



LIFE Population level management and
DINALP conservation of brown bears in northern
BEAR Dinaric Mountains and the Alps



PROPER USE AND OPERATION OF THE BEAR-PROOF GARBAGE CANS AND COMPOST BINS IN THE MUNICIPALITY OF KOSTEL – TECHNICAL REPORT

Action C.1: Conflict mitigation in the hot-spot areas – organic waste

August, 2018


**ZAVOD za GOZDOVE
SLOVENIJE**
Slovenia Forest Service

Univerza v Ljubljani





Prepared by:

Vesna Oražem, Matija Stergar

1. Introduction

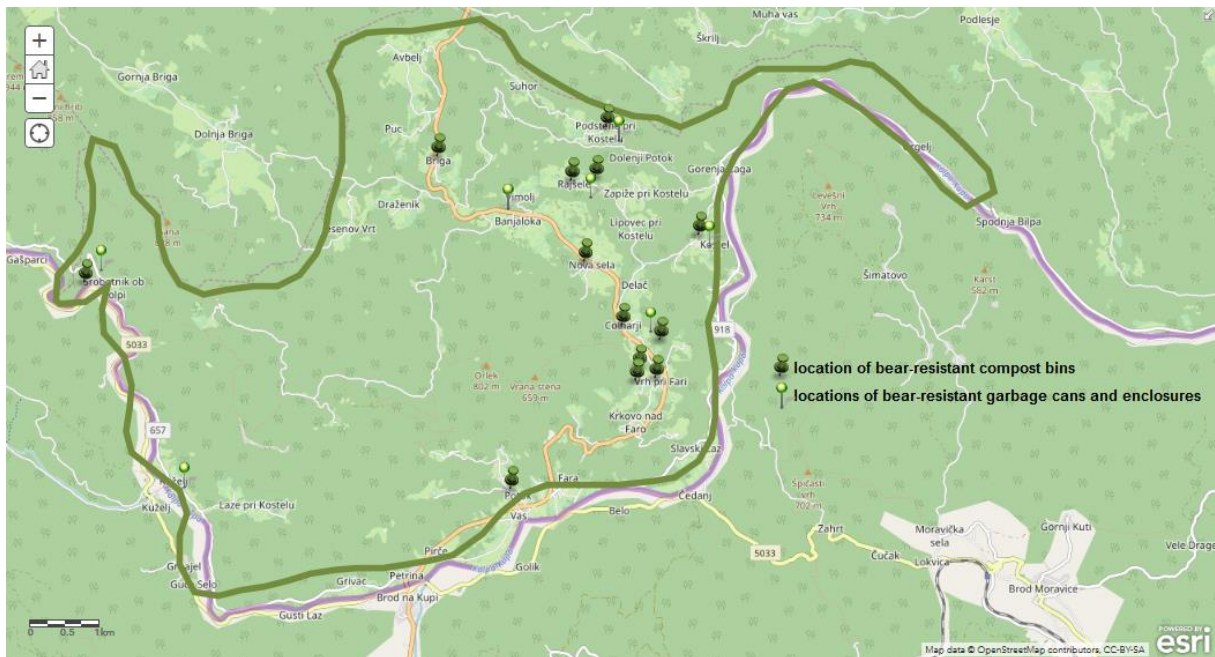
Locations in the municipality of Kostel (see map 1) are part of wider Kočevsko area, where bears are constantly present. Even if these locations represent the widest »hot-spot« area, the municipality of Kostel is a small community, with only about 600 inhabitants. For that reason, we managed to comprehensively capture the most critical points within the municipality with our prevention measure implementation. On some locations, bears come in the immediate vicinity of the houses. In those locations, prevention measures, such as bear-proof garbage cans and compost bins, were implemented. All of the prevention measures were planned and implemented in close collaboration between the LIFE DINALP BEAR project, municipality of Kostel and waste management company of Kočevje. At this location, we managed to establish a case study example of good cooperation between different stakeholders. However, we would not be able succeed in our work without the support and acceptance of local residents. Furthermore, their great measure acceptance also reflects in proper use.



Map 1: The location of the municipality of Kostel in Slovenia (in green).

2. Description of implemented measures on the »hot-spot«

Prevention measures were implemented on several locations (see map 2). On this area, 15 bear-proof housings, 46 small garbage cans and 25 compost bins were distributed. With close collaboration with the municipality of Kostel and Slovenia Forest Service local employees we detected most critical locations, researched the most suitable prevention measures (e.g. waste management) for certain location and implemented the prevention measures accordingly.



Map 2: Locations of implemented measures in the »hot-spot«.

