It is essential for all organisms that are vulnerable to predation to effectively manage two fundamental needs of life: to eat, and to not be eaten. This foraging-vigilance trade-off is at the heart of most foraging decision-making, as too much time spent performing each behavior could leave the individual vulnerable to either predation risk or inadequate energetic input [1,2]. Since vigilance and foraging are mutually exclusive behaviors, individuals must therefore find solutions to forage safely .

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It is very hard, see impossible, to find the original definition for sentinel behaviour in animals as it likely originates from the human definition of sentinel, or an individual tasked with watching over other group-members, alert against potential dangers or threats. Similarly, animal sentinels take on the role of ensuring constant vigilance over other group members, usually from an exposed prominent position, and making alarm calls when sources of danger are detected. Observations of sentinel behaviour have very likely been made by naturalists and researchers for centuries, though descriptions of sentinel behaviour in animals started to appear in mid-XXth century research articles, mostly associated with the behaviour of birds. As they are much more visible and considerably louder than their mammal counterparts, sentinel behaviour has been predominantly researched in avian species, though much research has been done on the behaviour in mammal and aquatic species. It is evident that this behaviour is shared across several taxa and does not follow a common ancestry. This behaviour must have therefore been evolved when very specific environmental and social conditions were met.

Sentinel behaviour could have evolved as an effective strategy to balance a fundamental trade-off between foraging and vigilance. These two behaviours are considered mutually exclusive and must therefore be Were one to forgo vigilance, they would expose themselves to an increased risk of predation and threat. The opposite is also true, where one’s excess in vigilance would lead them to increased risk of starvation. It is therefore important to effectively balance these two needs.

If a sentinel is present, then other group members could reduce their individual vigilance and increase their foraging efficiency. The sentinel would incur the cost of a lost foraging opportunity, but could recuperate those costs if another sentinel were to replace them. It is therefore crucial that sentinels coordinate their efforts to minimize the “gaps” in coverage and ensure the safety of other group-members.