Scientific committee for the specific action plan in favor of the hamster in Alsace

1st February 2013 – Conference call

Present:

Members of the committee:

Jean-François Cosson, Christiane Denys, Patrick Giraudoux, Maurice La Haye, Gerard Müskens, Tobias Erik Reiners, Ulrich Weinhold

DREAL Alsace :

Cécile Bouquier, Clotilde Herbillon

ONCFS:

Julien Eidenschenk

Excused:

Veronique Verbist, Pierre Migot

Opinion on the French Restocking Strategy

1) Summary presented by ONCFS

The aim of this committee was to collect the members' opinion about a new restocking strategy elaborated by the ONCFS for the period 2013-2017.

The aim of the ONCFS within the French national action plan 2012-2016 is to develop a restocking strategy able to help restore the 3 last Alsatian populations (over 9,000 ha of strictly protected area). This challenge can be addressed thanks to 2 improvements:
• productive breeding units able to deliver each year 500-600 healthy animals (based on a new breeding scheme adapted from the Netherlands)
• improved release protocol to reduce predation and mortality based on agreements with farmers ensuring the stability of the release site vegetation cover over 4 to 5 ha during 3 years in a row of unharvested wheat .

The next years could be devoted to the implementation of this new restocking strategy and also, to a field study intending to define the conditions helping create source populations within the release sites.

The questions to the scientific committee members are the following:

• Is the process leading to the French restocking strategy 2012-2016, based on various criteria (wild populations structure, genetics, fragmentation), relevant?

• Is it possible to restock populations during several years via hamster dispersal around the release plots, without additional restocking after the first year?
• Are the chosen indicators (survival, reproduction, population dispersal) relevant to assess the efficiency of the new protocol with regard to population persistence?

The piece of advice and discussions from the scientific committee members will help the ONCFS write the final application for ministerial authorizations for the release and monitoring operations which should be submitted in early 2013.

2) Preliminary remarks

This project is consistent and based on a very good approach already validated by a scientific publication. It is a very challenging project. However, it still has risk to fail, because there are a lot of other factors that can impact hamsters populations. The project is very large, so it will be difficult to conduct it all.

It is best to start with an ambitious goal, and adapt according to conditions. The major concern will be about what happens to the release sites after the 3 years of unharvested wheat have passed. If the environmental conditions drop dramatically, the new hamster populations could sink very quickly.
A release site of 4 to 5 ha is the minimum for a field to release hamsters. Successful establishment of a population requires at least 25 ha of hamster-friendly management in the first year, 50 ha in the second year and a further increase to 100-150 ha in the following years. After three years it should be possible to explore the possibilities of crop rotation, although harvest restrictions will be necessary to preserve the hamster population. As is it also important to have enough support of the farming community, it can be temporarily acceptable that less hectares are available, but one should keep in mind that it will decrease the chance of a successful reinforcement. On the short term it is very important to start with undercover vegetation in cerealfields (clover), late wheat varieties and/or intercultures (radish, mustard) direct after harvest.

3) Recommendations

The committee suggests monitoring the juveniles, especially their growth rate which would enable to estimate if they are able to reproduce the year when they are born.

It recommends to collect DNA samples (from each captive bred individuals and their offspring in the wild as well as any other animal handled) for further genetic analysis. Even if it is not decided whether or not there will be a new genetic analysis, it is costless to collect them in the field. If later the need of a study appears, the samples will already be available.

The use of automatic telemetry system to monitor hamster dispersal (receivers positioned on field corners and able to do automatically triangulation) was evoqued and debated. Such an approach should be though considering also cost effectiveness in term of equipment and data analysis
Standard radiotracking in the field is still the most cost effective way of getting reliable data (If the hamster is on the burrow it is registrated, if it leaves the burrow for more then about 10-20 meters there will be no registration; such system with a receiver and a datalogger works properly and can give additional information of the use of the burrow and the moments of leaving), and the money would be more useful to improve the hamster-friendly agricultural management.

So far, no studies concerning wild population dynamics have been implemented in France. The committee insists on the importance of knowing the population dynamics of French wild populations. The existing hamster population in the Netherlands results from the introduction of captive bred hamsters. As France still has the chance to have wild populations, it would be very valuable to get information about the dynamic of these populations. 2 or 3 years' monitoring (capture mark recapture with radiotracking) would be enough to get this type of information. It will then be useful to have these results in order to compare the crop effect between the released .hamsters and the wild hamsters. See also La Haye & Weinholds' report (annexe 1). On those bases, the committee urgently advises to allow trapping and monitoring of original wild hamsters in all remaining wild populations in 2013- 2016. action plan.

