε (15) προστατευτικών από σίδηρο (5 περισσότερα από τα 10 που προβλέπονταν στον προϋπολογισμό της πρότασης) και έντεκα (11) ηλεκτροφόρων περιφράξεων (από τις 15 που προβλέπονταν στον προϋπολογισμό της πρότασης). Το τελικό αποτέλεσμα αυτής της δραστηριότητας ήταν η προστασία από αρκούδες σε 39 από τα 42 κοτέτσια που έχουν χαρακτηριστεί ως «ευάλωτα σε αρκούδες» στα χωριά που διέθεταν αυτό το πρόβλημα. Το 2022 η προβληματική θηλυκή αρκούδα με τον κωδικό F1.99 εξαφανίστηκε και η «νέα» προβληματική αρσενική αρκούδα M1.176 άρχισε να περιφέρεται στο MNP. Αυτά τα δύο γεγονότα άλλαξαν το σενάριο υλοποίησης της δράσης, καθιστώντας απαραίτητη την αναθεώρηση των προηγούμενων σχεδίων σύμφωνα με τη συμπεριφορά του M1.176 και τη χρήση του χώρου από το ζώο.

Αντί να προστατευθούν συνεπώς, τα τρία (3) εναπομείναντα κοτέτσια «υψηλού κινδύνου» και τα αναγνωρισμένα κοτέτσια «μεσαίου» και «χαμηλού κινδύνου» στην περιοχή που χρησιμοποιούταν από την F1.99, η παράδοση των ηλεκτρονικών περιφράξεων πραγματοποιήθηκε σε περιοχές που έχουν υποστεί ζημιά από τον M1.176 προκειμένου να επέμβουν ή να αποτρέψουν ζημιές στα αντίστοιχα χωριά αυτών των περιοχών. Επομένως, έξι (6) ηλεκτροφόρες περιφράξεις διανεμήθηκαν σε 6 κατεστραμμένα κοτέτσια στην Ateleta και στο Roccaraso και τρεις (3) δόθηκαν στον Δήμαρχο του Gamberale για να διανεμηθούν για πρόληψη στο χωριό όπου ο M1.176 είχε μπει στο γκαράζ ενός κατοικημένου σπιτιού. Επιπλέον, το 2022 διανεμήθηκαν πέντε (5) επιπλέον ηλεκτροφόρες περιφράξεις σε μελισσοκόμους για την προστασία των κυψελών από ζημιές (10 συνολικά λαμβάνοντας υπόψη και τους 5 που διανεμήθηκαν το 2021): μια ουσιαστική ενέργεια για την πρόληψη ζημιών και τη διαχείριση των συγκρούσεων ανθρώπου-αρκούδας.

Ο M1.176 πέθανε χτυπημένος από αυτοκίνητο στις 23 Ιανουαρίου 2023. Επομένως, κατά την άνοιξη-καλοκαίρι 2023 δεν παρασχέθηκαν μέσα προστασίας για την προστασία πρόσθετων κοτετσιών, δεδομένης της απουσίας προβληματικών αρκούδων στην περιοχή. Τον Αύγουστο του 2023, το θηλυκό με 1 μικρό και κωδικό F1.143 κατέστρεψε 4 κοτέτσια στα χωριά Pescocostanzo (n.3) και Rivisondoli (n.1) στο νότιο τμήμα του Πάρκου. Το κοτέτσι που είχε υποστεί ζημιά στο Rivisondoli δεν προστατεύτηκε μετά τη ζημιά καθώς δεν είχαν μείνει ζώα, 1 κοτέτσι στο Pescocostanzo ήταν ήδη ανθεκτικό στην αρκούδα (η πρόσβαση από την F1.143 ήταν δυνατή μόνο επειδή η πόρτα είχε μείνει ανοιχτή). Τα υπόλοιπα 2 κοτέτσια που υπέστησαν ζημιά στο Pescocostanzo προστατεύτηκαν με Critter Gitters στο πλαίσιο υλοποίησης της δράσης C9.

Στα τέλη του 2023, συνολικά είκοσι (20) ηλεκτρονικές περιφράξεις και δεκαπέντε (15) σιδερένια προστατευτικά είχαν διατεθεί για την προστασία κοτετσιών (συν 16 ηλεκτροφόροι φράκτες που παραδόθηκαν για την προστασία κυψελών), 5 ηλεκτροφόρες περιφράξεις περισσότερες από τις 15 που προβλέπονταν στον προϋπολογισμό του έργου και επιπλέον 5 σιδερένια προστατευτικά πάνω από τα 10 που προβλέπονταν αρχικά.

Ωστόσο, δεδομένου ότι η ιδέα της αγοράς, κατοχυρωμένων με δίπλωμα ευρεσιτεχνίας, κοτετσιών κατά της αρκούδας έπρεπε να εγκαταλειφθεί, το ποσό από τη Δράση C7 εξακολουθεί να παραμένει διαθέσιμο. Δεδομένου ότι αναμένουμε από την F1.143 να συνεχίσει να καταστρέφει κοτέτσια στα χωριά εντός του ΜΝΡ, το ποσό δύναται να χρησιμοποιηθεί για την αγορά νέων ηλεκτροφόρων περιφράξεων η διάθεση των οποίων θα πραγματοποιηθεί για την προστασία των κοτετσιών στα χωριά που κινείται η F1.143.

RIASSUNTO

L'obiettivo dell'Azione C7 è ridurre al minimo il conflitto uomo-orso impedendo l'accesso a fonti alimentari di origine antropica, soprattutto vicino ai centri abitati. Impedire agli orsi l'accesso a fonti antropiche ha un effetto positivo nel breve termine, prevenendo l'insorgere di atteggiamenti negativi nei confronti degli orsi da parte dei cittadini, ma anche nel lungo termine, evitando l'insorgere del fenomeno dell'assuefazione.

