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In the wild, African savannah elephants (*Loxodonta africana*) have been observed to touch dead elephants and manipulate the bones. Cynthia Moss (1988) writes of how elephants in Amboseli regularly investigated elephant carcasses, smelling and touching the bones and skull. In a controlled study, researchers from Amboseli found that elephants demonstrated higher interest in the skulls of elephants than those of other species (McComb et al. 2006). At Samburu National Reserve in Kenya, Douglas-Hamilton et al. (2006) observed the death of a matriarch and the subsequent responses by her own family and four unrelated families to the carcass. In Addo Elephant National Park, elephants of a variety of ages also express interest in elephant bones, touching them and turning them over (pers. obs.).

This examination of elephant bones and ivory indicates that elephants show an elevated level of interest in conspecifics over other dead animals. Elephants do not seem to express special interest in dead kin but rather they appear to have a generalized response to injured, dying and deceased conspecifics (Douglas-Hamilton et al. 2006, McComb et al. 2006). The present study reports the behaviour of a group of elephants in response to a euthanized adult male elephant that suffered severe wounds inflicted by a conspecific male. Most of the observations from previous studies have been on females and female group members. In the present study, of special interest is the behaviour of unrelated, conspecific males to this carcass.

Addo Elephant National Park, in the Eastern Cape of South Africa, had a population of 350 elephants during this study. All individuals in the park were known, and the matrilineal family trees have been reconstructed since the park was founded in 1931 (Whitehouse and Hall-Martin 2000). In January 2005, a 41 year old adult male received serious wounds to the head and ears in a conflict with another elephant. He was subsequently euthanized by park staff within 50 m of a waterhole frequently visited by elephants. At the time of his death, approximately 60 elephants attended, but they dispersed quickly into the surrounding bush during the euthanasia process. Two elephant researchers were present at the time of death, and opportunistically observed the response of the returning elephants to the fresh carcass. From 15 minutes after death until 2.5 hours later, we conducted continuous recording with the carcass as the focus. All contact behaviours and chemosensory investigations were recorded. Contact behaviours included using the torso or trunk to contact various parts of the receiver, including the head and body. The chemosensory behaviours included 'check' (touching the tip of the trunk to a substance), and 'flehmen' (touching the trunk tip to the openings of the vomeronasal organ) (Schulte and Rasmussen 1999), as well as more general trunk touches to the body and wounds. A scan sample also was conducted every minute, noting the proximity and identity of the five nearest individuals to the carcass.

Thirty elephants approached the carcass over the 2.5 hours, with 22 animals being scored as one of the five nearest neighbours and 15 animals performing a contact or chemosensory behaviour. Of the 307 total behaviours noted, three animals performed 83.1% of the observed behaviours, while the other 12 individuals were below 5%. The three elephants that performed the majority of behaviours were a male of 21 years (37%), an 18 year old male (34%), and a male of 10 years (13%). These three males also were recorded as the nearest neighbour for 80% of the observation time (30%, 35% and 14%, respectively). These three males were unrelated (maternally) to the dead elephant.

Elephants often use the trunk tip chemosensory behaviours of check and flehmen to investigate the environment and to assess the status of conspecifics (Schulte et al. 2005). As with many species, elephants

may obtain information on individual identity via chemical signals. The 21-year-old male performed checks to the ground near the carcass and to the carcass itself. Interestingly, the 18 year old male performed checks to the carcass only. The 10 year old male directed more attention to the actual wounds (0.12 checks/min) than to the carcass in general (0.02 checks/min). It is unclear what information may have been acquired from investigating the wounds specifically.

Both the 18 and 21 year old males performed mounting and sitting behaviours. These included sitting on the carcass, where a male backed up to the carcass and placed the upper portion of the rear legs and haunches onto it. Both individuals straddled the carcass, with the front feet on one side of the carcass and the rear on the opposite. Finally, each male performed a mount (Fig. 1). The 21 year old male mounted the carcass twice, and the 18 year old male mounted nine times. Although the stimulus for this mounting behaviour is not clear, the males may have been exhibiting dominance, showing displacement activity, or seeking a response from the dead male. Young elephants sometimes climb on recumbent older elephants (Lee 1986, pers. obs.), and this play behaviour may be related to assessing dominance.

The 10 adult females in the immediate area contributed only 3% to the nearest neighbour data (4 females). The presence of the larger males at the carcass may have deterred them from closer investigation. The dead male was not related to any of the family groups in the area on the day of his death. In subsequent weeks, family groups (including the dead male's natal family) were frequently in the area, both drinking from the nearby waterhole and examining the carcass. Although the females did eventually express interest, the males dominated the space immediately surrounding the carcass for the initial two and a half hours after death.

The observed variations in the behaviour of male and female elephants to the carcass reflect differences inherent in male and female elephant societies. As the females live in family groups, their interest may be focused on kin that are acting oddly, such as those in the process of dying, but not in discerning kin from non-kin after death (Douglas-Hamilton et al. 2006). Male society is governed by relative position in a dominance hierarchy; therefore, it would be to their benefit to investigate the death of another male. Any disruption in the hierarchy, particularly in a small, fenced reserve with demonstrated high rates of aggression (Whitehouse and Kerley 2002, Whitehouse and Shoeman 2003), would affect the relative status of the surviving males. Chemical signals offer a reliable means of detecting the condition or status of conspecifics (Schulte et al. 2005), so the other males may have been acquiring information about the deceased male. Alternatively or in addition, a recumbent adult male may release a show of dominance in conspecific males, illustrated by extensive investigation and mounting. By continuing to report detailed observations on rare events such as the investigation of dead conspecifics, we can better understand the social and emotional complexity of elephants and other wildlife.

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Figure 1. Mounting behaviour performed on a dead adult male elephant by a conspecific male at Addo Elephant National Park, South Africa.

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