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AERIAL WILDLIFE MONITORING WITH A COMBINATION OF INFRARED AND HIGH RESOLUTION RGB IMAGES

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The use of cost effective and silent light aircrafts and the increased availability of infrared cameras on the civil market make aerial surveys with IR cameras an interesting option. We present our results of non invasive aerial counts using a combination of thermal infrared (for detection) and high resolution RGB images (species-specific identification). The aircraft was equipped with a computer linked camera system consisting of a JENOPTIC® infrared camera (640*480 Pixel) and a Canon 5D Mark 2® high resolution RGB camera. Until March 2011 we have flown 32 missions over the German National Parks Bayerischer Wald, Hainich, Kellerwald-Edersee and the biosphere reserve Pfälzerwald-Vosges du Nord. Within a total area of about 6000 ha for each site, we followed linear transects with a flying altitude of approximately 450 m above ground level. Within each study area we scanned 1.200-2.000 ha for every two hours of flight time. Depending on the area up to 19 larger mammals (mainly ungulates) per 100 ha were detected. Furthermore we accomplished a test to calculate detection rates in relation to the coverage (different type and density of the vegetation).

Detection rates ranged between 56% (old pine forest) and 91% (old defoliated beech forest) to 100% (open land). Meanwhile this method is being used successfully elsewhere. Recently we were able to detect and identify free living wolves.