



Bears in the Canton of Grisons 2007

Experience of the Cantonal Hunting and Fisheries Agency and of the external collaborators in summer and autumn 2007

1 November 2007

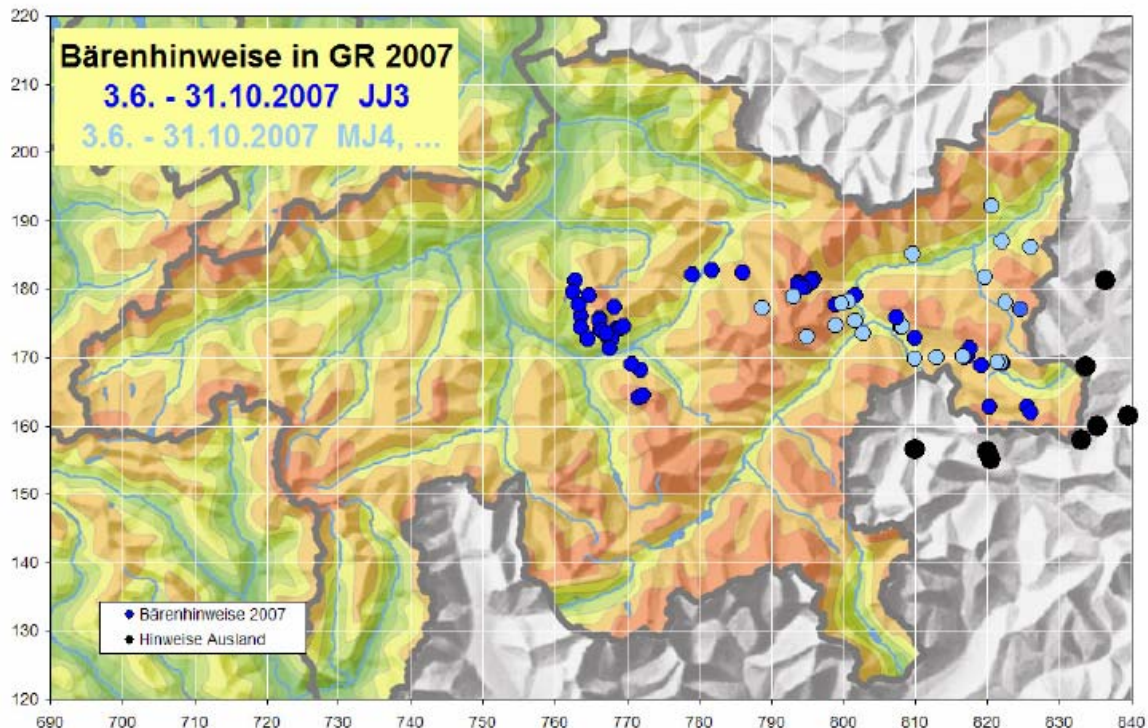
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1. Movements of the bears, especially JJ3

From 3 June to 31 October 2007, the permanent presence of at least 2 and possibly 3 brown bears was detected in the Grisons. Two individuals from the Trentino population were identified genetically, namely JJ3 (born in 2006) and MJ4 (born in 2005). For the June observations in the Lower Engadine and the Munster valley it is difficult to attribute the various observations of bears and bear-related events to the known individuals.



JJ3 – son of Jurka, brother of Lumpaz

Most frequently **JJ3** was observed or detected genetically, remaining in the Trafoi valley at the Stilferjoch for several days up until the end of May.

JJ3 is a male brown bear, now about 21 months old, born in the Val di Tovel (Trento - Italy) in January 2006, and is the son of Jurka and Joze. It has 4 siblings: JJ1 or "Bruno" and JJ2 or "Lumpaz", born in January 2004 and JJ4 and JJ5 – a male and a female cub born in the same litter as JJ3 in 2006. In late spring this year JJ3 began to leave its mother and to move away. After a stay in the South Tyrol JJ3 reached Switzerland this summer.