In Grecia, l'obiettivo principale dell'Azione è impedire l'accesso ai rifiuti, un problema diffuso in tutto l'areale dell'orso la cui soluzione dipende fortemente dal sistema di gestione dei rifiuti e dal comportamento delle persone. Sebbene siano disponibili diversi modelli di contenitori a prova di orso, spesso non sono facilmente accessibili alle persone, tanto che lo staff del Parco Nazionale del Nord Pindo ha deciso di avviare la progettazione di un nuovo modello di contenitore a prova di orso. Il progetto, che è stato appaltato nell'estate 2020, elaborato utilizzando fondi statali e il 6 agosto 2021 il prototipo è stato messo alla prova nel villaggio di Dikorfo nel comune di Zagori. Contestualmente sono state svolte attività di comunicazione mirate spiegando il problema e le modalità di utilizzo dei contenitori anti-orso. I risultati ottenuti hanno dimostrato che il contenitore installato è efficace nell'impedire l'accesso agli orsi, è di facile utilizzo da parte di persone di tutte le età ed è accettato anche dalla società che gestisce la raccolta dei rifiuti. Poiché il contenitore non è una soluzione applicabile in tutta l'area di studio, principalmente a causa dei requisiti specifici necessari per la sua installazione, e dopo l'uso effettivo della copertura originale, sono state programmate altre sei coperture, oltre al prototipo, da installare in luoghi critici invitando le persone a utilizzare i contenitori all'interno di queste coperture per «smaltimento di rifiuti attraenti per gli orsi», piuttosto che quelli non protetti. Nel 2022, le sei coperture dei bidoni sono state posizionate in diversi villaggi della provincia di Zagori presso il Parco Nazionale del Pindos settentrionale, dove sono stati osservati casi di frequenti avvistamenti di orsi e utilizzando le informazioni prodotte dalle azioni A1, A2 e C5. Il 20 luglio 2023 è stato firmato un altro contratto per l'acquisto di quattordici (14) bidoni di copertura simili, con un quadro temporale di sette mesi per la sua implementazione e l'installazione di dieci (10) coperture completamente funzionanti nel Parco nazionale di Prespes e quattro (4) nel Parco nazionale del Pindo settentrionale. Gli ultimi 14 bidoni di copertura sono stati finanziati nell'ambito dell'implementazione del progetto LIFE ARCPROM.

In Italia, nel Parco Nazionale della Maiella, l'obiettivo principale dell'Azione C7 è impedire l'accesso ai pollai. Questi ultimi, infatti, costituiscono una risorsa trofica di facile accesso e molto remunerativa per l'orso che, quindi, frequenta i paesi per nutrirsi. Nel 2021, l'attività svolta con l'Azione C7 aveva portato alla distribuzione di 15 protezioni in ferro (5 in più rispetto alle 10 previste nel budget del proposal) e 11 e-fence (sulle 15 previste nel budget del proposal). Il risultato finale di questa attività è stato la protezione di 39 dei 42 pollai individuati come vulnerabili agli orsi nei paesi interessati da questo problema. Nel 2022 la femmina problematica F1.99 è scomparsa e il "nuovo" orso maschio problematico M1.176 ha iniziato a frequentare il PNM. Questi due eventi hanno cambiato lo scenario rendendo necessario rivedere i piani precedenti in base al comportamento di M1.176 e al suo utilizzo dello spazio. Invece di proteggere i 3 restanti pollai ad "alto rischio" e i pollai identificati a "medio" e "basso rischio" nell'area utilizzata da F1.99, la consegna delle recinzioni elettrificate ha seguito la distribuzione dei danni di M1.176, al fine di intervenire tempestivamente o prevenire danni nei paesi interessati. Le recinzioni elettrificate sono state così distribuite a 6 pollai danneggiati ad Ateleta e Roccaraso e 3 recinzioni elettrificate sono state donate al Sindaco di Gamberale per essere distribuite ai fini di prevenzione in questo paese dove M1.176 è entrato nel garage di una casa abitata. Inoltre, nel 2022 sono state distribuite agli apicoltori 5 ulteriori recinzioni per proteggere gli alveari dai danni (10 in totale considerando anche le 5 distribuite nel 2021): un'azione essenziale per prevenire danni economicamente rilevanti da parte degli orsi e gestire i conflitti uomo-orso.

M1.176 è morto investito da un'auto il 23 gennaio 2023. Nel corso della primavera-estate 2023 non sono stati quindi consegnati mezzi di protezione a ulteriori pollai data l'assenza di orsi problematici nel territorio. Nell'agosto 2023 la femmina con 1 cucciolo F1.143 ha danneggiato 4 pollai nelle frazioni di Pescocostanzo (n.3) e Rivisondoli (n.1) nella porzione sud del Parco. Il pollaio danneggiato a Rivisondoli non è stato protetto dopo il danno in quanto non erano rimasti animali, 1 pollaio a Pescocostanzo era già a prova di orso (era accessibile a F1.143 solo perché la porta era rimasta aperta) mentre i restanti 2 i pollai danneggiati a Pescocostanzo sono stati protetti con dispositivi Critter Gitter nell'ambito dell'Azione C9.

