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Abstract: Clouded leopards were believed to be extinct in Nepal, the last published record being from 1863, but in 1987-1988 four individuals were found in the country. These findings extend the known range of the species westward and suggest that clouded leopards are able to survive and breed in degraded woodlands and scrub previously supporting moist subtropical semi-deciduous forest. One of the clouded leopards was radio-collared, the first free-ranging individual to be so, and tracked for several days after its release in Royal Chitwan National Park. The translocation was unsuccessful - the leopard rapidly travelled towards the site from which it was captured.

The clouded leopard in Nepal

Eric Dinerstein and Jai N. Mehta

Clouded leopards were believed to be extinct in Nepal, the last published record being from 1863, but in 1987–1988 four individuals were found in the country. These findings extend the known range of the species westward and suggest that clouded leopards are able to survive and breed in degraded woodlands and scrub previously supporting moist subtropical semi-deciduous forest. One of the clouded leopards was radio-collared, the first free-ranging individual to be so, and tracked for several days after its release in Royal Chitwan National Park. The translocation was unsuccessful—the leopard rapidly travelled towards the site from which it was captured.

The clouded leopard *Neofelis nebulosa* ranges from the south-eastern Himalaya, southern China, and Taiwan, to Peninsular Malaysia, Sumatra and Kalimantan (Swinhoe, 1862; Blanford, 1888; Guggisberg, 1975). *Neofelis* is endangered and rarely sighted in the wild, and the little available information on the ecology of free-ranging animals is partly contradictory. Several observers reported that in undisturbed habitats *Neofelis* is mostly arboreal and associated with dense evergreen forest (Raffles, 1821; Prater, 1965). Selous and Banks (1935) speculated that *Neofelis* was mostly terrestrial, and other reports indicate that the species frequently uses roads and trails in logged forests in Indonesia and Malaysian Borneo (Payne *et al.*, 1985; Santiapillai and Ashby, 1988; Rabinowitz *et al.*, 1987). Recent reports from central Burma indicate that *Neofelis* occurs in relatively open, dry tropical forests (C. Wemmer, pers. comm.). Terrestrial behaviour and presence of *Neofelis* in uncharacteristic habitats may be related to the local absence of spotted leopards *Panthera pardus* and tigers *Panthera tigris* (J. Seidensticker, pers. comm.).

The last published record for *Neofelis nebulosa* in Nepal dates from 1863 from mid-elevation habitats (Pocock, 1939). Today, lowland parks and reserves in Nepal (the Terai zone) are known to support high densities of large felids such as

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tigers and spotted leopards (Sunquist, 1981; Seidensticker, 1976; McDougal, 1977), but apparently not *Neofelis*, even though these species are sympatric elsewhere in southern and south-eastern Asia. *Neofelis* is assumed to be absent from the subtropical Terai forests because they are more open than tropical forests, are mainly deciduous, and have an 8-month dry season. Here, we report on four recent records of *Neofelis* for Nepal that extend the western range of the species, and describe the behaviour and movements of a radio-collared male monitored for a brief period. Measurements taken from two of the individuals are available from the first author upon request.

In 1987, a pair of *Neofelis* cubs was captured near Janakpur in the eastern Nepalese Terai and brought to the Kathmandu Zoo (Figure 1). The maternal female was presumed to have been killed by local villagers. A subadult male was captured in Nawalparasi district in a village about 50 km east of Butwal. The male was caught when it entered a chicken coop, and after rough treatment by villagers was forced into a wooden crate. The animal was transported by truck to the Smithsonian/Nepal Terai Ecology Camp in Sauraha, Royal Chitwan National Park, where it was sedated, treated for its injuries, radio-collared, measured, and released approximately 100 km east of the capture site. A fourth



Clouded leopard (Lori Price).

individual, also a male, was stoned to death near the city of Pokhara near the Panchayat Training Centre, retrieved by forestry officials, and placed in the local museum.

The subadult male brought from Butwal to Sauraha was the first ever free-ranging *Neofelis* to be radio-collared. The release occurred on 5 February 1988 in a strip of riparian evergreen forest dominated by *Ficus racemosa* with an

understorey of the evergreen rutaceous shrub *Murraya paniculata*. We expected to locate the male in the canopy of the evergreen forest, based upon reports of arboreal foraging and resting behaviour and because the release occurred during the peak of leaf fall for the moist semi-tropical forest and savannahs that surrounded the release site. Instead, monitoring of activity and movements for 8 successive days indicated only terrestrial behaviour. The male frequently was found resting in grasslands among dense patches of the 4–6-m tall grasses, *Narenga porphyracorma* and *Saccharum benghalensis*. After 9 days the male had occupied an area of less than 1 sq km. On Day 10 after release, the male had crossed a savannah and reached the forested slopes of the Siwalik hills to the southwest, about 8 km from the release site. The following few days it was located in hill sal (*Shorea robusta*) forest heading west along the spine of the Siwaliks, moving in the direction from where it was captured originally. Daily monitoring was interrupted for 2 weeks by official restrictions on

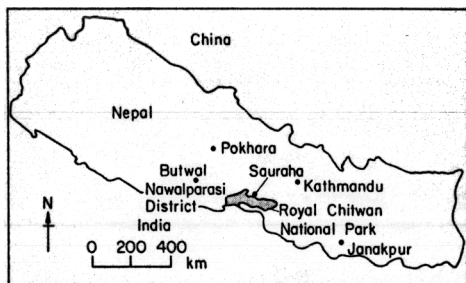


Figure 1. Map of Nepal showing places mentioned.

Immobilized
clouded
leopard
(Lori
Price).



telemetry work in the central part of Chitwan. Efforts to locate the animal after this were unsuccessful.

The persistence of *Neofelis* in marginal scrub forest, as currently exists around the original capture sites of Janakpur and Butwal, is surprising. These discoveries not only extend the known western range of the species, they also indicate that, like *Panthera pardus*, *Neofelis* is able to survive and breed in degraded dry woodlands rather than primary forest. The species may also be more common in Nepal than previously thought. We suggest that one reason *Neofelis* is encountered so rarely is that until recent deforestation, the Terai lowlands supported a continuous forest cover of associations dominated by *Shorea robusta* (family: Dipterocarpaceae). Even where unaffected by poaching, these associations support extremely low densities of the ungulate prey (Dinerstein, 1980, 1987) and we would expect *Neofelis* to be rare.

The release of this male approximately 100 km from its capture point is also an experiment in translocation of a large carnivore. That it remained only 9 days in the release area should be noted by those who consider the translocation or relocation of large felids into protected areas as an option in conservation management.

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