TUSKERS ON TRACKS: HOW MANY MORE ELEPHANTS MUST DIE BEFORE A SOLUTION IS DEVISED?

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ABSTRACT

Elephants or Tuskers are classified as mega herbivores and consume up to 150 kg (330 lb) of plant matter per day.They graze on the tall grasses, but the portion consumed varies with season. When the new flush appears in April, they remove the tender blades in small clumps. Later, when grasses are higher than 0.5 m (1.6 ft.), they uproot entire clumps, dust them skillfully and consume the fresh leave tops, but discard the roots.In the Nilgiri Biosphere Reserve three elephant clans had overall home ranges of 562 km2 (217 sq. mi), 670 km2 (260 sq. mi) and 799 km2 (308 sq. mi) in the beginning of the 1990s.The movement and habitat utilization patterns of an elephant population were studied in southern India during 1981–83 within a 1,130 km2 (440 sq. mi). Conversion of elephant corridors into estates, buildings and crop cultivation sites results in crop damage and human causalities.

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Introduction

"Nature is not a place to visit. It is home."

— Gary Snyder

Trinomial name:***Elephasmaximusindicus*** (Cuvier), 1798

The Indian elephant (Elephasmaximusindicus) is one of three recognized subspecies of the Asian elephant and native to mainland Asia. Since 1986, ***Elephasmaximusindicus*** has been listed as Endangered by ***IUCN*** as the population has declined by at least 50% over the last 1 to -1 years or three generations. Asian elephants are threatened by habitat loss, degradation and fragmentation.

Characteristics

In general, Asian elephants or Tuskers are smaller than African elephants and have the highest body point on the head. Females are usually smaller than males, and have short or no tusks. The largest Indian elephant was 3.43 metres (11.3 ft) high at the shoulder (Pillai, N.G. 1941).In 1985; two large elephant bulls were spotted for the first time in Bardia National Park, and named ***Raja Gaj and Kanchha.*** They roamed the park area together and made occasional visits to the females. Raja Gaj stood 11.3 ft. (3.4 m) tall at the shoulder and had a massive body weight. His appearance has been compared to that of a mammoth due to his high bi-domed shaped head. His forehead and domes were more prominent than in other Asian bull elephants. (FurahatenVelde., P. 1997).

Ecology and behavior

Elephants are classified as mega herbivores and consume up to 150 kg (330 lb) of plant matter per day (Samansiri, K. A. P., Weerakoon, D. K. 2007).They are generalist feeders, and both grazers and browsers. In a study area of 1,130 km2 (440 sq. mi) in southern India, elephants were recorded to feed on 112 different plant species, most commonly of the order Malvales, and the legume, palm, sedge and true grass families. They graze on the tall grasses, but the portion consumed varies with season. When the new flush appears in April, they remove the tender blades in small clumps. Later, when grasses are higher than 0.5 m (1.6 ft.), they uproot entire clumps, dust them skillfully and consume the fresh leave tops, but discard the roots. When grasses are mature in autumn, they clean and consume the succulent basal portions with the roots, and discard the fibrous blades. From the bamboos, they eat seedlings, culms and lateral shoots. During the dry season from January to April, they mainly browse on both leaves and twigs preferring the fresh foliage, and consume thorn bearing shoots of acacia species without any obvious discomfort. They feed on the bark of white thorn and other flowering

plants, and consume the fruits of wood apple, tamarind, kumbhi and date palm (Sukumar, R. 1990).

Distribution and habitat

Indian elephants are native to mainland Asia: India, Nepal, Bangladesh, Bhutan, Myanmar, Thailand, Malay Peninsula, Laos, China, Cambodia, and Vietnam. They inhabit grasslands, dry deciduous, moist deciduous, evergreen and semi-evergreen forests. In the early 1990s, their estimated population size was 26,390–30,770 in India(Sukumar, R. 1993), where populations are restricted to four general areas:

In the Northwest — at the foot of the Himalayas in Uttarakhand and Uttar Pradesh, ranging from Katarniaghat Wildlife Sanctuary to the Yamuna River;