Alla fine del 2023 erano installate complessivamente 20 recinzioni elettrificate e 15 protezioni in ferro per proteggere i pollai (più 16 recinzioni consegnate per proteggere gli alveari), 5 recinzioni elettrificate in più rispetto alle 15 previste nel budget del progetto e 5 protezioni in ferro più delle 10 previste. Tuttavia, poiché l'idea di acquistare pollai anti-orso brevettati ha dovuto essere abbandonata, i fondi dell'Azione C7 sono ancora disponibili. Poiché prevediamo che F1.143 continuerà a danneggiare i pollai nei paesi del PNM, questi fondi verranno utilizzati per acquistare nuove recinzioni elettrificate e renderle disponibili per la protezione dei pollai nei paesi che saranno interessati dalla presenza di F1.143.

INTRODUCTION

The action's main target is to minimize the human bear conflict in and around human settlements, as well as barnyards by preventing bears from approaching inappropriate human food sources (e.g. agricultural production, garbage, barnyard animals etc.). This way, the animals are also being prevented from becoming habituated "problem bears" or even provide this kind of training to their offspring, producing new generations of habituated animals. In the case of N. Pindos National Park, the new design of a metallic cover for the garbage bins was created. Since the first prototype that was installed worked properly another six were installed during 2022 and fourteen more were scheduled to be purchased by 2023.

In the Maiella National Park Action C7 is specifically aimed at reducing human-bear conflicts caused by the availability of barnyard animals and the consequent presence of bears feeding on these resources located very close or even inside villages. The management of this problem is strongly related to the behavior of bears feeding on barnyard animals. In the case of MNP, from 2014 to 2021 only the problematic bear F1.99 consistently showed this behavior so that the management plan was based on her space use and her habits. From 2014 to 2019, MNP staff had the chance to "know" F1.99, her space use, her behavior and thus to gather all the information needed to implement a plan to systematically bear-proof the chicken coops. Action C7 thus started with the aim to implement such a plan based, beyond other things, to a chicken coops census conducted in the villages interested by the presence of F1.99. Such an activity was effectively developed in 2021 when 39 out of the 42 "high risk" chicken coops were bear-proofed. However, in 2021, after damaging a couple of chicken coops in July in the village of Lettoplena, F1.99 disappeared. Probably in September she attempted to damage a chicken coop in the Palena village but, apart from this non-verified report, her presence stopped being recorded making it highly probable that F1.99 died sometime in late summer 2021. In the meanwhile, in 2022, the problematic and confident bear M1.176 started to frequent some villages of MNP to feed on barnyard animals and this determined the need to abandon the plans drafted to manage F1.99 and the need to intervene in an effective way to manage M1.176. Being M1.176 a "new" bear for MNP (he was born in 2020 in the source population of the Abruzzo, Lazio e Molise National Park), his space-use and habits were unknown and this determined that only interventions during emergency situations could be implemented. We did not know which villages were going to be chosen by this bear to feed on barnyard animals so we could only intervene after the damages to protect the structure and, possibly, prevent from damages the neighboring ones. The municipalities interested by M1.176 presence were Ateleta, Gamberale, Pescocostanzo, Pizzoferrato and Roccaraso. Except for Ateleta (also interested by F1.99 presence) all of them were "new" to the problem of bears feeding on barnyard animals. At the end of 2022, thanks to a better knowledge of M1.176 space use and behavior, it was planned to implement a census of the chicken coops in Gamberale, Pescocostanzo, Pizzoferrato and Roccaraso in order to plan a systematic chicken protection similarly to what was done to manage F1.99. However, on January 23rd 2023, M1.176 was hit to death by a car along a National road between MNP and the Abruzzo, Lazio e Molise National Park. This event changed again the scenario of Action C7 making it quite useless to deliver e-fences (or other protection means) in the above-mentioned villages. In fact, even if from a technical point of view, we knew that another bear would start sooner or later to damage chicken coops again, people are poorly willing to install protection means if there isn't a tangible problem to face. In other words, if there isn't a bear actually damaging chicken coops

they perceive the protection mean as a burden with no clear utility. During 2023, therefore, no protection means were delivered to people to protect chicken coops.

In Autumn 2023 the bear F1.143 and her cub damaged 4 chicken coops in Pescocostanzo and Rivisondoli, bringing again the need to work on chicken coops protection in Pescocostanzo and adding Rivisondoli to the list of villages interested by this problem. F1.143 was detected in MNP since 2021 but she had never damaged a chicken coop before. Possibly, it was the presence of a litter (formerly composed of 3 cubs and then reduced to 1 for unknown reasons) to influence the occurrence of this behavior, in any case it is reasonable to assume that she will continue damaging chicken coops in 2024 at least as long as she will be associated with her cub (i.e. until May 2024). For this reason, MNP staff decided to use the funds still available for Action C7 to buy protection means for chicken coops in Pescocostanzo and Rivisondoli, meaning that new e-fences will be bought. In fact, the idea of purchasing anti-bear patented chicken coops had to be abandoned due to three reasons: 1) as already explained in previous reports, the patented anti-bear chicken coop available on the market is too small to be suitable from in MNP; 2) the new chicken coop built by the local manufacturer failed the test and did not result bear-proof (test made with 2 brown bears in captivity); 3) people willingness to use such a structure is really low.

At the end of 2021, the activity carried out with Action C7 had led to the distribution of 15 iron protections (5 more than the 10 foreseen in the proposal budget) and 11 e-fences (out of the 15 foreseen in the proposal budget). Since no protection means have been distributed to chicken coops in 2023, in this document are thus reported detailed information about where the remaining 4 e-fences (and 5 additional ones) were distributed in 2022.

So far 20 e-fences and 15 iron protections have already been distributed to chicken coops owners to protect them, 5 e-fences and 5 iron protections more than the figures reported in the budget proposal. In addition, 16 e-fences have been distributed to beekeepers (5 in 2021, 5 in 2022 and 6 in 2023) making it 36 e-fences and 15 iron doors the total amount of protection means delivered since when C7 started.

