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Note

Probable predation by an American Black Bear (*Ursus americanus*) on a Gray Wolf (*Canis lupus*) pup in northwestern Wisconsin

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Abstract

On 13 June 2023, we noted probable predation by an American Black Bear (*Ursus americanus*) on a male Gray Wolf (*Canis lupus*) pup in pine barrens of northern Bayfield County, Wisconsin. The wolf pup, which had been captured and radio-collared on 11 May 2023, was detected by mortality signal on 8 June 2023. Predation by black bears has previously been reported on Eastern Wolf (*Canis lycaon*), but our observation represents the first documentation of probable predation on Gray Wolves of which we are aware.

Key words: American Black Bear; *Ursus americanus*; predation; Gray Wolf; *Canis lupus*

Bears are known to be occasional predators of wolves in North America, but only two cases of predation by an American Black Bear (*Ursus americanus*) on wolves (*Canis* spp.) have been reported in the literature (Pimlott *et al.* 1969; Mills *et al.* 2008). In both studies, bears killed Eastern Timber Wolf (*Canis lycaon*). Ballard *et al.* (2003) summarized 26 interactions between black bears and wolves from studies published between 1944 and 1999, but they list only a single killing of an adult female eastern wolf reported by Pimlott *et al.* (1969); most were with Gray Wolf (*Canis lupus*) and did not involve killing. Mills *et al.* (2008) reported an American Black Bear killing an Eastern Timber Wolf pup. Because American Black Bear predation on Gray Wolves has previously not been reported, we provide documentation of such an event, observed in spring 2023.

The Red Cliff Band of Chippewa, Treaty Natural Resource Division, has monitored wolf packs on the Red Cliff Reservation and adjacent areas of the Bayfield Peninsula since 2014 by collaring adults through live trapping and hand capturing pups at den sites (Gable *et al.* 2024). The Battle Axe pack occurs in portions of Moquah Barrens (46.63°N, 91.26°W) in the Chequamegon-Nicolet National Forest, Bayfield County, Wisconsin, USA. The barrens are representative of an area of outwash sand plains savannah dominated by Jack Pine (*Pinus banksiana* Lambert), Red Pine (*Pinus resinosa* Aiton), Northern Pin Oak (*Quercus ellipsoidalis* E.J. Hill), and Trembling Aspen (*Populus tremuloides* Michaux) with an understorey made up of Sweet Fern (*Comptonia peregrine* (L.) J.M. Coulter), Sand Cherry (*Prunus pumila* L.), Little Bluestem (*Schizachyrium scoparium* (Michaux) Nash), Ricegrass (*Oryzopsis asperfolia* Michaux), Pennsylvania Sedge (*Carex pensylvanica* Lamark), and various other shrubs, forbs, and grasses. Along with Gray Wolves, common mammals in this area include Coyote (*Canis latrans*), Red Fox (*Vulpes vulpes*), American Black Bear, Fisher (*Pekania pennanti*), American Badger (*Taxidea taxus*), Bobcat (*Lynx rufous*), White-tailed Deer (*Odocoileus virginianus*), Plain's Pocket Gopher (*Geomys bursarius*), Thirteen-lined Ground Squirrel (*Ictidomys tridecemlineatus*), and various other small mammals.

Wolf pups were captured by hand at den sites

using methods similar to those described by Gable *et al.* (2024). Attempts were made to capture pups at about 4–6 weeks of age. Captured pups were fitted with breakaway expandable collars with VHF capacity (M1930 Mammal Collar, Advanced Telemetry Systems, Isanti, Minnesota, USA), and passive integrated transponders were implanted subcutaneously at the base of the neck and the lower right front leg. After weighing, processing, and examining for injuries, pups were released at site of capture.

On 11 May 2023, male Gray Wolf pup W465 (5.1 kg, appeared healthy, and ~5 weeks old) was captured with sibling male pup W355 (5.6 kg) ~285 m south of the pack's den site. These were the only pups seen at the time, although four wolves were seen at the den on 1 May 2023. On 15 May, an adult wolf was observed at the den site by trail camera, and on 25 May both pups were alive. When checked on 8 June, W465's signal indicated possible mortality, but we were unable to search for the carcass until 13 June. We found the remains at 1033 (CDT) in a small open patch in a dense brushy area of Jack Pine and aspen, with an understorey of Hazelnut (*Corylus americana* Walter) and other shrubs, forbs, and graminoids, 870 m south of the pack's main den and 800 m west of the nearest forest road.

