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Prolonged Intensive Dominance Behavior Between Gray Wolves, *Canis lupus*

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Dominance is one of the most pervasive and important behaviors among wolves in a pack, yet its significance in free-ranging packs has been little studied. Insights into a behavior can often be gained by examining unusual examples of it. In the High Arctic near Eureka, Nunavut, Canada, we videotaped and described an unusually prolonged and intensive behavioral bout between an adult male Gray Wolf (*Canis lupus*) and a male member of his pack, thought to be a maturing son. With tail raised, the adult approached a male pack mate about 50 m from us and pinned and straddled this packmate repeatedly over 6.5 minutes, longer than we had ever seen in over 50 years of studying wolves. We interpreted this behavior as an extreme example of an adult wolf harassing a maturing offspring, perhaps in prelude to the offspring's dispersal.

Key Words: Gray Wolf, *Canis lupus*, behavior, dispersal, dominance behavior, harassment, parent-offspring conflict, Arctic, Nunavut, Canada.

Dominance is one of the most pervasive and important behaviors among Wolves in a pack (Schenkel 1947; Packard 2003), and much has been written about it in captive wolves (Schenkel 1947, 1967; Zimen 1982; Van Hoof and Wensing 1987). However, there is a dearth of published information about dominance behavior in free-ranging wolves, especially descriptions, context, and quantification. Dominance behavior can include a broad spectrum of social interactions from a parent wolf chastising a young pup to full-fledged battles (Mech 1993), sometimes resulting in death. In our experience, the most usual context of dominance behavior in free-ranging wolves is that of parent to offspring. However in the few free-ranging wolf packs observed closely enough, no one has quantified or even described parent-offspring dominance behavior (Murie 1944; Clark 1971; Haber 1977; Mech 1997). We observed and videotaped an unusual, prolonged and intensive bout of such behavior by an adult male Gray Wolf, *Canis lupus*, and a male member of his pack thought to be a maturing son. Because of the unusually persistent and intensive nature of this interaction we document it here.

Study Area and Methods

During summers 1986-2009, LDM and assistants studied Gray Wolves in the Eureka area of Ellesmere Island (80°N, 86°W), Nunavut, Canada, especially behavioral interactions among pack members and their dens (Mech 1997, 1999, 2000). The area is barren and has no trees. Wolves prey mostly on Muskoxen (*Ovibos moschatus*) and Arctic Hares (*Lepus arcticus*). From at least 1986 through 1997, a pack of 3–7 adult wolves produced pups almost annually in traditional dens in the area and again from 2004-2009. The wolves were unafraid of humans, so we could observe them from as close as 1 m and also follow them on all-terrain vehicles (ATVs) (Mech 1994). We used binoculars, a spotting scope, and video cameras to aid our observations. During summers 2003-2006, the pack was led by a large, bold, and all-white, male wolf that did raised-leg urinations (RLUs), a sign of dominance (Harrington and Asa 2003). From 2004 through 2006 we observed this wolf's pack with pups around a den, but in 2007 and 2008, no pack denned in the study area. However in August 2007, local weather station personnel observed a pack with pups that visited the area for a few days, along with the large, bold, all-white male. Although we could not document that animal's presence in 2008 when we documented an active den at least 20 km away (Mech and Cluff 2009), we believe we encountered that wolf in 2009 as a member of a pack of at least 12 adults plus pups.

At 1600 h on 8 July 2009, we darted via blowgun a 41.5-kg male Wolf with 10 mg Telazol™/kg, estimated his age at about 9 years based on tooth wear (Gipson et al. 2000), and attached a Telonics™ GPS/Argos/VHF radio collar. (Mention of brand names does not constitute endorsement by the U.S. government.) Based on his size, coat color, boldness, and age, we concluded that this Wolf was the bold male we had observed most years since 2003. When we encountered this wolf, before darting him he was with 4 others and was intensively dominating another wolf. When

we darted him his packmates remained in the immediate area until he recovered and left. We finished processing the wolf at about 1645 h and then observed him and his associates for the next 7.5 hr as he recovered, interacted with packmates, and traveled some 22 km toward the pack's den. On all-terrain vehicles (ATVs), we followed the wolves and observed and videotaped their behavior.

Results

At 1930 hr, the radioed wolf appeared fully recovered and was able to walk normally upslope. At 2120 hr, he stood over (Mech 2001) a packmate assumed to be a male (Schenkel 1947), and pinned him (Goodman and Klinghammer 1990) about 50 m from us. During the next 6.5 minutes, the radioed wolf with tail vertical, stood over (Figure. 1), pinned (Figure 2), or held the other Wolf down (Figure. 3), or by straddling (Figure 4) or riding up (Figure 5) on it (Goodman and Klinghammer 1990) forced it down (Figure 6) for almost all of the 6.5 min. See http://www.youtube.com/watch?v=wIRVpLaCDS0.

Although the 6.5 minutes of videotaped domination was the longest period of this type of interaction we observed during the 7 hr and 45 minutes that we watched this pack that day, it was only one of several such times we saw the radioed wolf behave similarly, including the time before we darted him. This domination was also directed towards at least two of the other four wolves in the group. (Note: the pack contained ≥ 12 adults including the collared male and ≥ 3 pups, all observed by homing in on the collared male by helicopter on 15 July.)

Discussion

Dominant wolves, which are usually the adult parents of the pack (Mech 1999) commonly dominate offspring by forcing them to the ground. We have found no literature documenting how long such interactions typically last, but in our experience observing wolves over a 50-year period and close up during many summers (Mech 1993, 1997, 1999, 2000), such behavior generally ends in less than 30 seconds. Domination usually ends when the subjugated wolf jumps up. During the 6.5-min bout that we videotaped, the dominant animal forced the other back down each time it tried to rise.

All of our observations of this dominating behavior by the radioed wolf were made after we had drugged and radio-tagged him. Conceivably the length, persistence, and intensity of the behavior could be related to our handling him. However, when we first observed this wolf before darting him he was dominating one of his packmates intensively. We only observed this for about 10 seconds, for our approach interrupted that activity. However we believe that that incident is strong evidence that the observation we report here

FIGURE 1. A dominant, breeding male wolf stands over a subordinate on Ellesmere Island, Nunavut, Canada during July 2009.

FIGURE 2. A dominant, breeding male wolf pins a subordinate on Ellesmere Island, Nunavut, Canada during July 2009.

FIGURE 3. A dominant, breeding male wolf holds down a subordinate on Ellesmere Island, Nunavut, Canada during July 2009.

FIGURE 4. A dominant, breeding male wolf straddles a subordinate on Ellesmere Island, Nunavut, Canada during July 2009.

FIGURE 5. A dominant, breeding male wolf rides up on a subordinate on Ellesmere Island, Nunavut, Canada during July 2009.

FIGURE 6. A dominant breeding male wolf forces a subordinate wolf down on Ellesmere Island, Nunavut, Canada during July 2009.

was merely a continuation of his normal behavior, not a consequence of the drugging. However, even if the behavior had been affected by the drugging, this observation still is of interest, for no one has reported such prolonged dominating under any circumstance.

A possible explanation for the behavior we report is that it represents domination on the part of a parent wolf toward a maturing offspring that eventually leads to the dispersal of that offspring. Although pre-dispersal harassment of this length and intensity within a pack has not been documented before, frequent chasing of individual wolves attempting to remain, follow, or join wolf packs is not uncommon (Mech 1966), and actual fights between parent and same-sex offspring in captivity have been reported (Packard et al. 1985). All these observations including ours would fit a hypothesis that adult wolves sometimes harass maturing offspring until they leave the pack and disperse.

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