In the Northeast – from the eastern border of Nepal in northern West Bengal through western Assam along the Himalaya foothills as far as the Mishmi Hills, extending into eastern Arunachal Pradesh, the plains of upper Assam, and the foothills of Nagaland, to the Garo Hills of Meghalaya through the Khasi Hills, to parts of the lower Brahmaputra plains and Karbi Plateau; isolated herds occur in Tripura, Mizoram, Manipur, and in the Barak Valley districts of Assam:

In the central part — in Orissa, Jharkhand, and in the southern part of West Bengal, with some animals wandering into Chhattisgarh;

In the South – eight populations are fragmented from each other in northern Karnataka, in the crestline of Karnataka–Western Ghats, in Bhadra–Malnad, in Brahmagiri–Nilgiris–Eastern Ghats, in Nilambur–Silent Valley–Coimbatore, in Anamalai–Parambikulam, in Periyar–Srivilliputhur, and one in Agasthyamalai;100–125 in Nepal, where their range is restricted to a few protected areas in the Terai along the border with India. In 2002, estimates ranged from 106 to 172 resident and migratory elephants, with most of them in Bardia National Park.

Elephants at Nilgiri Biosphere Reserve

Fig.1 Elephant marching for water at Satyamangalam forest

In the Nilgiri Biosphere Reserve three elephant clans had overall home ranges of 562 km^2 (217 sq. mi), 670 km^2 (260 sq. mi) and 799 km^2 (308 sq. mi) in the beginning of the 1990s. During three years of survey, their annual home ranges overlapped to a large extent with only minor shifts in the home ranges between years (Sukumar, R. 1989).

Elephant movement

The movement and habitat utilization patterns of an elephant population were studied in southern India during 1981–83 within a 1,130 km^2 (440 sq. mi) study area. The vegetation types of this area encompasses dry thorn forest at 250 to 400 m (820 to 1,310 ft.), deciduous forest at 400 to 1,400 m (1,300 to 4,600 ft.), stunted evergreen forest and grassland at 1,400 to 1,800 m (4,600 to 5,900 ft.). Five different elephant clans, each consisting of between 50 and 200 individuals had home ranges of between 105 km^2 (41 sq mi) and 320 km^2 (120 sq. mi), which overlapped. They preferred habitat where water was available and food plants were palatable. During the dry months of January to April, they congregated at high densities of up to five individuals per km^2 in river valleys where browse plants had much higher protein content than the coarse tall grasses on hill slopes. With the onset of rains in May, they dispersed over a wider area at lower densities, largely into the tall grass forests, to feed on the fresh grasses, which then had a high protein value. During the second wet season from September to December, when the tall grasses became fibrous, they moved into lower elevation short grass open forests. The normal movement pattern could be upset during years of adverse environmental conditions. However, the movement pattern of elephants in this region has not basically changed for over a century, as inferred from descriptions recorded during the 19th century.(Baskaran, N., Desai, A. A. 1996).

Like humans, elephants do suffer due to the negative interactions inflicted on them through injury and killing. Several kinds of equipment, devices and chemicals are being used for such purposes. Conversion of elephant corridors into estates, buildings and crop cultivation sites results in crop damage and human causalities (Sukumar, 1990; Easa&Sankar, 1999). The

Coimbatore Forest Division is one of the severe HEC forest divisions in Nilgiri Biosphere Reserve of Western ghats, has a sizeable elephant population and viable habitat for the population of resident and also for the migratory elephants (Ramkumar ,et al ., 2013). More than 20% of the area of the reserve forest serve as viable corridor for the movement of elephants between Silent Valley National Park (Western Ghats, Kerala) and Eastern Ghats andvice-versa (Sivaganesanet al.,2000). The movement of elephants in Coimbatore Forest Division is mostly restricted to foot hills *due to escarpment of steep slope* on the west and human habitations on the east. Therefore human-elephant conflict is higher level compared to other largely populated elephant habitats in South India (Ramkumaret al., 2014a).

