

## Field report

# Association between an Arabian wolf and a domestic dog in central Saudi Arabia

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## Abstract

We present evidence of an association between an Arabian wolf (*Canis lupus arabs*) and a domestic dog (*Canis lupus familiaris*), or potentially a wolf-dog hybrid, observed in central Saudi Arabia. We interpret these observations as an indication of past hybridisation (if the male is a dog-wolf hybrid) or potential future hybridisation (if the male is a dog and pairing with the female wolf) and discuss the conservation concerns associated with wolf-dog hybridisation.

## Article

Arabian wolves (*Canis lupus arabs*) are a poorly documented and under-researched subspecies of the grey wolf (*Canis lupus*, Linnaeus, 1758) species complex. Recent genetic studies have defended the sub-specific status of Arabian wolves, indicating that they are distinct from both the Indian (*C. l. pallipes*) and European (*C. l. lupus*) sub-species of grey wolf (Bray et al. 2014). The maintenance of this evolutionarily distinct lineage is therefore important in conserving the unique biodiversity of the Arabian Peninsula.

Arabian wolves are the largest carnivore in the peninsula and the regional IUCN assessment lists the species as Endangered (Mallon and Budd 2011). The latest synthesis of wolf distribution records illustrates that they were historically widespread within the Kingdom of Saudi Arabia (Cunningham and Wronski 2010) and although verifiable records are sparse, there is a general acceptance that the population is declining. Despite legal protection, there are no focused conservation efforts for Arabian wolves and they persist despite active persecution and loss of natural food sources. A cause for conservation concern that has not yet been addressed is the effect of hybridisation of this population with feral or domestic dogs (*C. l. familiaris*).

Hybridisation can bring about a form of extinction as one loses the diversity of a unique species (Rhymer and Simberloff 1996). Hybridisation or absence thereof has not been intensively studied within the Arabian wolf. Anecdotal evidence from the Dhofar region and near Salalah in Oman suggests that pale “dog-like” wolves have been found

which are thought to be a result of hybridisation (Spalton and Al Hikmani 2014). Furthermore, the recent genetic investigation into the species has raised further questions around the influence of hybridisation in the population. The evidence is inconclusive as to whether the phenological proximity of *C. l. arabs* to *C. l. lupus* as opposed to *C. l. pallipes* is due to hybridisation with *C. l. familiaris*, or is truly due to isolation and long term introgression (Bray et al. 2014). This genetic evidence has not been supported nor refuted by documented phenotypic or behavioural observations.

As part of a broader camera trapping study, evidence of hybridisation was collected from the Tubayq escapement in central Saudi Arabia (24.00406N, 044.99618E) on 7 October 2015. Two video clips from the same camera, taken a few seconds apart, illustrate a female wolf phenotype (Figure 1, Video 1) being closely followed by a male canid with a phenotype consistent with dog or wolf-dog hybrid, but clearly not a pure wolf (Figure 2, Video 2). We speculate that the female wolf and male canid are either pairing, suggesting the possibility of impending hybridisation, or that the recorded male is itself a hybrid and potentially her offspring. Either way, we present a documented association of wolf and dog or hybrid. These animals were found free-ranging in the desert with the nearest substantial town over 35km away. Human habitation was seen approximately 5km away from the camera locations, although no dogs were seen.

The consequences of hybridisation for Arabian wolf conservation management may be far reaching. Arabian wolves have behavioural responses, ranging behaviour and variable diet that allow them to

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persist in the harsh conditions of the Saudi Arabian deserts, and even possibly recolonise areas from which they have been extirpated (Cunningham and Wronski 2010). The effect of hybridisation with domestic dogs can only be speculated upon. It has been suggested that dog-wolf hybrids are less adapted to desert life than pure wolf individuals, and are more prone to exhibiting unwanted behaviour such as stock raiding (Spalton and Al Hikmani 2014). Management plans for other unique canid species such as the Ethiopian wolf (*C. simensis*) involve castration and spaying programmes for known hybrids. However, given the paucity of data on Arabian wolf distribution, abundance and the extent and certainty of hybridisation, a programme of ecological research is required to determine appropriate conservation actions. The comprehensive Protected Area network within Saudi Arabia offers opportunities for such research. For example, there is good evidence of a sustained population of Arabian wolves within the Ibx Reserve in central Saudi Arabia (Cunningham and Wronski 2010; Wronski and Macasero 2008), which although found at low occupancy rates, is in close proximity to human habitation and could provide the nucleus for further research into Arabian wolves within the Kingdom.



Figure 1. Female Arabian wolf phenotype; a screenshot taken from ten-second video (Video 1) in which the female wolf phenotype walks up and urinates before moving off.



Video 1. (Software needed: Multiple media players such as Windows media player, VLC player)



Figure 2. Male dog or wolf-dog hybrid. Screenshot taken from ten-second video (Video 2) in which this male follows the female (seen in the background). It is hypothesised that this is the offspring of a hybrid between the female wolf and a domestic/feral dog.



Video 2. (Software needed: Multiple media players such as Windows media player, VLC player).

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## References

- Bray, T.C., Mohammed, O.B., Butynski, T.M., Wronski, T., Sandouka, M.A. and Alagaili, A.N. (2014). Genetic variation and subspecific status of the grey wolf (*Canis lupus*) in Saudi Arabia. *Mammalian Biology (Zeitschrift für Säugetierkunde)* 79:409–413.
- Cunningham, P.L. and Wronski, T. (2010). Arabian wolf distribution update from Saudi Arabia. *Canid News* 13.1 [online]. URL: [http://www.canids.org/canidnews/13/Arabian wolf in Saudi Arabia.pdf](http://www.canids.org/canidnews/13/Arabian%20wolf%20in%20Saudi%20Arabia.pdf).

Mallon, D. and Budd, K. 2011. *Regional Red List Status of Carnivores in the Arabian Peninsula*. IUCN and Environment and Protected Areas Authority, Cambridge, UK; Gland, Switzerland; and Sharjah, UAE.

Rhymer, J.M. and Simberloff, D. 1996. Extinction by hybridization and introgression. *Annual Review of Ecology and Systematics* 27:83–109.

Spalton, A. and Al Hikmani, H. 2014. *The Arabian Leopards of Oman*. Stacey International, London, UK.

Wronski, T. and Macasero, W. 2008. Evidence for the persistence of Arabian wolf (*Canis lupus pallipes*) in the Ibex Reserve, Saudi Arabia and its preferred prey species. *Zoology in the Middle East* 45:11–18.

## Biographical sketch

**Chris Barichievy** is a conservation scientist with the Zoological Society of London, previously at the King Khalid Wildlife Research Centre in Saudi Arabia. He continues his work in various projects throughout Africa.

**Shayne Clugston** is a naturalist and teacher. While living in Saudi Arabia Shayne continued to study, and this work came about as part of his research degree.

**Robert Sheldon** was Director of the King Khalid Wildlife Research Centre in Saudi Arabia. He has a keen interest in bird conservation, having worked for RSBP for over a decade prior. He continues his research in a private capacity.