

## Cats : Some large, many small

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TAXONOMY PLACES the cats in three lineages (pantherine, ocelot and domestic cat) and 17 genera. However, they can broadly be divided into *large, medium and small* on basis of their body size. Of the 36 species of cats worldwide, 15 are found in India. Of these, four are large ones (lion, tiger, leopard and snow leopard), but as many as 11 are small and medium cats, weighing less than 25 kg.

A feline can be easily recognized by its appearance and gait, irrespective of size. Huge eyes, a short flat face, supple spine and retractile claws (with an exception - the cheetah) describes a cat. In behaviour too, cats are typical: secretive, largely nocturnal (with a few exceptions), solitary (again with an exception - the lion) and mostly uncommon. All these physical, morphological and behavioural traits make the cat a 'supreme predator'.

A look at the distribution of the small cats (*Table 1*) shows an almost equal number inhabiting dry open and wet dense areas. This does not mean that the species inhabiting forested areas or those occurring in open areas do not occur elsewhere, but they simply occur in fewer numbers outside their main distribution zone e.g. the Jungle cat mainly inhabits the more open areas, but it is also found in some forested areas though in lower densities.

There are detailed accounts of the small cats provided in some books (Prater, 1965 ; Kitchener, 1991 ; Nowell and Jackson, 1996) and most of our knowledge on their ecology and food habits has come from these studies. However, most of these studies on the small felids have been conducted outside India and there is a large void in information available on all small cats in India, including the relatively more common Jungle cat.

Given below is a very general information on the distribution, behaviour and ecology of the small cats found in India.

**CARACAL** (*Caracal caracal*, earlier known as *Felis caracal*)

*Description:* This is a medium sized cat (length 85 - 114 cm.) with long legs and a short tail. The colour of its coat is uniformly brick red or reddish sandy without any pattern. Its ears are long and pointed, with the characteristic long black tufts (about 50 mm. in length) because of which it is often referred to as the 'desert lynx' (op. cit.). Some authors recognize there are nine sub-species of Caracal but this figure is disputed and not agreed upon universally. Caracal is listed in Appendix II of CITES, although the Asian subspecies, *C. c. schmitzi* and *C. c. michaelis*, considered to be rare or threatened, are listed in Appendix I of CITES (Nowell and Jackson, 1996). *C. c. schmitzi* is classified as Schedule I species in

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Indian Wildlife (Protection) Act, 1972. Some interesting natural history records on Caracal (alongwith photographs) are provided in Divyabhanusinh's book on the cheetah (1995).

*Distribution:* The Caracal inhabits a wide range of habitats and has a wide distribution globally. It once had a distribution similar to that of the cheetah (*Acinonyx jubatus*) through most of the arid and semi-arid regions of India. Rapid changes in landuse patterns through most Caracal habitats over the last few decades has drastically reduced its range and numbers (Sharma and Sankhala, 1984; Chavan, 1987). Its current distribution in India is restricted to the drier parts (Corbett and Hill, 1992; Kitchener, 1991; Nowell and Jackson, 1996). Wild populations of Caracal have nearly reached extinction in the thorn scrub jungles of Kutch and western India with not more than 10-15 individuals surviving (Chavan, 1987). Sharma and Sankhala (1984), estimated less than 50 individuals in the state of Rajasthan. In the present scenario of continued habitat degradation, rapid steps are urgently required to prevent this species from becoming extinct in India like the cheetah.

*Recent records:* Since 1996, YV Jhala, Dinesh Sharma, and Bharat Jethwa of the Wildlife Institute of India have had eight sightings (with photographs) of the Caracal in the Kutch district of Gujarat. Besides, its sightings have been reported from other known areas of its distribution (Narayan Sarovar, Gujarat - Justus Joshua pers comm.; Sariska tiger reserve, Rajasthan - pers obv., Ranthambore tiger reserve, Rajasthan - Valmik Thapar pers comm.). It has also been reported from Melghat tiger reserve, Maharashtra (MK Ranjitsinh pers comm., MG Gogate pers comm., and PJ Thosre pers comm.).