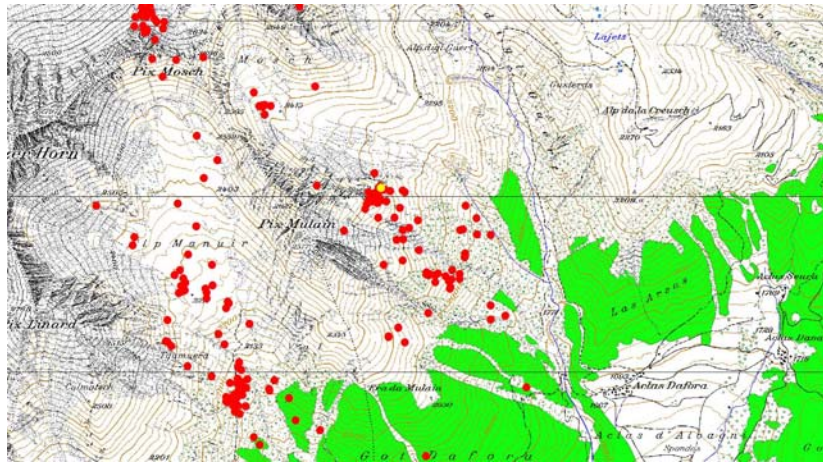
From **3 July** onwards, it was possible to distinguish its wanderings from those of the other individuals, with a high degree of certainty. From that date on, JJ3 was very often observed or there were indications of its lasting presence on the south side of the **Flüela pass**. The fact that it was bear JJ3 was established using a DNA sample from fur, which was collected on 20 July (samples of two excrement findings of 4 July, also from the Flüela pass, never arrived in Bologna). At the Flüela pass, within a few days 21 sheep and a llama had been killed. At that time the bear mostly spent the day resting in the extensive forests of mountain pine, in order to go after sheep or look for other food at dusk and during the night. JJ3 could often be observed or even filmed on the other side of the valley. On the evening of 10 July, the gamekeeper observed the bear killing a sheep directly above the Flüela road.

Although a shepherd was taking care of the flock of 950 sheep at the Flüela pass, he was not able to keep the sheep together and to protect them from repeated attacks by the bear. The situation was only remedied by the use of two additional shepherdesses with their initially three dogs for flock protection (two dogs from 9 July on), combined with the enclosure of the flock. However, on 14 July at 2.00 am two warning shots drove the bear away from the area where the sheep were fenced in. An initial attempt to capture the bear with spring activated bear snares (Aldrich system) was begun during the night of 14 to 15 July, near the sheep enclosure. During the night of 18 to 19 July, JJ3 plundered two rubbish bins at the Flüela Hospice and then obviously shifted from the Flüela valley to the Dischma, a side valley near Davos. A shepherd observed it there at about 9.00 pm on 19 July. On 20 July, the bear killed a sheep in Davos-Frauenkirch, on the right hand side of the river valley.

