



This leopard mauled three people in Guwahati, Assam, in March 2009 before it was shot by a tranquilliser dart.

Barely a month goes by without reports of leopard attacks on people in India. But, says Janaki Lenin, it's perfectly possible for us to live alongside these big cats – even in such a densely populated country.

LEOPARDS IN THE NEIGHBOURHOOD



This leopard was photographed in Ranthambore National Park, Rajasthan. But big cats don't have to be confined to parks – a few precautions let them live safely alongside people.

Maitr Aditya Singh/Alamy
Inset: AFP/Getty



In February this male leopard caused chaos in Meerut, northern India, injuring several people. Locals were told to stay indoors, while schools and shops were shut.



This picture was taken in Nagarhole National Park, Karnataka. The female jackal was following the big cat – perhaps she hoped to lure him away from her den.

CASE STUDY

MUMBAI'S CITY FOREST

An innovative scheme called 'Mumbaikars for Sanjay Gandhi National Park' helps residents on the outskirts of this city forest in Mumbai to live with leopards, by addressing their legitimate concerns about large predators prowling their apartment complexes. The project has organised better rubbish collections, provided a bus service for children who would otherwise have to walk to school through tall grass, and installed streetlights at strategic locations. The result is that the big cats and people are less likely to encounter each other.

● Visit www.mumbaikarsforsgnp.com for more details.

Leopards seem to be popping up everywhere in India, and if the media are to be believed they are up to no good. In February this year one created panic in the city of Meerut in Uttar Pradesh, and in August a middle-aged woman made headlines around the world when she single-handedly killed a leopard that had attacked her. The incident took place in Uttarakhand, not far from the setting of Jim Corbett's 67-year-old tale *The Man-Eating Leopard of Rudraprayag*.

India hasn't conducted a leopard census, but one estimate puts the country's population of these big cats at 10,000–20,000. With numbers of tigers, their mortal enemies, shrinking drastically to 2,500–3,500 over the past century, leopards may have gained ground. Not only do they prowl through forests – they also sneak stealthily through agricultural land, villages, towns and even major cities.

OUT-OF-DATE THINKING

Those who believe wild animals ought only to live in wilderness areas doubt that leopards and humans can co-exist peacefully. Surely these predators do not belong in farmland and urban parks where they are likely to cross paths with hapless humans? India's Forest Service, conservationists and public certainly thought so in the past, and many still do today. Wildlife managers feared that leopards roaming fields meant nothing but trouble, so caught them for release in reserves. Sometimes, to prevent a feline exodus, they also introduced captive-bred deer as prey and dug water holes in the forests.

For years, few considered what became of these relocated animals. Most assumed that they were relieved to get a lift to their old homes and settled down happily ever after. If any leopards attacked people, disturbance in forests and lack of prey or water were reckoned to be the causes. But in the early 2000s, for no apparent reason, leopards suddenly turned on humans in rural Junnar, in the Pune district of Maharashtra state. They killed 18 people and injured 33 more between 2001 and 2003.

Junnar valley was no wildlife tourism destination – it was a fertile valley of sugar cane, bananas, corn, onions and cauliflowers. There were no forests as far as the eye could see, not even on the low hillocks on the horizon, and the only large animals here were cows, sheep, goats, pigs and dogs. Satellite maps of preceding decades showed the landscape had not altered for 20 years, so it was not clear why the leopards' behaviour had changed.

Then wildlife ecologist Vidya Athreya, who lived near Junnar at the time and now works for Wildlife Conservation Society India, discovered that the state's Forest Department had trapped leopards from farmland and released them in forest areas. The numbers were staggering: between 2001 and 2003 it trapped leopards on 103 occasions within 4,300km², the size of Northamptonshire and Leicestershire put together.

This leopard was killed in Assam, north-east India, in 2008 by villagers.



Above: officials transfer an adult male to Nagaland Zoological Park, Rangapahar. Right: another photograph of the leopard in the inset picture on p36, before it was caught by the Forestry Department.