*Behaviour:* Like all cats, Caracal is highly territorial and its home ranges vary greatly in different areas. Its social organisation is also typical, with large male home ranges incorporating smaller exclusive female ranges (Stuart, 1983; Eisenberg, 1986; Weisbein and Mendelsohn, 1990; Kitchener, 1991). A study on food habits of Caracal in Sariska tiger reserve, Rajasthan, conducted by Wildlife Institute of India, revealed that its principle food was rodents followed by birds. Its litter size is 1 - 4 after a gestation of 78 - 81 days. It usually produces one litter annually (Nowell and Jackson, 1996).

#### JUNGLE CAT (*Felis chaus*)

*Description:* Jungle cat is morphologically similar to Caracal (Kitchener, 1991; Nowell and Jackson, 1996) - long legs, a short tail and long ears with small tufts at the tip. But its distinguishing features are the bands on the tail and legs of the Jungle cat which are absent in the Caracal.

*Distribution:* The Jungle cat ranges through North Africa, Southwest Asia and tropical Asia. In the east, its distribution does not go beyond the Isthmus of Kra (Nowell and Jackson, 1996). It is generally considered to be common except in countries at the limits of its geographical range (Nowell and Jackson, 1996). The most common wild cat in India, this felid is distributed through all different vegetation types and most of the climatic zones in the country. And yet, there is a dearth of information on its ecology and behaviour.

*Behaviour:* Whatever little information that is available on this cat suggests that it prefers areas with access to water and good cover (Dayan et al., 1990; Mukherjee et al. in prep.). Agricultural fields which offer sufficient cover and prey are considered good habitat for this cat.

**Table 1**  
Broad categories of regions occupied by small cats

Dry open areas	Wet dense areas
Caracal	Rusty spotted cat
Jungle cat	Fishing cat
Desert cat	Leopard cat
Lynx	Clouded leopard
Pallas cat	Marbled cat
	Golden cat

However, disturbance in the form of reduction of vegetative cover or human presence affects this cat adversely (pers obv.) Its major prey are rodents followed by the birds (Schaller, 1967 ; Mukherjee, 1989 ; Mukherjee et. al. in prep.). Some cats collected from the hilltops in Sariska tiger reserve which I analysed had remains of several scorpions as well.

The Jungle cat has a shorter gestation period of 63 - 68 days and produces 1 - 6 kittens in a litter (Nowell and Jackson, 1996). In Sariska tiger reserve, I observed mother and kitten units during winter (December - January). There were two such sightings - one of mother with two kittens and the other of mother with three kittens. On several occasions during summer, which is possibly their peak breeding season, I heard males emitting a harsh "bark like meow", preceded by copious marking of bushes by spraying urine. According to Kitchener (1991), the call is produced by males when females are in oestrus and this has been recorded in captive individuals.

DESERT CAT (*Felis silvestris ornata*, earlier known as *Felis lybica*)

*Description:* The species *Felis silvestris* consists of three wild members - European wild cat (*Felis silvestris silvestris*), African wild cat (*Felis silvestris lybica*) and Asiatic wild cat (*Felis silvestris ornata*). The African wild cat (*Felis silvestris lybica*) is believed to be the ancestor of the house cat (*Felis silvestris catus*). Little wonder then that the Desert cat, as the Asiatic wild cat is commonly known in India, closely resembles the house cat. In fact, its tabby (stripes or spots) markings on a grey to ruddy grey coat often make it difficult to distinguish this cat from the domestic tabby without a good sighting. The Desert cat weighs 3 - 4 kg.

*Distribution:* The common name

Desert cat suggests that this felid is found in dry open areas in Rajasthan and Gujarat (Prater, 1965 ; Kitchener, 1991 ; Nowell and Jackson, 1996). This distribution in the dry desert regions also distinguishes it from its African and European relatives which inhabit a wide range of habitats but chiefly the woodland areas.

*Recent records :* New sightings suggest that the Desert cat is found in Maharashtra and Madhya Pradesh as well. This cat has been reported from Pench tiger reserve in Maharashtra, where it was sighted approx. 4 km from a forest village, in a rocky, gently undulating area dominated by teak and bamboo. (Khalid Pasha pers comm.) and from Panna tiger reserve in Madhya Pradesh (TRK Yoganand pers comm.).

