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AWARE

CONSERVATION & PHOTOGRAPHY  
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**The Social Cat:  
*Lion Social  
behavior in prides  
and coalitions***

By Mary Fick  
with Peter Hudson  
& Hannah Kokinda

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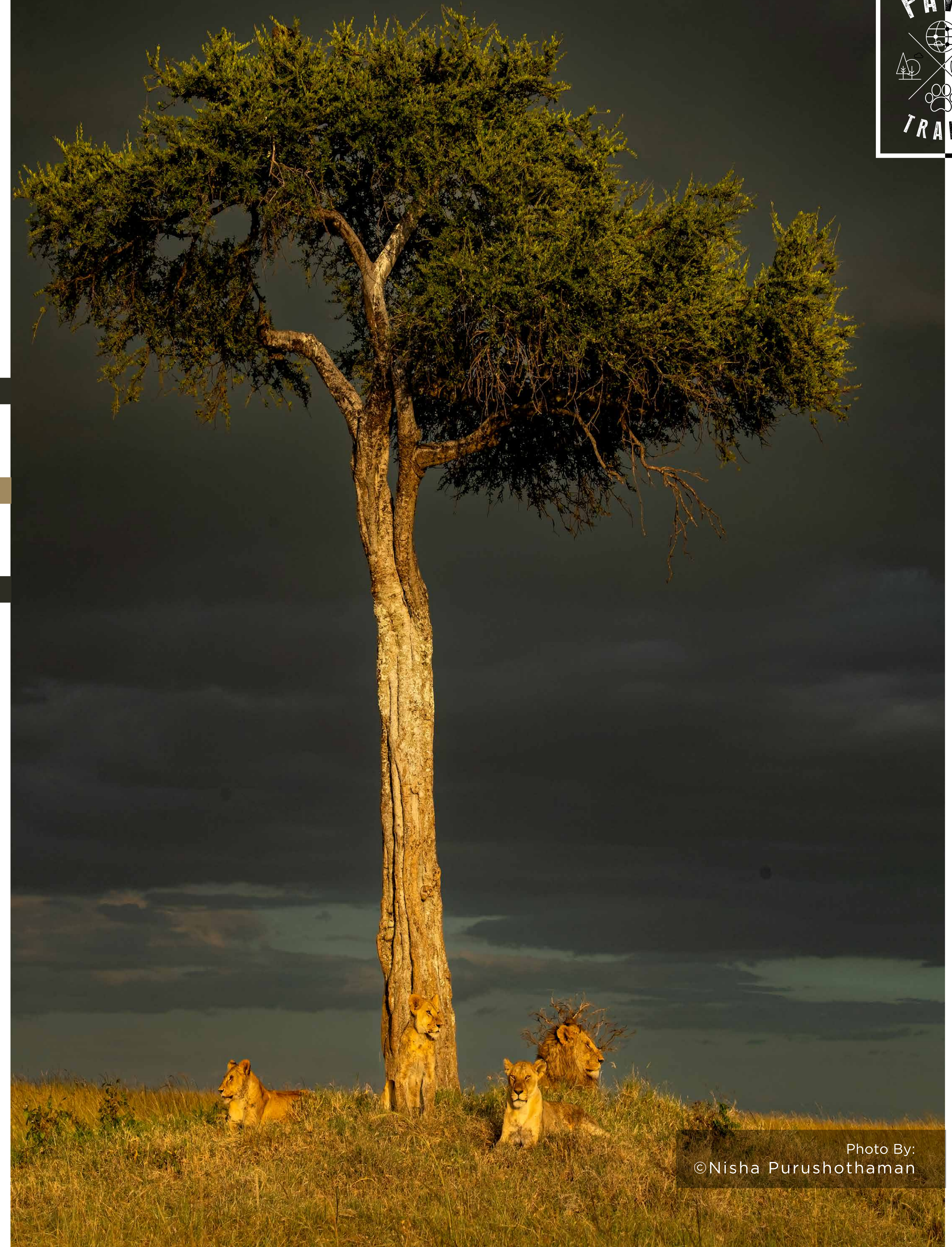
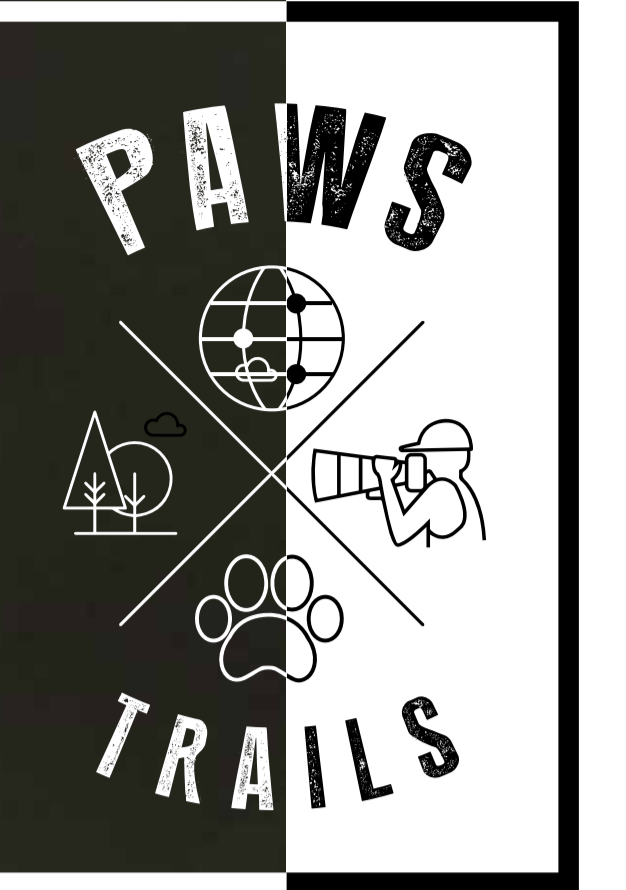