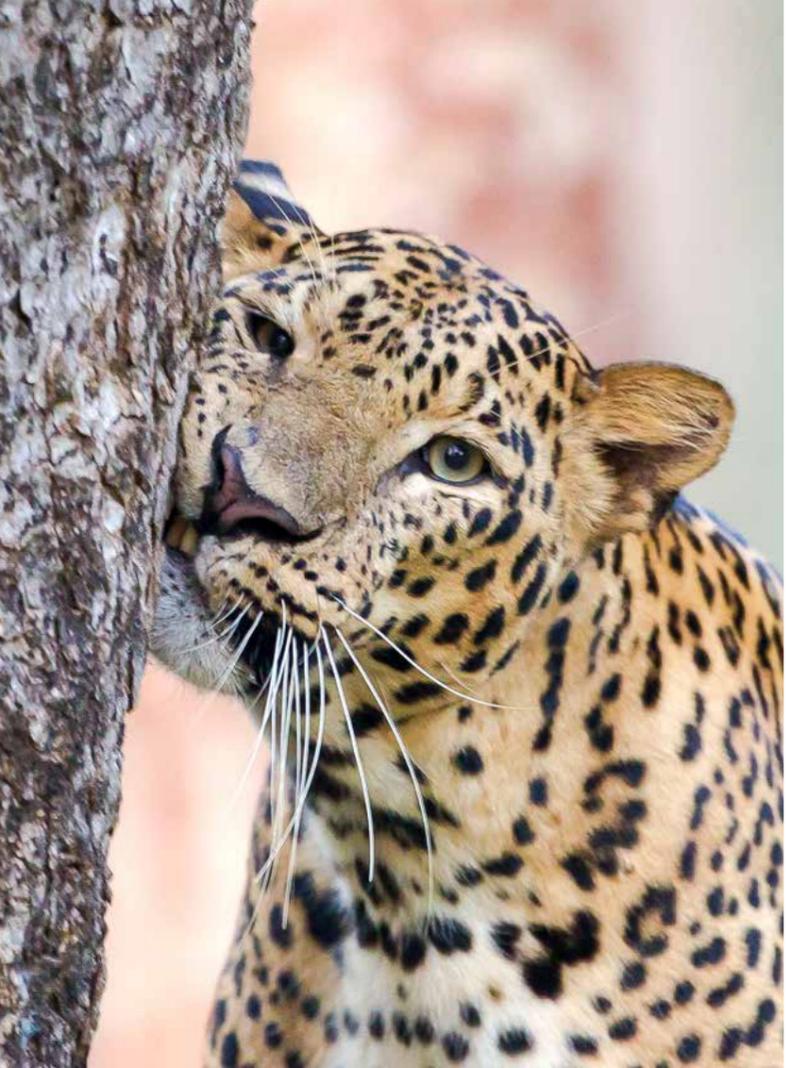
The cats were set free in two wooded areas 40–65km away – a small forest in Malshej Ghats, and the larger Bhimashankar Wildlife Sanctuary. Leopards trapped in neighbouring districts were also released in the same locations. Overzealous forest officials were taking the strategy of dealing with leopards living among humans to a whole new level.

DEADLY MISTAKES

This project had tragic and unforeseen consequences, unleashing a bunch of cats. They attacked humans within a region the size of Greater London, close to the forests where they had been dropped off. "It's puzzling why leopards started attacking people in a region that had seen few incidents prior to the large-scale translocation exercise," says Athreya. "Perhaps it was down to the stress of being displaced. This is a highly territorial species with a social system."

Territory is key to a leopard's survival: it provides security, food and mates. Outside it, leopards are all too vulnerable. Malshej

Clockwise from top: Hindustan Times/Getty; Praveen Siddamavari; Casali Mao/Corbis; Biju Boro/AFP/Getty; Diritiman Mukherjee



5 REASONS WHY LEOPARDS FLOURISH CLOSE TO PEOPLE

1 DIET Leopards will eat almost anything, from insects to frogs, calves and deer, and they are also scavengers. Though Indian cities seldom support many deer, they do have booming populations of stray dogs and feral pigs because of inefficient waste removal. These are a ready source of prey.

2 HABITAT Provided there is shelter, leopards can use a wide range of landscapes – forested as well as open, and wet as well as arid. India’s farmland offers plentiful shelter in the form of dense stands of tall crops such as banana trees, sugar cane and corn. In urban areas, parks and rocky hillocks with caves provide safe hideaways.

3 PROTECTION Since the 1970s, India’s wildlife legislation has outlawed the killing of leopards. This represents a reprieve from campaigns in the 19th century, when the cats (along with tigers, wolves and other predators) were declared vermin and poisoned, trapped or shot. In some parts of India, leopards and tigers are venerated.

4 ADAPTABILITY Leopards are remarkably adaptable animals. Often diurnal in forests, they will switch to a completely nocturnal lifestyle in villages and towns. Being solitary hunters that prey on a variety of small animals, they’re able to maintain a lower profile than tigers or lions despite living among humans.

5 TOLERANCE This is arguably the most important factor. Even where there is a happy combination of abundant prey, shelter and protective wildlife laws, these adaptable cats still cannot thrive if their human neighbours feel that the danger they pose is too high.

A leopard rubs his cheek against a tree in Nagarhole National Park, Karnataka, in order to scent-mark his territory.

Ghats and Bhimashankar had their own leopards that would have been possessive of their turf. Rather than risk battling residents, the displaced animals tried to walk back home, often travelling hundreds of kilometres past unfamiliar villages, noisy highways and busy railway lines.

