Highest elevation record of tiger presence from India

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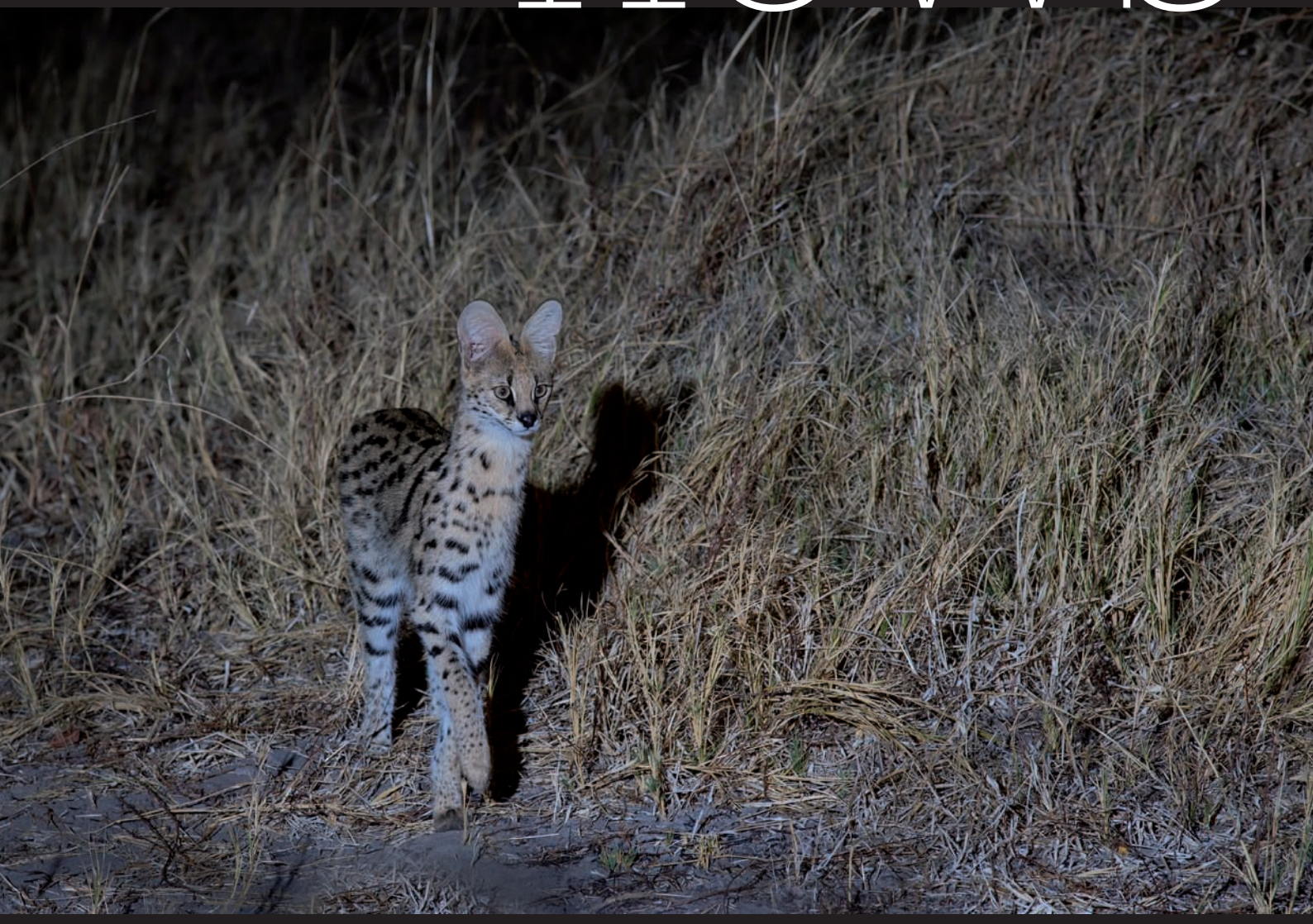

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Highest elevation record of tiger presence from India

We report here a high elevation record of a female tiger *Panthera tigris* from the Askot landscape, Uttarakhand, India. The camera-trap picture was taken at an elevation of 3,274 m in March 2016. This is the highest elevation record for the tiger in India.

