

Human hunting influences adaptation in bear cub parenting

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The Anthropocene is characterized by human impacts extending to all corners of the globe. New research shows that it effects the relationship between mothers and cubs of the Scandinavian brown bear. Human hunting has changed the characteristics of mother bears' behavior to their cubs.

"Generally, the cubs have followed their mother for a year and a half," says Professor Jon Swenson from the Norwegian University of Life Sciences (NMBU). "Only rarely have we observed them to follow her for two and a half years."

This has now changed. Today, more cubs stay with their [mothers](#) an additional year, as opposed to 15 to 20 years ago. "Man is now an evolutionary force in the lives of the [bears](#)," Swenson says.

The Scandinavian brown bear is one of the world's most monitored animal populations. Norwegian and Swedish researchers have followed them closely since 1984. "The Scandinavian brown bear project is one of the world's two longest research projects on bears," Swenson says, who has been

attached to the project almost since its very beginning.

"We have followed over 500 bears, many from birth to death."

The number of bears shot in Sweden has increased steadily during this period. From 2010 to 2014, Swedish hunters shot about 300 bears each year.

In the vast majority of countries that allow bear hunting, there is a ban on hunting family groups. "A single female in Sweden is four times more likely to be shot as one with a cub," Swenson says.

As long as a female has cubs, she is safe. This hunting pressure has resulted in a change in the proportion of females that keep their cubs for 1.5 years in relation to those that keep them for 2.5 years. In the period from 2005 to 2015, the number of females keeping their cubs for an additional year has increased from 7% to 36%. The individuals themselves do not alter their strategies. They portray either one behavior or the other, and this trait seems fixed.

"This basically means that we are shooting more of those females that only keep their cubs for a year."

One compensates for the other

The new female strategy involves both advantages and disadvantages. Females who keep the cubs longer live safer lives, but on the other hand, they reproduce less often. This reduces their total number of offspring throughout their lives.

"In an evolutionary perspective, this would not be beneficial," Swenson comments. "The animals with the most offspring [are the most successful]."

However, the researchers' results show that the increased lifespan of the females largely counteracts the reduced birth rate. "This is

especially true in areas of high [hunting](#) pressure. There the [females](#) that keep their cubs the extra year have the greatest advantage."

More information: Joanie Van de Walle et al, Hunting regulation favors slow life histories in a large carnivore, *Nature Communications* (2018).
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