The carcass consisted of twisted hide with legs and head; the trunk, including organs, vertebrate, ribs, and pelvis, was missing (Figure 1). The pup appeared to have been dead for a week or more. The hide had been pulled back along the legs, like a pair of pants partly removed to expose muscle. Hide remained only on the lower portions of the feet and on the skull with the skin on the skull displaced, i.e., one eye opening was not over the eye socket. A fracture was visible on part of the base of the skull (Figure 2), above the roof of the mouth, but there were no visible puncture wounds, suggesting that the skull had probably been broken by some form of blunt trauma, such as swatting of a large paw. Except for some minor chewing on the back of the right scapula, there was no evidence of feeding on bones. The radio collar was still in place around the neck, and both passive integrated transponders were functioning, further confirming the identity of W465. There was some evidence of possible bruising on the inside of the hide, but it was difficult to distinguish from post-mortem manipulation of the carcass.

Along with the adult visit at the natal den on 15 May 2023 as detected by the trail camera, adult wolf tracks were found 620 m east of the natal den on 22 May and 910 m north of the den on 25 May. Sibling W355 remained in the den area until 29 June, when he was detected 390 m southwest of the den after which his signal was lost. The regular occurrence of adults near the den and continued use of the den site by the sibling suggests that pups had not been abandoned.

Based on our observations, black bear predation seemed the most probable cause of death for wolf W465. Our observations are consistent with descriptions of typical American Black Bear predation on smaller mammals as described by Acorn and Dorrance (1990), Elbroch (2003), and VerCauteren *et al.* (2005). Elbroch (2003: 725) states that "An inverted carcass, inside out, is definitely a bear kill". Black bears are also known to drag carcasses into dense cover to feed, consistent with our observations.

American Black Bear predation has been previously reported on an adult female Eastern Wolf (Pimlott *et al.* 1969) and pup (Mills *et al.* 2008); thus, similar predation on Gray Wolf pups seems probable. American Black Bears readily hunt and kill White-tailed Deer fawns (Kunkel and Mech 1994; Warbington *et al.* 2017).

The Moquah Barrens lie within Wisconsin Bear Management Zone A, which covers 24 292 km^2 in the northwestern part of the state (Wisconsin DNR Advisory Committee 2019). In 2023, Zone A had an estimated population of 7710 bears or a density of 31.7 bears/100 km^2 (Margenau and Whipple 2024). This part of northwestern Wisconsin has a wolf density >2.5 wolves/100 km^2 (McDonnell *et al.* 2023). As a regular predator on neonate deer, it seems logical that bears would also opportunistically select other similar-sized neonate mammals, especially where bears occur at relatively high densities. Although we acknowledge that scavenging by a bear could have occurred, the fractured skull and careful skinning of the hide suggest direct predation by a bear.

Mortality factors for wolf pups are poorly known; intraspecific mortality from adjacent packs, disease, and starvation are the most common (Boyd *et al.* 2023). Predation by other carnivores, such as black bears, may also occur, but the frequency of this type of mortality for wolf pups is likely hard to detect and is currently unknown.

Author Contributions

Writing – Original Draft: A.P.W.; Writing – Review & Editing: R.N.J., A.E., E.R.O., and A.P.W.; Conceptualization: A.P.W.; Investigation: R.N.J., A.P.W., and E.R.O.; Methodology: R.N.J. and A.E.; Funding Acquisition: R.N.J. and A.E.

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FIGURE 1. Remains of Gray Wolf (*Canis lupus*) pup W465 on 13 June 2023, in the Moquah Barrens of northwestern Wisconsin. Photo: Ron Nordin.

the capture of the wolf pups and the search for wolf 465. We followed guidelines of the American Society of American Mammalogists to minimize any impact of our handling on wolf pup welfare (Sikes and the Animal Care and Use Committee of the American Society of Mammalogists 2016).

