



**Reintroduction operation of deer from Sardinia to Corsica
Moltifao December 2015
LIFE "One deer two islands"
LIFE 11 NAT / IT / 00210
(CUP n. I92D12000100006)**

**Action C.3. reintroduction of new populations, genetic diversity,
monitoring GPS**



Mondoloni Stevan
PNRC
December 2015



Since 1985, a program of reintroduction of the Corse- Sardinian deer is applied by the Regional Natural Park of Corsica.

After a collaboration with Sardinia (EFS), several fenced farms were settled for the reintroduction of the deer in the wild, successfully, on various sectors characteristic of the island. From 1998 to 2014, 250 animals were liberated. The deer population in the wild is now estimated to be more than 1,300 animals.

In September 2012, the PNRC obtained agreement from the European Union to implement a program LIFE + nature to study the Corse- Sardinian deer and define a plan on common operation in the long term with Sardinia.

This program is developed by five partners: Ente foreste of Sardinia, the provinces of the Medio Campidano and 'Ogliastra, ISPRA (College of Environmental Research) for Sardinia and the Regional Natural Park of Corsica.

In Corsica, a steering committee was formed with: the ONCFS, ONF, the DREAL, the OEC, the University of Corsica, the laboratories and the departmental federation of hunters of southern Corsica.

The operation presented, has been realized in cooperation with a team composed of staff of the Regional Natural Park of Corsica, Ente Foreste of Sardinia, ISPRA and students from the University of Corsica and C3 corresponds to the action program LIFE "one deer two islands" for the reintroduction of the deer in their natural habitat to create a genetic cross with the population already present and study its relationship with the environment thanks to collar emitters.

The deer was reintroduced in this area in 2007, it is for this reason that a strengthening of the population could be made in order to secure and finalize perfectly the reintroduction of the deer in this area.

The procedures related to the necessary permits as well as the conditions to be met were carried out at the DDTM and DDCSPP of Haute-Corse.



The issue concerns a group of animals socially balanced from Costa Verde in Sardinia. The last transfer of deer from Sardinia to Corsica was carried out 20 years ago.

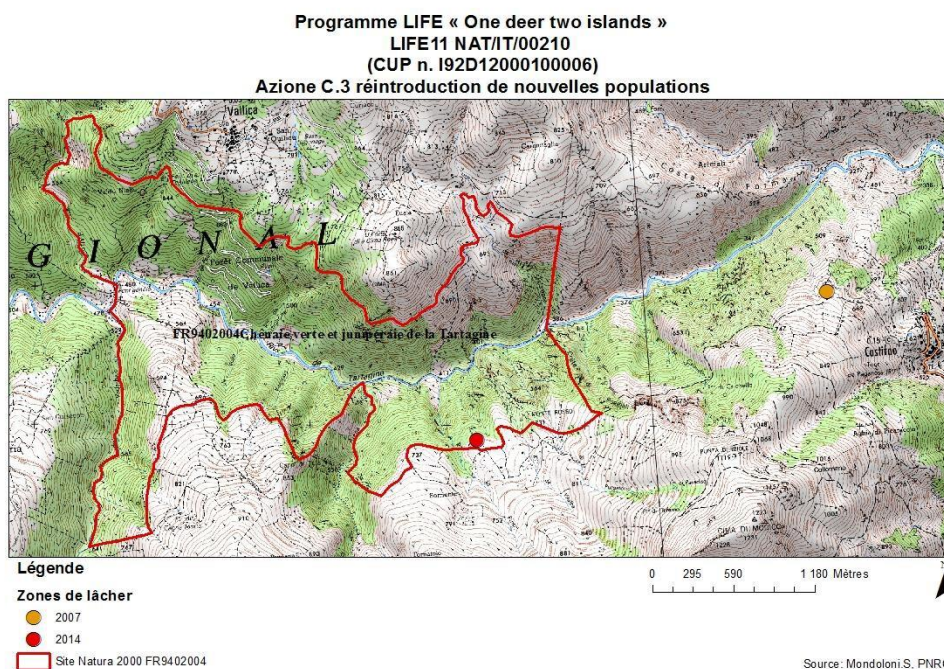
On Tuesday, December 15, in the framework of the LIFE program "One deer two islands", 5 deer originate from Sardinia have been reintroduced in the Natura 2000 site Tartagine, common Moltifau (place called Modicu).

