

Acknowledgments

Robert Rausch provided helpful comments on drafts of the manuscript. Gordon Jarrell provided museum data. Mark Korti, Amie Stevens, Lara Dehn helped in many ways in the field and lab. Daniel J. Cox, Natural Exposures, Bozeman, Montana, took the photo. We thank them all.

Literature Cited

- Bee, J. W., and E. R. Hall.** 1956. Mammals of Northern Alaska. Miscellaneous Publication (8): 1-309, University of Kansas Museum of Natural History, Lawrence, Kansas.
- Belk, M. C., and M. H. Smith.** 1996. Pelage coloration in Oldfield Mice (*Peromyscus polionotus*): antipredator adaptation. *Journal of Mammalogy* 77: 882-890.
- Duke, G. E., O. A. Evanson, and A. Jegers.** 1976. Meal to pellet intervals in 14 species of captive raptors. *Comparative Biochemistry and Physiology* 53: 1-6.
- Gaines, M. S.** 1985. Genetics. Pages 845-883 in *Biology of New World Microtus*. Edited by R. H. Tamarin. Special Publication (8): 1-893, American Society of Mammalogists.
- Holt, D.W.** 1990. "Blond" color morph of Meadow Voles, *Microtus pennsylvanicus*, from Massachusetts. *Canadian Field-Naturalist* 104: 596-597.
- Holt, D. W., L. J. Lyons, and R. Hale.** 1987. Techniques for differentiating the pellets of Short-eared Owls and Northern Harriers. *Condor* 89: 929-931.
- Krupa, J. J., and K. N. Geluso.** 2000. Matching the color of excavated soil: cryptic coloration in the Plains Pocket Gopher (*Geomys bursarius*). *Journal of Mammalogy* 81: 86-96.
- Marti, C. D.** 1987. Raptor food habits studies. Pages 67-80 in *Raptor Management Techniques Manual*. Edited by B. A. Giron-Pendleton, B. A. Millsap, K. W. Kline and D. M. Bird. Technical Series (10). National Wildlife Federation, Washington, D.C.
- Munsell Soil Color Charts.** 2000. Gretag/MacBeth, New York.
- Rausch, R. L., and V. R. Rausch.** 1974. Taxonomy and zoogeography of *Lemmus* spp. (Rodentia: Arvicolinae), with notes on laboratory-reared lemmings. *Zeitschrift für Säugetierkunde* 40: 8-34.
- Stenseth, N. C., and R. A. Ims.** 1993. The evolutionary history and distribution of lemmings – an introduction. Pages 37-43 in *The Biology of Lemmings*. Edited by N. C. Stenseth and R. A. Ims. Academic Press, London.
- Taitt, M. J.** 1993. Adaptive coloration in *Lemmus lemmus*: Why aren't Norwegian Lemmings brown? Pages 439-445 in *The Biology of Lemmings*. Edited by N. C. Stenseth and R. A. Ims. Academic Press, London.
- Thompson, D. Q.** 1955a. The ecology and population dynamics of the Brown Lemming (*Lemmus trimucronatus*) at Point Barrow, Alaska. Unpublished Ph.D. Dissertation, University of Missouri, Columbia. 138 pages.
- Thompson, D. Q.** 1955b. The 1953 lemming emigration at Point Barrow, Alaska. *Arctic* 8: 37-45.

Received 6 March 2001

Accepted 9 February 2004

White Color Phase of the Swift Fox, *Vulpes velox*

JAN F. KAMLER¹ and WARREN B. BALLARD

Department of Range, Wildlife, and Fisheries Management, Box 42125, Texas Tech University, Lubbock, Texas 79409 USA

¹Present address: Polish Academy of Sciences, Mammal Research Institute, 17-230 Białowieża, Poland

Kamler, Jan F., and Warren B. Ballard. 2003. White color phase of the Swift Fox, *Vulpes velox*. *Canadian Field-Naturalist* 117(3): 468-469.

While live-trapping Swift Foxes (*Vulpes velox*) in northwestern Texas, we captured and radio-collared a Swift Fox that exhibited a white pelage and light blue eyes. Although white color phases and light blue eyes have been reported for other canid species, this is the first documentation for Swift Foxes.

Key Words: Swift Fox, *Vulpes velox*, Texas, white color phase.

Although Gray Wolves (*Canis lupus*) and Red Foxes (*Vulpes vulpes*) can exhibit several color phases (Ballard and Gipson 2000; Kamler and Ballard 2002), most canid species, including Coyotes (*Canis latrans*), Gray Foxes (*Urocyon cinereoargenteus*), Kit Foxes (*Vulpes macrotis*), and Swift Foxes (*Vulpes velox*), exhibit only one color phase. Variations in eye color are rarely reported for any canid species. We document the occurrence of a white color phase and light blue eyes in the Swift Fox.

On 26 September 2000, at Rita Blanca National Grasslands (36-2° N, 102-40° W) in Dallam County, Texas, we captured and radio-collared a juvenile female Swift Fox that had a white pelage and light blue eyes (trapping was part of a research project on Swift

Fox ecology in Texas). We recaptured this individual six times and monitored her on the study site until late December when she presumably dispersed. This individual was not an albino since the eyes were light blue rather than pink, and some guard hairs on the tail, back, and muzzle were black. Photographs of the white Swift Fox are deposited in The Museum, Texas Tech University, Lubbock.

