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Between polar bears, grizzlies, a sharing of the genes in Ireland

July 11, 2011 | By Faye Flam, Inquirer Staff Writer

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To biologists, polar bears and grizzlies are distinct species - not only do they look different, but a grizzly could never survive in the polar bears' icy habitat, where swimming talent is required as well as the ability to hunt seals and whales.

But don't tell that to the bears.

New DNA evidence shows that polar bears carry genetic material that came from, of all places, Ireland, where grizzlies, a.k.a. brown bears, once roamed around 30,000 years ago. The finding, published in last week's *Current Biology*, could change our picture not only of polar bear evolution but of the role of cross-species breeding more generally in shaping the living world.

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Mixing between bear species has been reported recently, with several DNA confirmations of "pizzlies" or "grolar bears." Their appearance has been connected to the way climate change is shifting bear habitats.

The scientists refer to this kind of mixing as "opportunistic" breeding. That sounds a bit desperate, but these bears have nothing to be ashamed of; a similar DNA analysis suggests that human ancestors mixed it up with Neanderthals around the same time, leaving many of us with some bits of Neanderthal DNA.

"Hybridization seems to have occurred in the history of polar bears, and it's completely normal and natural," said biologist David Tallmon of the University of Alaska Southeast, who was not part of the team. "But my concern is the rate and extent of this is much greater now," he said, thanks to much more rapid climate change.

The new finding doesn't mean that all polar bears originated in the Emerald Isle, said Penn State biologist Beth Shapiro, who was part of the team. But it does show that, like many of us, they have some Irish blood.

Limited genetic comparisons suggest the two groups may have branched off from a common ancestor as early as 500,000 years ago, she said.

This new DNA analysis suggests that between 20,000 and 50,000 years ago, brown bears from Ireland not only interbred with polar bears, but some of their DNA spread through the entire polar bear population.

"When two closely related species overlap in range and they can mate, they often do," Shapiro said.

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