3. State of implemented measures on different locations

3.1 Bear-proof garbage cans and housings

3.1.1 Podstane pri Kostelu

All houses in the village get two individual garbage cans, for municipal waste and packaging. Altogether we distributed twenty individual garbage cans. The condition of the garbage bins is impeccable, as they are undamaged, the bolts are working properly. The use of garbage cans is consistent; all garbage cans are properly sealed. To further protect it, one of the users attached the garbage can with the rope to the trunk of the tree (figure 2), which proves that residents are aware of the importance of the implemented measure and their inventiveness. During the control visits we find out that no garbage can was overturned (figure 3). When the individual bear-proof garbage cans were implemented, the local inhabitants reported few occasions, when a bear overturned the garbage cans. In spite of the constant presence of bears and the amount of distributed garbage cans, until now only, only one garbage can was broken (figure 4). This is far above our expectations, based on experience in the Autonomous Province of Trento, where the garbage cans were adjusted in a similar way. It can be concluded that the bears considerably less frequently unload the garbage, since there is no



Figure 1: Individual »bear-proof« garbage can for the waste packaging collection.

food "reward" available. On several occasions, bear scats (figure 5) were found in the vicinity, which points to the bear presence, relatively close to the village. Regardless, locals report less bear encounters near the houses than before the prevention measure implementation.



Figure 2: Garbage cans, attached to the tree



Figure 3: Common location for individual »bear-proof« garbage cans near houses.



Figure 4: Broken cover of individual garbage can.



Figure 5: Bear scat, founded in immediate vicinity of the village

3.1.2 Banja Loka

On the location in the immediate vicinity of the regional road Kočevje-Petrina, three bear-proof housings for large (~ 1000 litre) containers were set up: for collection of waste paper, packaging and glass (figure 6). Operation of all enclosures is flawless (figure 7). We only found minor irregularities:

- a) **inconsistent use:** cover pin was not pushed to the left (only partially closed) (figure 8), but the cover did not open at all. Inconsistent closing of the pin was in this case therefore not problematic from the point of view of bear accessing to the contents of the garbage. We talked with the local population about the irregularity in use, warned them about the importance of using the housings properly. Since then, there is significantly less inconsistency in the use.



Figure 6: “Bear-proof” garbage housings for large (~ 1000 litre) containers.



Figure 7: Covers of the garbage containers are properly attached to the cover of the housing – they open simultaneously.



Figure 8: Cover pin was only partially closed.

3.1.3 Rajšele

Also at this location, all twenty-two houses are equipped with individual garbage cans (figures 9-13). During control visits, we did not notice any special features in the use and proper operation of the garbage cans. All covers are closed correctly. Before the implementation of the measures, garbage cans were unloaded by bears accessed repeatedly. Now the bear-proof garbage cans are intact. Some of the recipient close garbage cans into the interior spaces, because they do not permanently live in the village and want to protect them additionally. Since we cooperate, recipients are even more attentive to the proper use and even additional protection, what demonstrates the awareness of the implemented measure importance and the effectiveness of our efforts to raise the awareness.



Figure 9: Individual “bear-proof” garbage cans.



Figure 10: Individual “bear-proof” garbage cans.



Figure 11: Individual “bear-proof” garbage cans.



Figure 12: individual “bear-proof” garbage cans.



Figure 13: individual “bear-proof” garbage cans.

3.1.4 Selo pri Kostelu

At the intersection pointing towards Rajšele, Selo and Zapuže pri Kostelu, there are two bear-proof enclosures for collective garbage cans (packaging and municipal waste) set up along the road. The operation of the enclosures is flawless (figure 14). We noted minor irregularities in the use:

- a) **inconsistent use:** only one of the cover pins was not properly locked (figure 15). Nevertheless, cover did not open.

Note: besides two “bear-proof” garbage housings for large (~ 1000 litre) containers there is also one additional individual garbage can for waste packaging collection (figure 16) from a nearby farm. This solution did not seem appropriate because the garbage cans near the houses are protected better. We warned the owners and inform them about the importance of the implemented measure location additionally. Afterwards they agreed and moved the trash back to the house.



Figure 14: flawless operation of “bear-proof “ housings.



Figure 15: cover pin in not properly locked.



Figure 16: Additional individual garbage can on the location.

3.1.5 Kostel

At the nearest vicinity of the castle Kostel (Figure 17), two “bear-proof” garbage housings for large (~ 1000 litre) containers are located. They are intended for the protection of collective garbage cans, for the collection of mixed packaging and mixed municipal waste. During control visits we find no irregularities in the operation and also use of the enclosures (Figures 18 and 19).



Figure 17: “bear-proof” garbage housings for large (~ 1000 litre) containers location.



Figure 18: proper operation of the “bear-proof” housings.

Figure 19: covers of the garbage cans are properly attached to the cover of the housing – they open simultaneously.

3.1.6 Dren

Three garbage can enclosures for common collection of mixed packaging, paper and glass, are located right next to the regional road Kočevje-Petrina (Figure 20). During control visits we did not notice any operation irregularities, but we find some in use:

- a) **inconsistent use:** the garbage can for packaging collection is not emptied (figure 22) During the tourist season (July, August), it was noticed that the one of the containers is overloaded and therefore cannot be closed (hence no longer bear-proof). It even happened that the rubbish was deposited next to the housing (figure 21). We discussed with the representatives of the municipality of Kostel and the the waste management company of Kočevje, and together decided that in the coming years, during the tourist season, more frequent waste removal would be organized at these locations.