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Raghul Patteri  
Editor

Welcome to a new 'Lion' edition of PT Aware.

Yes, we have chronicled lions before, but these creatures are so amazing that we just can't seem to get enough of them.

As humans we are social animals. To a large extent we live bound by the rules of society, some those got set organically, some laid down by law. Family is the most important organization in our society, and by far family plays a significant role in shaping the lives and characters of every individual.

Lions are similar and live in well-knit social orders. The prides are matrilineal, and everyone has a role to fulfill in the success of the pride.

In this edition of PT Aware, read about the amazing behaviour of Lions in Prides and Coalitions. It is interesting to see how these behaviours are shaped by biological and social needs like mating, security, raising offspring and hunting. It is eye-opening to see how measures have been put in place to avoid unhealthy practices like in-breeding. How did these animals learn all these - nature is indeed amazing!

Thanks to all the wonderful photographers who contributed the breathtaking images in this edition. We sincerely hope that we are able to use your photographs for spreading the joy of nature and to aid in conservation of species.

Our next edition will chronicle the Giraffe behaviour. Please be ready with your Giraffe behaviour images.



Photo by: Nisha Purushothaman

EDITOR'S DEN

# FOUNDERS' NOTE

What Joy it is to watch a pride of lions in the balmy African Savannah.

It is the lion prides that pull the maximum visitors to the Masai Marah.

Paws Trails is lucky to have our Safari Lodge, The MaraTrails located at close proximity to a prominent lion pride.

We get to see a lot more of lions and their social behaviour near us, which is much appreciated by our guests from around the world.

Lions are amazing to photograph. Majesty and raw power on one side, intriguing social behaviour and playfulness of the cubs on the other end - there is a lot that you can look forward to as a photographer.

At PawsTrails we are fortunate to bring to you the best in photography, science & conservation, and wildlife exploration to you. We are thankful to the worldwide Pawstrails community of photographers, scientists, conservationists and explorers who partner with us to bring the best articles and photographs for our readers.

**Hermis Haridas &  
Nisha Purushothaman**

Founders - Paws Trails Explorers



THE STORY

# The Social Cat: *Lion Social behavior in prides and coalitions*

By Mary Fick

with Dr. Peter Hudson, Conservation Director,  
Paws Trails and Hannah Kokinda

Images by: Peter Hudson, Mary Fick and  
Nisha Purushothaman



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**Mary Fick is an undergraduate student at Penn State university studying Biology with a focus in Ecology. She's passionate about working with animals and environmental conservation. In the future she hopes to pursue a graduate degree in ecology and conduct research and work in the field.**

Over the past year and a half she has been working with Peter Hudson on film projects for the Random Good Foundation and on several articles here in Pt Aware. This past December she took her first trip to the Maasai Mara for a field ecology course with Penn State. While in Maasai Mara she was able to conduct field research and observe and experience first hand all that she has been studying.



I remember vividly the moment I heard the lions “roar”; the sound made my spine shudder, and it grew louder every minute as we approached the group of aggressive males. We had spent a long morning searching for lions across the Mara, visiting locations where the prides had been seen earlier that week, but sadly with little success until a frantic discussion started over the radio. A colleague of our guide had seen four males fighting and so we shot off at high speed across the rough terrain towards them. After much jolting and being thrown around in the vehicle we saw them in the distance, two male lions chasing another across the blistering hot plains. To our left, we saw the brother of the attacked lion, he looked as though he was on the way to provide support and even-up the odds, but then he swerved away, and we realized he was actually running away. Nothing in my life has been as thrilling as the feeling at that moment, racing up the hill in the Masai Mara chasing the males in the middle of a fight.

This was my first visit to Africa, it was January 2023 and twelve students from Penn State, including myself, had packed our bags and headed to the Masai Mara in Kenya. What were they fighting over - territory, food, females? It seems like we all fight over the same things. An understanding of lion social behavior is helpful to understand the exhilarating scene we observed unfold.

