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I did scat analyses for my Masters:
Wilson, K.A. 2005. Status and distribution of cheetah in the Thabazimbi district of the Limpopo province. MSc (Wildlilfe Management) Dissertation, University of Pretoria, Pretoria, South Africa.

The methods I used are cut and pasted below for whoever would like to try. There are several studies that have used scat analyses and the literature should be pretty easy to get hold of. I found that cuticular patterns alone were not enough for identification purposes and cross sections of all samples were made – this greatly improved identification. My lab partner worked on caracal scat, we used very similar techniques and his results are published: MELVILLE, BOTHMA & MILLS 2004. Prey selection by caracal in the Kgalagadi Transfrontier Park, South African Journal of Wildlife Research 34 (1): 67-75

"…The scat was then placed in a brown paper bag marked with a unique number for identification and stored in a cool, dry place.

In the laboratory, the hair was first separated from the rest of the scat material by washing the scat in water. This was done by sewing the scat into a numbered cotton envelope, which was then washed individually by hand in a bath of warm water before being rinsed under the tap until the water ran clear. (I DID THINK OF THROWING ALL THE ENVELOPES INTO A WASHING MACHINE – I STILL THINK IT WOULD WORK WELL, BUT WE WERE CONCERNED THAT THAT HAIRS MIGHT MIGRATE BETWEEN SAMPLES…) The envelope was then hung to dry overnight in a drying oven at 70°C.
The hairs were removed from each of the envelopes, washed in absolute alcohol, rinsed in distilled water and were allowed to dry on a paper towel in an adapted method of Keogh (1979). Clean, distilled water, alcohol and petri-dishes were used for each scat to avoid cross-contamination of scat contents.

The hair cuticular patterns were examined by using hair imprints made in gelatine as described by Keogh (1979). Granular gelatine was dissolved in cold, distilled water until saturated. The solution was then heated on a hot plate and 10% by volume of eosin blue was added. A thin layer of the gelatine solution was spread onto a glass slide by using a glass rod. A selection of the washed hairs from the scats was placed on the slide individually. Each hair was placed on the slide in such a way that it did not overlap with other hairs, and care was taken to ensure that the hairs were flat on the slide. Care was also taken to ensure that both the root and the tip of the hair were placed in the gelatine layer. The slides were left to air-dry overnight. The hairs were then removed carefully from the slide by using a dissection needle and tweezers.

Transverse sections of the hairs were also required for identification and were made by adapting the plastic tubing method of Douglas (1989). Drinking straws were cut in half transversely, and one end was sealed by folding it over and wrapping adhesive tape around the folded end. Paraffin wax was melted in a beaker on a hot plate until the wax was liquid and clear. A bundle of the prey hair from the scat was wet in water to improve handling. The bundle was removed from the water, all excess water was squeezed off, and the bundle was folded over longitudinally as many times as possible. Care was taken to try to keep the hairs lined up with each other. A prepared straw was then filled to approximately a third with hot wax. The hair bundle was then pushed into the straw with a dissection needle until the bundle was totally immersed in the wax. The straw was then filled to about three-quarters with more liquid wax. The hair bundle inside the straw was then squeezed with the fingers to remove any air bubbles that were trapped between the hairs. The straw was then placed in a glass bottle to keep it upright. The bottle with the straw was put in a drying oven at 75°C for approximately three hours to allow complete infiltration of the wax around the hair bundle. The straws were checked regularly, and were squeezed when necessary to remove any further air bubbles. After removing the straws from the drying oven, the wax was allowed to cool and set either at room temperature or in a refrigerator.

The wax containing the hair bundle was next removed from the inside of the straw by cutting the straw open longitudinally with a sharp razor blade. Transverse sections of the hairs were then made by cutting thin sections of the waxed hair bundle with the razor blade. No sectioning stand was found to be necessary. The cut sections were then fixed with a mounting medium onto the slides. Transverse sections and cuticular patterns were made with hair samples from all possible cheetah prey that occurred in the study area in advance to serve as a reference collection.

The transverse sections and the hair scale pattern imprints from each scat were examined under a light microscope. These were then compared with the reference samples and published hair keys (Dreyer 1966; Keogh 1979; Perrin & Campbell 1980; Keogh 1983; Buys & Keogh 1984) to identify the type of prey involved. For scats for which the identity of the predator was uncertain, the hair from the scat was searched thoroughly for the presence of cheetah hair from grooming to confirm that the scat did belong to a cheetah. If no cheetah hairs could be found in the scat, the sample was discarded.

The frequency of occurrence of prey in the scats was recorded (Stuart & Hickman 1991). Cheetahs do not normally scavenge food (Kingdon 1977; Bertram 1979; Caro 1994). Therefore it was assumed that the cheetahs killed all the prey items that were found in their scats.

References

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