*Behaviour:* The Desert cat is not as nocturnal as the other small cats and feeds chiefly on rodents, hare, birds, reptiles and insects (Nowell and Jackson, 1996) . The gestation period lasts 58 - 62 days and litter size is generally 2 - 3 but may sometimes be as high as 5 - 6 kittens (Nowell and Jackson, 1996).

EURASIAN LYNX (*Lynx lynx*, earlier known as *Felis lynx*)

*Description:* The Lynx is a medium sized cat weighing 18 - 21 kg (Nowell and Jackson, 1996). It has relatively long legs, a short tail and tufted ears. The paws are large and padded with "snow shoes" or thick fur to enable easy movement over deep snow (Nowell and Jackson, 1996). Its coat is grey to ruddy grey with tabby markings which may not be very prominent in some individuals (Nowell and Jackson, 1996).

*Distribution:* The genus Lynx spreads over Asia, Europe and the Americas. The Eurasian Lynx, which is the largest in this genus, occurs in Asia

The small and medium cats are also the lesser known cats due to which they are unfortunately labelled as "the lesser cats". Indeed they are no less than the large cats.

and Europe. Within India, it is found in the cold desert and alpine regions throughout the northern parts of the Himalaya (Chundawat 1990, Nowell and Jackson, 1996). Chundawat (1990) has reported Lynx from the Nubra valley in Ladakh.

*Habitat:* Lynx habitat is variable, ranging from woodland to barren rocky areas above the treeline (Nowell and Jackson, 1996). In the Nubra valley in Ladakh, Lynx inhabits thick scrub and woodland (Chundawat, 1990).

*Behaviour:* The Lynx is mainly crepuscular with peaks in activity, around evening and morning (Nowell and Jackson, 1996). Although the other members of the genera feed chiefly on lagomorphs, the Eurasian Lynx preys on ungulates and takes small prey only when the larger ones are scarce (Nowell and Jackson, 1996). The average gestation is 69 days and litter size is 2 - 3 kittens (Nowell and Jackson, 1996).

PALLAS CAT or MANUL  
(*Otocolobus manul*, earlier known as *Felis manul*)

*Description:* The Pallas is a rather strange looking cat with thick long fur, eyes placed high up on the forehead, a flat low forehead and small ears low down to the sides of the head. This cat was wrongly thought to be the ancestor of some breeds of the domestic cat, notably the Persian breed (Nowell and Jackson, 1996).

Pallas cat is small in size, weighing between 2 - 4.5 kg. and has a grey to ruddy grey coat. Its legs are short and striped. The forehead is spotted and the tail is bushy and striped (Prater, 1965 ; Kitchener, 1991 ; Nowell and Jackson, 1996). It has some morphological similarities with the Sand cat (*Felis margarita*) found in the deserts of Africa, Arabia, Israel and

Pakistan but not in India. These similarities, such as enlarged auditory bullae (which aid in hearing) and a flattened forehead, are considered to be adaptations to living in open habitat (Nowell and Jackson, 1996).

*Distribution:* Globally, its distribution spans the cold arid regions of the central Asia. The northern cold desert region of Ladakh in India is its southernmost distribution (Nowell and Jackson, 1996). It is reported to be widely distributed in the Tibetan plateau but is extremely rare in India (Nowell and Jackson, 1996). It generally inhabits the rolling grassland or stony alpine patches and rocky outcrops up to 4800m. elevation. It does not occur in areas with thick snow cover or at very high altitudes (Nowell and Jackson, 1996).

*Behaviour:* Pallas cat is chiefly crepuscular and feeds mainly on pikas (Family: Lagomorpha) and rodents. Birds and insectivores also form part of its diet. Its call, which is "bark like", is similar to that of the Sand cat (Nowell and Jackson, 1996). It rests in crevices, caves or burrows of other animals. Four to five kittens (sometimes up to 8) are born in a litter usually around April - May after a gestation period of 66 - 75 days (Nowell and Jackson, 1996).

RUSTY SPOTTED CAT  
(*Prionailurus rubiginosus*, earlier known as *Felis rubiginosa*)

*Description:* This is the smallest member of the cat family, weighing only 1 - 2 kg. Its coat is typically ruddy grey, with rust coloured spots on the body and stripes on the forehead and legs. Its tail is unmarked, which distinguishes it from the Leopard cat with which it can be confused (Nowell and Jackson, 1996). Its ears are rounded and its eyes are very large.