Tiger, the largest member of the Felidae family, is one of the most charismatic and revered species across the globe. They are apex predators and serve as an important umbrella species for conserving landscapes and an extensive diversity of species associated with those landscapes. India, one of the prominent countries for tiger conservation, harbors more than 70% of the global tiger population. It is one of the 13 South Asian countries involved in reaching the TX2 target of the Global Tiger Recovery Plan. In the Indian subcontinent, tigers inhabit a variety of habitats like Tropical Dry and Moist Deciduous forests, Evergreen and Mangrove forests, Terai grasslands and Mixed Conifer Broadleaf forests in the Himalayan foothills. There have been very few reports and studies about tigers inhabiting high elevation habitats. Sighting of tigers beyond the known distribution range like high altitude mountainous habitats is sporadic and a matter of conservation interest which is reported in this communication.

We present here the photographic evidence of a female tiger (Fig. 1) at an elevation of 3,274 m from March 2016. This is the highest record for a tiger in India. Camera trapping for assessing the mammal communities was done recently in one of the micro watersheds of Askot Landscape, Uttarakhand, India. The landscape is located in the eastern Kumaon region of Uttarakhand in the western Himalaya (Fig. 2). The Askot Musk Deer (Wildlife) Sanctuary falls under this landscape covering an area of about 600 km^2. The altitudinal range of the landscape varies from about 600 m to 7,000 m. It is one of the 7 selected landscapes under the Biodiversity Conservation and Rural Livelihood Improvement Project funded by the World Bank. Camera trapping in the Ghosi gad micro watershed of Gori Valley revealed the presence of a female tiger at an elevation of 3,274 m. The tigress was photographed at three locations at 2,899 m, 2,979 m and 3,274 m, respectively, each location one kilometer apart, en-route to the alpine meadows of Chhipla Kedar which is about 6 km away. The habitat where the tigress was photo-captured was montane broadleaf (evergreen) forest consisting mainly of Ringal or Dwarf Bamboo *Arundinaria* sp., Kharsu oak *Quercus semi-carpifolia*, Timsu oak *Quercus glauca*, Rhododendron *Rhododendron arboreum* and sub-alpine forest with grassy slopes consisting of *Danthonia* species. The tigress was photo-captured on 4.3.2016 at 14:16 h, on 5.3.2016 at 16:34 h and on 13.3.2016 at 9:41 h.

Fig. 1. Photograph of tigress from Askot Landscape Uttarakhand.

Prior to this record, the highest elevation record of tiger presence in India was from Dibang Valley District in Arunachal Pradesh, where a tiger was photo-captured in the mountainous habitat of the eastern Himalaya at an elevation of 1,765 m (Gopi et al. 2014). There had been two occasional records of tiger presence in the Askot landscape, one, by an IFS officer named J. E. Carrington Turner in his book called "Man-eaters and Memories" (1959). The author mentioned shooting one of the two man eating tigers of Gori Valley. In another book titled "In the Forbidden Land" by A. Henry Savage Landor (1898), the author narrates how a Rajwar (Ban Raji Tribe) from Askot offered to give him a tiger, bear and leopard shooting. These two documents provide historical evidences of tiger presence in the aforementioned landscape. Since then, there has been no confirmed record of tiger presence from this region. We had been working on the assessment of mammal communities in this landscape since 2013. On conducting interviews with locals, with pictures of mammals to identify, few old people responded to have seen a tiger in the past which they referred to as "dhari wala bagh" ("big cat with stripes"). After initially surveying the entire valley, we deployed camera traps in February 2016. The cameras were out for a month. The tigress was photo-captured in March 2016. Additionally, there were photos of sambar *Rusa unicolor,* barking deer *Muntiacus muntjak* and goral *Naemorhedus goral* from the same area, which means there is a good prey base for carnivores. A leopard was also pictured in the same area. This may be an area in India where tiger, leopard and snow leopard should sharing the same habitat. The location of the photo-captured tiger is about 100 km away from the Kilpura corridor going north of Tanakpur to cross the river Sharda above the barrage going into Nepal (Churia Hills-Bhramgiri Forests; Jhala et al. 2011), which is the nearest tiger habitat from the southern side. From the eastern side, Bardiya National Park in Nepal, which is more than 200 km away, is the nearest tiger habitat.

