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LONGEVITY AND ADAPTABILITY OF A REINTRODUCED GRAY WOLF

DE AUSBAND, J HOLYAN, AND C MACK

Key words: Gray Wolf, *Canis lupus*, longevity, adaptability, reintroduction, translocation, Rocky Mountains

Reintroductions of animals to their historic range often fail (Kleiman 1989; Fischer and Lindenmayer 2000) and the reasons for reintroduction failure vary widely (Griffith and others 1989; Price 1991; Ginsberg 1994; Sarrazin and Barbault 1996; Seddon 1999; Fischer and Lindenmayer 2000; Letty and others 2007). Gray Wolves (*Canis lupus*), however, are an example of successful species reintroduction (Bangs and others 2001; USFWS 2006). Wolves were reintroduced to central Idaho and Yellowstone National Park (USA) in 1995 and 1996 (Bangs and Fritts 1996). By the end of 2007, there were an estimated 1500 wolves in the Rocky Mountain states of Idaho, Montana, and Wyoming (USFWS 2008).

Wolves can survive long periods of time in the wild (Holyan and others 2005) and presumably produce numerous offspring. Theberge and Theberge (1998) documented a 15-y-old male wolf in Algonquin Park, Ontario, Canada. Genetic data indicated it had bred successfully with evidence of 3rd-generation individuals in the population. We describe the longevity and adaptability of a male Gray Wolf reintroduced into the Rocky Mountains of Idaho and later translocated twice to other areas in the Rocky Mountains to resolve livestock depredations. We use the term adaptability in the general sense not the evolutionary sense, and define it as ''[the ability] to adjust oneself readily to different conditions'' (Random House 1997).

As part of a federal reintroduction effort, 66 wolves were captured in Canada and transported to central Idaho and Yellowstone National Park in 1995 and 1996. They were fitted with radio-collars, released (Bangs and Fritts 1996), and subsequently monitored more than once per month via radio telemetry (ground and fixed-wing) and ground searches. In addition, field crews obtained pup counts annually through ground searches of the radio-collared animal's localizations, but occasionally from the air via fixed-wing aircraft when wolves were visible (USFWS 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007).

Male wolf B7 was captured in Alberta, Canada on 12 January 1995 as a subadult (1- to 2-y-old) member of the Oldman River pack. He was released in central Idaho on 20 January 1995 and paired the following year with another wolf (B11) released the same day approximately 76 km away. They moved to and localized in the Big Hole Valley, Montana, 137 km from B7's release site, where they preyed upon livestock on private land on 1 October 1996 (Fig. 1). Trapping was initiated to translocate B7 to a more desirable location, but he eluded capture. On 7 November 1996, B7 and B11 were confirmed to have attacked and injured 2 heifers on 1 ranch. Both were recaptured on 18 December 1996 and transported to a facility in the Selway-Bitterroot Wilderness, Idaho. In February 1997, B7 escaped his enclosure (Fig. 1) and remained outside the pen for about 14 d before returning 114 km to the Big Hole Valley (Fig. 1). B7 was recaptured 11 April 1997 in the Big Hole Valley and placed back into captivity at the Selway-Bitterroot Wilderness facility. B7 and B11 were then translocated and released along the North Fork Clearwater River, Idaho, in August 1997 (Fig. 1). They established a territory and founded a pack along the Idaho and Montana border near Lolo Pass, USA, about 107 km from the North Fork Clearwater River and 155 km from the Big Hole Valley (Fig. 1). B7 sired his 1st litter of pups in 1998 and remained a breeding male in this pack until at least 2001, producing litters each year except 2000 (no pups observed) (USFWS 1999, 2000, 2001, 2002). After 2001, his social status within the pack was less certain, although his continued pack mem-