*Distribution:* The Rusty spotted cat is found only in India and Sri Lanka. In India, it was earlier thought to be distributed only in the southern part of the country, but then it surprised naturalists by showing up in areas far from its earlier range. It is now established that, besides southern India (Nowell and Jackson, 1996), this species occurs in Maharashtra (Advait Edgaonkar pers comm ; Khalid Pasha pers comm. ; Yogesh Dubey pers comm.), Gujarat (Nowell and Jackson, 1996), Madhya Pradesh (Vidya Athreya and Christy Williams pers comm.) and Rajasthan (pers. obv.) as well.

*Habitat:* The habitat of this cat is varied in range, from rocky outcrops and dry deciduous forests to areas around human habitation, the latter especially in southern India (Meera Oommen pers comm. ; Nowell and Jackson, 1996).

*Recent records :* Dead specimens were collected from Borivillii national park, Mumbai (Advait Edgaonkar pers comm.) ; Tadoba tiger reserve, Maharashtra (Yogesh Dubey pers comm.) and Pench tiger reseve, Maharashtra (Khalid Pasha pers comm.). Besides, one cat was sighted in Tadoba tiger reserve; and one at night near Kuno wildlife sanctuary, Madhya Pradesh (Vidya Athreya and Christy Williams pers comm.); and I sighted and photographed one in Sariska tiger reserve at night when the cat was sitting on a culvert in a narrow grassland habitat surrounded by rocky hills. It was barely 5-8 m. away and did not seem perturbed by human presence and continued sitting even as the camera flash lit. It also showed no signs of aggression.

From the known areas of its distribution, the Rusty spotted cat was sighted on the Mundanthurai

plateau on several occasions (Kaberi Kar Gupta pers comm. ; Madhusudhan Katti pers comm. ; Jayanti pers comm. ; Divya Mudappa pers comm. and AJT Johnsingh pers comm.). Most of the sightings were made during the night. One sighting was made during the early hours of the day when the cat was basking on a tamarind tree (AJT Johnsingh pers comm.).

*Behaviour:* The Rusty spotted cat is arboreal and nocturnal, feeds chiefly on small mammals and birds, and at times raids poultry farms (Nowell and Jackson, 1996). Litter size is 1 - 2 kittens after a gestation of 66 - 68 days (Nowell and Jackson, 1996).

#### FISHING CAT (*Prionailurus viverrinus*)

*Description :* Fishing cat is a close relative of the Rusty spotted cat, but is a much larger medium sized felid weighing 6 - 12 kg. (Nowell and Jackson, 1996). It is stockily built and looks powerful. It has a distinctly spotted coat of olive - grey colour (Nowell and Jackson, 1996). Its tail and legs are short. The feet are webbed and the claws are not fully retractile (Nowell and Jackson, 1996).

*Distribution :* Globally, the Fishing cat has a distribution spread across some parts of Pakistan, India, Nepal, Bangladesh, Sri Lanka, Myanmar, Laos, Vietnam, Thailand, Malaysia, Java and Sumatra. Within India, it is widely, though patchily, distributed. It occurs in the southern parts of the Western Ghats, in Keoladeo Ghana national park, Bharatpur (Rajasthan), through the terai belt of northern India, notably Dudhwa and Corbett tiger reserves (Uttar Pradesh), through much of West Bengal, Assam and the other north-eastern states (Nowell and Jackson, 1996).

*Habitat* : The habitat of this cat is typically wetland or marshy areas such as swamps, reed beds, tidal creeks and mangroves (Nowell and Jackson, 1996). Dense vegetation also characterises its habitat. As such, though Fishing cat may occur in a large variety of broad vegetation categories, it is restricted to swampy areas within these broad zones (Nowell and Jackson, 1996).

*Behaviour* : As its name suggests, the felid feeds mainly on fish, though rodents and birds also form a substantial portion of its diet (Mukherjee, 1989 ; Nowell and Jackson, 1996).

