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Population demography and viability of Asian elephants in timber camps of Tamil Nadu, southern India

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Detailed demographic analysis on population size, structure, inter-calving interval, age specific mortality and fecundity of elephants kept for the past 10 years (from 1996-2005) in the timber camps of Tamil Nadu, were undertaken to understand the long term viability of this population with the current demographic parameters. There are 50 elephants kept under this captive regime at present, out of which about 70% are adults indicating an aged population. Males (66%) outweighed the females (34%) with a skewed male to female sex ratio of 1 : 0.5. Most of the female segment (26%) was adults (mostly > 40 years) with a very small portion of sub adults and juveniles (8%), which does not show a promise of revival even in the future. The fecundity rate (0.065) of females is considerably lower compared to the earlier report for the same population (0.155). A population projection model developed based on the current demographic values predicted that this population could not be a potentially stationary or increasing population without input from the wild. The population showed a negative growth rate, with the number of individuals poised to decrease to less than 10 individuals in about 100 years with the current demographic parameters. The unequal age structure and sex ratio could be largely attributed to selective disposal of juvenile and sub-adult females to temples from the forest camps in the past. The absence of captive born females in breeding condition, except the one last bred in 1943 in a 100 year old timber camp, supports the above reason. To ameliorate the population structure and sex ratio, and to retain the long history of timber camp elephants, inputs from the wild, especially females of adult and sub-adult classes should be given priority. Capturing and transferring of problem elephants especially herds ranging in isolated habitats to timber camps could be considered as a solution to restructure the captives as well as reduce human-elephant conflicts in the natural habitats.