Camera traps – a suitable method to investigate the population ecology of raccoons (*Procyon lotor* L., 1758)

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Since the early nineties a great increase of raccoons has been observed in the north eastern part of Germany. To find out more about the ecology, distribution and social behaviour of the raccoon in these areas, we started our study in March 2006 in the Müritz National Park in Mecklenburg-Vorpomerania (www.projekt-waschbaer.de). In this context, an intensive monitoring with camera traps is employed. Within the last years, camera trapping has become a common method to document various aspects of wild animal behaviour.

With the help of camera trapping it is possible to get extensive information on population density (capture-recapture methodology), individual reproductive status and social system of raccoons.

From March 2006 until May 2008 15 self-triggered camera traps with PIR Sensor (BUSHNELL®, STEALTHCAM®) were placed in the investigation area over an area of 800 ha at distinctive sites like faeces deposits, water edges and trap localities. The camera traps were regularly baited with cat food and checked every 3 to 4 days. The data were obtained by continuous camera trapping throughout the year. At the same time since 03/2006 107 different raccoons were captured in life traps and fitted with diversicoloured ear tags (Lifetime Rototag®; 9 different colours) and colour patterns, which are indispensable for individual recognition in the pictures. On the basis of the coat colour and the girdling of the tail an identification of unmarked animals was often possible as well.

We conducted the camera trapping over 783 nights, the potential sampling effort was 11.745 trap nights. Because of technical failures and programming errors the effort was reduced to 9.840 trap nights. During this intensive photo-trapping period 21.897 pictures were taken altogether.

During the first year of research (March 2006 – February 2007) 7.496 pictures could be evaluated, showing raccoons in 41,5 % (n = 3.113) and other animals (n = 42 different species) in 41,0 % (n = 3.080) of the shots. 17,5 % (n = 1.303) could not be specified. 60 different raccoons (46 marked and 14 unmarked) appeared in front of the camera traps.

Reproductive status – After having left the litter site, the female raccoons and her cubs occurred regularly in front of the camera traps. It is thereby possible to make statements about the number of cubs per female. During the first year of research 8 females could be proved, having an average litter size of 3 cubs (min: 2, max: 5).

Population density – It turned out that with the help of an intensive photo-trapping, almost all raccoons living in the investigation area could be verified. Within 388 raccoon trappings there had been no raccoon that was not already known by the monitoring with camera traps. On the basis of this sampling success it is possible to estimate the precise raccoon density in the investigation area. Furthermore important additional information regarding the social system and the state of health for example can be gained through this method, too.

Raccoons are particularly well suited to that kind of investigation because they evidently do not feel disturbed by the presence of camera traps - they remain in front of them without showing any kind of timid reaction and sensitivity to flashlight. Moreover they can easily be lured because of their curiosity.

Our results suggest that camera trapping in combination with life-captures (enables individual identification) is a very suitable and comparatively easy method to get regular and detailed information about the raccoon's ecology.