Regarding the size of the release sites, the committee suggests keeping some flexibility in the choice of the sites. At least 20-25 individuals must be released on each plot. The larger the restocking areas are the lesser predation pressure is likely to be.

The committee points out the need to tell the farmers not to change the way they cultivate wheat. The goal is to maintain a good vegetation cover when farmers are asked to cultivate and unharvest wheat 3 years in a row. When farmers know that their wheat will not be harvested they tend to change agricultural practices (less fertilizer, lower seed density, less herbicides). This results in a worse protection for hamsters. In this context it is important to change the type of cereal from year to year: wheat – barley - wheat or another kind of cereal. This is normal agricultural practice to avoid fungus diseases which, from experience, does not make problem for hamsters or other cereal types.

The committee also advises to add 5 stripes of unharvested wheat of 0.2 ha each on a maximum distance of 400 meter of the release plot.

The committee has a concern about whether the ONCFS has enough manpower to complete this ambitious program, and the corresponding analyses. The committee suggests that ONCFS complete his document by detailing the human resources actually needed in order to point out and anticipate the possible consequences if not enough human and financial means are obtained.

In the restocking strategy for 2013-2016 it is stated that hamster will be trapped during the night and released in their original burrow the following night. It seems to be too strict. Most hamsters are active in the hours around sunset. Subsequently, trapping in the evening or night can be minimized. It is better to release hamsters during day-light as hamsters are active in the night. Release during day-light will ‘force’ hamsters to stay in their burrow and acclimatize. Occupancy of the burrow by other hamsters should be prevented by closing the known entrances with a piece of crop (or hay or whatsoever available).

It seems that in the restocking strategy of 2013-2016 the monitoring of original wild populations is underestimated or not implemented. It is very important that wild and reintroduced populations are monitored directly after harvest (in July and August). That means a lot of work in these weeks: all farmers start their harvest at the same time. One field researcher is likely not enough to cover the whole area.

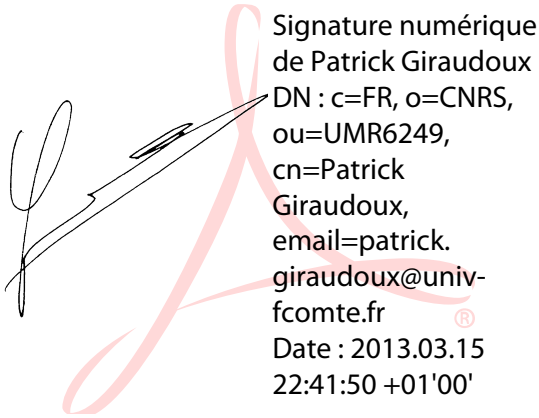
A second check of all found burrows in September is informative, but less important. 'Activity' checking can be done by looking for signs of activity (fresh signs of digging, etc.) and it seems ‘over the top’ to use the ‘Gorecki’-method, as it needs 2 visits shortly after one other. It is better to

follow more hamsters with a transmitter and regularly record their signs of activity above the ground.

4) Discussion on the further meetings of the committee

This conference call took place after an unsuccessful attempt to organize a video-conference. This conference call did work acceptably, but is quite limiting regarding exchange quality (no shared documents, non-verbal communication, etc.) and is not ideal for complex issues. A conference cannot replace entirely a normal meeting or a video-conference. A real meeting (or a video-conference technically prepared) will then also take place once a year. The next one could be organized in autumn 2013. The DREAL is in charge of organizing a consultation to choose a date. A meeting of the Scientific committee during the annual meeting of the International Hamster Workgroup seems the most efficient. Otherwise it is better to have a Meeting of the Committee in spring as two international different meetings in Autumn is too much.

The President,



Patrick GIRAUDOUX

ANNEXE I

Why it is important to trap and monitor wild hamsters in Alsace

By Maurice La Haye & Dr. Ulrich Weinhold

The common or European hamster is endangered in Alsace as it is in many other European countries. Fortunately the French government has planned a conservation management plan for the period of 2013 till 2016, including research and monitoring activities.

France is not the only country taking conservation measures and planning research, however, it is the only country not trapping and monitoring hamsters of the original wild population. Wild hamsters of the original wild population in this case mean individuals from a population that has not been restored (or is influenced) through a reintroduction or restocking. So far, it is only allowed to use (implant) transmitters to monitor released captive-bred hamsters and/or their off-spring, the main argument being the 'fragile status' of original wild populations. This decision, taken by the French government, is controversial among the members of the Scientific Committee for several reasons.

