Foods of Two Species of *Plethodon* (Caudata: Plethodontidae) from Georgia and Alabama

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ABSTRACT.— The stomachs of 34 *Plethodon websteri* and 55 *P. serratus* from Georgia and Alabama were examined for food. Acarines and Collembola were major food items in stomachs of smaller *P. websteri* whereas ants were predominant in the stomachs of larger individuals. Ants were the dominant food item in the stomachs of *P. serratus.*

Very little is known concerning the ecology of the Southern Redback Salamander, *Plethodon serratus* Grobman, which was recently taxonomically separated from the Redback Salamander, *Plethodon cinereus* (Highton and Webster 1976). Several reports exist on the foods of *P. cinereus* (Blanchard 1928; Hamilton 1932; Jameson 1944; Jaeger 1972; Caldwell and Jones 1973; Fraser 1976), but the only report concerning the prey of *P. serratus* is a single statement by Johnson (1977) that it feeds on arthropods. The foods of the recently described Webster's Salamander, *Plethodon websteri* Highton (formerly considered *Plethodon dorsalis*), have also not been reported, although Holman (1955) discussed the foods of *P. dorsalis* in Indiana. We present here an account of the foods of *P. serratus* and *P. websteri* in Georgia and Alabama.

Fifty-five *P. serratus* were collected from Fulton and Harris counties, Georgia, during March and April of 1980. During the same period, 34 *P. websteri* were collected from Upson County, Georgia, and Lee County, Alabama. Specimens were sacrificed in the field in chloretone and preserved in 10% formalin to terminate digestion. In the laboratory, stomach contents were placed in a petri dish lined with a paper grid (2.5 mm x 2.5 mm) and examined under a dissecting microscope. In order to determine relative prey proportion in the diet, visual estimates of relative area occupied by prey items were made by comparing each prey item to the grid and estimating the number of grid squares it occupied. Snout-vent length (SVL) was recorded for each specimen. The foods of different size classes were compared when appropriate.

Nineteen specimens of *P. websteri* had SVLs of 22-27 mm; the remaining 15 specimens each has a SVL greater than 30 mm. Smaller

Table 1. Stomach contents of 19 small and 15 large *P. websteri* and 55 *P. serratus* from Georgia and Alabama. N = number of prey items; % st = percent of stomachs in which prey item was found; % area = percent of total area occupied by prey items on grid.

	P. websteri						*P. serratus*		
	22-27 mm SVL			>30 mm SVL					
Prey Item	N	%st	%area	N	%st	%area	N	%st	%area
Gastropoda	3	10.5	2.2	3	13.3	3.2	3	5.5	0.8
Annelida	3	10.5	6.7				1	1.8	3.2
Arachnida									
Acarina (mites)	176	89.5	40.1	82	80.0	12.4	110	60.0	4.0
Araneae	3	15.8	1.0	3	20.0	3.2	28	34.5	3.8
Pseudoscorpionida	1	5.3	1.0	2	13.3	1.5			
Chilopoda	2	10.5	3.2	1	6.7	1.4	4	5.5	2.3
Diplopoda							7	12.7	1.6
Isopoda	1	5.3	2.0				39	10.9	8.6
Insecta									
Collembola	52	42.1	24.3	5	20.0	0.7	146	50.9	4.3
Thysanura							2	3.6	0.7
Isoptera				38	13.3	24.4	24	7.2	3.8
Diptera				1	6.7	2.9	11	12.7	3.8
Lepidoptera				1	6.7	1.8	3	5.5	1.9
Orthoptera							2	1.8	0.1
Thysanoptura	1	5.2	0.3	1	6.7	0.1			
Hemiptera							1	1.8	0.1
Coleoptera	8	26.3	5.9	5	33.3	7.7	50	47.3	19.0
Hymenoptera									
Ants	8	36.8	7.2	51	60.0	32.4	270	63.6	32.6
Wasps				2	13.3	3.3			
Unidentified larvae	15	10.5	6.0	2	6.7	5.0	39	16.4	7.8
Unidentified adults							14	3.6	1.4

individuals differed noticeably from larger ones in prey selected (Table 1). Acarines (mites) were the dominant prey in the stomachs of small *P. websteri*, both in numbers and percent area. Their next most important food item was Collembola (springtails). Acarines were frequently encountered in the stomachs of the larger *P. websteri* but did not contribute much to percent area. Ants, however, were important in their diet. Isoptera (termites) were important in both area and numbers in larger *P. websteri*; however, they were not preyed upon frequently as shown by the low percentage of stomachs containing them. These results show that larger salamanders feed on larger prey (e.g., ants and termites), and smaller salamanders feed on smaller prey (e.g., springtails and mites).

Only one *P. serratus* had a SVL less than 30 mm, the remaining 54 being comparable in size to the larger *P. websteri*. Therefore, the food data for *P. serratus* are not reported for separate size groups. Ants were the most important prey of *P. serratus* in area and total numbers. Acarines were common in the stomachs but contributed little to percent area. Beetles, spiders, and isopods also were frequently eaten by this species.

Most of the apparent differences in feeding between the two species of salamanders can be attributed to the large number of smaller *P. websteri* in the samples and the predominance of larger specimens in the *P. serratus* samples. Although the foods of both species appear to be similar, further work is needed on the feeding as well as other aspects of the ecology of these salamanders before conclusions can be drawn concerning their respective feeding strategies.

ACKNOWLEDGMENTS.— We would like to thank William E. Garrett, Jr., Auburn University, for identification of some of the prey items, and George W. Folkerts, Auburn University, for critically reviewing the manuscript.

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Accepted 24 July 1981