NEW GARBAGE BIN COVERS IN NORTHERN PINDOS & PRESPEPES NATIONAL PARKS

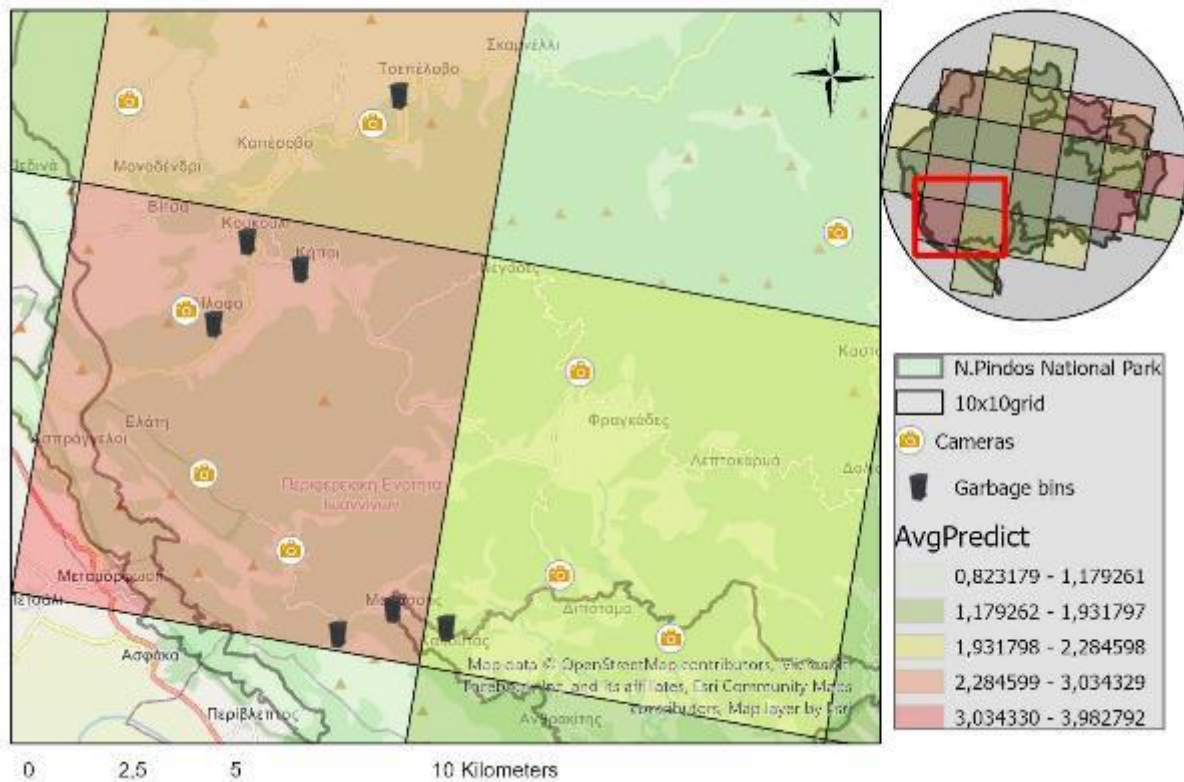
To solve the problem of garbage bins “attacked” by bears and hence arise the possibility of conflicts in Pindos National Park, a new user-friendly garbage bin cover was designed. Before the announcement of the evaluation results for the Concept Notes for LIFE Nature & Biodiversity project applications, the “Operational Program for Infrastructure, Environment & Sustainable Development” issued a call for applications concerning Management Units of Protected Areas for funding and implementation of nature conservation actions. The Northern Pindos National Park, submitted an application including conservation actions that were also included in the project proposal of LIFE ARCPROM (LIFE18 NAT/GR/000768). One of those was Action C7. The actions were also granted for funding and the Operational Program was chosen since it has 100% funding. In 2021, the prototype was put to test in the village of Dikorfo (Fig. 1-2). Up to now, while the problematic bear has visited the village and opened the other unprotected garbage bins many times, the cover was not breached, making its application successful. It is so successful that the inhabitants of the village wanted more to be installed.



*Figure 1. Antibear garbage bin at Dikorfo
Coordinates (WGS84): 39° 47' 10.84" N, 20° 48' 1.22" E*

After waiting to see how some parts of the construction will withstand the harsh winter conditions, another six covers were installed in May 2022 (Fig. 3-8). Using the new data acquired from Action A1, A2 & C5 and the map of Relative abundance that was produced, six other hot spots were determined and in 2022 the remaining 6 covers financed by OPTIEST were installed in the villages of Kipoi, Koukouli, Tsepelovo, Manassis, Kaloutas and Dilofo (Fig. 3-8). It was not possible to use the covers to protect the garbage bins in the whole protected area of N. Pindos, since it is too costly and also affects the time needed by the waste collection services.

ANTIBEAR GARBAGE BINS



The bin covers and their exact location are shown in Map 1 and the figures below:





Figure 3. Antibear garbage bin at Dilofo
Coordinates (WGS84): 39° 51' 5.19" N, 20° 45' 55.19" E



Figure 4. Antibear garbage bin at Kaloutas
Coordinates (WGS84): 39° 46' 57.25" N, 20° 50' 5.29" E



Figure 5 - Antibear garbage bin at Kipi
Coordinates (WGS84): 39° 51' 50.18" N, 20° 47' 35.75" E



Figure 6. Antibear garbage bin at Koukouli
Coordinates (WGS84): 39° 52' 15.22" N, 20° 46' 39.87" E



Figure 7. Antibear garbage bin at Manassis
Coordinates (WGS84): 39° 47' 25.04" N, 20° 49' 18.87" E



Figure 8. Antibear garbage bin at Tsepelovo
Coordinates (WGS84): 39° 54' 6.77" N, 20° 49' 17.33" E

Immediately after the installation of the covers, the residents of the settlements were fully informed about their role and function. In addition to this initial approach, the National Park rangers, during their frequent patrols in the area, constantly tried to encourage residents and visitors to throw their waste in the specific bins, reducing, as possible, bear visits in the areas. On the covers, a sign was put that explained the operation and the need of such kind of structure, in Greek and in English.

