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nally, the barn owl (*Tyto alba*) carried a lower burden of lice than the other raptors. Aside from the red-tailed hawk, it was the only host to support two parasite species. The most common species was *Strigiphilus aitkeni* Clay, 1966, which occurred over head-neck and body, while only two specimens of *Kurodaia subpachygaster* (Piaget, 1880) were recovered from the body.

We should like to thank Dr. R. D. Price for identifying the Mallophaga.

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Xylazine Hydrochloride-induced Anorexia in White-tailed Deer

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Xylazine hydrochloride (Rompun, Haver-Lockhart Laboratories, Shawnee, Kansas 66201, USA) is a commonly used immobilizing drug in wildlife research. Many of its physiological effects on white-tailed deer (*Odocoileus virginianus*) are known (Gibson et al., 1982, Zoo Biol. 1: 311–322), but no published reports exist on its action in inducing anorexia in white-tailed deer. Simpson et al. (1983, Vet. Rec. 112: 385) reported suppressed appetite in red deer (*Cervus elaphus*) calves immobilized with xylazine hydrochloride. Our paper reports on xylazine hydrochloride-induced anorexia observed during a 1-yr nutritional experiment with adult male white-tailed deer.

Details on experimental animals and design can be found in Warren et al. (1981, J. Wildl. Manage. 45: 926–936). Seven individually penned deer were fed a commercially prepared deer feed at two levels—ad libitum or 75% ad libitum. Feed intake was measured daily for the entire experiment. Xylazine hydrochloride was injected intramuscularly with blow-gun syringes (Warren et al., 1979, J. Wildl. Dis. 15: 537–541) once every 4 wk during the 1-yr experiment. Doses were 3.3 mg/kg (April–October) and 1.7 mg/kg (November–February).

For the purpose of the current report, feed intake data for individual deer were pooled over the entire year in order to demonstrate the effect of xylazine hydrochloride on feed intake. These pooled data were tested by analysis of variance (Barr et al., 1976, A User's Guide to SAS, Sparks Press, Raleigh, North Carolina, 329 pp.) with a split-plot design to determine differences in feed intake between diet levels and days after xylazine hydrochloride injection, as well as the diet by day interaction. A diet by day interaction would indicate that ad libitum-fed deer responded differently to the drug than 75% ad libitum-fed deer. Comparisons of means for significant differences were conducted as described by Steel and Torrie (1980, Principles and Procedures of Statistics, 2nd Ed., McGraw-Hill Book Co., New York, New York, 633 pp.) for split-plot designs and analysis.

Feed intake data recorded on the day after injection also were analyzed separately to test for diet and month sources of variation. Thus, in this separate analysis

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TABLE 1. Daily feed intake (g/deer) by adult male white-tailed deer before and after injection with xylazine hydrochloride (1.7 or 3.3 mg/kg). Data represent feed intake per day averaged over the week indicated (except for the day after injection) and averaged over the 12 mo of the study.

		1 wk before injection		1 day after injection		1 wk after injection		2 wk after injection		3 wk after injection	
Diet	*n*	$\bar{x}$	SE	$\bar{x}$	SE	$\bar{x}$	SE	$\bar{x}$	SE	$\bar{x}$	SE
Ad libitum	3	1,683[a,b]	68	35[a,c]	12	1,008[a,b]	33	1,628	81	1,652	76
75% Ad libitum	4	1,371[a]	2	312[a,c]	66	1,123[a]	56	1,110	7	1,361	1

[a] $P < 0.001$ for 1 wk before injection vs. 1 day after injection and for diet by day interaction.
[b] $P < 0.001$ for 1 wk before injection vs. 1 wk after injection.
[c] $P < 0.01$ for ad libitum vs. 75% ad libitum.

these data were not pooled over the entire experiment. This was done to estimate monthly (i.e., dose-related) variation, realizing that two different doses were used during the experiment.

Average daily feed intake during the week before injection, the day after injection, and for 1, 2, and 3 wk after injection are presented in Table 1. Average daily feed intake was reduced significantly ($P < 0.001$) in all deer, regardless of diet, on the day after injection. Within the ad libitum-fed group, feed intake remained reduced ($P < 0.001$) for the week post-injection. Means within the 75% ad libitum group for the week before and 1, 2, and 3 wk after injection were not compared, as they represented restricted feed intake, which was determined based on the feed intake by ad libitum-fed deer (Warren et al., 1981, op. cit.). However, feed intake by 75% ad libitum-fed deer on the day after injection represented voluntary intake, because they did not consume all of their restricted ration. This mean was compared to the mean for ad libitum-fed deer, and demonstrated that 75% ad libitum-fed deer consumed more ($P < 0.01$) feed on the day after injection than ad libitum-fed deer. This effect also was evident in the significant ($P < 0.001$) diet by day interaction from the split-plot analysis.

