Pediculosis of mule deer and white-tailed deer fawns in captivity

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During spring 1985, 7 white-tailed deer fawns (Odocoileus virginianus) and 2 mule deer (O hemionus) fawns were obtained from wild and captive deer herds at 1 to 3 days of age and were bottle-fed and raised together in indoor pens at Washington State University, until weaned at 10 to 13 weeks of age. Infestations of lice (Linognathus africanus; Fig 1) were first noticed on 4 of the fawns (2 white-tailed deer and 2 mule deer) after weaning, when the fawns were moved to an outdoor facility. Two of the deer, a female white-tailed deer and a female mule deer, were severely infested (approximately 5,000 lice on each), whereas each of the other 2 deer had 50 to 500 lice. Numbers of lice were estimated by counting lice on several areas of the body and then estimating total numbers. The severely infested fawns had alopecia, dermatitis, depression, and poor growth, as compared with noninfested fawns. Before treatment for pediculosis, one severely infested fawn had approximately 50% hair loss, including hair loss from the face. Lesions were not seen on the 2 fawns that were infested lightly (50 to 500 lice).

Initially, each infested fawn was dusted with approximately 28 g of coumaphos powder.* Each of the 9 fawns (5 noninfested and 4 infested) were monitored weekly for lice. One application of coumaphos completely eliminated lice on the 2 lightly infested fawns and reduced the numbers of lice >90% on the two severely infested fawns; however, 4 weeks later, the 2 fawns that initially had been severely infested redeveloped severe infestations; repeated applications of coumaphos on days 30 and 39 after initial treatment did not reduce louse numbers on these fawns. Both fawns maintained poor hair coats and redeveloped depression.

Ivermectin§ (0.2 mg/kg of body weight) was administered intramuscularly to the 2 severely infested fawns. Louse numbers were reduced >90% within 7 days, but were not eliminated. Louse numbers on these fawns remained between 300 to 500 for the next 3 weeks. A second ivermectin treatment 3 weeks after the first treatment further reduced louse numbers, but still did not eliminate them.

During a period of extreme cold weather (approximately 4 weeks after the second ivermectin treatment), lice were found on one of the previously lightly infested mule deer fawns that had been louse free since the first coumaphos treatment and on a white-tailed deer fawn that had never been infested. Ivermectin (0.2 mg/kg) was administered intramuscularly to each of these 2 fawns. Lice were eliminated from the mule deer within 14 days, but were only reduced in number on the white-tailed deer fawn. During the cold weather, the fawns were seen bedding close to each other, with direct contact. The development of pediculosis on the 2 fawns that had been louse-free may have been due to transmission by direct contact with an infested fawn or caused by infestation with drug-resistant lice that had not been detected earlier.

Coumaphos and ivermectin are highly efficacious against species of Bovicola, Solenopotes, and Linog-
nathus on cattle, however, neither were effective at consistently eliminating louse infestations of L africanus on the mule deer and white-tailed deer fawns of the present report. Initial treatment with coumaphos eliminated infestations on 2 of the 4 infested fawns, but was not effective after the first treatment. The lice may have developed a resistance to coumaphos when the deer were first treated. This resistance may have been enhanced in future generations of the lice. Resistance of L africanus to rotenone, chlorinated hydrocarbons, and organophosphate insecticides has been reported in Angora goats. In the present report, ivermectin consistently reduced louse numbers, but was ineffective at eliminating infestations on all but one fawn. The difficulty in completely eradicating infestations of L africanus (using 2 drugs effective against other species of sucking lice), the resistance of L africanus to selected insecticides, and the debilitating effects of severe infestations in mule deer fawns and white-tailed deer fawns indicate the potential hazard of pediculosis due to L africanus in deer raised in close quarters. Although the original source of the lice was not determined, the lice probably were introduced from one of the wild fawns brought into the facility. Severe infestations with L africanus have been associated with exsanguination anemia in wild mule deer in California.

1. Wright RE. Efficacy of roxan as a pour on and coumaphos as a dust for control of cattle lice. Acada Entomol 1986;103:35–88.
3. Drummond RO. Efficacy of ivermectin for control of arthropod pests on livestock. SW Ent (Suppl) 1985;7:34–42.