

# The watchman's song

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Pied babbler on watch. Photo by Andy Radford

Soldiers on sentry duty in hostile territory keep in regular radio contact with their colleagues to assure them that all is well and that they are safe to carry on their manoeuvres. New research by Dr Andy Radford of the School of Biological Sciences reveals that this is also a feature of the bird world.

Pied babblers are small birds that live in groups of 3-15 individuals in the Kalahari Desert in Africa. They spend 95 per cent of their foraging time on the ground, probing beneath the sand for prey. In turn, they are

preyed on by a variety of raptors, mammals and snakes.

The study population of babblers has been habituated to the presence of people, making it possible to observe them and make sound recordings from only a few feet away. This allows Radford to quantify an individual's foraging success by recording the capture rate of prey. Furthermore, the babblers have been trained to jump on to a scale, allowing weights to be gathered repeatedly during the day, thereby providing accurate and regular measures of the birds' condition.

About 30 per cent of the time, the foraging groups have a sentinel perched above the ground, actively scanning for predators. The sentinel lets the others know of its presence by providing vocal cues, commonly called the 'watchman's song'. Because babblers often search for prey in holes, they are unable to check visually for the presence of a sentinel without suspending foraging; the watchman's song allows them to maximise their foraging time.

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By playing back different recordings to the birds, Radford found that foragers capture more prey in response to the watchman's song. One reason for this is that the foragers spend less time looking out for predators themselves, and so have more time to search for food. However, the foragers also change their behaviour in three other important ways. First, by spreading out more widely, individuals may encounter fewer foraging patches already depleted by other group members. Second, by venturing into the open more, they may have a wider choice of foraging patches and thus access to those of better quality. Third, because individuals look up less often, foraging bouts are longer and less interrupted, which is likely to be beneficial when chasing

mobile prey.

Natural selection suggests that individuals should act selfishly. The exciting implication from these results is that the watchman's song may represent truly cooperative behaviour. The presence of a sentinel results in increased survival rates of group-mates, which in turn leads to a larger group size, improving the group's chances of survival when under attack, or repelling rivals from the territory. Thus sentinels profit down the line from the increased foraging success of the others.

Moreover, because group members tend to be close relatives, and therefore share a large number of genes, sentinels gain in reproductive terms from their increased survival. The next thing to test is whether sentinels differ in their reliability – so it's off to the Kalahari for another few weeks in the sun.

Source: University of Bristol

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