

MANAGEMENT OF A BITING LOUSE INFESTATION IN A FREE-RANGING WOLF POPULATION

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Abstract

The biting louse *Trichodectes canis*, previously unreported in Alaska, was found in the Kenai Peninsula wolf population in 1981. In 1982, biologists determined five packs contained infested wolves. Wildlife ectoparasitologists estimated the infestation would spread with continued high morbidity and intensity. With public input, the chosen action was to monitor the infestation while determining if treatment was an available alternative. Ivermectin was given to captive infested wolves with positive results, and treatment of the infested free-ranging packs was undertaken. Pups born to previously infested, treated adults were examined and found free of lice. Overall success of the treatment will be monitored through the harvest of wolves by trappers and recapture of radio-collared individuals.

During the winters of 1981-82 and 1982-83, several wolves harvested on Alaska's Kenai Peninsula were infested with the dog biting louse, *Trichodectes canis*. This parasite had not been previously reported in Alaskan wildlife (5). In 1982, biologists determined that five of the approximately twenty wolf packs on the Kenai Peninsula contained infested wolves. Of these five packs, all members of three were infested, with the remaining two packs having only one recently adopted member infested.

Symptoms of infested wolves were alopecia and seborrhea. The alopecia involved both guard hair and underfur, with varying degrees of severity. All infested wolves had some hair loss on the back and groin with several wolves having up to 75 percent of the body involved. Pups had a much higher level of alopecia. Self-inflicted trauma caused by severe pruritus resulted in lesions of inflammation, crust and infected sores. The intensity of the infestation increased throughout the winter.

Wildlife ectoparasitologists theorized that both the high morbidity and intensity would continue for many years. This theory, coupled with the social and dispersion behavior of wolves, made biologists concerned over the spread of the infestation to wolves and possibly coyotes throughout the Kenai Peninsula and, eventually, throughout Alaska. Veterinarians in Alaska were contacted to determine if *T. canis* was endemic in the canine population. Very few cases of lice were reported, and, of those that were identified, most were the sucking louse, *Linognathus setosus*.

With the information available, it was decided by the Department to address the problem. However, management decisions concerning wolves can result in extensive public controversy. Therefore, the following optional methods of dealing with the problem were presented to the public: 1) to do nothing, 2) to monitor the situation while attempting to find a method and means of treating all infested wolves, 3) to kill all wolves in infested packs and close hunting and trapping seasons on wolves until packs reestablish in the area, or 4) to kill all but the alpha pair in the infested packs and treat the alpha pair.

Both biologically and economically, it would have been best to eliminate infested individuals by aerial shooting. Removal of 25 wolves from the Kenai Peninsula would have had little effect on the wolf population there after a year or two of closed hunting and trapping seasons. However, given the emotionalism surrounding the species, the Department and the U.S. Fish and Wildlife Service did not feel we could afford the uproar that would follow such a course, so we jointly decided on the drug treatment option.

Information was being gathered on an experimental antiparasitic drug (ivermectin) which has since been released in the U.S. for use in horses. In experimental treatment studies, ivermectin had been shown effective in the treatment of the scabies mite in cattle, bighorn sheep and dogs (2,3,6). It was also effective on sucking lice in pigs, and sucking and biting lice in cattle (1,4).

Three wolves infested with *T. canis* were placed in captivity and treated with ivermectin. To assess the effectiveness of the drug and the methods by which it could be administered, each wolf was treated

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differently and given only one treatment. One was given an intramuscular injection, the second was given direct oral treatment, and the third was given indirect oral dosing via a drug-treated piece of meat. The ivermectin was effective at killing adult and nymphal stages of this louse in all three methods of administration. However, it does not kill eggs, which normally hatch in seven to ten days. Therefore, the wolves were examined at ten-day intervals to determine if tissue levels of the drug remained high enough with one treatment to kill hatching lice. After four examinations, the wolves remained lice free and were released.

The excellent results of the experiment justified the treatment of free-ranging wolves within the area of known infestation. Wolves were immobilized by darting from a helicopter and given intramuscular injections of ivermectin. In addition, drug treated baits were placed at kill sites and den locations. By early March 1983, all known infested wolves had been treated with ivermectin.

On 8 June 1983, dens from two of the previously infested packs were located via radio-collared adults. Five pups, approximately five weeks of age, were examined at each den with no evidence of lice being found. Two pups from each den were placed in the Anchorage Zoo and examined periodically. No lice have been found on the captive pups.

Overall success of the treatment will be monitored through the harvest of the wolves by trappers and recapture of radio-collared individuals.

References

1. Barth, D. and Brokken, E.S. The activity of 22, 23 - dihydroa-ivermectin B¹ against the pig louse, Haematopinus suis. Vet. Rec. 106:388, 1980.
2. Barth, D. and Sutherland, I.H. Investigations of the efficacy of ivermectin against ectoparasites in cattle. Zentralbl. Bakteriol. Parasit. Infekt. Hyg. 1 Abt, 57:267-319, 1980.
3. Kinzer, H.G., Meleney, W.P., Lance, R.E., Jr. and Houghton, W.E. Preliminary evaluation of ivermectin for control of Psoroptes ovis in desert bighorn sheep. J. Wildl. Dis. 19:52-54, 1983.
4. Llovd, J.E., Kumar, R. and Jones, C.J. Cattle lice control 1980. Proc. Entomol. So. Am. 6:190-191, 1981.
5. Schwartz, C.C., Stephenson, R. and Wilson, H. Trichodectes canis in the gray wolf and coyote on Kenai Peninsula, Alaska. J. Wildl. Dis., In Press.
6. Yazwinski, T.A., Pote, L., Tilley, W., Rodriguez, C. and Greenway, T. Efficacy of ivermectin against Sarcoptes scabies and Otodectes cynotis infestations of dogs. Vet. Med. Small Anim. Clin. 76:1749-1751, 1981.



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