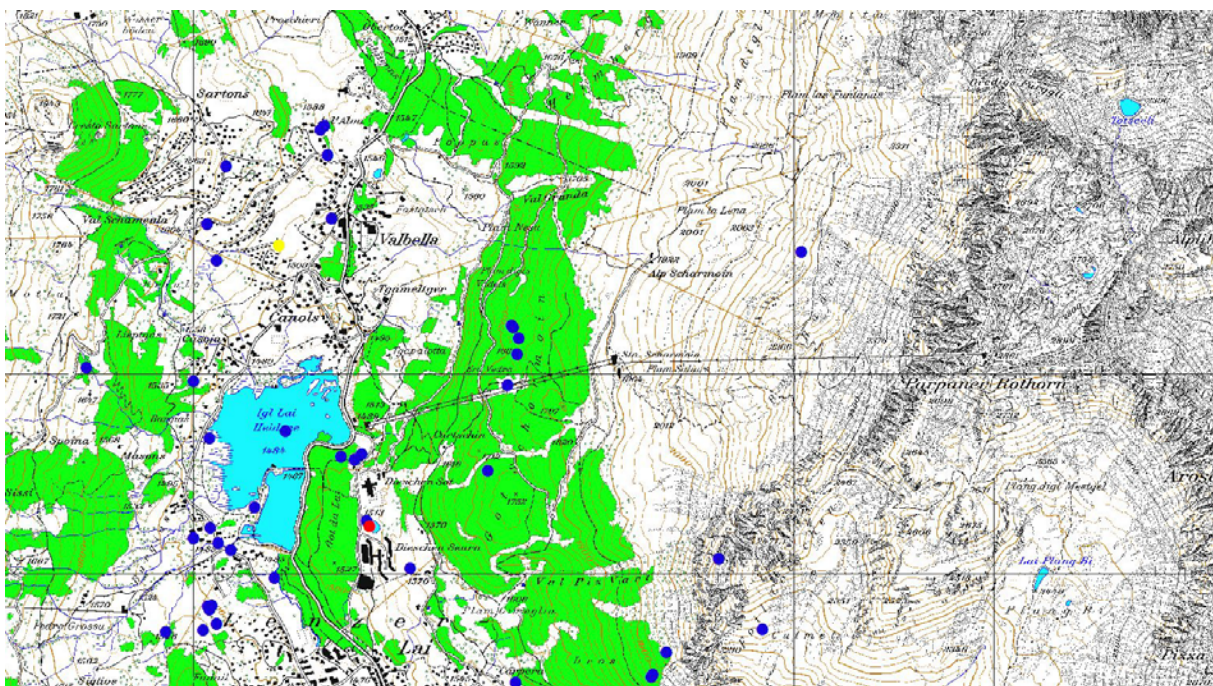
On **22 July** the bear killed or injured the first three sheep in the Val d'Oir near **Alvaneu**. Flock-protection dogs were present on the spot in Alvaneu immediately after the first sheep were killed. The small number of sheep (about 120), the absence of shepherds on the spot and the lack of an appropriate place to keep the sheep were the reasons that ultimately led to giving up the use of flock-protections dogs and instead to moving the sheep into the valley for the night, where there was an appropriate place to keep them.

The following night, the bear started killing animals again, so on 25 July a second attempt was made to capture it using spring activated bear snares (Aldrich system). However, this time it did not retreat. On 26 July it killed another sheep in the Piz Mulain / Mosch region. Once again there was an attempt to capture it using snares, but it was again unsuccessful. On 5 to 6 August there was another attempt to capture the bear near where the sheep had been killed in the Val d'Oir, where the bear had returned to. It was again unsuccessful.

