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Gantt chart 2 shows all actions and products, and their time for completion, as they were actually implemented in 2016-2017 (labelled in yellow). The actions in orange are planned but not yet implemented. Some actions were modified on the field, these changes are described in the relevant section.

### Gantt chart 2 Project progress and planned activities for 2017

In April 2016 two electric fences were set in Sulmona, out of the study area, to prevent damage to valuable properties in a non-secured area where bear attacks to livestock occurred in September 2015. This **adaptive management measure** was considered necessary for the high value of the foals and bee hives to be protected and because these properties are located at the borders of Sulmona which amounts a population of about 24.500 inhabitants and where the presence of bears in the urban area could cause social conflicts.

Other 5 electric fences were set in Pettorano sul Gizio, the increase from 3 was necessary to ensure that virtually all properties at risk were protected.

The energizer used were the models POWERPLUS B 100, POWERPLUS B 300, and M300 depending on the farms to protect. The selected brand for best quality and performances was Gallagher featuring energizers supplying 12 V power and energy from 0,8 (POWERPLUS B 100) to 3,1 Joule (M300).

No.	Domestic animals	Area	Year
1	Geese	Vallelarga, Pettorano sul Gizio	2015
2	Chickens and rabbits	Vallelarga, Pettorano sul Gizio	2015
3	Chickens	Vallelarga, Pettorano sul Gizio	2015
4	Chickens	Vallelarga, Pettorano sul Gizio	2015
5	15 sheep	Vicenne, Pettorano sul Gizio	2015
6	10 sheep, 1 horse, 1 pig	Valle Pescara, Pettorano sul Gizio	2015
7	Chickens and rabbits	Valle Pescara, Pettorano sul Gizio	2015
8	Chickens	Ponte d'Arce, Pettorano sul Gizio	2015
9	Chickens	Via Cavate, Pettorano sul Gizio	2015
10	Chickens	Vallone S. Pietro, Pettorano sul Gizio	2015
11	Ducks	Vallone S. Pietro, Pettorano sul Gizio	2015
12	Poultry	Vallelarga, Pettorano sul Gizio	2015
13	Bee hives	Vallelarga, Pettorano sul Gizio	2015
14	Chickens	Vallelarga, Pettorano sul Gizio	2016
15	Chickens, turkeys	Vallelarga, Pettorano sul Gizio	2016
16	Chickens	Vallelarga, Pettorano sul Gizio	2016
17	Chickens	Vallelarga, Pettorano sul Gizio	2016
18	Chickens, rabbits	Vallelarga, Pettorano sul Gizio	2016

**Table 1** - GPS coordinates of the 18 electric fences which were set in the study area in 2015 and 2016.

Table 2 shows the GPS coordinates of the two electric fences set in Sulmona as an adaptive management measure to prevent damage to high-value properties. In the final report 2015 the property numbered 19 in the list below was considered within the study area, due to the difficulty to identify municipal borders in that specific area where three municipalities (Pettorano sul Gizio, Introdacqua and Sulmona) touch one another.

No.	Domestic animals	Area	Year
19	Two horses and a foal	Cavate di Sulmona	2016
20	60 bee hives	Cavate di Sulmona	2016

**Table 2** - SLO electric fences outside the study area in April 2016.



**Fig. 1** –Bee farm secured at the border with Sulmona.



**Fig. 2** – Power test of an electric fence.

Seven more electric fences and the regular maintenance of those already in place led to an **89 % reduction of bear damage** in the Community compared to 2014's data (Table 3), exceeding both the goal for 2016 (set to -75%) and the final goal for the project established in 2014 (set to -90% by 2017).

No damage was reimbursed by SLO and partners because the Abruzzo Region has promulgated the law L.R. 9<sup>th</sup> June 2016, n. 15 for reimbursement of damage caused by bears outside of national parks. This is a welcomed and important step forward to increase acceptance of bears and promote their persistence also outside national parks.