In the summer of 1989 at Bharatpur, I once observed a Fishing cat from 1945 hr. to 0030 hr. (five hours) as it waited at the edge of a canal to catch fish. It would wait approximately 15 minutes at one place and then move to another place a few metres away and wait there, gazing intently at the water. It would then come back to the original place. It caught and ate whatever came its way (I suspect insects and frogs). It even tried to catch a turtle which was swimming by (swatting it with its paw), which I guess it mistook for a fish as it promptly retracted its paw when the turtle surfaced. Finally, it sighted a fish, dived into the water and after delivering vigorous blows on the fish with its paw swam beneath the surface of the water and emerged on the other side of the bank with the fish in its mouth.

During a study at Keoladeo national park in Bharatpur, I collected nine scat samples of the Fishing cat, all of which, on analysis, were found to have fish remains while 88% and 44 % had remains of rodents and birds respectively (Mukherjee, 1989). Fishing cat also consumes small

ungulates such as chital fawns and wild pigs (Nowell and Jackson, 1996) and have also been observed scavenging carcasses and even kills made by tigers (Nowell and Jackson, 1996).

In Bharatpur, they were found to be mainly nocturnal though their time of activities varied between different places (Nowell and Jackson, 1996). Mating has been observed in winter (January to February) as well as in summer (June), and after a gestation of 63 -70 days, 2 - 3 young are born (Nowell and Jackson, 1996).

#### LEOPARD CAT (*Prionailurus bengalensis*)

*Description* : Another close relative of the Rusty spotted cat, the Leopard cat is more profusely marked with spots and rosettes, much like that of a leopard, the reason for its common name.

The colour of its coat varies from yellowish brown in the tropics to grey in the northern parts of its range (Nowell and Jackson, 1996). The tail is banded and long. The cat usually weighs 3 - 4 kg., though some males in Russia have been reported to weigh up to 7 kg. (Nowell and Jackson, 1996).

*Distribution* : Among the *Prionailurus* genera found in India, the Leopard cat has the widest distribution. In fact, it is the most common small cat after the Jungle cat and occurs throughout the country except in the dry arid regions of Rajasthan, Gujarat and some parts of the peninsular India. It also occurs in the Himalaya, mostly at lower altitudes and areas which do not have heavy snow cover (Nowell and Jackson, 1996). Elsewhere, it is found in parts of Pakistan, India, Nepal, Bangladesh, China, Russia, Japan, North and South

Korea, Myanmar, Thailand, Laos, Vietnam, Taiwan, Philippines, Cambodia, Malaysia, Singapore, Borneo, Java and Sumatra.

*Habitat* : Typically, the Leopard cat habitat is moist forested areas but the animal is also found in agricultural plantations close to human habitation (Nowell and Jackson, 1996). As with many other small cats, proximity to water sources is an important factor characterising its habitat (Nowell and Jackson, 1996).

*Recent records* : These sightings have been made in areas expected to have Leopard cats. One individual was sighted in the morning at around 1000 hr. in Pench tiger reserve, Maharashtra in an undulating rocky habitat dominated by teak (G Arindran pers comm.). Two sightings were reported from Borajan Reserve, Assam in a degraded forest patch within the boundaries of a forest village - one at night when the cat was active and the other, when it was flushed out from a dense patch of scrub during the day probably while it was resting (Kashmira Kakati pers comm.). Several sightings were reported (at dusk and during night) in Kedamath Musk Deer sanctuary (Meera Oommen, Rashid Raza and S Sathyakumar pers comm.).

*Behaviour* : Leopard cat is arboreal to some extent and mostly active during the night, although telemetry studies in Thailand have shown individual variations in the time of activity, with some activity during the daytime as well (Nowell and Jackson, 1996). Its diet consists chiefly of rodents, though birds, reptiles, insects, carrion and even young ungulates are also eaten (Nowell and Jackson, 1996). Its breeding season varies from place to places - from being restricted to winter to all year

round. Gestation lasts for 57 - 60 days and 1- 4 kittens are born in a litter.

#### CLOUDED LEOPARD (*Neofelis nebulosa*)

*Description* : The distinctive marbled pattern on the coat of the Clouded leopard gives this felid its common as well as scientific name. Other features that distinguish it from most other members of the Felidae are its longish skull and larger canines. The tail, which is long and equal to the head and body length, is thick and ringed. Its legs are comparatively short. The Clouded leopard weighs 11 - 20 kg, and can often be confused for the much smaller Marbled cat from which it is distinct in terms of size, proportionate length of legs (to body size) and shape of skull.