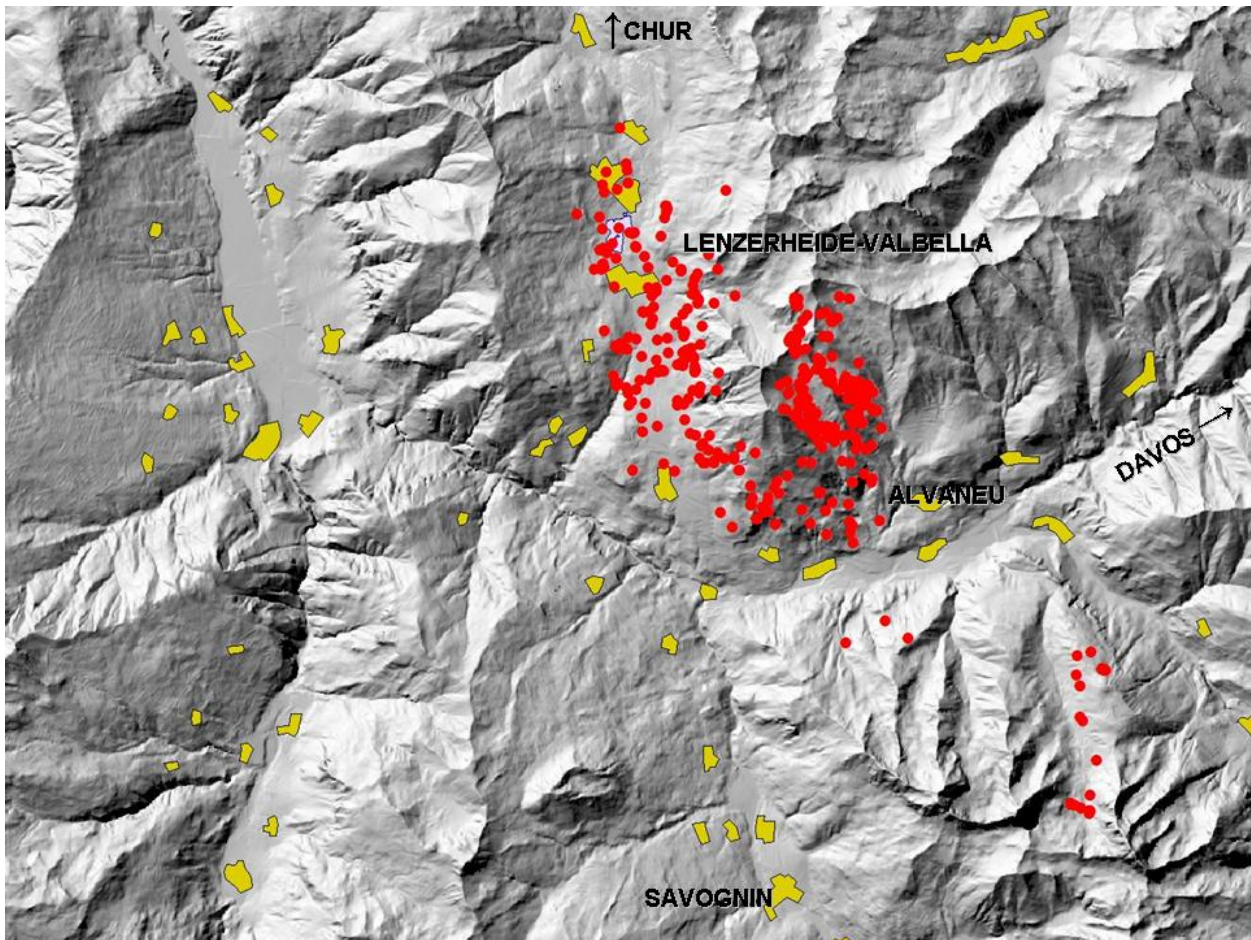
On the night of 6 August the bear moved to the other side of the valley. On 12 August the bear was caught in the Val Spadlatscha, in the Ela area by a trained team (consisting of a helicopter crew, two veterinarians and gamekeepers of the AJF) and it was fitted with a GPS/GSM – VHF collar, so from that time on it was possible to monitor the bear exactly. In addition to hourly GPS data, the bear could be regularly located by trackers. From 15 August until 20 September the bear always stayed on the southerly exposed hillside of the valley between Alvaneu and Brienz. During that time it attacked again killing four sheep. It ravaged the bodies of the dead sheep and that of a dead calf. The calf had fallen down the mountainside without the bear being involved. Instead of flying its body to the valley by helicopter, it was deposited in the Mulain game reserve. It can be assumed that this measure also helped to reduce encounters between people and the bear during the period of intense hunting, minimising any possible conflicts. During this period, occasional excursions led the bear to the adjoining small valley of Ramos and the Sanaspans Alp.



From **21 September** the bear extended the area in which it was prowling. For the first time it moved in the direction of **Lenzerheide**, crossed to the other side of the valley at the edge of the village and killed a goat. In the next few days it regularly returned to Lenzerheide and Valbella. It soon got to know how to exploit the local situation, showing the behaviour that it had learnt from its mother Jurka to search for food in the village. It mostly found food in rubbish containers, but also found organic waste and the remains of meat near farmhouses and places where huntsmen had been eating.



The bear spent every day among the mountain pines at the edge of the forest on the slopes of the Lenzerhorn. Harassment actions were carried out on 10 nights between 24 September and 9 October. On **11 October** the bear moved to the area above **Alvaneu** that it knew well, and briefly revisited the Ramoz. On 20 October, it again appeared in the Lenzerheide area. During the following night, it was again subjected to harassment techniques and by day it was driven back from the Lenzerheide region to Alvaneu by a hunt (14 people with hounds). Baited areas were set up there, with a view to attempting to capture the bear. At that time JJ3 did not look for the bait. On 25 October the bear briefly moved to the other side of the valley and on 27 October it churned up a rubbish bin in Surava.



The combination of all GPS bearings shows that the use of space by JJ3 was clumped within a relatively small area.