Figure 20: “Bear-proof” garbage housings for large (~ 1000 litre) containers are located right next to the regional road Kočevje-Petrina.

Since the communal company of Kočevje regularly removes disposed waste from all locations for waste, it can be concluded that larger quantities of packaging waste are contributed by tourists who go to the border crossing point Petrina and continue their journey to Croatia. Since the garbage cans are located right next to the regional road Kočevje-Petrina, they are very convenient for the waste disposal.



Figure 21: bottles are placed in a PVC box right next to the glass garbage can enclosure.

3.1.7 Kuželj

In the settlement Kuželj three “bear-proof” garbage housings for large (~ 1000 litre) containers for various waste were set up (figure 22). Operation and use are found to be flawless (figure 23). During the control visits, we noticed any irregularity in operation and use.



Figure 22: “bear-proof” garbage housings placed in the settlement.



Figure 23: covers of the garbage containers are properly attached to the cover of the housing – they open simultaneously.

3.1.8 Srobotnik ob Kolpi



Slika 24: Location of two “bear-proof” garbage housings for large (~ 1000 litre) containers.

The operation of the garbage cans enclosures (figure 25) as well as the individual garbage cans (figure 27) is without irregularities. Also use is proper and with no noticed failures.

On this location we placed two bear-proof garbage can enclosure for mixed packaging and mixed municipal waste (figure 24). On two locations, dislocated houses, we distributed two individual garbage cans for mixed packaging and two for mixed municipal waste (figure 26). One of the recipients close garbage cans into the interior spaces, because he does not permanently live in the village and want to protect them additionally. With the constant effort to raise awareness among local inhabitants, we contributed to this effective practice.



Figure 25: Flawless operation of “bear-proof” garbage housings for large (~ 1000 litre) containers.



Figure 26: Dislocated house with two individual “bear-proof” garbage cans.



Figure 27: Individual garbage cans are operating flawlessly. The sticker with LIFE and NATURA 2000 logotypes and LIFE DINALP BEAR project acronym is placed on each individual garbage can to inform of its “bear-proofness”.

3.2 Bear-proof compost bins

In the municipality of Kostel, the bear-proof compost bins were distributed to the local inhabitants who have the most numerous conflict situations with bears. The general the compost bins are operating good. Also their use is consistent in general (figure 28-29).



Figure 28 and 29: In general, compost bins are operating flawlessly.



Figure 30, 31 and 32: Satisfied owners of the “bear-proof” compost bins.

During our control visits we only noticed some smaller irregularities:

- a) **technical irregularity:** in some cases, during the winter-time, the cover lid become rusted.
- b) **inconsistent use:** in one case, the compost bin was not closed correctly.

In winter time, water retention appears in the cover lid. Consequently, cover lid begins to rust. If properly maintained (e.g. covered by anti-rusting agents), the cover lid will not rust. Together with the owners, we found that these deficiencies were due to insufficient maintenance and we talked about better maintenance in the future. Three of the compost bin owners, who did not cover the lid with rust-prevention agents in advance, must remediate the rusting. We helped them with advice, which we get from other compost bin owners, as an example of good practice: to dip the cover lid into the oil, clean it thoroughly, and afterwards cover it with anti-rusting agents. In that case, the cover lid is operating flawlessly again. Now all of the compost bin owners maintain it in appropriate condition.

During our last control visit, one of the owners' compost bin was overloaded and therefore not closed properly. We discussed about the importance of consistent use of the compost bin, to prevent every opportunity of bears to access the contains. He realized the importance of important use and partly emptied the compost bin in the same day. In contrast to the bear-proof garbage cans and garbage housings, the compost bins are owned by the citizens, who are therefore obliged to maintain them by themselves. This enables us to communicate with the owners individually (figure 30-32) and raise people's awareness.

4. Overall measures condition and implications for further usage

4.1 Bear-proof garbage cans and housings

At all locations in the municipality of Kostel, the implemented measures do not cause any irregularity in operation. We are pleased that both, individual garbage cans and garbage housings are working well after the first winter, despite the fact that this is a new measure that we implemented for the first time.

Only a few irregularities were detected in use. The overfilled garbage can for mixed packaging collection and installed bottles along the garbage can enclosure for glass collection were documented at the location in Dren. Since there are no problems with waste disposal in other locations, we conclude that tourists who travel to Croatia also contribute to the increased amount of waste. Observations were handed to the waste management company of Kočevje, who is responsible for waste removal.

4.2 Bear-proof compost bins

The overall good operation of the bear-resistant compost bins, with exception of some cover lid rusting, which is being remediated, is very good. Since the bear encounter in the immediate vicinity of the houses reduced to a minimum, the owners rated the prevention measure as a very successful. With exception of one case of inconsistent use, we found our face-to-face work with the compost owners as a very prosperous. In addition to our efforts to raise every local inhabitant's awareness, one of the compost bin is installed on the municipality of Kostel's property, where it is visible to everyone. Furthermore, everyone interested can learn about its purpose. In addition to the bear-proof garbage cans, this prevention measure is in this »hot-spot« well accepted and proven to work.