

Summary

1. This was a comparative study to correlate the captures of two species of salamanders, Plethodon c. cinereus and Eurycea b. bislineata, with their spatial and temporal distribution and with environmental factors of temperature, atmospheric humidity, soil moisture, and shelter. A second goal was the testing of experimental shelter objects as compared with naturally occurring shelter objects for their effectiveness in sampling the population.

2. Between November 1955 and November 1956, 98 Plethodon and 78 Eurycea were marked by toe clipping and released. Of these, 19.4% and 21.8% respectively, were later recaptured and identified. An unknown proportion of the total population was sampled; for at the end of the study, unmarked animals were still common.

3. Comparison of the number of captures per square foot of natural shelter and experimental shelter objects (pine boards of 12 x 10 x 1 inch, and rocks) indicates that the experimental objects are more effective for the capture of salamanders.

4. The distribution of both species showed aggregation. This is probably due to the contagious distribution of environmental conditions.

5. Both species exhibit restricted home ranges, as most recaptures occurred short distances from the previous

capture site.

6. Plethodon and Eurycea captures differed seasonally. Plethodon captures were abundant during spring and fall, but not during the summer; Eurycea captures were rare during the spring, but increased steadily during summer and fall.

7. The peak of Eurycea captures/search occurred during searches made at 60° F, while that of Plethodon occurred at 51° F, the difference being significant.

8. Plethodon showed no significant preference among soils having a water content of 20% to 85%, but Eurycea showed a sharp preference for a water content between 50% and 60%. This is surprising since Eurycea is considered more aquatic than Plethodon. Only autumn conditions were sampled.

9. Both color phases of Plethodon cinereus were present, the red phase represented 6% of the total captures of Plethodon.

10. Tail injuries were noted on 14.2% of the Plethodon and 11.6% of the Eurycea captures. Various other injuries were noted.