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Female Lions Prefer Dark-Maned Males, Study Finds

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The iconic mane of a lion has always been a mystery to biologists. The wreath of fur is somewhat akin to wearing a woolen scarf at the peak of summer—a hot and heavy burden around the neck. Now two biologists suggest that these luxurious tresses have a higher purpose than vanity. They suggest that the manes themselves are indicative of health, and that males with the darkest, most decadent manes are the worthiest suitors.

The color and length of a lion's mane can vary dramatically in a relatively short time, said Craig Packer, veteran lion researcher at the University of Minnesota, and co-author of a report that is published in the August 23 issue of the journal *Science*. The great masses of hair can also vary greatly from one region to another.

"If a male goes through a rough period, his mane becomes lighter. If he becomes better nourished or lives in a different habitat, his mane may get a lot darker," said Packer. Dark color also indicates higher testosterone levels.

"So the flexibility of the mane tells us that it is probably an indicator of the male's quality—this is incredibly important information for female lions," said Packer.

Toy Lions

Peyton West, a graduate student working with Packer at the University of Minnesota, decided to test female choice based on the length and color of the mane. She sent mane and fur samples to a Dutch toy manufacturer who agreed to produce four slightly larger-than-life stuffed toy lions with detachable manes. The manes were made in four styles: short- and long-haired blondes, and short- and long-haired brunettes.

"The goal was to see whether we could link the color or length to other qualities," says West.

West loaded the dummies onto a large trailer, drove to her study site, and planted two of the furry mannequins about 15 feet (4.6 meters) apart into the tall grasses. Then she blasted the sounds of hyenas at a kill—the dinner bell of the African savanna—and waited for lions to approach.

Nine out of ten times, the females sidled up to the dummies with the darker manes. A movie of one female lion in estrous revealed "explicit sexual behavior, walking sinuously past the models," according to the report.

Males, by contrast, were more hesitant to approach the scene and only advanced toward male mannequins with

short blond manes.

Males are keen to avoid confrontation, so they steer clear of older, healthier, more aggressive male rivals. "Males want to win fights without actually fighting so they assess each other on the basis of the other lion's mane," said West.

"We were initially very skeptical of our result because we expected mane length to be the most important consideration," said West. "It is well-known that a short, scruffy mane is the sign of a sick male."

Badge of Health

But color seemed to be the critical factor.

Together with other biochemical and photographic data acquired over the years by West's advisor, Craig Packer, West suggested that the dark mane may in fact be a sign of a stronger, fitter male.

An analysis of photos of 313 adult males taken between 1964 and 2000, disease surveillance data, blood samples, and nutritional status—gauged by the belly size—revealed that longer, darker manes were associated with age, better health, and higher testosterone levels.

"I think this is a great paper with a very interesting hypothesis. The lion and its mane has fascinated people since early times, yet nobody has ever shown any data on its purpose," said Göran Spong, an evolutionary biologist at the University of Uppsala in Sweden, who has studied lion population genetics and social evolution. "Most people, including myself, have assumed it is for protection rather than for show."

It has been widely observed that mane color and length is affected by climate. In cooler regions like Morocco and South Africa's Cape region, lions have darker, thicker manes. In Kenya's Tsavo National Park, the climate is considerably hotter and the lions are almost maneless. Having a thick, dark mane comes at a cost—heat stress.

Heat Stress

"Males with darker manes were hotter than those with lighter manes," said West. West used a thermal-imaging camera to measure the surface temperatures of lions in the Serengeti, Ngorongoro Crater, and Tsavo. West says only superior males can afford the costs of a large, dark mane.

West and Packer's results suggest that the features that intimidate other males are the very factors that the females are looking for, said West.

For females, a stronger male can better defend his pride against intruding males and produce stronger offspring.

"I remain unconvinced it is simply a badge of health," said Spong. "Females may simply use an easily assessed indicator of male quality which is really there for a different purpose." Spong said that he doesn't believe that females have a lot of choice when it comes to finding a mate.

"Males forcefully enter prides; they often kill resident cubs. Females must make the best of a bad situation and thus after a few months will conceive with the new males. To me, this doesn't sound like the setting where females can go around being choosy."

While the exact purpose of the mane—whether a shield of protection, or a badge of health—may still be up for debate, it still stands that gentlemen prefer blondes and ladies want their mates tall, dark, and handsome.

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