“The present structure was designed and installed by the Northern Pindos National Park Management Unit as a part of a pilot program to create a structure that will cover the existing waste bins, creating an obstacle to the bear's access to the bin and its contents.

The aim is to gradually change the behavior of bears, who, if they do not have easy access in left overs, are expected to look elsewhere for food and move away from settlements.

Please try to throw in this bin:

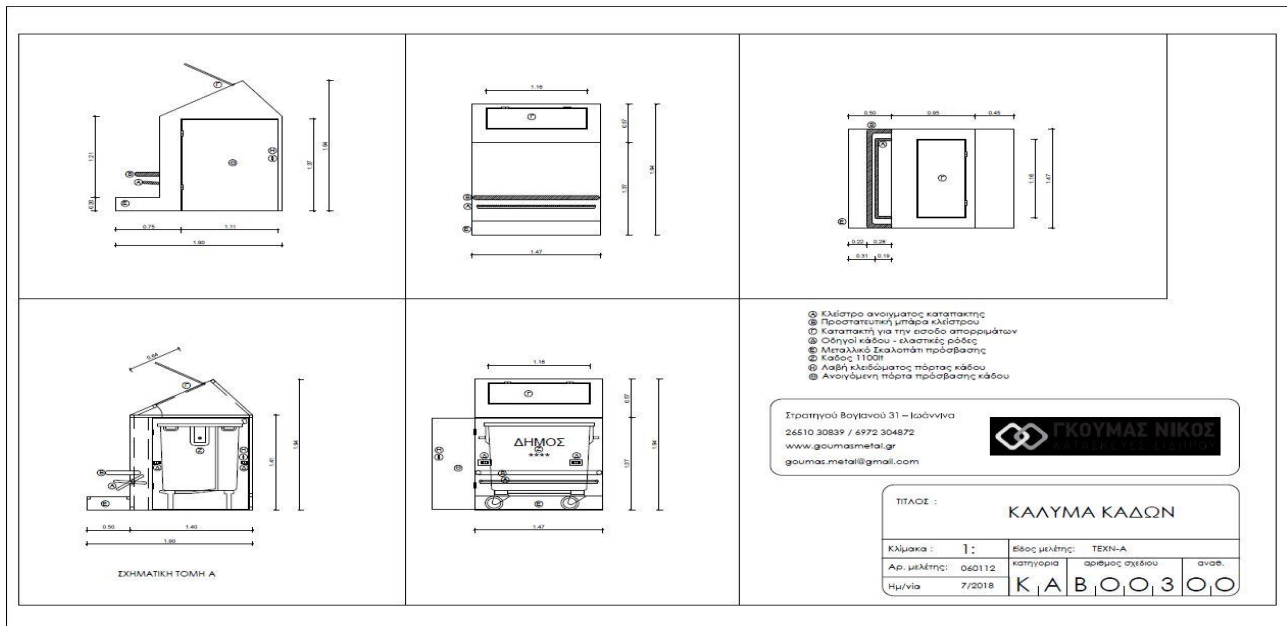
- ***Organic waste (food leftovers), especially during periods when there are many people in the settlement.***
- ***Do not leave trash bags out of the bin.***

Step on the pedal and the hatch will open to dump the trash, step away and the hatch will slowly close BY ITSELF for safety.”

Despite constant pressure on the residents for the exclusive use of the specific waste bins, this unfortunately did not happen in some cases. Despite the resident's initial positive response, other conventional uncovered bins were also used. This may be due to the fact of convenience (closer to their houses) or the lack of bear visits in the area during 2022, since it was a year of full growth and the food was abundant all over the place. It is evident, that except the “bear factor”, the “human factor” also needs a lot of training. The final overall results obtained showed that the covers installed are effective in preventing access to bears, are easy to use by people of all ages and are also accepted by the company that manages the waste collection.

Since there was an amount of 10.000 € remaining in Pindos NP’s budget, it was decided to purchase four (4) more covers in the framework of the implementation of LIFE ARCPROM. The installation of the new cover bins will be in different areas in order to avoid any kind of double funding but still in “hot-spot” areas according to the results of A1 action. The number of the cover bins that can be purchased has been minimized to four (4) because the iron prices have gone up since the first tender, due to the Covid situation and the war in Ukraine.

There have been also some small modifications in the original prototype, in order not to change the outcome, but to make the whole construction a bit cheaper.



Scheme 1. Initial blueprints of the bin cover

The adjustments had to do mainly with the iron prices that almost doubled during the COVID Pandemic, as well with some additions like a handle and an extra bolt to secure the side doors so they will become more user friendly to the garbage collection personnel in order not to leave them unlocked. The price for 1 metal shell was estimated to 2.194,8€/bin.