In the recent years, camera trapping studies revealed the presence of tigers in a wide array of habitats worldwide. But there have been few studies of tigers at higher eleva-

tions bringing their presence in high mountainous habitats to a question. However, there have been reports in the past 10 years which proved the inhabitance of tigers at higher elevations. In 2009, tiger pugmarks were observed at an elevation of more than 1,700 m, in montane forests of Temengor Forest Reserve, Malaysia, which were traced up to 1,945 m. Subsequent camera-trapping in 2010 revealed photographic evidence of two adult male tigers at an elevation of 1,770 m. More recently in 2012, camera-trapping in the adjacent Gunung Basor Forest Reserve, also revealed evidence of a female tiger (Mohamad et al. 2013). In Bhutan, tigers have been photo-captured up to an altitude of 4,200 m (Bhutan Department of Forests 2005, Jigme & Tharchen 2012). In India, the famous British-Indian hunter-turned conservationist Jim Corbett shot tigers in the Kumaon region of Uttarakhand about which he wrote in his famous book "The Man-eaters of Kumaon" (Corbett 1944). Prater (1948) mentioned "In India, the Tiger has left its tracks in the winter snows of the Himalayas at an altitude of 10,000 ft. (3,050 m.)". All this information and our record indicate that tigers do utilise montane habitats including habitat types closer to the tree line where shrubs and grasses are dominant providing good cover and prey for the animal.

Scientific studies and conservation efforts for tigers in South Asian countries have been going on since the early 1970s. In India, it started with the Project Tiger in 1973. In 2010, the governments of the world's 13 tiger range countries gathered and created the Global Tiger Recovery Plan, outlining how each country could reach the TX2 target which is doubling the number of wild tigers by 2022. In India, many studies have been conducted on tiger since the 1990s which generated substantial knowledge about the species. But most of the work has been concentrated along lower elevation habitats. A study about the available tiger habitat in India shows 13,181 km^2 temperate forest, 9,043 km^2 wet temperate forest, 13,736 km^2 moist deciduous, 19,360 km^2 dry deciduous forest, 6,927 km^2 grassland and 873 km^2 of mangrove forest suitable for the species (Dinerstein et al. 1997). Revelation of tiger presence from the high altitudes of the montane habitats of the Himalaya opens up another debate about the area available for tigers to colonize and reaching the TX2 goal. It gives a scope for further studies and surfaces the need for conservation efforts and awareness to be focused on tigers in high elevation habitats of the Himalaya which can provide new insights about the world of tigers.

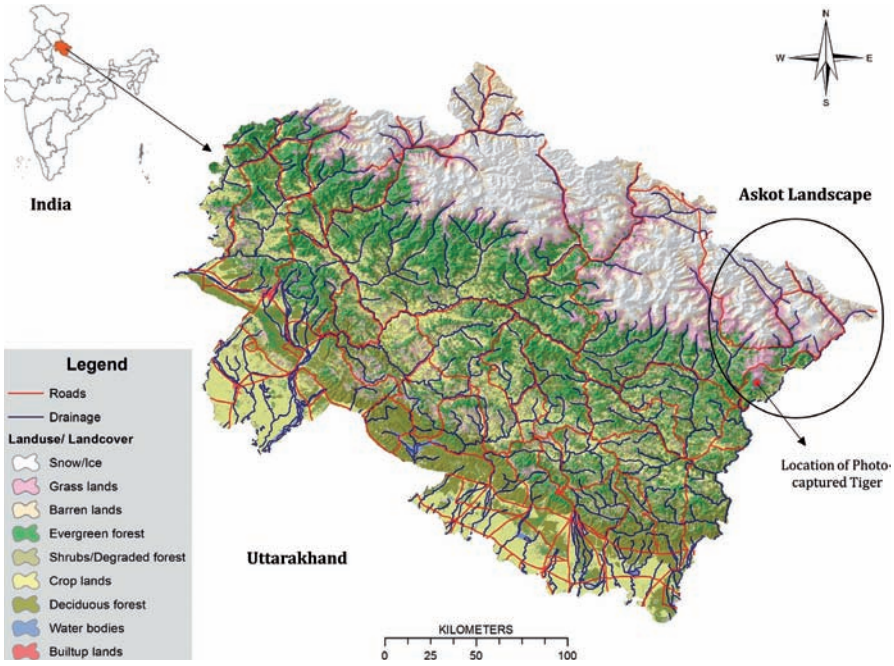

Fig. 2. Location map of Askot Landscape Uttarakhand showing location of recent tiger capture.

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