Year	2014	2015	2016
<b>No. Damage events</b>	52	14	6
<b>% Damage reduction</b>	100	73	89
<b>% Expected reduction</b>	-	50	75

**Table 3** - Bear damages from 2014 to 2016 in the project areas (source: NRMGAG, and the Municipality of Rocca Pia). Affected areas are subsistence farms and very small commercial activities, therefore even small losses can have high impact on the economy of these households and on sentiments towards bears.

## **2.2 Meeting with the local population of the two villages to present the results of the project in 2015 (effectiveness of best-practices) and the 2016 project (monitoring of bear presence, bear damages and human perception)**

Meetings with farmers, landowners and citizens of Pettorano and Rocca Pia occurred on the following occasions:

1. January 27<sup>th</sup> 2016, meeting in Pettorano sul Gizio on Road Ecology focused on prevention of bear-vehicle collisions;
2. August 5<sup>th</sup> 2016, the Nature Reserve Festival in Pettorano sul Gizio;
3. December 17<sup>th</sup> 2016, the Nature Reserve 20<sup>th</sup> Anniversary.

At all these meetings SLO and partners presented the results obtained in 2015 through the mitigation measures offered, and engaged local villagers to facilitate the hand-over of the Genzana Bear-Smart Community coordination to them.

The regular check and maintenance of electric fences also proved to be a good opportunity to meet



stakeholders, share, adapt and improve the results of best practices.



**Fig. 3** - Meeting on road ecology in Pettorano sul Gizio on January 27<sup>th</sup>, 2016.



**Fig. 4** - English volunteers at SLO's stand at the Reserve Festival in Pettorano sul Gizio on August 5<sup>th</sup>, 2016.

### 2.3 Field-work: installation and monitoring of camera traps, bear presence transects

Installation and monitoring of 5 camera-traps, stratified sampling of the area in search of bear presences with 1-km transects searching for bear scats, hairs, footprint and other sign of presence, radio-tracking of the adult female bear present in the area were conducted by the NRMGAG with the support of SLO's volunteers, and three more camera traps acquired thanks to the IBA's grant.



**Fig. 5** - An English volunteer sets a camera trap.



**Fig. 6** - Marsican bear taken by a project's camera trap in the study area.

### 2.4 Reiteration of survey on human perception of bears and level of adoption of best-practices for bear coexistence

Since a questionnaire on bear smart measures and general awareness on human-bear coexistence strategies has been submitted to the citizens of Pettorano sul Gizio and Rocca Pia in 2015, we agreed with the other partners of the Community not to overwork the possible results by reiterating that direct survey this year and repeat the same survey in February-March 2017 to look for trends in bear acceptance and adoption of best

practices. However, one year of dissemination of best practices drove to the construction of a community feeling, testified by the high reception of best practices by farmers, while an increasing number citizens branded their businesses, cars and doors with the Bear Smart Community sticker.



**Fig. 7** – BSC sticker on a door.



**Fig. 8** – BSC sticker on a car.



**Fig. 9** – BSC sticker on a scooter.

## **2.5 Pruning and care-taking of the fruit trees in abandoned orchard in extra-urban areas**

Last autumn we could not prune any tree because we are still waiting for authorizations by local authorities to operate in abandoned orchards. This action will be carried out in February-March 2017. However, the NRMGAG is carrying out a project of forest requalification which consists of thinning out some pine woods planted in 1960s. This action is aimed at promoting native plants and tree species which are part of the bear's diet - such as strawberry (*Fragaria vesca*), raspberry (*Rubus idaeus*), Cornelian cherry (*Cornus mas*), etc. - to reoccupy their ecologic niche.

## **2.6 Regular checks and required reparation of all fences**

Regular maintenance of the project electric fences was carried out twice a month from June to October. These checks showed a good use and regular maintenance of these facilities by the farmers themselves. Only in two cases reminding the owners to mow the grass underneath the fence was needed, and just in one case two wires touched causing a short circuit. No damage occurred in the small farms equipped with electric fences.