The size of one metal shell is sufficient to fit a 1100 lt waste bin. The construction allows the user to access the bin (whose cap has been removed while fitted inside the shell) through an expert mechanism with foot pressure which opens the specially designed hatch. This mechanism is covered and positioned in such a way as to prevent accidental activation by a bear. After the foot press of the mechanism the hatch returns to its original position slowly to avoid injury to the user. There is also a handle-rail on the front (perpendicular to the ground) for the user to use if desired. The opening of the shell in order to retrieve the bin that is inside is placed the side of the shell that makes it easier for the waste collector to withdraw the bin without hindering its rolling on wheels. The door opens using a special system (electric panel type lock with a common key for all corresponding structures) to exclude accidental opening by bears or people. The construction is electro-welded for more strength and endurance and has two removable hoops for easy transport. Finally, two (2) reflective strips have been added and will be used for identification at night on the outer corners

On 20 July 2023 another contract for the procurement of fourteen (14) similar cover bins was signed, with a time framework of seven months for the implementation of it and the installation of ten (10), fully functional, covers in the Prespes National Park and four (4) in the North Pindos National Park. The Action is scheduled to be finalised in 2024.

INSTALLATION OF BEAR-PROOFING MEANS IN THE MAIELLA NATIONAL PARK

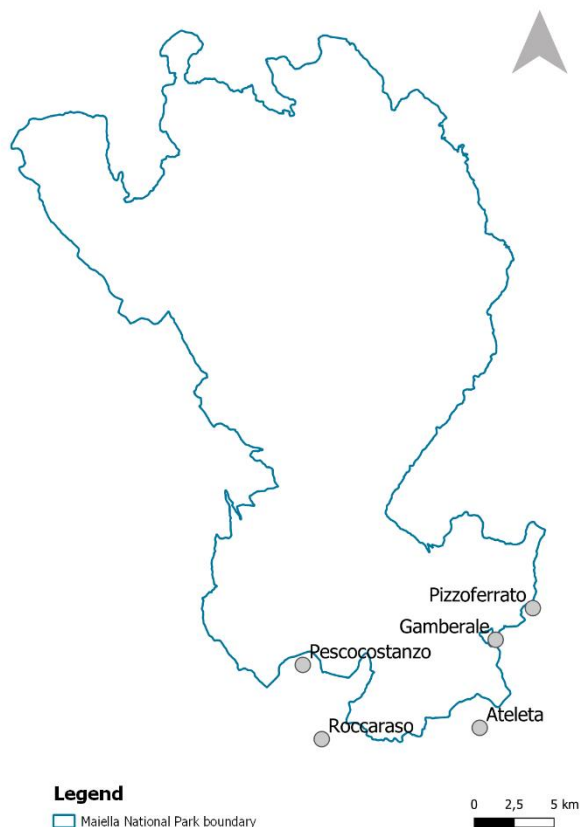
Background

Barnyard animals availability is one of the major issues affecting human-bear coexistence in the Maiella National Park. Given the high availability of a such easy-to-access remunerative food, some bears choose to feed on barnyard animals entering inside villages and becoming problematic bears. This problem is a stable issue for MNP since 2014 and, after a couple of years of preliminary actions to assess chicken coops availability and the problematic bears behavior, a plan was designed to bear-proof the highest number of chicken coops in the villages where the problematic bear F1.99 used to roam (see C7 report of activity 2021 for more details). During 2021, Action C7 consisted thus in the implementation of actions aimed at achieving the goals of this plan.

In 2021 the female F1.99 was filmed in July inside damaged chicken coops but this was the last verified report of her presence. In September 2021 a citizen of the Palena village reported that a bear tried to enter its chicken coop so there is a probability that she was still alive in September but the absence of damages during fall 2021 as well as the absence of any other sign of her presence, make it highly probable that F1.99 died during late summer 2021. This event did not change at first the implementation of the former plan and the “medium risk” and “low risk” chicken coops started to be checked in fall 2021 in order to implement their bear-proofing.

At the beginning of 2022, MNP staff was involved (by the Environmental Ministry) in the management of the problematic and confident 2-years old M1.176, a bear born in the Abruzzo, Lazio e Molise National Park that ended up feeding on garbage in Roccaraso, one of the 39 municipalities of MNP. After a major BET intervention consisting in a translocation and after the bear-proofing of the garbage in Roccaraso, M1.176 shifted to barnyard animals feeding and started to do it not only in Roccaraso but also in other 4 villages of the southern portion of MNP (Map 2). Out of 5 villages (Ateleta, Gamberale, Pescocostanzo, Pizzoferrato, Roccaraso), 1 (Ateleta) had a high level of chicken coops protection as it had been already interested by the presence of F1.99 while in the other 4 the bear-proofing work needed to be started from zero (i.e. not even a census of existing chicken coops was available). Considering that M1.176 was also a “new” bear for MNP, his behavior and his space-use were unknown making it impossible to arrange a systematic plan to avoid damages.

The result of F1.99 disappearance and M1.176 arrival was the abandonment of the ongoing chicken coops bear-proofing plan and the need to shift to a new plan following M1.176 behavior and damages. During 2022 the delivery of electric fences thus followed the occurrence of damages while during 2023 no e-fences were delivered as M1.176 died in January 2023 and F1.143 started to damage chicken coops only at the end of the year.



