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NEWS EDITOR DAVID BRAUN'S EYE ON THE WORLD

Weird & Wild Q&A: How to Study Bears (Hint: Use Carrots)

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By Christine Dell'Amore

What does a bear really do in the woods? It's Øivind Tøien's job to find out.

The University of Alaska, Fairbanks, zoophysiologicalist observes Alaska's [black bears](#) to discover how their temperatures and metabolism change during their five-to-seven month hibernation. In his most recent study, published Friday in the journal *Science*, he found that the animals' metabolism can drop to very low levels while their temperatures stay relatively stable. ([Get the full story on National Geographic News.](#))

For his research, Tøien studied four wild-caught bears as they hibernated in artificial dens near Fairbanks--an arrangement that required some spontaneous problem solving. National Geographic News Watch talked with Tøien about the challenges of working with the unpredictable animals.

Q. How did you look for bears to use in the study?

A. Bears in our experiment were what we called nuisance bears, which can happen when humans and bears are living fairly closely together, like in highly populated areas around Anchorage. They are partially caused by humans ... not keeping their garage and food safe so it can't be reached by bears. Bears learn very quickly, once they have learned how to get food from humans they keep seeking it. The Alaska Department of Fish and Game would normally have to euthanize these bears. So instead we asked them to send the bears to us so we can study them.



A "nuisance" black bear used in the recent study

Were the bears able to adjust to their new lives?

They adjusted very well. The bears were caught quite late in autumn, and the [Alaska officials] brought them with their own bedding materials, since they were already in a den. They quickly accepted the new dens. It was not known if this was going to work when the

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study started, but it worked and was very successful.

Can you explain how you got them ready for the experiment?

We implanted telemetry devices into the animals that are capable of recording body temperature, heartbeat, and also muscle activity, for instance shivering. There were telemetry-receiving antennas on the walls of the dens--in addition we have a motion detector that will [detect] when bears are moving. These dens were located out in the forest at a very undisturbed location ... [it] very much mimics what would be in natural conditions.

How did you monitor them? Did you ever have to crawl into the dens?

We never crawled into the dens [basically cube-shaped boxes] unless the bear is tranquilized. To collect the respiratory gases from the dens we have to have a door in the den. Occasionally the bear by accident bumps the door, so we actually use sticks to replace the door on the den. Once we got it on there, we push it and make sure its seals well. Sometimes the bear would push from the inside at the same time and I would keep pushing until it got sleepy and gave up. So I can truly say I am among the few people that has been measuring forces with black bears. However I had no chance to keep a 100 kilogram [220 pound] bear from pushing out the door.



A bear hibernating in an artificial den

I didn't know they moved during hibernation.

Ninety-eight or ninety-nine percent of the time the bear will be lying curled up in a tucked position--you don't see anything more than that they breathe and occasionally snore. But occasionally there can be one episode per day, or every second day, when they would rise up and stand and often start scratching themselves, and spend some time rearranging bedding material. Sometimes we hear licking sounds from the den. This typically lasts for only maximum 15 minutes, then they just lay down again. They are certainly conscious, opposed to very deep hibernators--if disturbed they could come running out of den. The [perception that] bears are not able to do anything while they hibernate--that is not really the case.

Any interesting stories from your research?

We had to come up with some tricks to make them go in [the dens]. One was what we called the "carrot machine," a big cylinder that we kept in the hut. [The dens had tubes that carried the bears' respiratory information to a hut about 130 feet (40 meters) away.] We cut up apples and carrots into this cylinder and then reversed the flow of air to the den--actually pumped air from this cylinder into the den. The bears couldn't resist the smell and went in to investigate and we closed the door. It was a spontaneous solution--when you work with bears, you have to try to solve problems as they appear.

This Q&A has been edited for content and length.

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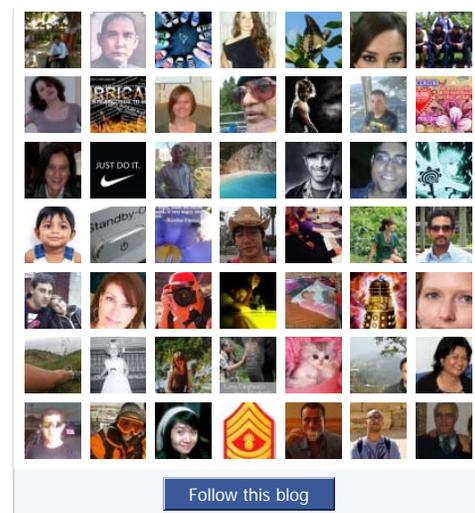
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