Eminent threats to Elephants

The pre-eminent threats to Asian elephants today are habitat loss, degradation, and fragmentation, which are driven by an expanding human population, and lead in turn to increasing conflicts between humans and elephants when elephants eat or trample crops(Choudhury, A.,et al.,2008) .Loss of significant extents of elephant range and suitable habitat continues; their free movement is impeded by reservoirs, hydroelectric projects and associated canals, irrigation dams, numerous pockets of cultivation and plantations (at the corridors of forests starting from Madukkarai to Metupalayam), highways, railway lines, mining(Lime stone mines Madukkarai and Valayar) and industrial development.

Train Accidents

Elephant conservation in Tamilnadu has been set back due to high-levels of human–elephant conflict and elephant mortality owing to railway accidents. The railway track between Coimbatore and Palghat passes through forest divisions. Every day, many passenger and express trains run on this track at high speeds. Elephants that pass through from one forest patch to another dash against the trains and die. The B-line, which has been laid through the Walayar Reserve forest, bisects an elephant corridor. More than thirty elephants have been killed / maimed during the last two decades due to speeding trains between Kanjikode and Madukkarai (a 30km stretch of dense forest) in this section. In spite of this, no concrete measures seemed to have been taken to protect the elephants. In January, four elephants of a herd were crushed to death by a speeding train at Kurumbanpalayam near Madukkarai in the Coimbatore forest division.

Fig.2.Fate of Giants at Madukkarai

Two full-grown elephants, including a pregnant cow, and an infant, were hit by a train speeding at 140 kmph, and killed on the spot. The fourth one, a 30-year-old bull, was dragged to about 250 metres and its body parts were mutilated on the tracks.

The crossing recorded in this image was long after both the Railway and the Forest departments claimed that the entire track was cordoned off by electric fencing, and the elephants were safe. The fencing was found to be breached in at least three places by the elephants by pushing huge teak trees onto it, and coolly placing the feet exactly between the wires.

Deforestation and degradation

In Coimbatore, forested areas that served as prime elephant habitat have undergone drastic reduction, which had a severe impact on the wild elephant population. Habitat loss and fragmentation is attributed to the increasing human population and its need for fuel wood and timber. Illegal timber extraction plays a significant role in deforestation and habitat degradation. As a result of the shrinking habitat, elephants have become more and more prone to coming into direct conflict with humans.

Suggestions and Conclusion

- A concerted signature campaign is being run by concerned environmentalists and other citizens. It remains to be seen whether it will bear fruit, in the present scenario, where reason has taken a back seat, and greed in the name of development seems to be tethered to the driving harness.
- Before delivering permissions to build *Resorts on hill corridors* in the Western Ghats the area must be studied for its ecological sustainability. Local conservation groups and Environmentalists have to come forward to halt commercial resorts in this corridor connecting the area with adjoining forests.

- The study findings indicate that such volunteering programmers may contribute to increased environmental awareness among the general public.The direct impacts on conservation including – shift in formal profession by volunteers to become conservationists, initiation of new conservation organizations or groups, or just as '***opinion leaders'*** influencing their social circles towards the cause.Participation of non-scientists as volunteers in conservation can play a significant role in saving wildlife, finds a new scientific research led by Duke University, USA, in collaboration with Wildlife Conservation Society and Centre for Wildlife Studies, Bengaluru.
- ***Effective speed control measures*** to reduce wildlife road kills needed immediately as per locations suggested (both by road and rail).
- Environmentalists and wildlife activists have pressed the panic button in the elephant corridor connecting Karnataka, Kerala and Tamil Nadu where the Asian tusker is under siege.
- According to an estimate by the ***NGO Wildlife Protection Society of India (WPSI),*** more than 20 elephants have died between January 2007 and January 2008 in southern India as a result of man-animal conflict.Development has eaten into the vast green swathes of the Bandipore wildlife sanctuary, the Nagarhole national park, the Madukkarai forest division, the largest reserve of Asiatic elephants, and the corridor between the Parambikulam wildlife sanctuary and Pooyamkutty gene pool area, straddling the three States.
- The areas are loose parts of an almost contiguous elephant reserve in southern India.
- "***Electric fencing has caused physical damage*** and killed several tuskers in Karnataka, Tamil Nadu and Kerala.

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