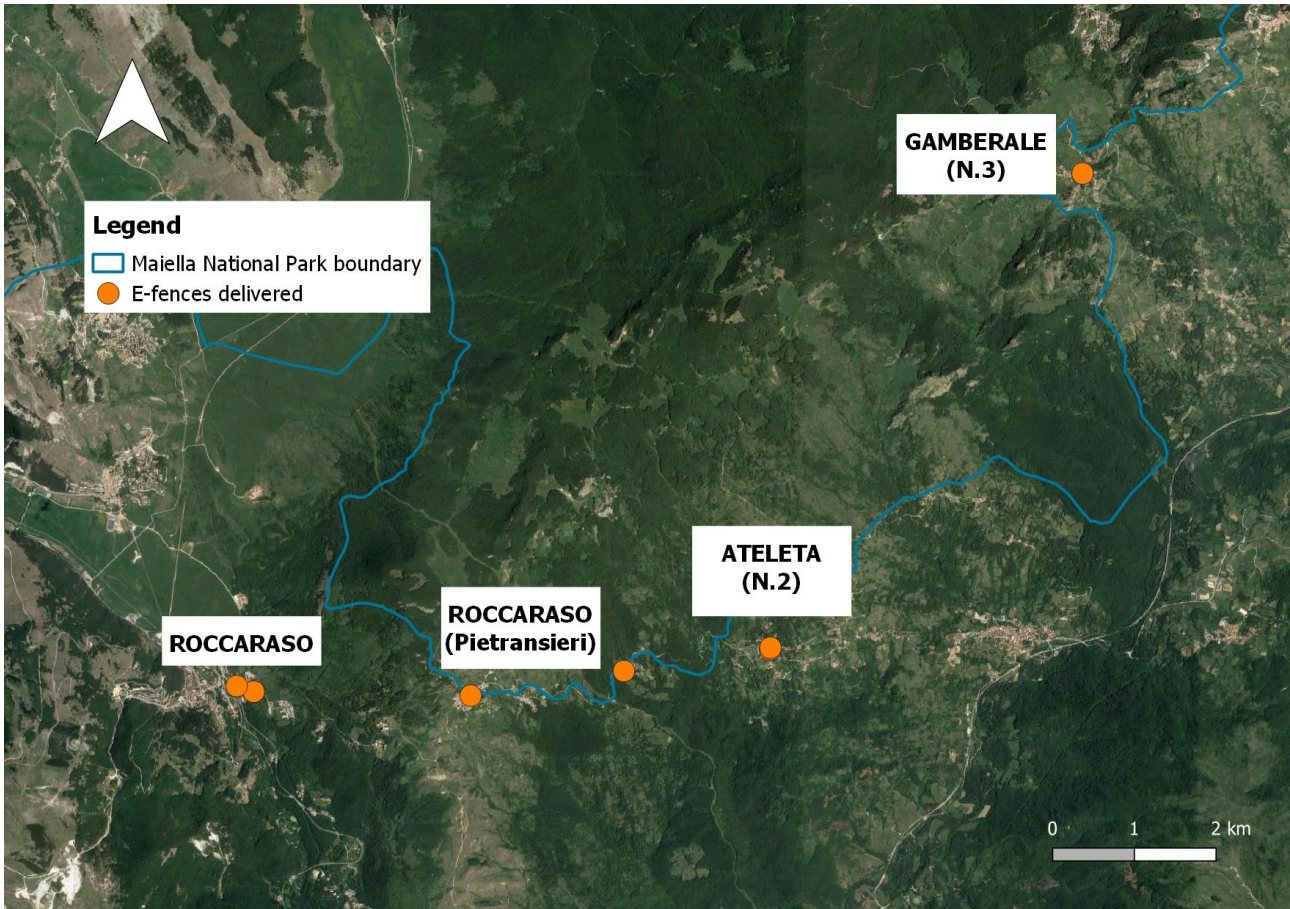
Map 2. Location of the 5 villages interested by M1.176 chicken coops damages in 2022 in reference to the MNP border.

List and maps of chicken coops protected in 2022

A total of 9 e-fences have been distributed in Ateleta, Gamberale and Roccaraso to protect damaged chicken coops or to prevent damages (Table 1 and Map 3).

Table 1. List and location of the e-fences delivered in MNP in 2022 to protect chicken coops.

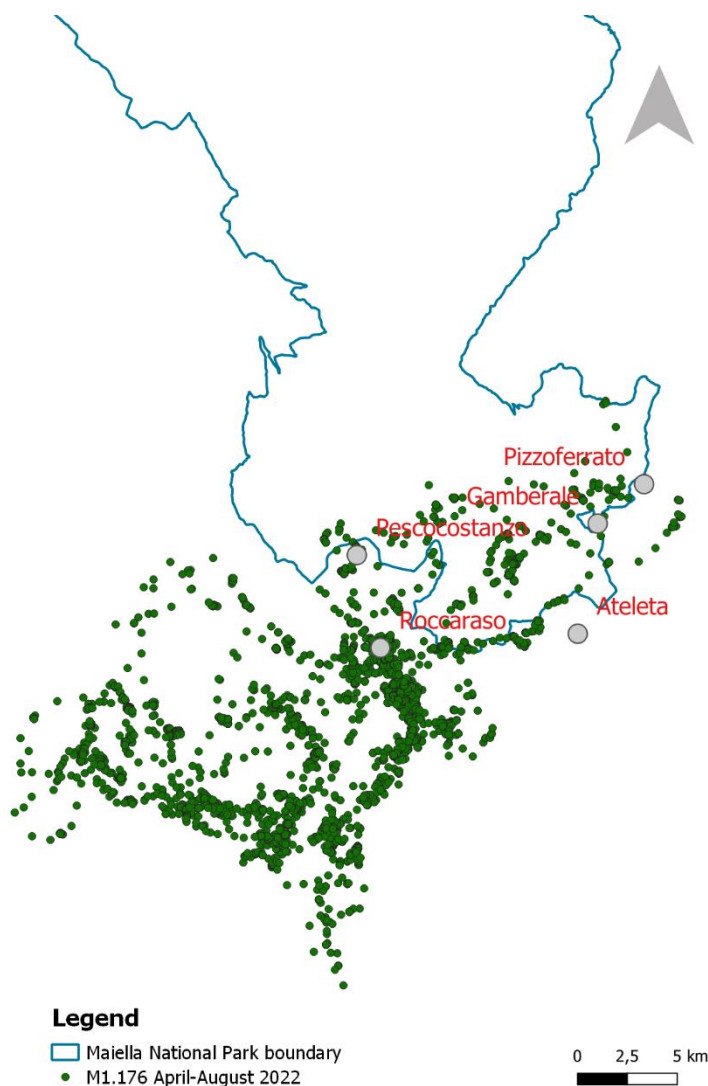
Municipality	Coord X	Coord Y	N
Ateleta	430562	4633742	1
Ateleta	430566	4633763	1
Gamberale	434385	4639563	3
Roccaraso	428773	4633477	1
Roccaraso	424035	4633294	1
Roccaraso	424245	4633225	1
Roccaraso	426899	4633177	1
TOTAL			9



