Sentinel behaviour in mammal and avian species

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Sentinel behaviour is a form of coordinated vigilance where individuals take turns ensuring constant vigilance over the group from exposed prominent positions. Foragers benefit from this behaviour by maximizing their foraging efficiency while maintaining vigilance for threats, seemingly at the expense of the sentinel. Initially thought to be an altruistic behaviour, recent studies have supported a selfish, state-dependent model for sentinel decision-making where individual energetic states and perceived risk play key roles. Studies across multiple taxa have revealed several intrinsic and extrinsic factors that can affect sentinel behaviour.

The objective of our scoping review was to identify and compile these factors in mammal and avian species. We show that individual energetic states and perceived risk could be behind the effects of intrinsic and extrinsic factors, further supporting the selfish state-dependent model for sentinel behaviour. Our findings also show how these factors can interact and highlight the complex relationship between individual motivators and the environment.

Understanding these relationships can help us better understand the underlying mechanisms behind social behavioural decision-making and predict how social behaviours could change in different environments. This is especially important in the ever-urbanizing world, where the effects of human-altered habitats can greatly affect a species’ success.