MJ4 and others?

The second bear identified with certainty is MJ4, a son of Maja (a much shyer bear) and of Jose. Definite evidence of the presence of this individual comes from the Val Müstair, Ivrainia and the Sarsura massif. It has not yet been possible to tell whether other definite evidence of bears from the Lower Engadine (Val d'Uina, Val S-charl, Val Sinestra and Alp Munt, Ardez) also comes from this individual. It is still an open question whether this comes from a third, as yet unidentified bear.

Summary:

From the beginning of June 2007 at least two male brown bears migrated into Switzerland from Italy. Two individuals were identified as JJ3 and MJ4. Subsequently JJ3 developed successively from a noticeable bear towards being a problem bear. The discovery of large supplies of unnatural food in the Lenzerheide area played an important part in this development. Nevertheless, thanks to the emitter, intensive attention on the part of the gamekeeper and protection measures for sheep pens and beehives the problem was kept under control for a long time and major conflicts with people were avoided. However, this was only thanks to the professional gamekeeper and the use of many members of staff.

2. Problems, damage and prevention

Domestic animals killed

The damages paid for pets amount to **SFr. 39,890** and those for beehives **SFr. 6,200**. Damages registered before 3 July 2007 in the Canton of Grisons cannot always be attributed exactly to individual bears.

Killing, which cannot be unambiguously attributed to one of the two bears JJ3 or MJ4:

- Scuol, S-charl-Plazèr 18 sheep

About 30% of these damages were certainly not caused by JJ3, but for the rest it definitely has to be considered as the possible cause.

Killing, which cannot be unambiguously attributed to JJ3:

- Sent, Val da Ruinas 7 sheep

- Sent, Curtinatsch 3 sheep

Killing, which was unambiguously caused by JJ3:

- Susch, Flüela 21 sheep

1 llama

- Davos, Frauenkirch 1 sheep

- Alvaneu 8 sheep

- Lenzerheide 1 goat

Damage to beehives, which cannot unambiguously be attributed to one of the two bears JJ3 or MJ4:

- Val Müstair, Susch 3 Fr. 4,500.- Fr. 4,500.-

Damage to beehives, which was undoubtedly caused by JJ3:

- Lenzerheide 1 Fr. 1,700.- Fr. 1,700.-

Only killing or damages that the gamekeeper unequivocally identified and recorded as caused by bears is compensated. Various farmers, alpine tenant farmers and other alpine farmers have made additional demands for costs caused by the bear or its presence, resultant additional costs for care and precautionary measures or for animals that have disappeared or cannot be found. Up until the present a total of SFr. 13,300.- of such demands have been rejected. This was not because these were not justified, but rather because there is no legal basis analogous to that for animals killed by large carnivores.

Protection measures for flocks were carried out on the Flüela and in the Val Sinestra. In both places, after protection had been established no more damage occurred, probably also because the bear had left the general area. On different Alps in the Canton of Grisons, which were situated in the area where bears were prowling, dogs were used to protect flocks this summer (e.g. Val Müstair, Alp Russenna). No killings were reported on these Alps.

It was not possible to implement flock protection in Alvaneu-Surava, because the flock was too small, there was no shepherd and there was no suitable place to keep the animals in the alpine area. These sheep were brought down into the valley.

In the S-charl valley a shepherd was present continuously from 2 July after the first appearance of damage. However, despite a visit and information evening at the Plantahof, sheep owners rejected flock protection.

Prevention measures for beehives and apiaries were carried out in the Val Müstair, near Susch and in the Lenzerheide area, mostly in the form of electric fences. This was done partly through a FOEN-WWF project and partly on a voluntary basis. Unfortunately some of these measures came too late.

Penetration into the Area of inhabited Buildings and Settlements

Until the middle of September, JJ3 (the less timid bear) stayed only a few times in the area of human habitations and huts in the alpine pastures, although it had learned this behaviour from its mother and had already shown this behaviour in the Trafoi valley and near Trepalle in the

Livigno. The bear mostly went through compost heaps or looked for food, using its front legs. Such uninvited visits were confirmed on the Flüela Hospice, the Alvaneuer pastures and Prosut and Bärenboden ob Filisur.