Literature Cited

Acorn, R.C., and M.J. Dorrance. 1990. Methods of Investigating Predation of Livestock. Alberta Agriculture and Rural Development, Edmonton, Alberta, Canada.

Ballard, W.B., L.N. Carbyn, and D.W. Smith. 2003. Wolf interactions with non-prey. Pages 259–271 *in* Wolves: Behavior, Ecology and Conservation. *Edited by* L.D.

Figure 2. Jaw of Gray Wolf (*Canis lupus*) pup W465 found dead on the Moquah Barrens of northwestern Wisconsin on 13 June 2023. The roof of the mouth shows a fracture resulting from trauma that apparently killed the wolf. Photo: Ron Nordin.

Mech and L. Boitani. University of Chicago Press, Chicago, Illinois, USA.

Boyd, D.K., D.E. Ausband, H.D. Cluff, J.R. Heffelfinger, J.W. Hinton, B.R. Patterson, and A.P. Wydeven. 2023. North American wolves. Pages 32.1–32.68 *in* Wild Furbearer Management and Conservation in North America. *Edited by* T.L. Hiller, R.D. Applegate, R.D. Bluett, S.N. Frey, E.M. Gese, and J.F. Organ. Wildlife Ecology Institute, Helena, Montana, USA. Accessed 22 January 2025. https://www.wildlifeecology.org/fur_book_32northamericanwolves.html.

Elbroch, M. 2003. Mammal Tracks & Sign: a Guide to North American Species. Stackpole Books, Mechanicsburg, Pennsylvania, USA.

Gable, T.D., S.M. Johnson-Bice, A.T. Homkes, and J.K. Bump. 2024. Single visits to active wolf dens do not impact pup recruitment or pack size. Wildlife Biology 2024: e01195. https://doi.org/10.1002/wlb3.01195

Kunkel, K.E., and L.D. Mech. 1994. Wolf and bear predation on White-tailed Deer fawns in northeastern Minnesota. Canadian Journal of Zoology 72: 1557–1565. https://doi.org/10.1139/z94-207

Margenau, L., and L. Whipple. 2024. Black Bear population analyses. Wisconsin Wildlife Reports, Wisconsin Department of Natural Resources, Madison, Wisconsin, USA. Accessed 15 February 2025. https://widnr.widen.net/s/22hzp2fjw9/bearpopanalyses2024.

McDonnell, A., R. Johnson, and L. Margenau. 2023. Wisconsin Gray Wolf monitoring report 15 April 2022 through 14 April 2023. Wisconsin Department of Natural Resources, Madison, Wisconsin, USA. Accessed 22 January 2025. https://widnr.widen.net/s/tlkjlrrhr7/wisconsin_gray_wolf_report_2023.

Mills, K.J., B.R. Patterson, and D.L. Murray. 2008. Direct estimation of early survival and movements in Eastern Wolf pups. Journal of Wildlife Management 72: 949–954. https://doi.org/10.2193/2006-457

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 & Forests, Toronto, Ontario, Canada.

Sikes, R.S., and the Animal Care and Use Committee of the American Society of Mammalogists. 2016. 2016 guidelines of the American Society of Mammalogists for the use of wild mammals in research and education. Journal of Mammalogy 97: 663–688. https://doi.org/10.1093/jmammal/gyw078

VerCauteren, K.C., R.A. Dolbeer, and E.M. Gese. 2005. Identification and management of wildlife damage. Pages 740–778 *in* Techniques for Wildlife Investigations and Management. *Edited by* C.E. Braun. Wildlife Society, Bethesda, Maryland, USA.

Warbington, C.H., T.R. Van Deleen, A.S. Norton, J.L. Stenglein, D.J. Storm, and K.J. Martin. 2017. Cause-specific neonatal mortality of White-tailed Deer in Wisconsin, USA. Journal of Wildlife Management 81: 824–833. https://doi.org/10.1002/jwmg.21260

Wisconsin DNR (Department of Natural Resources) Advisory Committee. 2019. Wisconsin Black Bear Management Plan 2019–2029. Wisconsin Department of Natural Resources, Madison, Wisconsin, USA. Accessed 22 January 2025. https://p.widencdn.net/wzas7l/bearplan.

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