We interviewed a local trapper (with no knowledge of the white Swift Fox we captured) who stated he captured a juvenile male and an adult male Swift Fox with white pelage and light blue eyes in January 2001 on land adjacent to our study area. This man also stated that he trapped Swift Foxes in that area for approximately 20 years, but had never previously captured

white Swift Foxes. This information suggests that the white color phase and light blue eyes are a genetic mutation that can be inherited by Swift Foxes.

A white pelage and/or light blue eyes have been reported in other canid species. In addition to albino Coyotes documented by Young and Jackson (1951), one litter of Coyotes in Nebraska contained four young that had a white pelage and milky blue eyes, suggesting those characteristics were inherited. Cole and Shackelford (1943) reported that some litters of farm-raised Red Foxes contained all white pups. Gray Wolves exhibit a white color phase, especially in the high Arctic (Miller 1995), and light blue eyes also have been reported in this species (Mech 2000).

Acknowledgments

This research project was funded by Texas Tech University and Texas Parks and Wildlife Department. This is Texas Tech University College of Agricultural Sciences and Natural Resources technical publication T-9-899.

Death of Gray Wolves, *Canis lupus*, in Porcupine *Erethizon dorsatum*, Dens in Wisconsin

ADRIAN P. WYDEVEN¹, SARAH R. BOLES¹, RONALD N. SCHULTZ¹, and THOMAS DOOLITTLE²

¹Wisconsin Department of Natural Resources, 875 S. 4th Ave., Park Falls, Wisconsin 54552 USA

²Bad River Band of Chippewa, Environmental Protection/Natural Resource Department, Odanah, Wisconsin 54861 USA

Wydeven, Adrian P., Sarah R. Boles, Ronald N. Schultz, and Thomas C. J. Doolittle. 2003. Death of Gray Wolves, *Canis lupus*, in Porcupine, *Erethizon dorsatum*, dens in Wisconsin. *Canadian Field-Naturalist* 117(3): 469-471.

Three Gray Wolves (*Canis lupus*) were found dead in porcupine (*Erethizon dorsatum*) dens in northern Wisconsin between 1996-2000. Use of these dens appeared to be cases of shelter-seeking behavior by wolves suffering from sarcoptic mange.

Key Words: Gray Wolf, *Canis lupus*, Porcupine, *Erethizon dorsatum*, den, sarcoptic mange.

Mammals suffering the affects of debilitating diseases may display unusual behavior in attempts to alleviate discomfort. Gray Wolves (*Canis lupus*) affected by sarcoptic mange may lose normal fears and attempt to seek shelter in areas not normally used by them, including buildings (Todd et al. 1981). During a 35-day period in December 1995-January 1996, four of 25 radio-collared wolves being monitored, including wolf 234M, died with severe mange cases (Wisconsin DNR files). One of the mange affected wolves had also been shot, while effects of sarcoptic mange was the primary cause of death of the other three. We describe one of these wolves with mange seeking shelter and dying in Porcupine (*Erethizon dorsatum*) den in Wisconsin, and describe two additional wolves that died in Porcupine dens in later years.

Wolf populations in Wisconsin have been monitored annually since 1979 by snowtrack surveys, and by livecapturing and radiotracking (Wydeven et al. 1995). On 10 January 1996, a mortality signal was received from adult 234M, a male collared initially

Literature Cited

- Ballard, W. B., and P. S. Gipson.** 2000. Wolf. Pages 321-346 in *Ecology and management of large mammals in North America*. Edited by S. Demarais and P. R. Krausman. Prentice-Hall, Inc., Upper Saddle River, New Jersey.
- Cole, L. J., and R. M. Shackelford.** 1943. White spotting in the fox. *American Naturalist* 77: 289-321.
- Kamler, J. F., and W. B. Ballard.** 2002. A review of native and nonnative red foxes in North America. *Wildlife Society Bulletin* 30: 370-379.
- Mech, L. D.** 2000. *The wolves of Minnesota: howl in the heartland*. Voyageur Press, Stillwater, Minnesota. 128 pages.
- Miller, F. L.** 1995. Status of wolves on the Canadian arctic islands. Pages 35-42 in *Ecology and conservation of wolves in a changing world*. Edited by L. N. Carbyn, S. H. Fritts, and D. R. Seip. Canadian Circumpolar Institute, Edmonton, Alberta.
- Young, S. P., and H. T. Jackson.** 1951. *The clever coyote*. University of Nebraska Press, Lincoln. 411 pages.

Received 16 May 2001

Accepted 22 March 2004

14 May 1994, that appeared to have been living as a loner at the periphery of the Torch River Pack since summer 1996.

Wolf 234M was located in a porcupine den at the base of an uprooted Red Maple (*Acer rubrum*) with an opening height of 25 cm and width of 50 cm (Figure 1). The site was in a lowland of mixed conifer-hardwoods in Ashland County, Wisconsin (latitude 46° 4' N, longitude 90° 38' W). Wolf 234M was detected on mortality mode at 1345, and the carcass was located at 1600 on 10 January; he had last been detected alive on 3 January 1996 1.6 km to the northeast.

The wolf was suffering from advanced stages of sarcoptic mange, and porcupine quills covered extensive areas of the body (Figure 2). Sarcoptic mange as well as heart failure and systemic infection appeared to be the main causes of death (N. J. Thomas, personal communication). At the time of death, 43-50 cm of snow covered the ground, and night temperatures were -24°C or lower.