After “discovering” the Lenzerheide area, JJ3 soon learned to move amidst settlements and to make use of the sources of food that were freely available. During that period it was seen several times.

The extensive **use of harassment techniques** was brought into play directly after observation of the change in spatial behaviour and when the bear was getting food. In this way it was possible to get the bear to move back from the Lenzerheide area into the Albula valley. On 27 October the bear visited the rubbish bins in the commune of Surava.

Encounters with People

When JJ3 was wandering from Trafoi over the Flüela into the Albula valley, it was observed, photographed and filmed several times, even during the day. The bear actively avoided people or totally ignored them. Only in a few cases did it give the impression that a critical situation could develop. In two such cases in the area of the Alvaneuer alpine pastures warning shots were fired, causing the bear to flee immediately. Many of the observations were of an animal that was not shy, but not at all aggressive. After the actions to harass the bear another kind of behaviour was observed: it remained absolutely quiet under cover for a long time, even in immediate proximity to people.

Communications to the population emphasized again and again that the bear represented hardly any danger, but that critical situations were possible if through an unfortunate accident it was pushed into a narrow space.

The application of harassment techniques and the action to drive the bear away should have caused it to avoid human settlements and become more fearful of people should increase.

3. Capture and monitoring of JJ3 and the application of harassment techniques

Bear capture team

A special bear capture team had already been constituted in October 2005, which was trained to put monitoring into practice and for possibly capturing a bear.

Initially the training was carried out by two experts on bears: Paolo Molinari and Hans Roth, from 2007 mainly by Paolo Molinari. Further management procedures were developed mainly by “learning by doing”. As examples one could mention training for capture and immobilisation with the help of a helicopter, and the development of tactics for the application of harassment techniques to be as successful as possible.

Attempts at capture

Four attempts were made to capture the bear in three different places and during four different periods. The first three times, spring-activated bear snares (Aldrich system) were used near sheep that had been killed by the bear, and in targeted places where fruits and vegetables were placed. A total of 7 nights were spent on this. The bear never came back to the sites chosen for traps. However, the animal was observed again and again high up, above the forest boundary, sometimes over longer periods of time. So we had the idea of action with a helicopter i.e. immobilizing the bear using a narcosis gun fired from a helicopter. As the first step practice flights were carried out on Samedan airfield to test the procedure and its feasibility. As soon as the exercises had been finished, the operative phase began. It was not necessary to wait long for the opportunity, and on 12 August the bear was caught in one rapid, smooth action, drugged, fitted with an emitting collar and released.

Monitoring

The bear was monitored using a GSM/GPS system or by routine bearings from the ground (VHF System).

The collar was programmed so that the GPS registered the position every hour. Every eight hours, these positions were grouped together and sent to us by a mobile connection.

Theoretically, this would be 21 positions per day, but there were usually about a third of that number, because positions were only recorded when a minimum number of satellites could be reached. About 650 positions were recorded in this way.

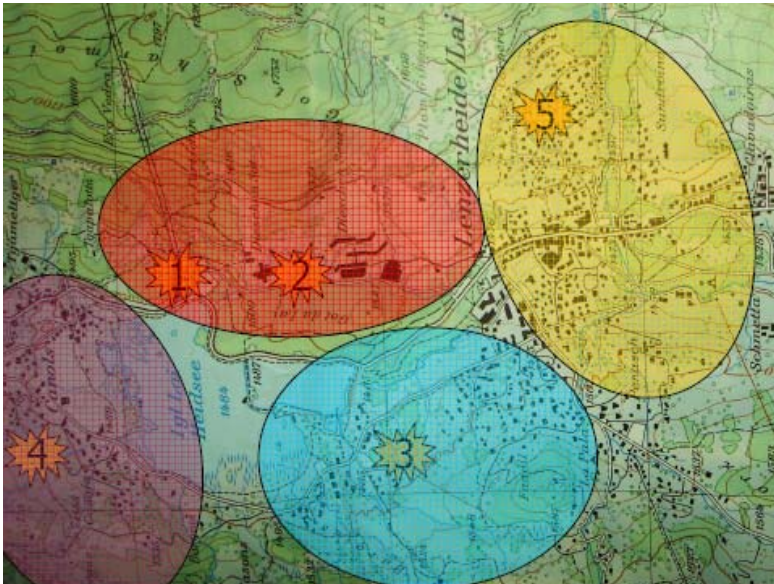
Using the system of VHS bearings, a further 200 bearings were taken. Thus, after the bear had been captured, it was always possible to keep a check on it and to find its current location relatively quickly, and within a fairly restricted area.