1) Has implantation of transmitters a negative effect on the fragile status of wild populations?
It is without doubt that the wild populations of Hamsters are highly endangered in France and many other countries in Europe. The reasons are diverse and difficult to halt, as this species lives in agricultural landscapes, but none of the populations are endangered as a result of research or monitoring activities. Research projects in the Netherlands and Germany have provided very good data on the ecology (Weinhold 1998a, Kayser 2002, Kupfernagel 2007, Kuiters et al. 2010) and also on mortality rates of European hamsters, which show that most hamsters do not survive longer than one year in the wild, although females have a better survival with ca. 30% on a yearly basis than males with a one-year survival of 10% (Kuiters et al. 2007; La Haye et al. in prep) . Predation is the main reason of mortality in all studies (e . g. Kayser et al. 2003). Radio-telemetry as a remote method to study animal behaviour and movements has been established already in the 1970s (Amlaner C. J. & MacDonald D. W. 1980). Since then various studies on all kinds of wild species have been carried out and standards have been set (Kenward 1987; Harris et al 1990). Studies looking at the effects of radio transmitter tags on survival of the species of research are available for various species (Amlaner et al. 1979; Garrot et al. 1985; Gilmer et al. 1974; Greenwood & Sargeant 1973; Hines & Zwickel 1985; Leuze 1980, Weinhold 1998b). Would Radio-telemetry have had a negative impact on wild and endangered species in general, this method wouldn't be common practise nowadays.

A good study in New Zealand, where different types of transmitters were tested on rats (Theuerkauf et al. 2007) advised to use transmitters weighing less than 4% of body weight of the species of concern. In hamsters that will general mean a transmitter weight of less than 8 grams (with the assumption of a minimum weight of 200 grams for a hamster to get a transmitter). Transmitters used in 2011 (Villemey et al. 2013; Capber 2011) had a weight of 6.5 grams, which is below the maximum of 8 grams. Therefore, it is reasonable to expect that implantation of a transmitter has no effect on survival. In the Netherlands three implantations of a transmitter in 454 wild-trapped hamsters were suspected or could directly have attributed to mortality of the hamster, which is 0,6% off all wild-born hamsters equipped with an implant transmitter. This extra mortality is marginal compared to normal monthly mortality rates of between 3% in January till 18% in July-August. This extra mortality is of no influence on population persistence or whatsoever.

Conclusion 1: implantation of a transmitter has no effect on population persistence.

Hence, not monitoring hamsters of original wild born populations results in several problems in how survival of released captive-bred hamsters and their off-spring in the wild should be interpreted.

2) Differences in survival between captive-bred hamsters and their off-spring versus wild born individuals?
It is expected that survival of captive-bred hamsters is lower directly after release compared to their wild-born counterparts. This is probably a result of the hostile environment and the inexperience of captive-bred hamsters to cope with dangerous situations in the wild (wrong or no predator avoidance behaviour and/or the incapability of finding food and shelter). By comparing survival rates of captive-bred hamsters with wild-born hamsters it is possible to get an idea how long it takes for a hamster to adapt to wild environmental conditions (in other words which time elapses until survival rates of released hamsters are the same as of wild ones). In the Netherlands preliminary results indicate an adaptation time of 17 days in captive-bred females and 27 days in captive-bred males. Comparison of survival strategies of captive-bred individuals with wild-born hamsters is therefore essential and may help to improve release and conservation protocols. It is preferable to use survival of original wild hamsters, as even wild-born off-spring of captive-bred hamsters may show unknown or other behaviour than original wild born individuals. France has the luxurious position that it still has a wild population of hamsters and does not solely have to depend on reintroduced individuals and their off-spring.

3) Monitoring wild born hamsters is also highly necessary to collect information on population decline (or minimum viable population densities) in some regions. Although it seems that the main reasons for the decline are known, there is still a lack of studies on (declining) hamster populations to measure population parameters like survival, number of litters, litter size, etc. in 'undisturbed' situations. This information is of eminent importance to design effective conservation measures. In areas with a reintroduced population it is not possible to measure these population parameters, as strict conservation measures (and electric fences) are needed to establish a population in the first place and will influence survival of captive-bred and their off-spring.

Understanding the population dynamics of wild hamster populations is beneficial for the success of the re-introduction project and may even lead to new solutions for the conservation of this species.

The Hamster Committee urgently advise to allow trapping and monitoring of original wild hamsters in all remaining wild populations in the period 2013 till 2016.

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