The Junnar leopards were not refugees from a forest; they belonged there, according to Forest Department records. Until the relocation project the animals were only a minor nuisance, taking occasional livestock. Finally the department re-caught about 60 leopards and sent them to a lifetime-care rescue centre for wild animals not open to the public, and the spate of attacks on humans at last abated.

MAYHEM IN MUMBAI

The management of nearby Sanjay Gandhi National Park in Mumbai followed a similar trend. Leopards found outside the park were caught and dumped inside the forest. In June 2004 alone leopards killed 10 people, and as a result more than 30 leopards were then removed to a rescue centre. The leopard density here, about one per 2.5km², is the highest in the world.

Athreya believes that the wildlife managers need to remember their history. “India has to look to its past

when people managed to live alongside large carnivores,” she muses. “We just need to accept these animals as part of the landscape. There is hope: even today a country with a billion-plus people and the world’s highest numbers of livestock still retains the largest population of wild tigers and the sole surviving – and growing – population of Asiatic lions. In countries with far fewer humans, lions and tigers are fast disappearing.”

While working in Junnar, Athreya heard of the neighbouring valley of Akole in Ahmednagar district,

where leopards lived in farmland without coming into conflict with humans. This area looked no different from Junnar. In the early morning men drove motorbikes laden with milk canisters down dirt paths, children walked to school past marigold fields and groups of women in bright saris crouched on the ground laughing and chatting as they weeded vegetable plots. And a short distance away, hidden by a thick curtain of sugar cane stalks, leopards slept, often on their backs with their legs in the air.

By fixing GPS collars on two leopards, a male and a female, Athreya studied their movements. While hunting among people, not once did these cats mistake an adult or child for prey. The leopardess gave birth to cubs in a sugar cane field within room of a school’s entrance, where hundreds of children ran back and forth on weekdays. The leopard wandered through the school’s courtyard at night when silence ruled. But these were not quiet-seeking country leopards. They were at home in the bustle of Akole.

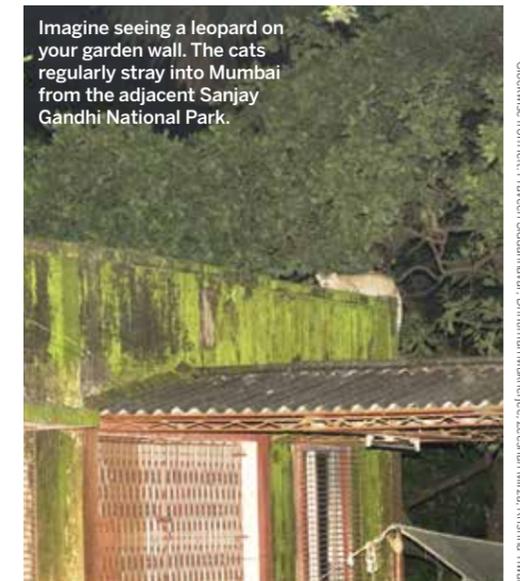
While humans slumbered indoors, these leopards lounged on rooftops, watching the streets and bylanes below for stray dogs and feral pigs. They often made their way to the market in the town centre, where fishmongers and chicken vendors

Above: we need to add a caption when we hear back from the photographer.

THE LEOPARDESS GAVE BIRTH IN A SUGAR CANE FIELD WITHIN 100M OF THE ENTRANCE TO A SCHOOL.



This leopard was photographed by a camera-trap in Mumbai.



Imagine seeing a leopard on your garden wall. The cats regularly stray into Mumbai from the adjacent Sanjay Gandhi National Park.

BIG URBAN PREDATORS WORLDWIDE



COYOTE

Coyotes have never been more widespread in North America. Their expansion was helped by the 19th-century extermination of mountain lions and wolves, their competitors and predators, and coyotes are today thriving in many metropolitan areas. Up to 2,000 are said to live in the greater Chicago area, living on rodents, fruit, white-tailed deer, cottontail rabbits and birds.



BLACK BEAR

Black bears raid rubbish tips and fruit trees in the urbanised north-eastern USA and the western states of Montana and Colorado. Meanwhile the remote Canadian town of Churchill is popularly called the polar bear capital of the world, while Anchorage in Alaska is also known for its black bears, which are occasionally seen rummaging through dustbins on the outskirts of town.



COUGAR

Mountain lions, also called cougars in North America, are the same size as leopards with a similarly catholic diet. Wiped out across the continent over preceding centuries, they are now steadily gaining ground and are increasingly seen crossing suburban roads. One even colonised Griffith Park in Los Angeles, while others have been spotted outside Baltimore and Washington DC.