Application of harassment techniques (aversive conditioning)

The harassment actions were planned. Since it is known that the effectiveness of rubber shot alone is limited, we also employed Pseudart® petards. These can only be shot using a narcosis gun. They are loaded with gunpowder and explode when they fall on the animal. This action should be accompanied by a warning signal (ship's horn), so that the animal connects shooting with this noise, and can in future - if need be - be subjected to harassment techniques using this warning signal.

Our assessment of the results of the harassment actions carried out in Lenzerheide are:

- The first few times the bear was subjected to harassment it always fled, but soon went in search of the next rubbish bin.
- So far, JJ3 has never returned to a rubbish container where it was successfully subjected to harassment techniques. With an increasing number of harassment actions the bear developed a "red zone" which he did not visit again for a limited period of time (see figure below).
- The last harassment action, which took place on 21 October, on the first evening after the bear's return to the Lenzerheide area, when it came into a settlement area, combined with a successful hunt and action to drive the bear back into the Albula valley the next day were successful, at least for the present and for the Lenzerheide area.



The bear began successively to avoid the general area around places where it had been fired at with rubber shot or explosive devices, as shown in the adjacent figure.

The action to drive back the bear took place on the slopes of the Lenzerhorn. Thanks to snow, precise locations, radio connections and staff able to go in the mountains, this action was successful and there were no accidents.

Nevertheless, the success of the harassment actions have to be assessed critically. Although there was a local effect on JJ3 as regards certain rubbish containers, it is obvious that JJ3 did not learn the principle of avoiding settlements! On 20 October, after the temporary success of the first actions, the bear tried again to go into the settlement of Lenzerheide. Despite renewed harassment actions, on 27 October the bear again visited a settlement, this time Surava. Obviously, carrying out such actions requires considerable resources. On a total of 11 nights, in each case with 4 or 5 gamekeepers, it was possible to fire successfully 6 times, thanks to the

bearings sent by the bear. In practice it is difficult to apply harassment techniques as a re-education measure. During the period of time when the 6 actions to apply harassment techniques were carried out, the bear carried out at least twice that number of successful raids on rubbish containers or rubbish bags.

In the case of JJ3, which as a cub was frequently taken by Jurka to get food in settlements, the bear has a bad habit, which it has obviously not yet been possible to correct.

4. Staff involved

The Hunting and Fisheries Agency of the Canton of Grisons (AJF) has shown great commitment to the monitoring and management of bears in the canton. 20 full-time gamekeepers, 40 part-time game wardens, a wildlife biologist and a veterinarian have extended their considerable technical knowledge and abilities in the area of wildlife to the bear sector. Without the presence of professional gamekeepers throughout the Canton of Grisons, it would not have been possible to take care of the bears, not to mention the population, in such a way. Over recent months, 2,350 hours were spent on the monitoring and care of the bears and the population in this regard. In addition there are the hours spent by experts and field assistants. A considerable part of the effort was spent on informing the population and working with the media.

The Italian wildlife biologist and specialist in large game carnivores, Paolo Molinara from Tarvisio, was our technical advisor. From September the FOEN sent Mario Theus, ETH forestry engineer to work with him as field assistant.

The AJF has achieved an important objective. Thanks to the intensive care, to JJ3's emitter and not least of all as a result of JJ3's lack of shyness it has been possible for us to gain plenty of practical experience and to develop various procedures. This is an important investment in order to tackle tasks in the future. However, this work also showed that even a well-trained team and personnel who can go across country must have the best equipment. In such cases radio equipment, night monitors, suitable weapons with telescopic sights and spotlights must all be available.

We also succeeded in showing the population that the gamekeepers do a professional job, even in the presence of bears and that they show great commitment to the population.