Choosing the place of liberation

The drop zone relatively decentralized from the villages, situated in the plain of Modicu, is located in the town of Moltifau, within the Natura 2000 site considered for LIFE.

Summarized, the liberation in this area takes account of:

- The trophic values and refuge for deer,
- The chosen areas represent little risk of dealing with the damage to crops as well as in front of the practice of hunting and herding,
- The presence of agents of the PNRC to carry out the monitoring on the ground.



Map: location of the liberation point (S. Mondoloni PNRC)



Information, Communication

A public information meeting was held on 1 March 2014 in the town of Moltifau. To present the LIFE program and the set of actions that will be carried out on the field but also to formalize a lasting cooperation with associations of local hunters to collect data on the populations of deer and their participation during the roaring season in September.

MOLTIFAO

Dix cerfs seront réintroduits dans la commune le 18 mars

Il y a quelques jours, une réunion s'est tenue dans les locaux de la mairie de Moltifau sous la direction de Jacques Costa, maire de la commune et directeur du Parc naturel régional de la Corse.

Au programme, plusieurs objectifs, et notamment la mise en place du lâcher de cerfs qui aura lieu sur la commune le 18 mars prochain.

Il s'agissait également de faire un point sur le programme *Life Cerf* et sur les actions à venir en présence de Stevan Mondoloni, chargé du suivi de l'animal au sein du PNRC. Ce dernier a ensuite présenté le mode de suivi plus pointu et plus moderne qui sera pratiqué.

Depuis sa mise en place en 1985, le programme a permis la réintroduction de plus de 240 animaux en Corse. Aujourd'hui, environ 1 000 cerfs sont présents dans cinq secteurs, dont celui de Moltifao. « *Le but premier est d'éviter les atrocités comme cela a été le cas tout récemment sur la commune* », soulignait Stevan Mondoloni.



Une réunion préalable au lâcher de cerfs prévu mi-mars s'est déroulée à la mairie. (Photos Jeannot Filippi)

« Apporter du sang neuf »

Partenaire du programme depuis 2007, un lâcher de cerfs avait été organisé à Moltifao, rencontrant un franc succès : « *Une bonne acclimatation et une appropriation du biotope par l'animal ont été remarquées* ». C'est donc pour cela qu'une nouvelle opération a été organisée.

Pour Stevan Mondoloni, l'objectif de cette nouvelle démarche est simple : « *Apporter du sang neuf et une génétique différente avec des cerfs introduits depuis la région de Quenza* ». Au total, dix animaux seront lâchés. Toutes les précautions seront prises en amont, puisqu'un « *suivi sanitaire avec un diagnostic de différentes pathologies sera effectué pour éviter toute maladie. Des poses de colliers pour une identification individuelle auront également lieu* ».

Concernant le transport, c'est à bord de véhicules, puis par hélicoptère que les animaux seront conduits jusqu'au

lieu du lâcher. Une opération pouvant être jugée délicate pour les non initiés, mais pas pour le spécialiste : « *Ce sont des animaux résistants, toutes les précautions sont prises et il n'y a jamais eu de problèmes à ce niveau-là* ».

Suivi rigoureux de l'animal

À la suite de cette opération, de nombreuses méthodes de suivi seront mises en place : colliers émetteurs ou GPS, suivi à la jumelle, caméras thermiques, plusieurs points d'écoute, « *afin d'acquérir des connaissances sur les domaines vitaux, les types de milieux fréquentés et les déplacements saisonniers de l'animal* ».

Des captures en pleine nature à l'aide d'enclos amovibles sont également prévues pour réaliser régulièrement des diagnostics complets, effectuer les mesures et les poids.

D'ici six ans et la fin du programme,



Stevan Mondoloni, chargé du suivi du cerf au PNRC, a expliqué comment les 10 animaux seront introduits et suivis.

une régulation définitive de l'espèce est espérée, à condition que la protection soit totale, et que plus aucun ne soit abattu, comme cela a été le cas fin janvier dans la commune... ARNAUD POGGI

Ten deer will be introduced in the town on March 18

Public meeting in Moltifau on 1 March 2014, the presentation of the LIFE program and the operation of reintroduction (Corse Matin, 08/03/14)



