

Problem grizzly bears cause a fuss in the gene pool



Imagine being picked up in the middle of the night and being dropped off in the middle of the boreal forest. You would probably feel a little out of place. But feeling out of place is a constant reality for 'problem' grizzly bears that are often moved to areas of the province that are different, very different, from where they were born. And it turns out, this change of scenery could be having a negative impact on the health of the grizzly bear population.

Understanding the genetic make-up of Alberta's threatened grizzly bear population is a hot

topic. Recent studies have shown that grizzly bear genetics are closely linked to the specific regions in the province where they live. That is, grizzly bears living in Waterton National Park have distinct genetics from those living around Hinton. This apparent adaptation to the local environment could be linked to increased reproductive success in grizzly bear populations.

But Dr. Aaron Shafer, a research associate with Dr. Scott Nielsen, wanted to dive deeper into the question of grizzly bear genetics by investigating the role of 'problem' grizzly bears – those that





have come into conflict with humans and have been relocated. In many cases, 'problem' bears in the Crowsnest Pass area of the province are transported to areas near Hinton or even the Swan Hills. These regions have significantly different topography, habitats, and food availability. While the experience can certainly be stressful for the bears that are moved, those that survive and reproduce introduce their genetics into the local population. This means that genes which help a bear to be more successful in the Crowsnest Pass are now present in the Swan Hills, a habitat that is entirely different.

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The cause for concern is not only whether relocation is an effective tool for mitigating human-bear conflict, but also whether introduction of genetics from other areas of the province is having a negative impact on grizzly bear populations. This process is referred to as outbreeding depression – when a change in the genetic diversity of a population actually has negative consequences for the species.

“When conserving threatened species, we are normally concerned about reductions in genetic diversity. Rarely do we consider that an increase in genetic diversity could have negative consequences for a species” said Nielsen.

It's too early to say whether the observed effect is substantial enough to influence management of grizzly bears in the province, says Shafer. But at the very least, the study contributes another piece to the complex puzzle of grizzly bear management, and will encourage managers to consider the implications of moving problem bears into radically different habitat types and environments.

Funding for this work was provided by the Foothills Research Institute and Alberta Innovates – Bio Solutions.