

Observations of Eurasian jays (*Garrulus glandarius*) stealing baits from live traps

Observaciones de arrendajo europeo (*Garrulus glandarius*) robando cebos de trampas de captura en vivo

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Live trapping is the most recommended sampling technique for small mammal monitoring programs (Sibbald *et al.* 2006). Nonetheless, obtaining accurate abundance estimates can be hindered by interferences through trap disruption caused by animals. Hence, it is necessary to control for sampling inaccuracies (i.e. sprung traps) to obtain precise estimates (Beauvais & Buskirk 1999). Several animals are known to produce sampling interferences to live trapping schemes. Non-target species reported as disturbing live traps often include medium-sized carnivorous and wild boars (Getz & Batzli 1974, Focardi *et al.* 2000, Torre *et al.* 2022). These animals can be attracted to live traps by the scent of the bait, or by the smell of small mammals trapped inside. However, trapping incidents related to visually oriented animals, such as birds, were rarely reported as a source of interferences and inaccuracies in live trapping studies. Among this taxonomic group, mostly corvids were reported as provoking sampling interferences (Kreplins *et al.* 2018), to the extreme that sometimes trap disruption made the results of the study unreliable (Dexter & Meek 1998, Matlack *et al.* 2006). But most events regarding birds were related to incidental captures in traps (Waldien *et al.* 2004).

During the 2023 spring campaign of the SEMICE (small mammal monitoring program) we documented several cases of traps disturbed by animals in Collserola Natural Park that did not match with the previously established categories recorded during the live trapping monitoring scheme (Torre *et al.* 2021), because traps were not damaged and cotton from inside the trap was

strewn in front of the trap door, and sometimes displaced up to a distance of more than one meter away. Indeed, when traps were found still open and unsprung but with obvious signs of small mammal activity, these incidents were generally attributed to the small mammals themselves (Torre *et al.* 2022). But this new evidence, with cotton being withdrawn far from the inside, did not match previously detected disturbances caused by small mammals, such as when traps were open with cotton removed (near the door) but combined with visible signs of small mammals (i.e., faeces).

Since this behaviour had not previously been seen in the area, or elsewhere, we placed camera-traps aimed at the traps in order to identify the animal that was causing these disturbances at sampling stations in Collserola. Two camera traps (Moultrie) were set for three consecutive days from 17th to 19th May 2023 in two separate small mammal monitoring stations. The cameras were aimed at two Sherman traps, one under a steel protection cover (Torre *et al.* 2022), and the other without protective casing placed beneath a large log. The trapping campaign was simulated, with both traps including cotton and bait.

During the three days of camera trap exposure, we obtained 21 videos of Eurasian jays *Garrulus glandarius* (Linnaeus, 1758) interacting with live traps in the two cameras (Fig. 1). These videos were recorded in daylight hours (8:25h -19:18h) and showed the behaviour of jays that sometimes were pulling the trap outside of the protective cover, and gently removing the cotton from inside the trap, which appeared strewn in front of it, and



Figure 1. Photograms obtained from videos recorded in Collserola Natural Park (Barcelona province, NE Spain). The two upper photograms showed Eurasian jays removing cotton from the traps (with and without trap covers), and the two bottom photograms showed jays taking the bait.

sometimes taking the bait and flying away with it (video: <https://youtu.be/mVsvxTQ33sw>).

In this communication we report for the first time (as far as we know) the behaviour of bait stealing from live traps by Eurasian jays. This behaviour mostly resulted in cotton and bait being removed from the traps (albeit on several occasions the traps remained operative), thus rendering them unsuitable for subsequent small mammal captures (e.g., higher risk of mortality of captured individuals). This interference caused by jays could be in addition to that already caused by wild boars, thus increasing sampling inaccuracies and negatively affecting estimates of the abundance of small mammals. This study reported a behaviour that unexpectedly appeared several years after the monitoring started. Rather interestingly, this agreed with our observations where this behaviour took place suddenly during the spring of 2023 in two distant live trapping plots (2 km away), despite having been operative for several years prior to these incidents (e.g., since 2014). Matlack *et al.* (2006) stated that the annoying behaviour of crows was altering the monitoring scheme, provoking the need to check traps each evening just before dark to rebait and reset. A considerable proportion of species in the family Corvidae have already been shown to adapt to urban environments, owing

to their high behavioural plasticity and flexible resource use (Benmazouz *et al.* 2021), and a growing body of evidence suggests that several corvids possess highly developed cognitive skills (Cheke *et al.* 2011). It is intriguing, however, the way two relatively distant populations of Eurasian jays learnt the same bait stealing behaviour at the same time. Being moderately social, Eurasian jays are not expected to use social information (i.e., information made available by conspecifics) in the form of copying the choices of others regarding tasks (Miller *et al.* 2016). In addition, given that incidents were only frequently observed in one protected park (Collserola), future research would ideally seek to confirm our hypothesis regarding the synurbization of wild species as a driving factor behind increased damages to small mammal traps in peri-urban natural areas which are highly frequented by people.

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