Choice of animals

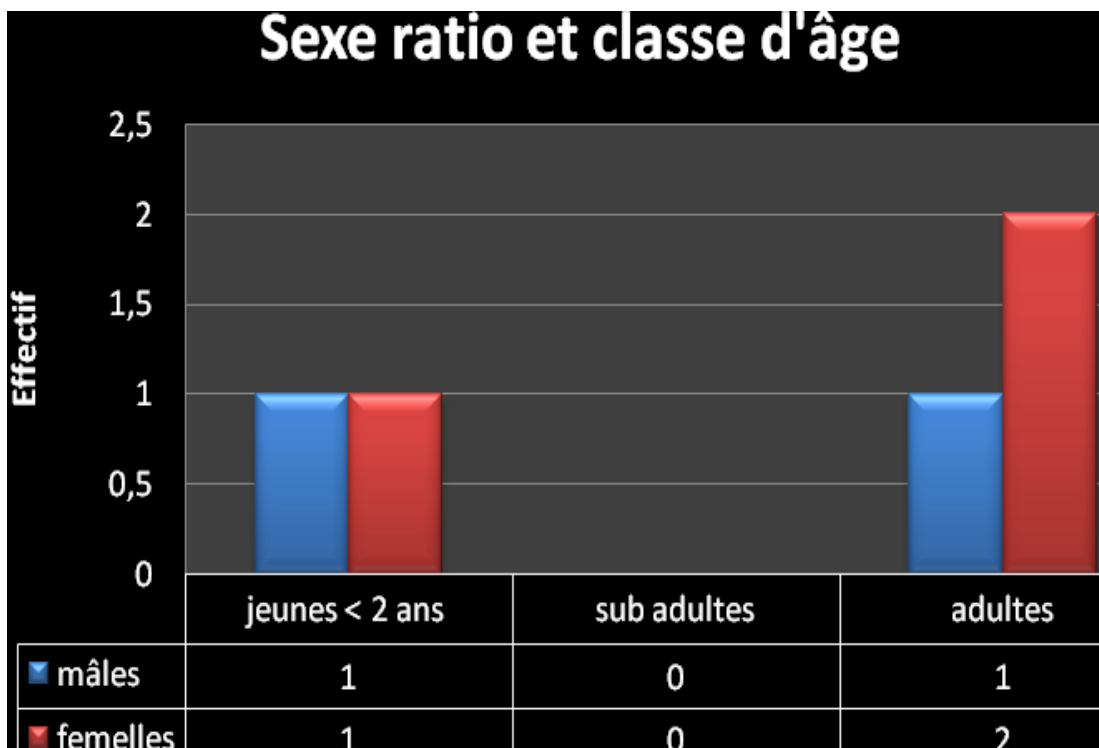
The liberated animals come from the natural environment, in the south of Sardinia, Costa Verde. They underwent rigorous health checks regarding diseases (brucellosis, FCO, tuberculosis), in order to reintroduce healthy individuals.

The choice of animals was made for:

- Liberation of coherent social groups, a relationship male / female balance,
- Maintain good genetic variability of the population of deer present in the natural environment.

Organization of animals liberated

The core of the population is characterized by a balanced relationship male / female with a slightly higher proportion of females (3 females for 2 males).



Graph of the distribution by age of the animals liberated

The table of detailed identification of animals in annex 1.



The subdivision by age group indicates a relatively balanced for three adults and two youth less than 2 years.

Realization of operation

Catches

The catches are made in the natural habitat in Sardinia on Nov. 27, 2015.

The animals are attracted in the enclosures of capture, once isolated are anesthetized using a hypodermic rifle, a first series of health checks is carried out and then 3 days later a second series. The analysis results are transmitted to the veterinary Lucio Mandas of the Sardinian Forest, the head of the catch. The analysis revealed a negative status and can later be transferred to Corsica in accordance with the DDCSPP of Haute-Corse.

Each animal is individually marked (2 identification buckles and different numbers in some more collar emitter) is a unique encoding applied for each animal. To allow agents of the Park during the monitoring missions in nature to differentiate animals observed, particularly in the framework of the protocol for capture-mark-recapture (CMR), with visual observation with binoculars.

3 of 5 animals are equipped with GPS collar in order to study their movements



Photo: copies of identification buckles



Transportation

At 4 am the animals were transferred from Costa Verde to Alghero, and after have reached Corsica by helicopter.

Airlift

The first rotation with 3 animals transported was carried out at 08.00 with arrival on site Moltifau at 10.00. In perfect weather conditions.

