

## Red Fox, *Vulpes vulpes*, kills a European Beaver, *Castor fiber*, Kit

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We observed an adult Red Fox (*Vulpes vulpes*) attack, kill and partially consume a 2-month-old female kit European Beaver (*Castor fiber*) near its lodge in Norway. The inner organs were consumed first. One adult beaver apparently attempted to frighten the fox away by tail-slapping.

**Key Words:** Red Fox, *Vulpes vulpes*, European Beaver, *Castor fiber*, predation, southeast Norway.

On 31 July 1994, during a beaver census in Southeast Norway (58°39'N, 7°59'E), a Red Fox (*Vulpes vulpes*) was observed killing a European Beaver (*Castor fiber*) kit (see Kile and Nakken 1995). The observer was seated with binoculars about 100 meters from the lodge. At 1930 hours a kit emerged from the lodge and started to eat Beaked Sedge (*Carex rostrata*) 15 meters from the lodge, on shore about 2 meters from the water's edge. One hour later, first a single adult, and then, several minutes later, another adult with kit emerged from the lodge and swam away. One hour and 50 minutes after the adults left an adult Red Fox approached the lodge (Figure 1). A large stone was situated between the fox and the foraging kit, so neither saw the other. The fox walked to the top of the lodge and suddenly stiffened, apparently having smelled the kit or heard it eating (the kit was still not visible). The observer could not hear the kit eating. The distance between the two animals was then about 15 meters. The fox crouched into attack position, and after a short pause attacked and killed the kit while still on shore. The struggle lasted a few seconds. The kit did not attempt to flee or fight back, apparently having been caught completely unaware by the fox. No sounds were heard from either kit or fox.

The fox dragged the kit approximately 10 meters to a flat stone under a large spruce (*Picea abies*) and proceeded to feed on the carcass. Five minutes later an adult beaver appeared and swam in the vicinity of the kill site, circling 20–30 meters from the water's edge before gliding towards the shore where the fox was feeding. The fox stood up and walked a few steps towards the adult. The beaver then tail-slapped, apparently in an attempt to frighten it, or to alert other beavers (Wilsson 1971). The fox ignored the tail-slap and returned to its prey. The adult beaver swam near the lodge for the next 10 minutes, about 40 meters from the fox, before finally diving and disappearing. Directly after this the observer frightened the fox away and collected the remains of the kit.

The remains of the carcass weighed about 2 kg (estimated live weight at least 2.5 kg). Based on the mean parturition date for this region (Syvertsen 1976; Mörner 1990) we estimated the age at 2

months, the sex was female (see Wilsson 1971). The breast had been opened from the ventral side. The sternum, heart, lungs, stomach, cecum and both intestines had been eaten, as well as most of the liver and ribs, and part of the muscle from the right forearm. Two cervical vertebrae and 11 thoracic vertebrae were missing and apparently eaten.

Inspection of the skin revealed two puncture marks, with subdermal hemorrhaging, at the upper edge of each scapula, from the fox's lower and upper canines. The fox had bitten over the spinal column between the shoulders. Judging from the short duration of the struggle, it seems likely that the spinal cord had been severed, though direct evidence of this was not available due to the advanced stage of carcass consumption.

This is apparently the first reported observation of a Red Fox killing a beaver. Payne and Finlay (1975) reported a Red Fox attacking a beaver, but they did not observe the attack itself, and the beaver was still alive. Novak's (1987) review of the beaver mentions

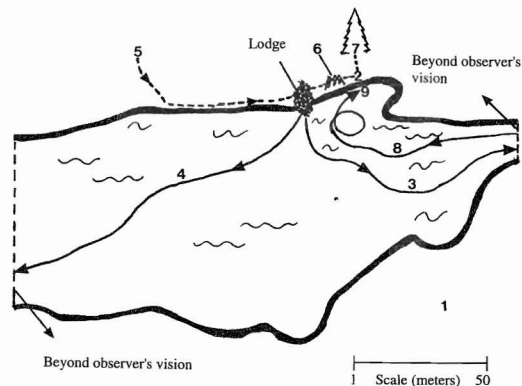


FIGURE 1. The relative positions of the observer, Fox, Beaver kits and Beaver adults in numeric order: 1) observer; 2) kit kill site; 3) single adult appears and swims away; 4) another adult and kit appears and swims away; 5) attack route of fox; 6) stone between fox and kit; 7) fox eats beaver; 8) return route of adult beaver and 9) site of tail-slapping.

the Red Fox as a predator of little importance for beaver populations. The Red Fox was not considered as a potential predator in Hill's (1982) review. Tyurnin (1984) did not record any attacks by Red Fox on beaver. Red Fox predation on beaver seems to be unusual. Only young beaver (1-2 months) are probably susceptible to fox attack while feeding on land and before having fully developed escape behavior (Wilsson 1971). Male kits are reportedly more cautious than females (Shadle 1956).

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