Notes on New Methods of Collecting Beetles

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In the following short paper, I propose to deal with two modes of collecting beetles, which do not appear to have been cited in previous literature. The preliminary observations in both cases, were probably due greatly to chance or to luck, though later a number of trials were carried out to furnish proof of the success of the methods.

The first method is the direct result of an otherwise uneventful and dismal picnic at Mara Lake, about ten miles south of Sicamous, B. C. While idly shaking a salt cellar over a patch of weeds in shallow water, I was surprised to see a number of small aquatic beetles, chiefly Haliplidae, become decidedly active, and do their best to swim out of the salted area.

Further experiments with common salt, sodium chloride, were later carried out on several occasions, at Salmon Arm, B. C., and at Vancouver. Small weedy pools about two feet in diameter were selected because of the ease of collecting in them. The pool was first "worked" carefully, with the aid of a fine-mesh sieve, and all insects removed as they were secured. This was continued until it took several sweeps to get one or two specimens.

A handful of salt was then scattered over the water, and the pool reworked. The results were certainly worth the trouble. The supposedly depopulated water in many cases yielded a quarter as many beetles as in the first sweepings. It is interesting to note that one of species of **Haliplus** of which I have only five specimens, all were collected by this method; this is due probably to coincidence coupled with the fact that it is a rarer species.

The effect of the salt added to the water appears to be such as to cause those beetles, etc., which the clinging to weeds and débris, to let go, and swim around. This means that there is far more chance of catching them when a net is passed through the pool. Probably some salts may be very much more effective than others, but on the whole, this method of collecting has too many points against it to be of value. Using common salt is too costly, and is very liable to kill all larval forms and plants in the pool, as well as render it unsuitable for insect inhabitation for some time. It is quite possible, however, that there are certain other substances which would have a quicker but less harmful effect. In a very small stream, this salt treatment might possibly ease collection of various larvae clinging to stones and weeds, causing them to let go and be swept down into a net.

The second way of collecting is of decidedly more interest to me than is the first. It is the "smoking out" of beetles from rotting stumps. The methods have been set forth in an article to be published in the "Bulletin of the Brooklyn Entomological Society." The essentials are as follows:—

April appears to be the best time at Salmon Arm, B. C. A rotting stub is chosen, a hole cut through the bark just above ground level, and a smouldering fire started in the rotten wood. Smoke and heat, but not direct flames, are best. Depending on the degree of rottenness of the wood, on whether or not the bark is close and continuous, on how damp the wood is, and on the amount of draught caused by wind, one may expect results in two to five minutes. Both the top and sides of the stump must be watched, and should be free of lichens and mosses. Catches of Elateridae predominated in the cases examined, though the material secured depended on the species and condition of the stumps. Besides beetles, Arachnida, Psuedo-scorpions, Collembola, Hemiptera, Homoptera, Lepidopterous larvae, and a few forms of Hymenoptera, were secured by this "smoking."

In conclusion, I will stress the fact that any rotting stumps of from one to four feet in diameter are worth trying, if there is a fairly large and continuous section of the bark still clinging to them.

Following is a list of the beetles secured by "smoking" stumps, chiefly coniferous, at Salmon Arm, B. C., during the month of April, for two years:—

Elater pullus Germ.
" cordifer Lec.
" phoenicopterus Germ.
Ludius moerens Lec.
Adelocera rorulenta Lec.
" profusa Cand.
Alaus melanops Lec.
Ptinus californicus Pic.
Ostoma ferrigunea L.
" pippingskoeldi Mann. } chiefly in fungi.
Calitys scabra Thunb.
Eleates explanatus Csy.
Iphthimus serratus Mann.
Coelocnemis columbiana Csy.
Platydema oregonense Lec.

All specific determinations were made through the kindness of Mr. Ralph Hopping, from his collection.