The second rotation was carried out at 11.00, arriving on site at 13.00.

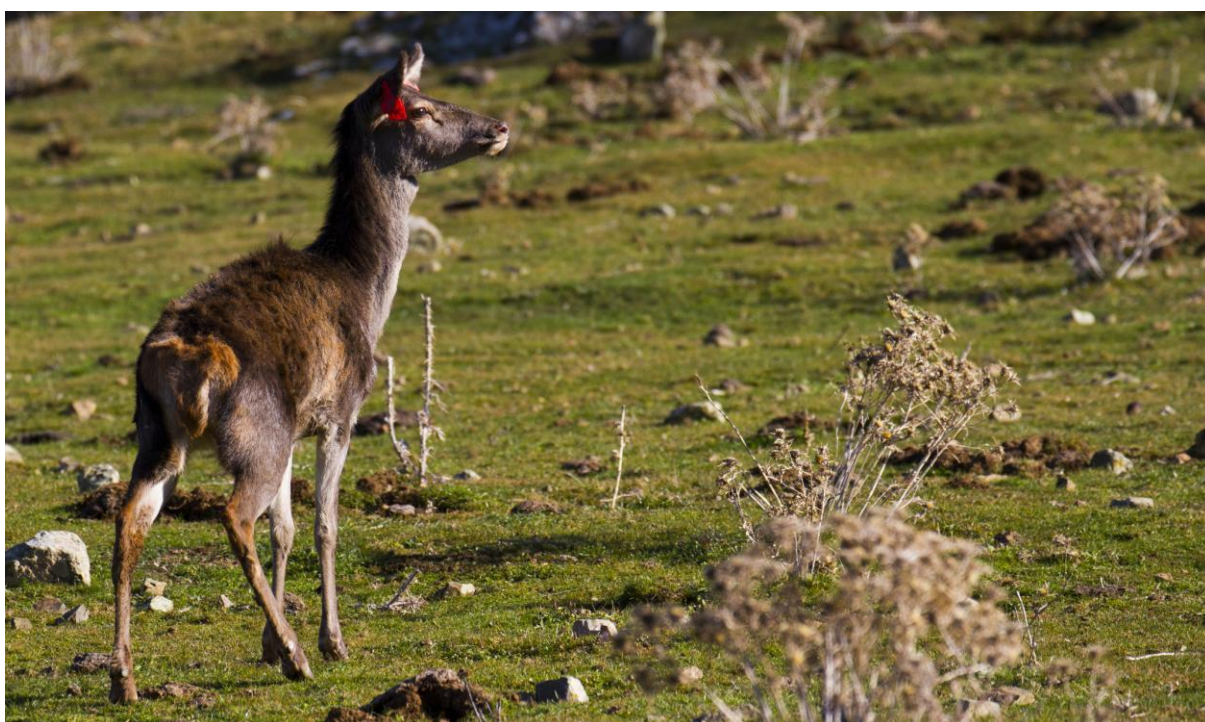
A final rotation was carried out from the liberation place to Piana (municipality of Castifau) for transfer crates approved by a second team of agents of the PNRC. The operation has been successfully completed at around 14:00.



