

## A puppy German Shepherd Dog trained to find bat roosts

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With 1 Figure

### Zusammenfassung

#### Junger Deutscher Schäferhund mit der Zielsetzung trainiert, um im Freiland Fledermausquartiere zu finden

In dieser Arbeit berichten wir von einem jungen Deutschen Schäferhund, der darauf trainiert ist, Quartiere der Mückenfledermaus (*Pipistrellus pygmaeus*) zu finden. Der Hund wurde speziell darauf trainiert, den Geruch von Fledermauskot zu erkennen. Der Hund erkannte aber auch noch andere typische Anhaltspunkte, die um ein Fledermausquartier zu finden sind, den Geruch der Fledermäuse selbst, Urinspuren und hörbare Sozialrufe von Fledermäusen. Der Hund identifizierte bereits solche Quartiere, als er noch ein Jungtier war. Unsere Ergebnisse zeigen, dass Hunde unter bestimmten Voraussetzungen sehr erfolgreich sein können, wenn konventionelle Methoden, wie die Radio-Telemetrie, versagen oder einen zu großen Zeitaufwand beanspruchen.

### Summary

In this note we report on a puppy German Shepherd Dog trained to find roosts of the bat soprano pipistrelle (*Pipistrellus pygmaeus*). The dog was trained on scent from bat feces only. Even though the dog was denied the additional clue found around roosts such as the smell from bats themselves, urine drops and audible social call from bats, the dog was quite successful in experimental trials. The dog also identified real roosts when still a puppy. Our results show that in some situations dogs could be successfully when conventional methods such as radio telemetry would fail or be too time demanding.

### Keywords

Puppy German Shepherd Dog. Training to find bat roosts. Soprano bats (*Pipistrellus pygmaeus*).

### 1 Introduction

Bats are social creatures and occur in various roost formations for much of the year. In temperate bats, commonly used structures for roosts in summer are buildings, hollow trees, crevices in rock walls, bridges, specially made bat boxes and more (for general literature, s. SCHÖBER &

GRIMMBERGER 1997, MITCHELL-JONES & MCLEISH 1999, ALTRINGHAM 2003, DIETZ et al. 2007), but the choice and suitability of roost sites varies between species, sex and reproductive stages. In most countries in Europe, bats are protected by law and destruction of roosts are prohibited (MARNELL & PRESETNIK 2010), but for effective conservation to be applied, the knowledge about the whereabouts of these roosts is imperative. Roosts can be found through searching areas with ultrasound detectors, though reports from the public or radio telemetry (e. g. MITCHELL-JONES & MCLEISH 1999). In addition to being an invasive method demanding permits from the authorities, radio telemetry has one important drawback; it will only find roosts when in use by bats and can only be applied during the bat active season. This would also in part be true for other commonly used methods depending on roost habitat.

Dogs have served man in various ways for thousands of years and are now used for many purposes ranging from companions/pets to search and rescue dogs, police, military and service dogs. In recent years, dogs have been used in various scientific works, with the most impressive usage perhaps being in cancer diagnostics (e. g. McCULLOCH et al. 2006). In wildlife management, conservation detection dogs may benefit researchers in several fields of study (e. g. HURT & SMITH 2009). Dogs have been used in bat work, solving some easy tasks such as searching for bat carcasses under wind farms (e. g. ARNETT 2005). Further, test from a single study suggests that dogs may find between 20 and 71 % of roosts of some selected American bat species (MERING & CHAMBERS 2009, MEHRING et al. 2009). In experimental trials, using varying heights and amount of guano, between

find roosts when bats are not present, work can be carried out during unfavourable weather conditions (when bats are inactive), humans and dogs can work during daytime and no permits are needed from wildlife agencies or research animal authorities as the method is non-invasive. The method would in particular be useful if restricted areas need to be searched. The method clearly has some bias compared to radio telemetry, e. g. a dog will only find roosts where it is allowed to search and further, a dog may not find roosts in tall apartment buildings or similar. The effectiveness of the method clearly depends on the roosting ecology of the target species.

In conclusion, we recommend further testing of dogs for bat work when roost site identification is needed for a wider range of bat species. We also recommend testing dogs on real roosts in trees, rather than in experimental situations (bat boxes) as used here. No attempts were made to investigate under which climatic conditions the dog would have the best chance of detecting bat roosts, but we encourage other researchers to do so. If assuming the task of training a dog to find roosts, we would like to stress the importance of selecting a dog with the necessary stamina and the willingness to work. The aid of a kennel specialized in scent work should not be underestimated!

## 5 Online resources

Videos of this dog searching for bat feces will be posted online. Use the dogs name ("Quinta Aritar Bastet") as search phrase in Google or Youtube.

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