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SNOW GUM
(*Eucalyptus coriacea*)

Photo by D. N. Dove

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THE SYDNEY FUNNEL-WEB SPIDER

Australia's most dangerous spider is the Sydney Funnel-web, Atrax robusta, and a number of human deaths have followed bites from this species. Consequently, investigations into the nature of the venom have been undertaken by the Commonwealth Serum Laboratories who hope to develop a specific anti-venene. In association with the Commonwealth Serum Laboratories, the Australian Reptile Park at Gosford is carrying out certain field work in order to ascertain the distribution, breeding habits and growth rate of A. robusta. Simultaneously, the Australian Reptile Park serves as a collection station and receiving depot for funnel-webs. Donated specimens are sorted, and other species, juvenile specimens and injured ones are culled. The suitable mature spiders are periodically flown to the Commonwealth Serum Laboratories for venom extraction.

Distribution:

Most of the spiders received are not Atrax but are other members of the Trapdoor group. However, we have established that the range of A. robusta extends at least as far north as Charlestown, near Newcastle, and as far west as Capertee, between Lithgow and Mudgee. It is very common in the Gosford-Wyong area, and here it occurs in shady gullies and hillsides building its web among rocks or into earth crevices, usually in black soil.

The Web:

Many species of Australian spiders build funnel-shaped webs. The trapdoor spiders usually build in open grass-land, and the lidded holes are lined with gossamer in the same way as those species of the trapdoor group that construct webbed burrows without lids. These species reinforce their burrows with a tough membrane of gossamer. The true funnel-web is distinctive in that the funnel-like web is protected at the entrance by a canopy of soft, white silken web. This in turn is normally built beneath a rock, log or similar object that offers protective covering, the whole being in a shaded area in black soil on a hillside. The silken lining of the burrow may extend into the ground for about two feet. The web is so fragile that it is difficult to trace the spider to the sac at the end of the burrow without tearing the tube and thus losing the hole.

The Male:

Dr. Saul Weiner of the Commonwealth Serum Laboratories established that the venom of the male A. robusta is about six times deadlier, measure for measure, than the venom of the female. He has also pointed out that in cases of human death where the sex of the spider has been definitely established it has always been a male spider responsible. However, a recent lethal bite was received from a female spider. Owing to the potency of the Male's venom, large numbers are required for research purposes. The male is easily recognized from the female by its longer legs; smaller abdomen; tibial spurs on the second legs; and modified pedipalps. Males are rarely in evidence throughout most of the year but are more abundant between December and February. They are usually located amongst rubble in the vicinity of the females' webs.

The Female:

Female A. robusta may attain a body length of over two inches. They live in colonies, one burrow to each female. If the burrows are disturbed, the spiders usually desert the site and seek another. We do not believe that there is the slightest evidence to support the theory that the female kills and devours the male after copulation.

Breeding:

At the Australian Reptile Park we have successfully bred several broods of funnel-webs. The gravid females were housed, one to a jar, in square two pound capacity jars having screw-top lids. About an inch of slightly moistened black soil was placed in each jar. For about two weeks prior to producing the egg-sac, the females were extremely active in building dense structures of web on top of the soil with a system of passages. The egg-sacs were suspended in such a manner that the female spiders were able to approach from almost every angle. During the incubation period, which lasted about four months, the females constantly attended to the sac either cleaning it or covering some areas with gossamer. Each female spent most of the time clinging to the underside of the egg-sac. On the first hatching which occurred early in spring, the spiderlings were extremely feeble and were of a translucent whitish colouration. Subsequent hatchings produced more mature young, and these were more active and were darker in colour. Microscopic examination of the first empty egg-sac revealed that the spiderlings had not sloughed their skins prior to hatching; whereas the more robust spiderlings had cast their skins inside the egg-sac before emerging. Immediately after hatching, the young spiders proceeded to build their separate and typical funnel-like webs.

Food:

The young spiders are fed in our laboratory by periodically removing the lids from the jars, then ferment flies are attracted with pieces of overripe banana. The adult spiders showed a pronounced preference to brown blow-flies over other food but would also take earth-worms, meal worms, slaters and pieces of liver or beef. The objection to the latter is that it putrefies if not removed, and with large numbers of spiders time wastage has to be considered.

Collection:

For practical purposes in the accumulation of venom necessary for research into the nature of the poison, it does not appear that spiders can be bred and grown quickly enough. Field collection is therefore indicated. It is not possible for one man alone to collect sufficient spiders, so we rely on the generous help of people living in areas where the spider abounds. The spiders should be scooped up with a jar or pushed into a similar container with a stick. Spiders will kill each other on contact in a confined space, so they should be packed singly into jars with slightly moistened earth or green grass. They should not be exposed to sunlight or be placed in a hot place. The jars can be packed with newspaper into a cardboard box and be flown or railed to the Australian Reptile Park, Gosford; Health Department, Sydney; or the Commonwealth Serum Laboratories, Melbourne. In the event of the spiders being flown directly to Melbourne they should be marked: "For attention of Dr. N. Erdstien".

Eric Worrell