### The Pride of Lionesses

The lion (*Panthera leo*) has always fascinated me, although the more I learn, the more my interest in lions grows. Lions, unlike any other cat species, are a highly social felid predator and their whole life revolves around their social connections. Their behavior is based on an interplay of competition between the different social groups with heavy competition with groups of the same sex and tension with groups of the other sex. The central group is the pride which is defined as the group of closely related lionesses and their cubs. The male group that defends the pride is known as the coalition and while they collaborate there are tensions.

Lionesses that live in big prides are more successful than small prides and their “inclusive fitness” is greater when the lionesses are all related, have their cubs synchronously and they successfully rear them to 2 years of age. We think of inclusive fitness as the combined genetic contributions of related animals to future populations. By collaborating with sisters and daughters then within a pride, all the cubs are closely related and contribute towards the shared genetic contributions to the next generation. So, while the females know which are their cubs, they all share in cub suckling and care of the extended family. Often, we would watch as one lioness with four or five cubs would



Photo by: Nisha Purushothaman









Photo by: Peter Hudson

be suckling cubs of different ages. Living in a pride also provides protection to all the individuals, and at the same time, means that a subgroup can go hunting while a couple of the lionesses stay at home and protect the cubs. Solitary mothers must leave their cubs when they hunt, and this leaves them highly vulnerable to predation from hyaenas or being killed by passing elephants or buffalo. The fascinating part of the lion's lifestyle is that all their behaviors have evolved to maximize their inclusive fitness, so they co-operate with relatives but can have vicious battles with unrelated animals.

A central issue for any group living species is to avoid inbreeding, and since the females are closely related and the daughters are often recruited into the prides, the young males are no longer tolerated by the pride or their fathers when they reach two years of age. When the young males leave the pride, they are called nomadic males and are forced to live on their own in small groups, usually several brothers or closely related lions that left the pride at the same time. This is the hardest time of their life. They must hunt for themselves, avoid the big successful lions, and are constantly exposed to threats from all angles. They no longer have the protection of their father's coalition and lack the protection from the pride, their mother, and aunts. They can live like this for several years until they have the power and fighting ability





Photo by: Peter Hudson



Photo by: Mary Fick

to take-on and usurp a coalition in another pride.

The male coalition and take over is where we return to our battling male lions on the hill. What were they fighting over? The simple answer is access to the females in the pride, so they can mate with the females and produce their own cubs. To do this they need to scare off or kill the existing male coalition that controls the pride. If they succeed in doing this, then they do not get immediate access since the females do not want new males taking over and killing their cubs. The males seek to maximize their own fitness and really do not want to rear the cubs of other males, so the first thing they do at takeover is kill all the young cubs and chase off any well grown cubs that would fight back. If they succeed in doing this - and the females are trying to fight them off - this brings the female lionesses into season, and they can mate with the females to produce their own cubs.

Male success at take-over depends on several factors, including age, relative size, support of the pride, although the single most important factor determining success is often the relative number of lions in the nomadic group that is trying to overpower a coalition. If there are more lions in the coalition then when a lion is fighting face to face, this allows another lion to run round behind the defending lion and bite them on the back or leg. This

debilitating effect can lead to death or the lions simply realizing they are losing and run away. Many of the successful coalitions have three or four lions at take over, but over time the coalition suffers mortality when a lion is injured during a fight, or they get seriously damaged when trying to take-down a prey species.

At the end of the day a lion coalition has no success until they have produced cubs that reach maturity, leave the pride and go off to take over another pride. The bigger the coalition, the more successful they are, and a successful coalition may end up taking over nearby prides and running several prides at the same time. In my time in the Mara, we observed a coalition of males that controlled two different prides of lionesses. One being the Topi pride, the largest pride in the area, indicating a very skilled group of males.

Of course, males try to assess their rivals before a fight ever starts and the interloping males will be checking out the smell of the urine to try and estimate how many individual males there are in the coalition. The deep roaring, we heard on the hill is a clear and honest signal about how large the body size of the male is and by listening to the roars the lions can estimate the size of the group. The mane makes the males look impressive and both attitude and





experience probably count a great deal before the males even get close to a fight. In one famous take over, when two males came to take over the marsh pride, the nomads killed a hyaena, urinated all over it and left it as a calling card to say, “*we are here, we are strong and tough, and we are coming for your pride*”. A clear signal and the resident lion just ran away.

When we finally reached the top of the hill to see the fighting lions, we found three bloodied and exhausted lions. The two attackers seemed to be giving the lonesome male a bit of a break to catch his breath, but even then, it was clear he had lost. Looking down over the hill you could see his brother in the distance, keeping his space but still close enough to hear his brother’s roar. No lions would be taking over a new pride today. A relief to the other lions in the coalition I’m sure. We found out a few days later that the lion that had been in the fight, had survived and was doing well, even though he had some bad injuries. He now lives another day and can protect his young from incoming males and has another chance to take over a pride and pass on his genes to the future generations.













Photo by: Peter Hudson























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UPCOMING EDITION

# **GIRAFFE BEHAVIOR**

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