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## ELECTROCUTION OF AN ADULT WHITE-TAILED DEER

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**ELECTROCUTION OF AN ADULT WHITE-TAILED DEER** -- On 16 May 2002, an adult female white-tailed deer (*Odocoileus virginianus*) died after becoming entangled in an electric fence in southeast Minnesota. The deer (#393) was captured 30 January 2000 as part of a cooperative, long-term deer mortality study being conducted in southern Minnesota (Bigalke et al. 2002, Brinkman 2003, Brinkman et al. 2002). Although fence entanglements occur, they do not account for significant losses in white-tailed deer populations (Matschke et al. 1984). Nixon et al. (1991) documented mortality of two fawns with broken cervical vertebrae that had collided with fences, but did not distinguish the type of fence that caused the mortalities. While electric fencing has been shown to be effective in deterring movement of white-tailed deer (George et al. 1983), we were unable to find reports in the literature of a deer being entangled and dying in an electric fence.

Radiocollars (Advanced Telemetry System, Isanti, Minnesota) equipped with activity and mortality sensors were placed around the neck of each captured deer and individual deer were located by ground triangulation two to three times per week (Brinkman 2003, Brinkman et al. 2000, DePerno et al. 2003). When the mortality signal for #393 was detected, cause of death was determined from field necropsy and ancillary evidence at the site of the mortality (White et al. 1987).

On the morning of 16 May 2002, we received a mortality signal from #393 and located the animal entangled in a 1.2 m, four-strand smooth wire electric fence (K-Fence Inc., Zumbro Falls, Minnesota). The top three strands of the fence were charged electrically and the bottom strand was the uncharged ground; all strands were spaced equally. A low-impedance energizer provided 5,000-7,000 volts of power at a three-second pulse rate. The fence was supported by 10 cm x 10 cm x 1.2 m pressure treated wooden posts placed 5 m apart. Additionally, the fence was oriented across the middle of a steep slope (grade = 50 to 75%) along the edge of a pasture. Based on the angle of the carcass, we think the animal approached the fence from the down slope, attempted to jump uphill, became entangled, and fell forward. We think the steep grade combined with the animal jumping uphill resulted in the entanglement. The rear legs of the animal were caught between the top two strands of wire and the remainder of the animal was touching the ground and the uncharged wire.

Electric current passing through the body can cause irritation, burns, unconsciousness, or immediate death depending upon the strength (amperage) of the current, degree of "grounding" (earth contact), duration of the shock, and degree of moisture present at the point of contact. Additionally, paralysis to the areas of the brain that control breathing might lead to complete cessation of respiration; ventricular fibrillation is usually the cause of death (Cooper 1996). Deer #393 had extensive burns on both hind legs between the hoof and pelvis. As noted by Cooper (1996), the burns were most severe at the points of contact with the electric wires. Field necropsy of the animal revealed no additional injuries. Deer #393 was located alive on 14 May 2002,

two days prior to the mortality, was pregnant with two female fetuses, and appeared to be in excellent condition prior to the accident. The evidence strongly indicates the ultimate cause of death was electrocution.

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