

VISION ACUITY AND SONAR USE IN AUTUMN MIGRATION OF NATHUSIUS'S BATS

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Vision of bats is well adapted to nocturnal conditions by high light resolving power and is employed in target discrimination and orientation beyond the range of echolocation. Due to rapid attenuation, the sonar is mainly used in short-range orientation and prey detection. In navigation of migratory bats, vision may be particularly important to recognise landmarks and stars. Several bat species migrate in low altitudes, suggesting that the bats maintain acoustic contact with the ground or water surface.

We investigated visual acuity and potential sonar adaptation to flight altitude of migratory Nathusius's bats *Pipistrellus nathusii*. Mean visual resolving power was $\sim 1^\circ$ arc, which may allow distinguishing the brightest stars as individual objects and using stellar navigation. Duration of intervals between sonar pulses was positively correlated to flight altitude and the shortest interpulse intervals corresponded to the bats' distance above the ground.