*Distribution* : The Clouded leopard is found in the dense forested areas in parts of India, Nepal, Bangladesh, China, Burma, Thailand, Malaysia, Vietnam, Borneo, Cambodia and Indonesia. Within India, it occurs in the rainforests of the north-eastern region in north Bengal, Arunachal Pradesh, Assam and Meghalaya (Nowell and Jackson, 1996 ; Christy Williams pers comm.).

*Habitat* : Its habitat is mainly tropical rainforest but it also occupies the secondary logged forests, mangroves, dry tropical forests and scrub.

*Recent records* : A killed specimen of Leopard cat was found in the Garo hills of Meghalaya at night (Christy Williams pers comm.). One sighting was reported of what could be either a Clouded leopard or Marbled cat, from Balphakram national park, Meghalaya, (Christy Williams and Manoj Nair pers comm.).

*Behaviour* : This arboreal felid uses

trees mainly for resting but probably forages there as well. On the ground, it feeds on a variety of mammals of varying sizes such as ungulates, primates and rodents such as porcupine as well as other smaller rodents, mammals and birds (Nowell and Jackson, 1996). However, primates seem to be its main prey in many areas.

The Clouded leopard is mainly nocturnal but may be less so in areas where there are fewer large cats such as tiger and leopard (Nowell and Jackson, 1996). Litter size is usually three after a gestation of 87 - 99 days.

#### MARBLED CAT (*Pardofelis marmorata*)

*Description:* The coat of the Marbled cat is very similar to that of the Clouded leopard. However, this felid is less than a third the size of the latter, and has a more rounded skull and relatively longer legs (Nowell and Jackson, 1996). Some authors feel that the similarity in coat pattern as well as the size of canines (Marbled cats have large upper canines) suggest its evolutionary proximity to the Clouded leopard (Nowell and Jackson, 1996).

*Distribution:* Similar to that of the clouded leopard both globally as well as within India.

*Habitat:* Moist tropical forests.

*Behaviour:* Very little is known of this arboreal cat. It is possibly mainly nocturnal and possibly feeds largely on rodents and some birds. Litter size is 1 - 4 and the gestation period lasts approximately 81 days.

#### GOLDEN CAT (*Catopuma temmincki*, earlier known as *Profelis temmincki* or *Felis temmincki*)

*Description:* This medium sized felid weighs between 8 and 15 kg. The

colour and pattern of its coat is variable, ranging from uniform to one which is heavily blotched. The most common coat colour is ruddy brown (Nowell and Jackson, 1996).

*Distribution:* Similar to that of the Clouded leopard, both within and outside India.

*Habitat:* This cat inhabits a wide range of habitat types from tropical evergreen forests to dry deciduous forests as well as the more open areas such as scrub and grasslands (Nowell and Jackson, 1996).

*Behaviour:* Golden cat is mainly nocturnal and its diet consists chiefly of rodents, birds, reptiles as well as small ungulates such as goral and barking deer (Nowell and Jackson, 1996). The gestation period lasts approximately 80 days and the usual litter size is 1 - 2.

#### A THOUGHT TO PONDER OVER

Cats are, in a way, food specialists as compared to some other mammalian taxa. As they cannot digest carbohydrates very efficiently, they are totally dependent on a carnivorous diet for their survival. They obtain certain nutrients such as vitamin B and taurine solely from secondary sources such as meat. As such, feline survival is linked to habitat quality since that would affect prey abundance. Although this relationship seems simple and a measure of the status of the cats inhabiting an area would seemingly indicate its quality, there are several problems, e.g. how to determine the status of cats? or, does high abundance necessarily indicate good habitat quality? etc. Their dietary specialization alongwith secretive and solitary habits, make cats more vulnerable and less tolerant to disturbance than some other species.

This apart, there is a tendency to conserve only that which is obvious and beneficial to us, little realising that a vast array of subjects unknown to us now, possibly ensure our survival. Reasons such as biodiversity, beauty and ethics may find sympathisers wishing to practice conservation. However, unfortunately again, such people are not only very few in number but also not the ones in power who can actively implement conservation laws.

Our current knowledge on small cats (as well as other small carnivores and most other organisms inconspicuous to us) is almost negligible. It would be regrettable if we discover their importance only after they are lost.

Wouldn't it then be wise to simply conserve them now!

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