

Prey Escaping Wolves, *Canis lupus*, Despite Close Proximity

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Nelson, Michael E., and L. David Mech. 1993. Prey escaping Wolves, *Canis lupus*, despite close proximity. *Canadian Field-Naturalist* 107(2): 245-246.

We describe attacks by Wolf (*Canis lupus*) packs in Minnesota on a White-tailed Deer (*Odocoileus virginianus*) and a Moose (*Alces alces*) in which Wolves were within contact distance of the prey but in which the prey escaped.

Key Words: Wolf, *Canis lupus*, Moose, *Alces alces*, White-tailed Deer, *Odocoileus virginianus*, predation, predator-prey relations.

Observations of Wolves (*Canis lupus*) hunting White-tailed Deer (*Odocoileus virginianus*) and Moose (*Alces alces*) indicate that > 90% of chases result in the prey escaping predation (Mech 1966; Peterson 1977; Nelson and Mech unpublished). Nevertheless, human intuition suggests that prey that are grabbed or encountered within a Wolf's leaping distance would likely be killed, especially if several Wolves were attacking simultaneously.

Herein, we report two observations of single prey in northeastern Minnesota, 48° N, 92° W, escaping death from predation by several Wolves. Aerial tracking of radio-collared Wolves yielded the observational data (see Mech 1979), and Nelson made the observations.

On 7 March 1980, eight members of the Snowbank Lake pack were located just southeast of Clear Lake traveling east, single file, through 43 cm of snow which was a minimal hindrance to both Wolves and White-tailed Deer. Previous aerial observations indicated that there were 11 Wolves in the pack, but the tree canopy and terrain probably obscured the view of the entire pack. One Wolf, located 200 m north of the main group, was also observed moving eastward. The pack next made an abrupt and complete reversal of direction and started running just 1-2 m behind, and to the sides of, a bounding White-tailed Deer in their midst. The deer apparently ran into the Wolves, probably initially chased by other pack members apart from the main group and apparently unaware of the Wolves ahead on the escape route. Within 1-2 seconds the deer had increased its lead to 10-20 m. Within another 200-300 m there was only one Wolf pursuing the deer, and the deer was increasing its lead. After that, the deer stopped and looked back several times before moving on. Apparently the Wolf gave up the chase because the deer stopped moving during several minutes of observation, and the Wolf was not near it. Five minutes later, the pack was bedded down

near where the chase observation began.

At 1000 on 22 June 1992, seven members of the Pike Lake pack were seen attacking a cow Moose running in Arrowhead Creek, 1.6 km northwest of Helen, L. The creek was approximately 5 m wide and meandered with curves every 30-50 m. Wolves in the water appeared to be swimming. Some Wolves ran along each bank of the creek as the Moose ran and swam down the center. Other Wolves jumped toward the Moose from each bank and grabbed at what they could with their teeth. During at least one moment of the attack, all seven Wolves were hanging on the Moose.

One Wolf held the Moose's nose (Mech 1966, 1970) and was thrown from side to side by the thrashing Moose. Others grabbed the shoulders, flanks, and rump but were shaken off within seconds by the momentum and running motion of the Moose in water. One Wolf was even on top of the Moose during crossing of a deep section of the creek where the Moose appeared almost fully submerged. Once clear of the Moose, individual Wolves swam to the nearest bank, crawled out, shook themselves off, and then ran ahead to the next curve in the creek where they crouched and waited for the advancing Moose.

Once the Moose was opposite their position the Wolves leaped into the air landing with a splash just short of the Moose. At one time during the attack, the Moose momentarily flailed a mostly submerged Wolf with its front legs. After traveling a distance of about 500 m, the Moose abruptly reversed direction, but the Wolves continued the attack as previously described. At 1024 the Moose stopped running and stood in some shallows as the Wolves ceased the attack and rested on one bank. The Moose moved into deeper water but immediately returned to the shallows. The Moose appeared steady and strong with no large wounds or blood visible. The Wolves acted excited, and several rolled in the grass 50 m from the Moose, although

it was probably obscured from their view by thick willows (*Salix* sp.). The scene was unchanged when we left at 1042. Four hours later the Moose was gone but the Wolves remained bedded at the attack site. Three days later, the Pike Lake pack was 10 km distant, and there was no evidence of a dead Moose near Arrowhead Creek.