**Fig. 10** - Before SLO's check, with high grass touching wires and dispersing the power in the electric fence



**Fig. 11** - After SLO spoke to the owner and he duly mowed the grass.

## 2.7 Field-work: installation and monitoring of camera traps, bear presence transects

Thanks to our volunteers, we have monitored the intervention area in search of bear signs of presence, conducting spatial analysis on the habitat use and on the human dimension of bear conservation issue. All data were passed on to the NRMGAG which is in charge of managing it. The research is in progress and data will be processed after one-year collection from September 14<sup>th</sup> 2016, when the female bear called Peppina was caught and re-collared as her collar stopped working in September 2015. This inconvenience has forced to defer of one year the data process and publication by the NRMGAG and SLO.

The NRMGAG authority has not complied yet with our request for some radio-tracking data to be published in this report.



**Fig. 12** – Bear hairs in a barbed wire collected for genetic analysis.



**Fig. 13** – Bear scat reported in a urban area near a bee farm.

## 2.8 Analysis of the bear presence data and production of the scientific paper

As expected, the 89 % reduction of damage in the intervention area led to an **increase of conflicts in neighbouring unsecured areas** where mainly a food conditioned bear – the radio collared bear called Peppina

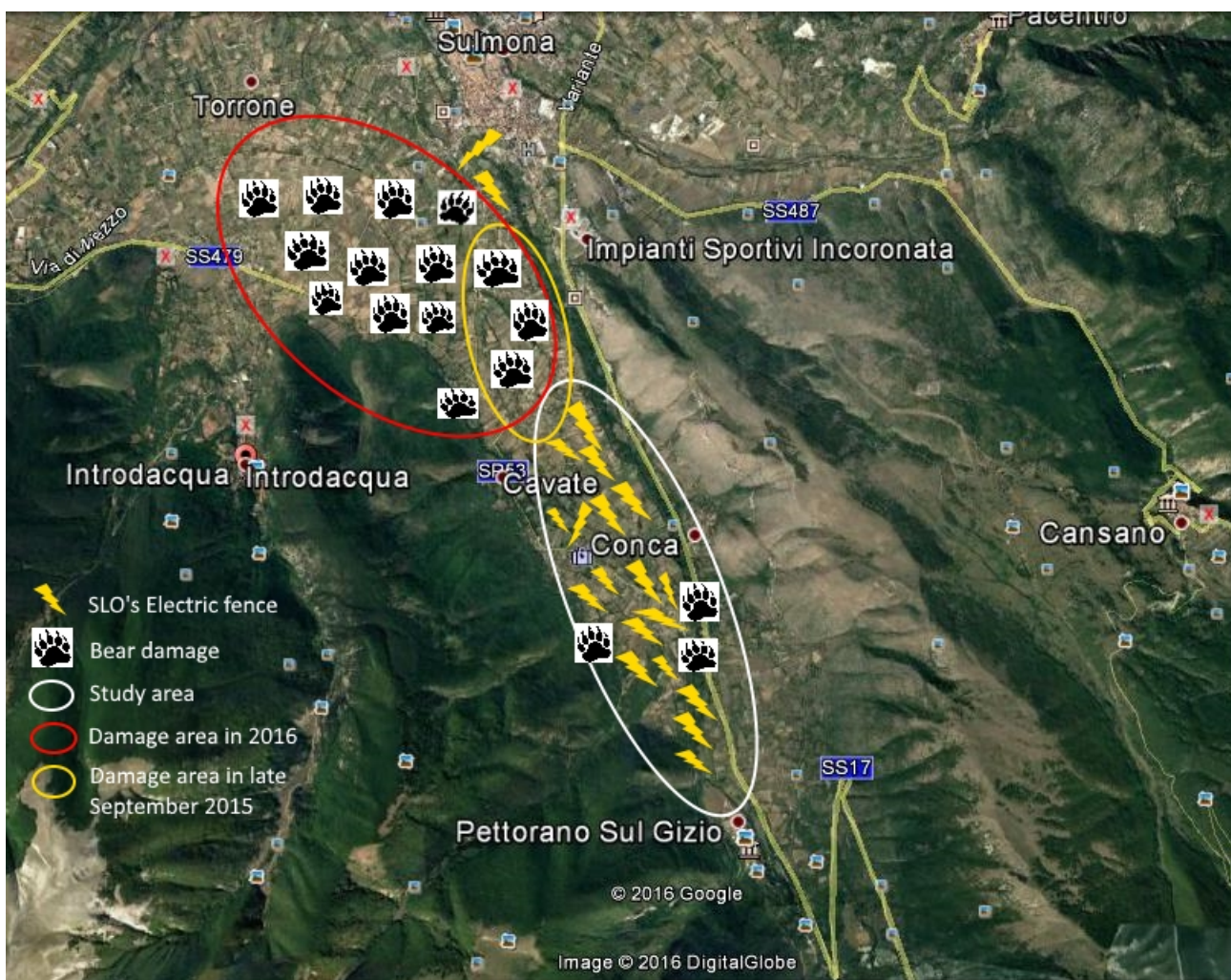


moved in 2015 and 2016 in the period August-October in search for easy food provisions before denning for winter. On one hand these conflicts with farmers frustrated our efforts to reduce human-bear conflicts and foster acceptance of bears, on the other hand the success so far obtained on a smaller scale proves to the local communities in the intervention area and to the wider public that coexistence with large carnivores is really possible as long as the right measures are taken.

The local authority in charge of bear conservation policies, the NRMGAG is collecting data from direct encounters, presence-absence data by camera traps and opportunistic observations, and radio-tracking to perform a **quantitative spatial analysis of bear activity** in the study area to quantify the impact of the project in terms of shifting bear activity-patterns away from human properties. The results of this research will be analysed from September 2017, to obtain at least one additional year worth of data since September 2016, when Peppina the bear was re-collared.