HYENA

Spotted hyenas range across much of sub-Saharan Africa and about 1,000 are reported to live in Addis Ababa, the Ethiopian capital. Since they scavenge anything even vaguely edible, people tolerate them as walking waste disposals; they also prey on stray dogs and cats. Another species, the brown hyena, lives near urban centres in southern Africa, such as Johannesburg.

Coyote: T. Kitchin & V. Hurst/Photostock; bear: D. M. Jones/Minden/FLPA; cougar: Steve Winter/Getty; hyena: Daryl Balfour/Photostock

threw fish heads and offal at the far corner of a patch of open ground the size of a football pitch. Clouds of dust rose as pigs and dogs fought over the stinky mess, unaware of leopards watching the melee. But few townspeople saw these large predators. Much to Athreya's

FARMERS SECURED THEIR LIVESTOCK IN STURDY BARN AT NIGHT, NOT GIVING LEOPARDS A CHANCE AT A FREE MEAL.

amusement, camera-traps snatched images of the secretive animals in places where people insisted no leopards lived.

But livestock owners in the outskirts knew of the predators. They herded their stock through the day and secured them in sturdy barns at night, not giving leopards a chance at a free meal. Indeed, by studying the cats' scats, Athreya found that more than half of their diet consisted of domestic dogs and cats, even though goats were seven times more numerous.

In cases when farm animals do get taken, most Indian states recompense the owners.

To put this unique situation in perspective, a high density of people (266 per square kilometre, according to the 2011 census) live in the same area as a large number of leopards (five per 100km²). By comparison, the Chilla mountain range of Rajaji National Park in Uttarakhand state, where there were no people, no farmland and few tigers, had a density of nine leopards per 100km².

PLAN FOR PEACE

Leopards are the most adaptable of cats. As long as their human neighbours do not raise a big fuss, they can thrive across diverse Indian landscapes while people go about their daily lives. We just have to remember that.

During the 19th century, the British colonial government declared tigers and leopards to be vermin, ►



Leopards are an increasingly common sight in Mumbai.

CASE STUDY

KARNATAKA

Two researchers at India's Nature Conservation Foundation, MD Madhusudan ('Madhu') and Sanjay Gubbi, won a prestigious award from the Whitley Fund for Nature in 2011 to study the factors influencing human-leopard conflict in the south-west state of Karnataka.

The researchers are using GPS collars to understand how leopards captured in well-populated areas and released into natural habitats respond to such translocation, which is widely used as a conflict-management tool in Karnataka. The project also encourages the media to provide less sensational accounts of encounters with leopards, and runs a public-awareness campaign, distributing pamphlets and posters to over 200 villages. "We should never forget the devastating cost that some of our poorest people pay for wildlife conservation," says Madhu. "So it's crucial to get local people on board."

● Visit www.ncf-india.org to find out more information.

Above: a leopard in Nagarhole National Park, Karnataka, teaches her cub how to climb. Left: Nature Conservation Foundation staff examine a male leopard wearing a radio-collar.



PEOPLE HAVE TO LIVE WITH LEOPARDS. THE GOOD NEWS IS THAT IT'S POSSIBLE TO DO SO WITH LITTLE CONFLICT.

offered bounties and employed people to wipe them out. Today extermination is out of the question, for leopards enjoy the highest level of protection under Indian wildlife laws. Meanwhile keeping farmland leopards in captivity and giving them a decent quality of life there is prohibitively expensive, and as we have seen moving the big cats can cause deadly problems.

So the inevitable conclusion is that people, both in the countryside and the suburbs, have to live with leopards. There is no other option. The good news is that it's possible to do so with little conflict. While the risk of a run-in with a wild leopard is never zero, if people are careful the chances can be kept low. As Athreya says, "The Akole area is not always peaceful, but the local residents – like people in most parts of India – are rarely antagonistic."

EASY LIVING

The question is whether people in other parts of India with different cultural backgrounds, such as Assam, Tamil Nadu and Kashmir, can be convinced to live with leopards. "Humans and leopards are probably managing this more peacefully than we give them credit for," smiles Athreya. "Sadly conflict is the dominant discourse in the media today, so as readers we focus on the most negative form of interaction between the two."

Researchers can help by focusing less on conflict and more on neutral interaction. Athreya adds, "The media need to help people live with these animals, and forest departments need to change their management from reactive to proactive measures, where sympathetic dialogue with locals is crucial."

Authorities have now stopped moving leopards around at Junnar and Sanjay Gandhi National Park. A decade after the deadly attacks of the early 2000s, the predators have returned to both places, and the big cats and humans manage to share the neighbourhood once again. 🐾

JANAKI LENIN is a journalist who lives south of Chennai, India. Her book *My Husband and other Animals* relates her life with herpetologist Romulus Whitaker (Westland, Rs250).

From top: Praveen Siddannavar, Krishna Tiwari, Arun Kumar