

Non-Family Wolf, *Canis lupus*, Packs

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Three non-family Wolf packs of three are described from Minnesota. All included a male-female pair, and the extra member was related to one member in two cases, and probably related in the other.

Key Words: Wolf, *Canis lupus*, pack, pair bond, radio-tracking, telemetry.

Wolf (*Canis lupus*) packs are generally families of adults and offspring of various ages (Murie 1944; Mech 1970). Usually packs arise when an adult male and female meet, pair-bond and produce offspring (Rothman and Mech 1979; Fritts and Mech 1981). We refer to such packs as "family packs" and to all other packs as "non-family" packs. We have found no records of Wolf packs originating in ways other than through splitting of larger packs (Mech 1966, 1986), a phenomenon not well understood but which probably still results in family packs.

This note reports on three non-family Wolf packs studied in the central Superior National Forest of northeastern Minnesota during winter 1986-1987. Each pack included three members, all of which were radio-tagged and aerially radio-tracked and observed (Mech 1974).

The Garden Lake trio consisted of a male that recently had dispersed from one pack and in November 1986 began associating with two lone 30-month-old females which probably were sisters, based on their overlapping ranges. From 24 November 1986 through 3 April 1987, these three were found together by radio on 49 occasions and were observed together but with no other Wolves

19 times (Mech and Nelson 1989). Both females produced pups that summer.

The Little Gabbro trio included a female at least 7-years old whose mate had died in July 1986. By 15 August 1986, 2-year-old male Wolf 6689 which had dispersed from a neighboring pack began associating with this female. On 15 of 15 occasions from 15 August through 11 November 1986 the two were found together by radio. On 16 September and 15 October 1986, 1-year-old male Wolf 6875, a brother to 6689 was found by radio to be with or near the pair. The three were then found together by radio on 6 of 7 occasions from 17 November through 18 December 1986 and were observed together three times until 23 December 1986 when the female was killed in an illegal snare. The two sibling males were then found together by radio 7 of 10 times they were located between when the female died and 22 January 1987. After that, they remained apart permanently.

The Pike Lake trio was formed about 1 December 1986, when male Wolf 6041, at least 7-years old, and male 6899, his 19-month-old son, began associating with 19-month-old female 413 who had dispersed from a neighboring pack. Wolf 6041's most recent mate had died in October 1986.

Members of the new assemblage were found together by radio on 38 of 43 occasions from 1 December 1986 through 23 March 1987, and were seen together 12 times between those dates. After that, 6899 left the pair and began moving alone. From 26 March through 21 October, 6899 was found with the pair only three of 31 times.

Although none of these packs of Wolves was a natural family, all had in common a male-female pair. In two of the three cases the extra member was related to one of the others, and in the third case the extra member was probably related. All three associations remained intact for several months, but in two the extra member left after late March, and in the third case the death of one of the pair members ended the observation prematurely. One of the surviving packs produced pups the following summer (Mech and Nelson 1989), and the other a year later.

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