

## Some grizzly bears appear to target railways for foraging in Canadian national parks

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Bear M128, a sub-adult male bear who foraged extensively on the railway, manipulates a screen used by researchers to measure grain spilled from hopper cars. Credit: Niels de Nijs

Spilled grain, rail-killed ungulates, and the effects on other species of

increased light and warmth may all attract grizzly bears to forage along railways in Canada's mountain parks, which could increase their risk of being hit by trains, according to a study published May 24, 2017 in the open-access journal *PLOS ONE* by Maureen Murray from the University of Alberta, Canada, and colleagues.

Trains frequently kill wildlife along railways worldwide but little is known about what attracts animals to the rail area. Potential attractants include agricultural products that leak from train cars, vegetation that benefits from light and disturbance, and scavenging opportunities from rail-killed animals. To assess these effects, collaborators in Canada's Banff and Yoho National Parks fitted 21 bears with GPS collars. The U of A team then measured stable isotopes and analyzed 230 [grizzly bear](#) scats collected over three years, some of which could be attributed to GPS-collared bears. Isotope analyses focused on  $^{15}\text{N}$ , which reflects dietary animal protein and  $^{34}\text{S}$ , which showed an increased amount of railway vegetation for rail-using bears in a previous study.

The researchers found that 19 of the 21 collared bears used the tracks at least once while collared, but only four used it more than a fifth of the days they were monitored. Unexpectedly, the isotopes of nitrogen and sulfur did not vary with amount of rail use, but  $^{15}\text{N}$  increased with body mass in male bears and scats containing sulfur pellets also contained grain. Scats found within 150 m of the rail were six times more likely to contain nutrient-rich [grains](#), including wheat, barley, canola seeds, and lentils. Scats near the rail also contained more ant parts and ungulate hair, while scats containing grain also contained a greater diversity of both plants and animals.

Colleen Cassady St. Clair, PI of the study, said she was surprised by the large variation among bears in rail use and the apparent diversity of their foraging targets. "We could attribute scats containing grain to only four of the GPS-collared bears; three skinny teenagers plus the biggest, most

dominant male bear." To reduce the risk of trains killing the bears, the researchers recommend that managers continue to remove grain and ungulate carcasses from the railway, reduce grain spills from trains, and target mitigation on the specific bears and locations that generate high rates of [rail](#)-based foraging.

**More information:** Murray MH, Fassina S, Hopkins JB III, Whittington J, St. Clair CC (2017) Seasonal and individual variation in the use of rail-associated food attractants by grizzly bears (*Ursus arctos*) in a national park. *PLoS ONE* 12(5): e0175658.  
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