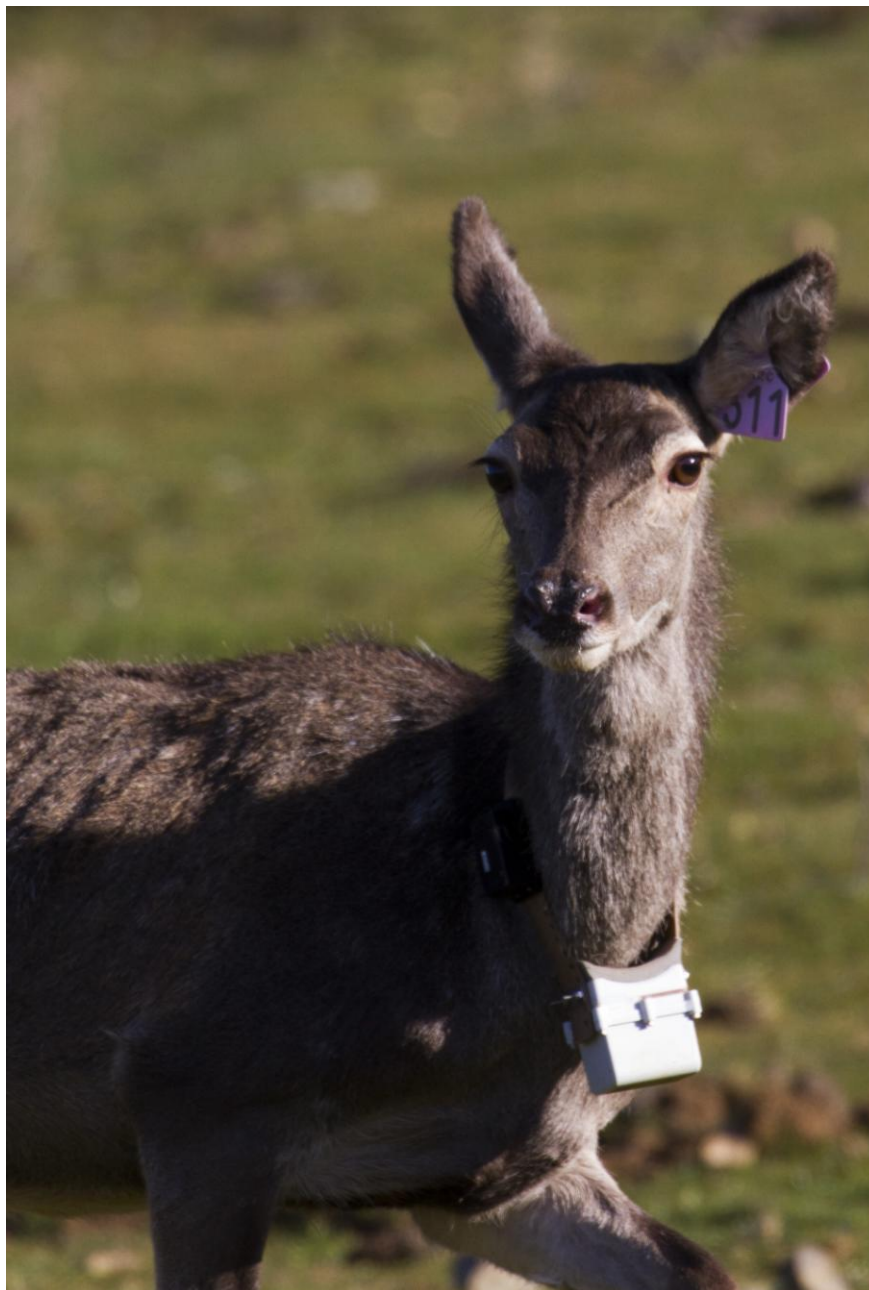
Arrival of deer on the place (N.Robert., PNRC)



First steps in Corsica for this adult deer with GPS collar (N.Robert, PNRC)



Young female deer on the land of Modicu (N.Robert, PNRC)



Adult female deer with GPS collar (N.Robert, PNRC)

Monitoring protocol with GPS collar

Many years of monitoring with telemetry have been carried out on different areas of Corsica (Alta rocca, Fium'orbu, Deux sorru, etc...)

The PNRC has undertaken a study on the "home range" of species Corsican Red Deer in its natural environment to identify:

- The types of habitat frequented,
- The size of the domains vital,

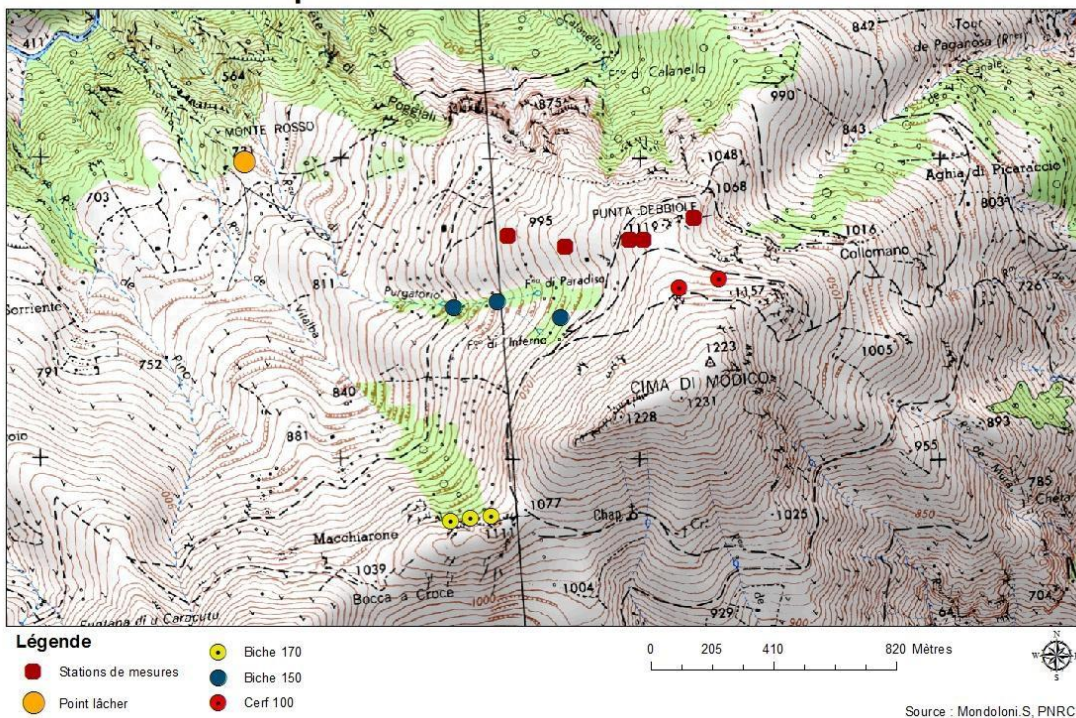


- Grazing areas and them any seasonal movements,
- Winter clusters
- Survival of the animal or not (thanks to the options "Activity - Mortality" activated collars).

In the plains of Moltifao a catch protocol with removable fence is tested from winter 2014 to complete monitoring of trapped animals and to identify with individual marking.

Below is an example of data processing carried out after monitoring mission with radio-tracking.

Suivi par télémétrie 28.03.14 secteur Moltifao



Location with telemetric monitoring of three animals with VHF collar (S.Mondoloni, PNRC)



Conclusion

The success of this operation was possible only thanks to the excellent cooperation between different actors in the environment of Corsica and members of the large ungulates (DREAL, OEC, ONCFS, ONF, departmental laboratories ...).

All institutions and local partners, Sardinians and Italians who have permission to do this successfully. The European Union's support to the intermediary current LIFE "One deer two islands." The strong commitment of the staff of the Regional Natural Park of Corsica and of the Sardinian Forest, of which thirty agents was mobilized from 06.00 to 16.00.

The technique used was effective, allowing you to capture 5 animals and ensure their transport to a distant zone. Genetic mixing carried out for this operation will limit any risk of consanguinity in the long term.

The protocols of monitoring applied to this sector by means of GPS and VHF collars, will lead to important data on the colonization of the liberation point, the species-environment relationship and allow you to specify the preferred habitats of deer to complete the assessment tool already put in place during the preliminary study.



Annex 1: Summary table of identification of animals liberated.

N	Sexe	Boucle G	Boucle D	classe d'âge	Provenance	Colliers GPS Fqce	Poids
1	M	335 bleue	276 verte	adulte	Costa verde Sardaigne	149.540	103
2	M	291 jaune	333 bleue	Jeune < 2 ans	Costa verde Sardaigne	X	37
3	F	57 jaune	178 jaune	adulte	Costa verde Sardaigne	149.510	70
4	F	311 violet	334 bleue	adulte	Costa verde Sardaigne	149.330	71
5	F	348 rouge	349 rouge	Jeune < 2 ans	Costa verde Sardaigne	X	65

Annex 2: Staff mobilized for the operation

N	Personnel	Structure
1	Albertini Antoine	PNRC
2	Cassar Mathieu	PNRC
3	Cervetti Frédéric	PNRC
4	Comiti.Gladys	PNRC
5	Mannoni Florian	PNRC
6	Mariani Michel	PNRC
7	Mondoloni Stevan	PNRC
8	Moretti Jean-François	PNRC
9	Moretti Mattea	PNRC – Università di Corsica
10	Paccioni Mickael	PNRC
11	Robert Nicolas	PNRC
12	Secchi Roch	PNRC
13	Tramoni Vanina	PNRC
14	Verdi Franck	PNRC
15	Vesperini Stéphane	PNRC
16	Mandas Lucio	EFS
17	Murgia Andrea	EFS
18	Secchi Dioniggi	EFS
19	Pintus Barbara	Project manager LIFE+
20	Riga Francesco	ISPRA
21	Toquart Corentin	Università di Corsica