

## Hamsters and Camera

### *Use of a camera for collecting biological data about number of litters and the gain of weight of young in the first two months*

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#### Introduction

Trapping wild hamsters (*Cricetus cricetus*) to collect data on the presence of a litter, the number of young and the increase in weight of the young is a very time intensive activity, which can cause much disturbance. In 2010 a pilot study was conducted using a new developed camera-trap. With the help of this camera-trap, which is triggered by a certain minimum weight, it was possible to make short videos or photos of the animal in the trap, including a registration of its weight. The camera worked for at least a week (up to a month) without extra controls. Anecdotic data of weight-increase from young hamsters differ widely from each other, especially weight data from captive-bred hamsters compared with wild-born hamster (LA HAYE & MÜSKENS 2004). This tool can be very useful to collect data in the field without disturbing the hamsters.

#### Method

The camera-system consisted of a watertight casing of 30x20x20 cm holding a video- or a photo-camera and an interface for the operating and the data-registration. The images were stored on a memory-card and the recorded weights on a memory-stick both with date and time. Both systems were synchronized so it was possible to trace which animal had been weighted at a given time. The weight-sensor was flexible and could be placed at a selected spot in or around the casing.

For weighing the hamsters a rectangular box of about 50x15x10 cm was used in which halfway a weight-board tube had been fit, with at the end (before the lense of the camera) a small compartment for bait fodder. In this pilot the minimum registered weight was adjusted at 30 gram, the time recording of the video at 30 seconds and the weighing-moments each second.



Figure 1. Camera-installation near an inhabited hamster-burrow

#### Results

The camera-trap was placed at several occupied hamster-burrows. Adult hamsters usually came within a few hours in the closed tube to eat the bait-fodder. When all the food was eaten, the young –if present- in their turn inspected the tube thoroughly. Once accustomed the inside was frequently used by the young for playing.

The data of one particular burrow have been worked out for the period of 14 august 2010 until 8 september 2010, concerning a two-year old female which could be tracked with the help of an implanted transmitter. She had been released in the field on 11 june 2010 as part of a reintroduction program (KUITERS et al. 2010). This female has raised at least 3 young in two litters each, because all young together were seen on videos and weighted (fig. 2).



Figure 2. On the left image the female is visible with 3 young of her second litter, on the right picture young from two different litters are visible; both images have been taken within half an

hour. This is the first evidence for the presence of multiple litters at the same burrow on the same moment.

By retracting the weight of the young hamster (of the first litter) on 13 august 2010, it was possible to establish the date of birth in the first week of July (HARPENSLAGER 2009). The young of the second litter were approximately 15-20 days old on 14 august 2010. This means that the second litter must have been born near 30 July, which indicates a post-partum oestrus (FRANCESCHINI-ZINK & MILLESI 2008). The age estimates of the second litter young was made by experienced persons working with hamsters in captivity. In figure 3 the growth of the young of the second litter is shown for three consecutive dates. From left to right the age is 15-20, 23-28,- 32-37 days respectively.



Figure 3. Images of young hamsters from the same litter in a period of 2.5 weeks, made on 14, 22 and 31 August 2010

Figure 4 shows the gain in weight of the second litter young. The average weight-accumulation is 10.8, 9.4 and 8.4 grams a day respectively. On the first weight-date only one young had been weighed but it is supposed that all three young of the litter had approximately the same weight on day 20 of their life (confirmed by data from hamsters in captivity). The young of the first litter had a similar increase of weight.

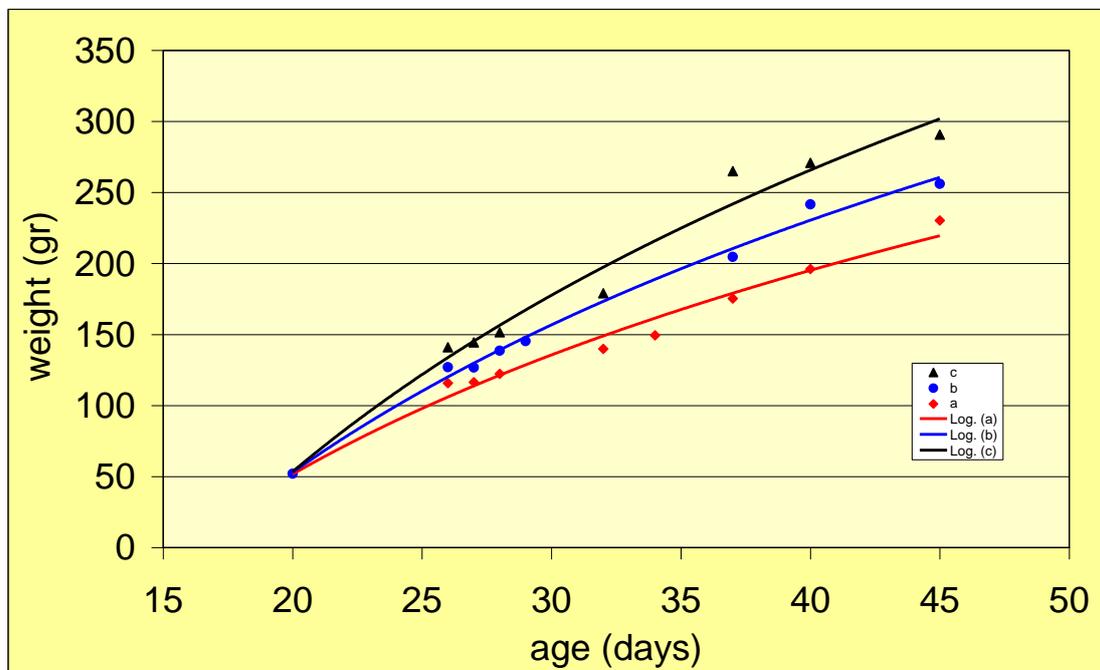


Figure 4. The weights of the three young of the second litter between their third and seventh week of life.

Furthermore it was obvious that the young of the first litter were frequently seen together with the young of the second litter. This lasted at least for one young of the first litter until the first week of September.

#### Discussion

On 11 June 2010 a captive-bred female-hamster with transmitter was released in a reintroduction-area in the Netherlands together with other captive-bred hamsters. In the first week of July, after a gestation-period of 18-19 days, her first litter was born and some 4 weeks later the second. Biologically seen this is the maximum in such a short period and indicates a successful mating after a post-partum oestrus (FRANCESCHINI-ZINK & MILLESI 2008; HARPENSLAGER 2009). It is not likely that the young of the first litter belonged to a different female. The young of the first litter hamsters were frequently seen on the burrow and furthermore they were not mal-treated by the female.

The rapid increase in weight of both litters is striking. In captivity the weight of young of the same age increases with ca. 2.6 grams a day (2-3.2 gr) in average, which is far below the weight-accumulation of 10.8, 9.4 and 8.4 grams a day in the second litter. Until now such high increases of weight were only found in young born in semi-wild enclosures in the Sibbe hamster reserve in 2002, In a hamster population in Vienna living in a park surrounded by flats, the increase in weight of young was comparable with the weight increases of hamster born in captivity. So far, it is unknown how these big differences should be explained. The results are preliminary and based on a very small number of litters. Further research will follow in 2011 and hopefully answer some of the above questions.

#### Literature

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