Feed intake data recorded on the day after injection, when examined separately for month (i.e., dose-related) effects, were not significant ($P > 0.05$) (Table 2), other than for the above-mentioned difference between diets. Feed intake on the day after injection varied erratically during the 1-yr experiment (Table 2), with no consistent trends being evident when high vs. low doses of xylazine hydrochloride were used. Of course, a dose-related effect of the drug would not likely be evident in our data, considering that monthly variations in white-tailed deer metabolism, which would have altered the effects of the drug, are known to occur (Silver et al., 1969, J. Wildl. Manage. 33: 490–498).

TABLE 2. Monthly variation in feed intake (g/deer) by adult male white-tailed deer recorded on the day after injection with xylazine hydrochloride (3.3 mg/kg—April–October; 1.7 mg/kg—November–February).

	Ad libitum[a] ($n = 3$)		75% Ad libitum[a] ($n = 4$)	
Month	$\bar{x}$	SE	$\bar{x}$	SE
April	27	15	151	93
May	49	17	172	57
June	116	63	204	154
July	129	115	189	80
August	1	1	364	164
September	4	4	632	140
October	31	31	128	64
November	2	2	338	135
December	7	7	555	229
January[b]	14	8	393	212
January[b]	24	19	530	119
February	10	5	151	77

[a] $P < 0.01$ for ad libitum vs. 75% ad libitum.
[b] Sampling occurred every 4 wk, thereby allowing two samples to occur in January.

Simpson et al. (1983, op. cit.) reported a significant reduction (38.1%) in feed intake by red deer calves on the first day after injection with 0.8 mg/kg xylazine hydrochloride, but not thereafter. Card (1981, Nutritional influences on blood characteristics in white-tailed deer, M.S. Thesis, Virginia Polytech. Inst. and State Univ., Blacksburg, Virginia, 181 pp.) used 0.5 mg/kg xylazine hydrochloride to immobilize adult male white-tailed deer in two experiments, and observed a suppression in feed intake (50–55%) on the day after injection. Three days were required for feed intake to return to pre-injection levels. We observed a 97.9% reduction in feed intake by ad libitum-fed deer on the day after injection, and the reduction remained significant for the first week after injection. Since we used higher doses of xylazine hydrochloride than were used in the other studies, the possibility of a dose-response relationship exists.

In sheep, the anorexia-inducing effect of xylazine hydrochloride is thought to be caused by reduced plasma insulin concentrations and elevated plasma glucagon concentrations, which elevate plasma glucose concentrations (Brockman, 1981, Res. Vet. Sci. 30: 383–384). Hsu and Hummel (1981, Endocrinology 109: 825–829) reported a dose-response relationship for xylazine hydrochloride-induced hyperglycemia and hypoinsulinemia in cows, and concluded that this effect is mediated by α-2-adrenergic receptors in β-cells of pancreatic islets.

Comparable data on white-tailed deer are unavailable, but the physiological mechanisms may be similar. Mautz et al. (1980, J. Wildl. Manage. 44: 343–351) and Gibson (1980, Clinical and physiological assessment of xylazine hydrochloride (Rompun) applications in captive white-tailed deer with emphasis on handling stress, M.S. Thesis, Virginia Polytech. Inst. and State Univ., Blacksburg, Virginia, 272 pp.) reported significant elevations in plasma glucose of white-tailed deer immobilized with xylazine hydrochloride. The physiological adaptation whereby the 75% ad libitum-fed deer were able to more quickly overcome the anorexia-inducing effect of xylazine hydrochloride remains to be determined.

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Polypoid Gastritis in a Scaly Anteater Caused by Larvae of *Gendrespirura* sp.

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A malnourished scaly anteater (*Manis javanicus*) was kept in captivity at the U.S. Army Medical Research Unit, Kuala Lumpur, Malaysia. The condition of the animal progressively deteriorated and it died 2 wk after capture. At necropsy an

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