

## When flowering threatens the natural conservation of a species

Bamboo flowering is a botanical phenomenon and the reasons behind this are still not clearly understood. Bamboos flower only once and die after flowering to regenerate from seeds<sup>1</sup>. *Dendrocalamus strictus* is one of the important bamboo species in Jharkhand and popularly known as 'lathi bans'. Unfortunately, no scientific report is available in the state about bamboo flowering. Recently, the species started flowering in many locations of the state – Kharsidag and Doranda villages of Ranchi District and Pakur toli, Madhao toli, Bhagima, Kolleng and Marda villages in Palkot block as well as in Sisai block and Bherno block of Gumla District (Figure 1 a). According to local people, the species flowered after about 25 years, which provides an idea about its flowering cycle. This information is useful for growing these seeds to get quality seedlings of this species. Gregarious or sporadic flowering was first observed in the first week of September after the rainy season. Initially there are several young inflorescences and within a few weeks, entire clumps change into enormous inflorescences (Figure 1 b). Seed-shedding started in the last week of December. By the third week of January, there was a thin layer of seeds on the ground below the bamboo groves/stands.

The extraordinary phenomenon of synchronized flowering in bamboo clumps in vast areas is called gregarious flowering and causes ecological disaster<sup>1</sup>. The seed-shedding attracts seed predators, mostly

rats. Flowering in bamboo draws interest, as it dies after flowering and is believed to cause famine. Gregarious flowering occurred in 1958, which was followed by the 1959 famine<sup>2</sup>. John and Nadgauda<sup>3</sup> showed that there is a connection between the incidence of bamboo flowering and famine and that it may not be a myth but a reality. The famine is related to the fact that seeds of bamboo contain high protein. Rats feed on the flowers and seeds of the dying bamboo tree, which activates the reproductive rate of the rats. The abundant availability of bamboo seeds leads to a large increase in the rat population, which starts feeding on agricultural crops in the fields and granaries after all the bamboo seeds are consumed. This may result in a famine. Reports about bamboo flowering from North East India, also indicate this<sup>4,5</sup>. Moreover, the clumps die after flowering and it takes a long time to produce seeds again, leaving bare, exposed soil which could be disastrous in hilly regions. This may lead to food insufficiency, since numerous animals depend on this plant for their survival.

Although bamboo flowering during 2006–07 in Assam, Manipur, Mizoram and Tripura was predicted well in advance in order to take the necessary steps to prevent any calamity in the society<sup>6,7</sup>, nothing concrete was done to manage the consequences after flowering<sup>8</sup>. The bamboo flowered in these states, died and there was a famine in 2007 (ref. 8). Had the intervention been made at the appro-

priate time with funds allocated and extraction of bamboo planned, the revenue earned from bamboo extraction would have been several-fold more, besides providing employment to the locals, and would have created excellent regeneration condition for the bamboo<sup>8</sup>. Unfortunately, there were no such predictions or intervention planned in Jharkhand for revenue earning from bamboo extraction prior to flowering, as there were no reports available when *D. strictus* flowered in the state earlier. Fortunately for Jharkhand, flowering was only reported in *D. strictus* and the species population is not as enormous as species that flowered during 2006–07 in the NE states, which can cause a famine. Flowering of *D. strictus* will destroy this bamboo resource in the state, if the fallen seeds fail to germinate and develop properly. Therefore, the seeds should be collected from the flowered clumps for producing quality seedlings so that this valuable bamboo species can be conserved in the state. Are all concerned taking necessary interventions for regeneration of *D. strictus*? If not, let us wait and hope for its natural conservation through its smooth and proper regeneration naturally.



**Figure 1.** *Dendrocalamus strictus* flowering in Jharkhand. **a**, Flowering bamboo groves and **b**, Inflorescence.

1. Dhar, A., *The Hindu*, 26 October 2003.
2. Nag, S., *Econ. Polit. Wkly*, March 2001, 1029–1033.
3. John, C. K. and Nadgauda, R. S., *Curr. Sci.*, 2002, **82**, 261–262.
4. Jeeva, S., Kiruba, S., Lalhruaitluanga, H., Prasad, M. N. V. and Rao, R. R., *Curr. Sci.*, 2009, **96**, 1165–1166.
5. Nath, A. J. and Das, A. K., *Curr. Sci.*, 2010, **99**, 154–155.
6. Panwar, P., *Indian For.*, 2004, **130**, 1343–1344.
7. Khandkar, M. H., *Indian For.*, 2005, **131**, 1512.
8. Panwar, P., *Curr. Sci.*, 2008, **94**, 12.

GOPAL SHUKLA<sup>1,\*</sup>  
RITESH KUMAR<sup>1</sup>  
SUMIT CHAKRAVARTY<sup>2</sup>

<sup>1</sup>ICAR-Research Complex for Eastern Region,  
Research Centre, Plandu,  
Ranchi 834 010, India  
<sup>2</sup>Department of Forestry,  
Uttar Banga Krishi Viswavidyalaya,  
Pundibari 736 165, India  
\*e-mail: gopalshukla12@gmail.com