



**Brivio F., Grignolio S., Sica N., Cerise S., Bassano B. (2015)**  
**Assessing the impact of capture on wild animals: the case study of chemical immobilisation on Alpine ibex. PLoS ONE 10(6): e0130957.doi:10.1371/journal.pone.0130957**

#### Abstract

The importance of capturing wild animals for research and conservation projects is widely shared. As this activity continues to become more common, the need to assess its negative effects increases so as to ensure ethical standards and the validity of research results. Increasing evidence has revealed that indirect (physiological and behavioural) effects of capture are as important as direct risks (death or injury) and that different capture methodologies can cause heterogeneous effects. We investigated the influence of chemical immobilisation on Alpine ibex (*Capra ibex*): during the days following the capture we collected data on spatial behaviour, activity levels of both males and females, and male hormone levels. Moreover, we recorded the reproductive status of each marked female during the breeding seasons of 15 years. Then, by several a priori models we investigated the effects of the capture taking into account biological factors and changes in environmental conditions. Our results showed that chemical immobilisation did not affect either spatial behaviour (for both males and females) or male hormone levels, though both sexes showed reduced activity levels up to two days after the capture. The capture did not significantly affect the likelihood for a female to give birth in the following summer. Our findings highlighted the scarce impact of chemical immobilisation on ibex biology, as we detected alteration of activity levels only immediately after the capture if compared to the following days (i.e., baseline situation). Hence, the comparison of our findings with previous research showed that our methodology is one of the less invasive procedures to capture large mammals. Nonetheless, in areas characterised by high predator density, we suggest that animals released be carefully monitored for some hours after the capture. Moreover, researchers should avoid considering data collected during the first days after the manipulation in order to avoid biased information.

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