However, opportunistic data (scats, hairs, footprints, and other signs of presence) and damage in not yet secured areas - reported by punctual recognitions by the Italian Forestry Corps, leading to the installation of 10 electric fences and 7 metal doors by the Majella National Park and the partner association Dalla parte dell'Orso (DpO) - and articles on local newspapers allowed us to locate on map the area where damage occurred in the last two years (Figure 14).

On the contrary, no bears were observed in the vicinities of Rocca Pia this year. This evidence makes us believe that securing organic waste by bear-proof waste bins discouraged bear frequentation in urban areas.



**Fig. 14** - Experienced-based map of the bear use of inhabited lands.

## 2.9 Analysis of the survey to the local population of the scientific paper on trends in bear perception



## **and adoption of best-practices for coexistence with bears**

The aim of this project is to assess the quantitative impacts of the action in educating the local villagers towards better understanding the source of conflicts between human and bears thereby minimizing source of conflicts, increasing bear tolerance and improving coexistence with bears. In our 2016's proposal, we aimed at a quantitative analysis of human perception of bears by comparing the first year of the project (survey sent out in Fall 2015) with this year. However, we have chosen to delay this until February-March 2017, to have more time to obtain a representative sample that is demographically and statistically equivalent to the population surveyed in 2015 and in time for the final report of this project.

### **2.10 Closure of vehicle traffic on two forestry roads**

This action was scheduled for 2015. After a year of negotiations by the NRMGAG and lobbying action by SLO and other project partners, it has been recently achieved. Two forestry roads out of three reported in the Site of Community Importance (SCI) Management Plan were closed in the Reserve through the location of horizontal metal bars in order to reduce human disturbance, mainly by jeeps, motorbikes and quads, in wild areas of vital importance to ensure bear movements between the Abruzzo, Lazio and Molise National Park and the Majella National Park. More information will be given in the final report.

The NRMGAG and SLO carried out other road ecology measures such as the cleaning of a dumping area by State Road 17 in the municipal area of Pettorano sul Gizio, which radio-tracking data proved to be utilized by the radio-collared bear. We also maintained the two underpasses cleared of trash and hindering vegetation in 2015, one by the NRMGAG and SLO volunteers, another by DpO volunteers.



**Fig.15** – Trash collected in a dumping area by State Road 17 frequented by the bear in Pettorano sul Gizio.



**Fig. 16** – Meat leftovers attracting bears and other scavengers near the road increasing the risk of vehicle collisions.