Our Moose observation is consistent with previous reports indicating that fleeing Moose tend to be killed, whereas Moose that stand and defend themselves survive (Mech 1966; Peterson 1977). Few published observations of Wolves killing deer exist (Mech and Frenzel 1971; Mech 1970; Pimlott et al. 1969). The present observation is contrary to those that do exist and to our unpublished data which suggest that Wolves are generally successful when they close to within 1–5 m of a deer they are chasing. Of 60 chases of Deer (including this account) observed between 1967 and 1993, Wolves chased to within 5 m of 16 deer and killed 12 of them. Thus 75% of close encounters but only 20% (12/60) of all chases observed resulted in kills. In 25 (42%) and 19 (32%) chases, Wolves got no closer than 10–50 m and 50–250 m, respectively, of fleeing deer.

In two of the four escapes at < 5 m, aggressive behavior by the deer toward the Wolves aided the deer's escape. In the third chase, speed alone enabled a successful flight. The fourth escape is the Clear Lake account where apparently the element of surprise and maximum speed by the deer when first encountering the Wolves was more than the Wolves could successfully react to and negated any numerical advantage the Wolves had.

These two accounts emphasize how inadequate human intuition and perception can be in understanding the nature of predation. In both attacks, individual prey escaped imminent death from an overwhelming number of Wolves. For deer, at least 25% escape despite close proximity to Wolves which suggests that the deer observation herein is not an extremely rare event. These observations also demonstrate the difficulty Wolves can encounter when attempting to kill swift and large-bodied prey (Nelson and Mech 1985; Mech and Nelson 1990).

Acknowledgments

This investigation was funded by the USDI Fish and Wildlife Service and the USDA North Central Forest Experiment Station. We thank Wayne Erickson, USDA Forest Service, for skillfully piloting the tracking aircraft.

Literature Cited

- Mech, L. D. 1966. The Wolves of Isle Royale. National Parks Fauna Series Number 7. United States Government Printing Office. 210 pages.
- Mech, L. D. 1970. The Wolf: ecology and behavior of endangered species. Natural History Press (Doubleday Publishing Co., New York) 389 pages. [Reprinted in paperback by University of Minnesota Press, May 1981].
- Mech, L. D. 1979. Making the most of radio-tracking. Pages 85–95 in A handbook on biotelemetry and radio-tracking. Edited by Amlaner, C. J., Jr., and D. W. MacDonald. Pergamon Press, Oxford, England. 804 pages.
- Mech, L. D., and L. D. Frenzel, Jr. 1971. Ecological studies of the timber wolf in northeastern Minnesota. USDA Forest Service Research Report NC-52. North Central Forest Experiment Station, St. Paul, Minnesota.
- Mech, L. D., and M. E. Nelson. 1990. Evidence of prey-caused mortality in three wolves. *American Midland Naturalist* 123: 207–208.
- Nelson, M. E., and L. D. Mech. 1985. Observations of a wolf killed by a deer. *Journal of Mammalogy* 66: 187–188.
- Peterson, R. O. 1977. Wolf ecology and prey relationships on Isle Royale. United States National Park Service, Fauna Series 11. Washington, D.C. 210 pages.
- Pimlott, D. H., J. A. Shannon, and G. B. Kolenosky. 1969. The ecology of the timber wolf in Algonquin Provincial Park. Ontario Department of Lands and Forests Research Report (Wildlife) Number 87. Ottawa. 92 pages.

Received 22 November 1992

Accepted 2 September 1993