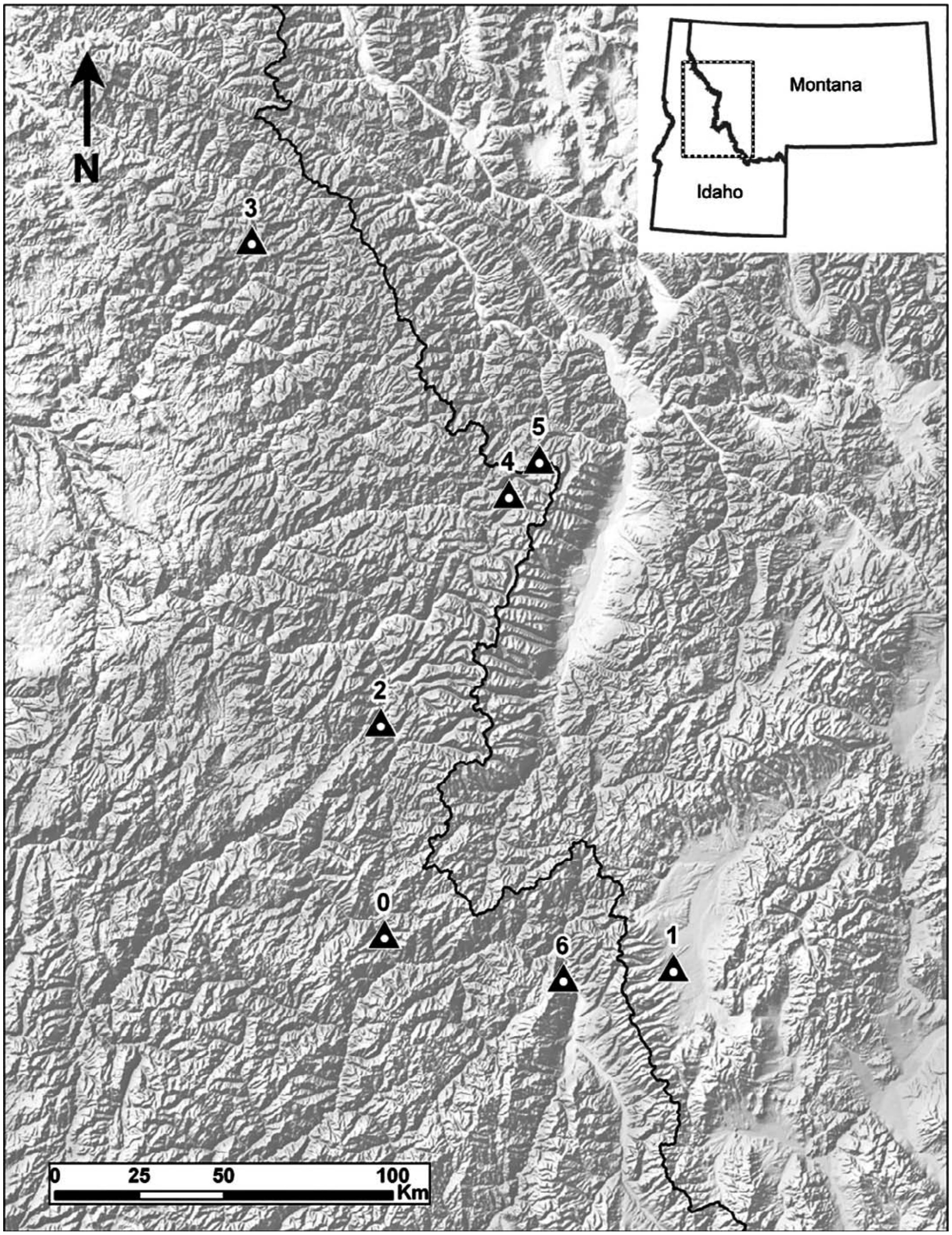

FIGURE 1. Map illustrating translocations and localizations of a reintroduced male Gray Wolf after being captured in Canada and brought to the USA in 1995. 0 = initial release site; 1 = Big Hole Valley; 2 = holding facility in Selway-Bitterroot Wilderness; 3 = North Fork Clearwater River; 4 = Pack territory; 5 = Last known location; 6 = Death.

bership suggests he remained a breeding male. B7 likely sired 5 litters of pups from 1998 to 2003 and possibly as many as 8 litters through the summer of 2006 (USFWS 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007), assuming he was still present with the pack as subsequent observations of a wolf wearing a nonfunctioning radio-collar indicated (B7's radio-collar expired after 5 June 2003). B7 was found dead on 8 January 2007 after being struck by a vehicle 154 km from his last known location and 29 km from the Big Hole Valley where he originally localized after reintroduction (Fig. 1). His estimated age at death was 14–15 y.

Wild wolves live as long as 15 y (Theberge and Theberge 1998; Holyan and others 2005), although most wolves in unexploited populations die at an average of 4 y (pers. comm., D Guernsey, Yellowstone National Park). Translocated wolves typically have lower survival rates than non-translocated wolves and are less likely to establish or join a pack (Bradley and others 2005). Despite the low odds of success, B7 survived 1 reintroduction and 2 translocations, and based on annual pup counts conducted in this pack, may have sired 20 to 28 pups (USFWS 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007), contributing greatly to wolf restoration efforts in the Rocky Mountains.

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Montana Cooperative Wildlife Research Unit, 205 Natural Sciences Building, University of Montana, Missoula, MT, USA 59812 (DEA); *Gray Wolf Recovery Project, Nez Perce Tribe, P.O. Box 1922 McCall, ID, USA 83638* (JH, CM). *Submitted 21 March 2008, accepted 30 July 2008. Corresponding Editor: Eric Lofroth.*

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BEHAVIORAL THERMOREGULATION BY A MATERNITY COLONY OF LITTLE BROWN BATS IN THE YUKON

BRIAN G SLOUGH

Key words: *Myotis lucifugus*, Little Brown Bat, basking, behavioral thermoregulation, crevice roost, maternity colony, Yukon

Temperate zone bats can achieve a large reduction in energy expenditure through daily torpor (Studier 1981; Geiser 2004), social thermoregulation (Willis and Brigham 2007), and the selection of roosts with appropriate microclimates (Lausen and Barclay 2003). Possible costs involved with use of torpor include prolonged gestation (Deitz and Kalko 2006) and decreased milk production (Wilde and others 1999) which may delay juvenile growth. Basking, passive re-warming, and social thermoregulation are used by many species of birds and mammals to re-warm from torpor (Geiser and others 2004). Several bat species are known to use passive re-warming as well as social thermoregulation (Geiser and others 2004).

Little Brown Bats (*Myotis lucifugus*) in a maternity colony roosting in rock crevices in the Yukon were observed basking in the sun on horizontal ledges at the edges of rock crevice roosts. I investigated the basking behavior of