Monitoring of *Carabidæ* and *Curculionidæ* populations at Parc national de la Jacques-Cartier

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As part of a program to monitor ecological integrity, Parc national de la Jacques-Cartier is conducting a long-term study to evaluate the impact of human activities, more specifically those of campers, on the habitat of certain insects. This project is all the more interesting in that it is the impetus behind the first survey based on the composition and the diversity of the territory's insect populations.

The two families of insects under study were chosen because they are considered good indicators of the quality of habitats. Indeed, *Carabidæ* and *Curculionidæ* are particularly sensitive to changes to their environment. For example, the upsetting of the herbaceous layer, caused by trampling, risks having a direct impact on the diversity and relative abundance of the species of these families. This trampling is caused by campers who occasionally use shortcuts to go to the washroom facilities, the water supply point or a neighbouring site.

Curculionidæ (snout beetles) are mostly plant-eating beetles. They feed on leafage or different parts of herbaceous plants, shrubs and trees. *Carabidæ*, for their part, are predator beetles that hunt and live on the soil, in bedding or under plant debris, making them very sensitive to trampling.

The sampling site was purposely set up near camping areas laid out in the form of a loop with services and having existed for three years. The transect begins not far from a campsite and extends over 50 m towards a less disturbed area. Along the transect, there are six "pit traps" (container inserted in a hole in the ground) for *Carabidæ* as well as two "impact traps" (screen frame 1 m from the ground) for *Curculionidæ*.

The traps were visited once a week over a three-month period and 117 specimens were harvested. With the invaluable cooperation of Agriculture and Agri-food Canada, we identified 14 different species, 13 of which belong to the *Carabidæ* family. An interesting fact has already emerged: the number of specimens per species captured in the less disturbed zone is 3.33, whereas it is below 2.5 specimens per species captured in the disturbed zone near the campgrounds.

However, only a long-term monitoring operation will enable us to evaluate the impact of trampling on the populations of these two families of insects. The study will continue for several seasons, and other observations will allow us to adjust our management method based on the results obtained.