Map 3. Location of the 9 e-fences delivered in 2022 to protect chicken coops from damages caused by M1.176 in the villages interested by this problem. In Gamberale 3 e-fences have been delivered to the Mayor, see text for details.

In Pescocostanzo damaged chicken coops could be more effectively bear-proofed with iron protection so that no e-fences were distributed but MNP personnel hired a manufacturer to collect data needed to produce iron doors, windows, grates etc. In Pizzoferrato the two chicken coops damaged were not suitable for e-fence installation so that one was protected through the positioning of 2 Critter Gitter (Action C9) while one was protected by the owner with a new bear-proof door. In Gamberale the situation was a little bit different: M1.176, at his very first visit to this village, entered the garage of an inhabited house to feed on a biofuel made of olive pits and used for stoves. This episode represented a huge issue to face as it was the first time that a bear entered an inhabited house in the Maiella National Park. MNP staff organized a meeting with the Mayor of Gamberale, a small village with ~300 people, in order to assess what to do and how to face the situation. The decision taken was to work together to avoid food availability for M1.176 so that citizens were asked to secure any possible food in bear-proof construction and the Mayor himself took the charge to deliver e-fences to protect chicken coops. Three e-fences were thus delivered to the Mayor who distributed them among citizens.

During 2022 M1.176 was monitored with a radio-collar from April to August when the collar stopped working. In autumn 2022 we thus had a better knowledge of his space use and behavior (Map 4).



Map 4. Locations achieved by the radio-collar of the 2-years-old problematic and confident bear M1.176 from April to March 2022 in reference to the MNP boundary and the villages where he damaged chicken coops.

We could understand that the MNP represented a small portion of his range that is mostly located in the area SW from Roccaraso between the MNP and the Abruzzo, Lazio and Molise National Park. This implied that his presence caused a lower pressure than the presence of F1.99, whose home range was almost entirely located inside MNP. However, M1.176 was not only problematic but also confident so that its presence inside the villages, even if relegated to brief periods, was a potential source of a high conflict with humans and required a well-designed and coordinated (with all the other bodies involved) management strategy. In Ateleta the strategy was to implement a strong communication activity in order to make people use all the protection means already delivered when F1.99 was present. In the other 4 villages (as well as in other neighbouring villages like Rivisondoli) the plan was to start from the knowledge of chicken coops number, locations and features in order to draft a plan to systematically bear-proof all the structures. MNP staff was thus planning to implement such a “census” of chicken coops during 2023 in order to plan e-fences distribution in a way similar to what has been done in 2021 (see C7 Action report 2021 for more details) rather than following the damages. However, M1.176 died on January 2023 making it necessary to re-set again the strategy for Action C7.

Even though Action C7 doesn't specifically aims at preventing access to beehives since they usually are located outside villages and cannot be strictly classified as "human food sources", it is worth mentioning that 11 additional e-fences have been distributed to bee keepers in 2022-2023. This last activity, necessary to prevent huge economic damages as well as to help and favour the beekeeping in MNP, is also crucial to manage human-bear conflicts and to make people have a positive perception of the bear.

Note on funds use and future implementation of Action C7 in MNP

Funds available in the ARCPROM budget for the purchase and distribution of protection measures were: 4.000 € for 10 bear-proof iron doors, 10.000 € for ~10 patented bear-proof chicken coops and 6.000 € for 15 e-fences (Table 2).

Table 2. Funds available for the purchase of C7 protection means.

Purpose	Foreseen in the budget	Spent	Remaining
Bear-proof henhouses	10.000*	0	10.000
Iron protections	4.000	4.880	-880
E-fences	6.000	5.000	1.000
Total	20.000	9.880	10.120

* 4.000 Euros initially foreseen in the budget plus 6.000 Euros added after the budget shift in 2022

During 2021, 4.880 € have been spent to build and install 15 iron protections rather than 10 (11 doors and 4 iron window protections) and bear-proof all the chicken coops classified as of "imminent need of protection". The purchase of e-fences was finalized in September 2021 when 5.000 Euros have been spent to by 20 e-fences. So far 36 e-fences have been distributed to protect chicken coops and beehives, 20 of which bought with the LIFE ARCPROM funds (5 more than the 15 foreseen) while the remaining 16 were e-fences bought with MNP funds before the LIFE ARCPROM starting. The purchase of the patented chicken coops was not finalized as the one produced by FAZA and available to the market was not suitable and the new one designed by a local manufacturer failed the bear-proofing test implemented with brown bears in captivity.

At the end of 2023 there were thus no more funds available to buy e-fences while ~10.000 euros were available to buy bear-proof patented chicken coops. Considering that a new problematic bear (F1.143) started damaging chicken coops in MNP at the end of 2023 and that bear-proof chicken coops proved not to be an effective solution for MNP (cfr. §Introduction), the ~10.000 euros still available will be used to buy additional e-fences and be ready to manage damages possibly caused in the future by F1.143.