## **3. Project expenditures**

The project costs for 2016 are summarized in Table 4.1 in relation with the 5,800 USD grant from IBA, while Table 4.2 recalls the amount requested to IBA in our 2016's proposal and Table 4.3 reports the non-monetary or “in-kind” contributions planned for 2016.

OVERALL PROJECT BUDGET FOR CALENDAR YEAR 2016 (ASSUMED 1 € = 1.06 USD)		
Categories	Obtained from IBA	Salviamo L'Orso matching fund
<b>Equipment (year purchased)</b> <ul style="list-style-type: none"> <li>Electric fences</li> <li>Metal doors to protect stables</li> <li>Camera traps</li> </ul>	5,194 USD (742 USD *7 fences)  0 USD  645 USD (215 USD each for 3 camera traps)	Cost of salary of Mario Cipollone for the role of project leader full-time over the whole summer 2016. 6342 USD – (1500 €/month * 4 months)  600 USD for 2 additional camera traps, batteries and 39 dollars to complete the purchase of the third camera trap funded by IBA
<b>Transport</b> Reimbursement transport to meeting, surveys, fence installation and maintenance		650 USD for petrol for the whole project
<b>TOTALS (USD)</b>	<b>5,800</b>	<b>6,992</b>

OVERALL PROJECT BUDGET FOR CALENDAR YEAR 2016 (ASSUMED 1 € = 1.06 USD)		
Categories	Requested from IBA	Salviamo L'Orso matching fund
	Requested	Committed
<b>Equipment (year purchased)</b> <ul style="list-style-type: none"> <li>Electric fences</li> <li>Metal doors to protect stables</li> <li>Camera traps</li> </ul>	2,226 USD (700€ or 742 USD *3 fences)  1,908 USD (600 € or 636 USD *3 metal door)  900 USD (300 USD each for 3 camera traps)	Cost of salary of Mario Cipollone for the role of project leader full-time over the whole summer 2016. 6342 USD – (1500 €/month * 4 months)  600 USD for 2 additional camera traps
<b>Transport</b> Reimbursement transport to meeting, surveys, fence installation and maintenance	Estimated 1000 € and 1060 USD for petrol for the whole project	
<b>TOTALS (USD)</b>	<b>6,094 (note that the project proposal incorrectly reported 6080)</b>	<b>6,342</b>



<b>NON-MONETARY OR "IN-KIND" CONTRIBUTIONS (assumed 1 man*hour = 20USD)</b>				
<b>Type of contribution</b>	<b>Amount or Value (USD)</b>	<b>Source</b>	<b>Requested</b>	<b>Committed</b>
Voluntary work for installation of electrical fences maintenance of all 16 fences installed in 2014-2015	2,000 (100 men*hrs)	Salviamo l'Orso		X
Management of bear-proof trash collection		Municipalities of Pettorano sul Gizio and Rocca Pia		X
Meetings with local population to raise awareness on the bear conservation issue	All costs of organizing 3 meetings	Salviamo l'Orso, Regional Nature Reserve Monte Genzana-Alto Gizio		X
Field Surveys	4,000 (200 men*hrs)	75% Salviamo l'Orso, 25% NRMGAG	X (NRMGAG)	X (SLO)

#### 4. Conclusions

The permeation and extension of best practices thanks to an additional grant from IBA allowed an 89 % reduction of bear damage in the Community compared to 2014's data. As expected, the protection of vulnerable farm animals and beehives led to a dramatic reduction of damage in the intervention area, but prompted habituated bears to seek food from unprotected farms in neighboring areas, yet unsecured. This evidence has strengthened the reliance of local farmers and bee keepers on the best practices we have been promoting in the last two years. Other people from the Genzana area have offered to collaborate to the project goals, due to their friendship with our members and the English volunteers from Plymouth University.

These positive results were made possible thanks to IBA's grant, the strong commitment of a small group of highly-motivated volunteers, the local community and a network of partner organizations and institutions which have finally been able to build a Bear Smart Community in the Genzana Valley.

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