



Example of HEC Countermeasures in the forest area in the Republic of Congo, Central Africa - Installation of defensive fence using waste oil and chili pepper

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Japan Wildlife Conservation Society (JWCS) <https://www.jwcs.org/en/work/community/>

JWCS, in addition to information dissemination and educational activities in the consumer country Japan, also provides support in habitat areas, based on the belief that the stability of local communities leads to wildlife conservation.



Introduction

Around 2017, forest elephants started destroying fields in Mbomo village, where the base of Odzala-Kokoua National Park in the northern part of the Republic of Congo is located. Over the past three years, Mbomo Village, with a population of about 5,000, and the surrounding villages on the boundary of the national park have been facing a serious shortage of cassava, their staple food.

Odzala-Kokoua National Park, which is jointly managed by the Congolese government and African Parks, had not taken effective measures to address the problem of crop raiding for several years, but this year it was decided to surround the village of Mbomo with a 20 km electric fence. The installation is underway as of November 2022.

Since 2021, JWCS has been providing emergency support to local residents suffering from food shortages and poverty by setting up defensive fences using waste oil and chili peppers in villagers' fields, and cultivating a project field to provide food to villagers. (Funded by the Japan Foundation for the Global Environment). Our experience is presented here as an example of HEC's crop damage prevention measures in Central Africa.

Preparation

- 1. Recycled bed sheets** Buy an intermediate-grade pack of used sheets (40 kg) sold in the capital city of Brazzaville (75,000-80,000F). (Lower grade sheets are too damaged and won't last long. Choose cotton, which keeps smells longer, not nylon or synthetic fibers.) Cut into strips about 30 cm wide. Sheets are generally 2 meters long, so to make field work quicker, prepare a piece of cloth about 40 meters long by sewing 20 pieces together. One pack of used sheets can make fences of a distance of about 1 kilometer.
- 2. Chili pepper** Poke and crush fresh fruits. Dried ones have no odor and are ineffective. If they are fresh, the smell of decomposition over time makes them more effective.
- 3. Waste of engine oil** Purchase in 25-liter tanks at the town's car oil change station. One tank containing 25 liters can be used for the fence of about 200 meters.
- 4. Equipment** Machete, gloves, buckets, work clothes, boots

Work procedure

- If the field is surrounded by forests or is in contact with forests, clear the boundaries by weeding about 2 meters wide if possible.
- Cut out a large number of medium trees for stakes of about 2.5 meters high. The stakes should be set deep enough into the ground to prevent them from being fallen down by the wind.
- Put waste oil and chili peppers in a bucket, dip a sheet in it, and tie it around a stake about 150 to 160 cm high. The height will not enable elephants to enter without touching it.

Example of HEC Countermeasures in the forest area

- Squeeze the waste oil well. Oil falling to the ground is ineffective just by its smell.
- Appropriate amount of chili pepper should be put in waste oil. The smell of the oil is stronger, but it should be clearly different from the oil without chili pepper.
- If the area is partially open, elephants can enter through it, so the entire area must be surrounded. If the field is large, it is better to divide it into sections.



Cassava harvested in a project field protected from elephants by a defensive fence for one year.

Maintenance

- During the rainy season when rain and strong sunlight continue, the odor is quickly lost from the fabric, so it is necessary to reapply when the odor fades.
- Every two to three days, make a round to see if the cloth is cut, if the stakes have fallen down, and if the fence is covered with weeds.
- Even if an elephant knocks down the fence and enters, do not leave it and continue to repair the spot.
- As a result of a one-year experiment, if the cloth was solid, it lasted for one year, and the smell was reapplied twice after installation until the harvest.

Cost

Example of a field of 1 hectare (100 x 100 meters), namely 400 meters long

Sheets (including cut and sawing cost) 40,000FCFA (\$60), waste oil 10,000F (\$15), chili pepper 3,000F (\$4.5), labor cost 3 people x 2 days = 24,000F (\$36): Total 53,000F/ha (\$80/ha).

Equipment: approximately 40,000 F (\$60).

Transportation of materials, and transportation to the fields are necessary. (In the case of Mbomo, commercial trucks are used from the capital, and motorcycles are used to reach the fields.)

Result

The fields with daily elephant infestations showed a clearly effective response, with elephants avoiding the fences, but as they continue to approach to enter, it requires intensive maintenance. On the other hand, in low-risk fields, it can provide farmers with peace of mind as a defensive measure.

It is important that the farmers themselves are motivated to practice this. When farmers hired workers for night watch, maintenance was not done properly, but when farmers themselves were engaged in protection of fields, the fences were maintained. In addition, when installing the fence, farmers should work together, for example, helping to cut out the stakes.

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Advantages	Disadvantages
<ul style="list-style-type: none"> • It is cheaper than electric fence and beehive method. • Easy to install and remove, suitable for mobile slash-and-burn farming. • Once installed, it is only necessary to look around, and maintenance does not require a lot of labor. • There is no need to keep night watch in fields where elephants approach less 	<ul style="list-style-type: none"> • Since materials must be purchased in the capital, it is difficult for individual farmers to practice by themselves. (Stakes can be cut from adjacent forests. Large amounts of chili peppers are difficult to obtain locally.) Support from the authorities is required. • Depending on the quality of the cloth, it may be easily cut. (There is no uniformity of cloth. If we use other materials with resistance, the cost will increase.)