longer to eat their first meal than controls did and then, for the next 6 hours, ate less at each meal. As the team reported in September in the *American Journal of Physiology*, monkeys receiving the peptide also held food in their stomachs longer than controls did, which may explain, in part, why subsequent appetite diminished.

Still, Tschoëp and Moran point out, and Bloom concedes, no study, except the original 2002 paper, demonstrates loss of body fat or body weight, the ultimate goal for an antiobesity drug. For example, in Moran's study, PYY_{3-36} completely lost its efficacy after the first day of injection. And Reidelberger never measured animals' weights because of experimental design: Each animal ultimately received each of all six doses of PYY_{3-36} in random order and would have weighed the same at the end of the experiment.

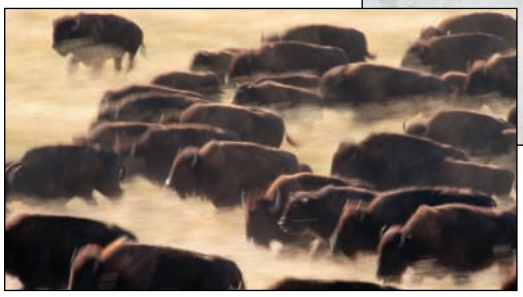
Thus, for now, PYY_{3-36} would seem far too fickle to make a decent antiobesity drug. "Our data suggest that PYY_{3-36} does do something to feeding," Moran concedes. "But we still have a lot to learn." **–TRISHA GURA**

Trisha Gura is in Boston writing a book about eating disorders in women older than 25.

EVOLUTION

Ice Ages May Explain Ancient Bison's Boom-Bust History

The pounding hooves of buffalo stampeding across the plains is an enduring symbol of the American West. Once numbering in the tens of millions, these 1-ton shaggy-headed beasts dwindled to less than 1000, hunted down for sport, hides, and meat during the 1800s. Thousands of years earlier, buffalo in the northern reaches of North America suffered a similar decline. But despite what some paleontologists have long thought, people were not to blame, at least not initially, says Alan Cooper, a molecular evolutionist at Oxford University, U.K.



Iced out. DNA from buffalo fossils lighten blame on humans for ancient bison's decline.

As Cooper and 26 colleagues report on page 1561 of this issue of *Science*, DNA evidence indicates that for buffalo—also known as bison—life started taking a turn for the worse 37,000 years ago, 23,000 years before humans began to make their mark on the North American continent. The new work suggests that climate changes were key to this mammal's decline, says Russell Graham, a vertebrate paleontologist at the Earth and Mineral Sciences Museum at Pennsylvania State University, University Park. "What happened to the bison may reflect what happened to other mammals," such as mammoths, he adds.

A land bridge once connected what are now modern-day Siberia and Alaska. The tundralike landscape of Alaska and northern Canada, an area called Beringia, set the stage for large mammals, including bison, mammoths, and muskoxen, to thrive as they moved freely back and forth across the land bridge. Eventually, people crossed the bridge to America and, some researchers believe, hunted the mammals to extinction or near-extinction.

To check out this hypothesis, Cooper, Oxford's Beth Shapiro, and colleagues obtained ancient DNA from 442 bison fossils found in North America, Siberia, and China. For each specimen, they sequenced 685 bases from the fastest mutating part of the animal's mitochondrial genome and used differences in the sequence to assess the genetic diversity of ancient herds. The researchers also obtained radiocarbon dates on 220 samples. The approach "brought together information that we have had a hard time getting to with fossils," Graham says.

The data reveal that all the bison specimens belong to a single subspecies whose common ancestor lived about 140,000 years ago. Changes in the genetic diversity of specimens from particular areas indicated when herds thrived and when they did not. Until now, "we've not had a good way of teasing out the bumps and wiggles in [their] population history," says David Meltzer, an archaeologist at Southern Methodist University in Dallas, Texas.

Bison in North America spread southward, some as far as Mexico, 100,000 or more years ago. Beginning approximately 37,000 years ago, the bison began to decline, perhaps because of climate and habitat changes associated with the deepening ice age. To make matters worse, about 22,000 years ago, the expanding glaciers cut the northern group off from their southern kin. By the time the last glaciers receded some 8000 years later, genetic diversity in the northern bison had plummeted, the researchers report. It never recovered completely—probably, they conclude, because changes in habitat, particularly forest growth, kept populations small and isolated from the southern herds, which had less severe declines in diversity.

Such conclusions have elicited at least one strong reaction. "I think the interpretation is overblown and not supported by the data," says John Alroy, a paleobiologist at the University of California, Santa Barbara. He points out that other data suggest that bison in many places have weathered dramatic shifts in climate just fine. Therefore, Alroy asserts, it must have been human intervention that caused local extinctions and an overall decline in bison.

Shapiro notes that Alroy's traditional views could still be partly correct. "We are not arguing that these early human populations had no impact on bison populations but suggest that whatever events instigated the decline of bison populations occurred well before large numbers of humans had settled in the region," she says. John Pastor, an ecosystem ecologist at the University of Minnesota, Duluth, agrees that the new work adds an important perspective to this debate: "What [Shapiro] is getting people to think about is that it's not one factor" that pushed these mammals toward extinction.

–ELIZABETH PENNISI

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