

Humidity Needs and Preferences of Spiders of the Genus Pardosa
in the Grand Teton National Park Area of Wyoming

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In a continuing study of the ecology of 21 species of the genus Pardosa found in the vicinity of Jackson Hole, a four week investigation of the humidity preferences and needs was made.

With the use of an apparatus producing a humidity gradient, tests were made of the relative humidity preferred by each species. The apparatus produces a gradient from the high nineties to the high twenties at temperatures between 60° F. and about 80° F. This simulated conditions similar to those experienced by the spiders in the microhabitats in which they live. The apparatus was used to test several specimens of several of the species collected.

In addition, a total of over 400 specimens was tested for their tolerance to a complete lack of humidity. Specimens collected in the field were placed in dry vials without water to determine how long they could survive with no water available in the air or in food. Lack of food was not the primary or major factor causing death and at least was the same in all specimens tested. Many examples survived several times longer with water and without food than without both food and water.

Sufficient specimens of the following species were tested to determine their relative water needs adequately: P. altimontis Chamberlin and Ivie, P. anomala Gertsch, P. coloradensis Banks, P. distincta (Blackwall), P. moesta Banks, P. steva Lowrie and Gertsch, P. uncata Thorell, P. utahensis Chamberlin, and P. xerampelina (Keyserling). Indications of the needs of P. fuscula, P. dorsalis Banks, P. uintana Gertsch and P. wasatchensis Gertsch were gotten although enough specimens could not be collected this time to carefully and exactly determine their water needs.

Survival in these species varied from 30 hours in P. altimontis, 35 hours in P. moesta, and 48 hours in P. distincta to 135 hours in P. steva, and 150-175 hours in P. utahensis, 190-210 hours in P. uncata and over 200 hours in P. anomala. Of significance here is the differences between P. distincta and P. utahensis, two closely related species of a group of species all of which are common in very dry situations. This study gives data which will aid in delimiting the habitat needs of these species. Other results of significance appear to be in the data. Further analysis of the data will be completed this winter and its significance in the ecology of these species added to our knowledge of the group.

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