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## **Famous grizzly mother and daughter swap a cub** **Little-seen adoption an example of animal altruism, expert says.**

*By Cory Hatch, Jackson Hole, Wyo.*

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Two famous grizzly bear mothers have swapped a cub in Grand Teton National Park in what might best be described as an example of animal altruism, biologists said this week.

The roadside family drama of grizzly mothers 399 and 610 and their total of five cubs-of-the-year unfolded in front of thrilled crowds near Willow Flats last week.

Grizzly 399 and her daughter from 2006, grizzly 610, have previously been seen with three cubs and two cubs, respectively.

"People started observing a bear with yellow ear tags with three cubs," said Steve Cain, Grand Teton senior wildlife biologist. "The folks observing immediately jumped to the conclusion that we had captured 399 and put yellow ear tags in her."

But, the bear with yellow ear tags was actually 610. The grizzly appears to have adopted an additional cub.

"Very shortly after that, independently, 399 was observed with only two cubs," Cain said.

The cub swap likely occurred sometime between July 16 and July 20, local wildlife photographer Tom Mangelsen said.

On July 16, Mangelsen shot pictures of 610 with her two cubs. Four days later, Mangelsen photographed what he thought was 399 and her three cubs chasing elk in some willows on July 20. When he finished shooting, he zoomed in on the pictures.

"I saw those yellow ear tags," he said.

On July 23, "we saw both 610 with three cubs at Willow Flats and 399 with her two cubs at Pilgrim Creek," Mangelsen said. A white-faced cub belonging to 399 known as Ash appears to have stayed with his mother.

Just why the swap occurred isn't clear. One theory is that a large male grizzly bear might have had an altercation with one or both of the mothers. Male grizzlies have been known to kill cubs to bring female bears into heat. On July 18, witnesses reported hearing what sounded like grizzly bears fighting near Jackson Lake Lodge, Mangelsen said. The following morning, a large male grizzly was seen in the vicinity.

Mangelsen guesses that 399, 610 and their cubs met up at Willow Flats hunting elk.

"My romantic side wants to think they ran up and sniffed each other, and the kids played or something, but that's totally speculation," he said.

Cain said some cub adoption events may come about "when there has been a disturbing incident, such as an encounter with bears, and, in the process, the cubs get scattered.

"I don't believe anybody witnessed what was going on," he said. "We don't really

know which bears were involved.”

Regardless, the cub swap seems OK with both bear mothers. Grizzly bears often get extremely agitated when they lose their cubs, Cain said. For example, 610 lost both of her cubs earlier this year, and witnesses say she appeared distressed before finding them again.

But, 399 seemed relaxed with both of her cubs.

“She didn’t look stressed or otherwise abnormal the way that 610 did when she lost her cubs earlier this spring,” Cain said.

The adoption has likely increased the energy demands on 610, who must now provide milk for three cubs instead of two. Now, however, the older 399 might be better able to successfully raise her two remaining cubs, Cain said.

How and why some female bears will adopt cubs isn’t clear. The phenomenon is rare, but not unheard of. Legendary bear biologists Frank and John Craighead documented bear cub adoptions at open pit dumps in Yellowstone National Park in the 1960s.

In 2007, biologists with Yellowstone and the Interagency Grizzly Bear Study Team documented a female grizzly that adopted two cubs from another female in the vicinity of Dunraven Pass. DNA tests subsequently showed that the female adopted her mother’s cubs.

“What scientists believe is that bears probably do not have as strong an ability to recognize their young as herding animals,” Cain said.

Ungulates need that ability to differentiate between many animals in a large group, while predators often lead a more isolated existence, he said.

“One could also argue that it ... would be adaptive for bears to readily adopt orphaned cubs,” especially related cubs, Cain said.

The phenomenon is difficult to document in the wild but could happen more often than the literature suggests, he said.

Grizzlies aren’t the only predators to adopt young in Jackson Hole.

A few years ago, Howard Quigley, Craighead Beringia South senior ecologist, became the first researcher to document a cougar adoption. After a hunter shot a female cat named F1, orphaning her three 20-month old kittens, a female named F27 adopted the motherless cats, allowing them to eat, sleep and play alongside three 8-month-old kittens of her own in the Gros Ventre Mountains.

Quigley thinks F27 is F1’s daughter, but he’s awaiting DNA tests to make sure.

It’s interesting that these so-called solitary carnivores would adopt cubs and kittens, but it makes sense in the context of evolution, Quigley said.

“Passing your genes on is the most important thing,” he said. “Passing genes on that are highly related to you would be the second most important thing.”

If F27 and grizzly 399 adopted a half-sister or -brother, that cub or kitten would carry 50 percent of the adoptive mother’s own genes, Quigley said.

This kind of altruism is seen in many animals, including birds and humans, and is usually limited to those with close relations, Quigley said.

As for whether 610 knows her new cub is closely related, he has few doubts.

“I’m wholly convinced that resident individuals, by scent, know all the individuals in their territory,” he said. “Whether [610] calls [399] mom, I’m not sure, but she knows

they are very, very closely related.”

Like mountain lions, grizzly bears likely have a long-term matriarchal relationship, because females don't disperse very far from their mothers.

“In that area, all the resident female bears within three miles of 399 have a high probability of being related to her,” Quigley said.

“All bears s--t in the woods,” he said. “They smell each other and may encounter each other at really dense sources of food. If [610 and her new cub] weren't related, [the cub] probably would not be tolerated within her litter.”

This type of information about bears and cougars is a good example of the value of long term research, Quigley said. Otherwise, these rare occurrences might never be documented, he said.

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