Social forestry with fruit trees: A role for herbivores and village children

Herbivores of the jungle are said to be the forester's friends, while the earthworm is said to be the farmer's friend. The friends of the forester include insects, birds, squirrel, rabbit, monkey, deer, gaur (Indian bison), bear and elephant, to name a few. It is known that herbivores play a significant role in forest ecology by dispersing seeds through their eating, migratory and other habits. They disperse seeds as part of a natural ecological cycle and strengthen the forest ecology by ensuring the diversity and density of trees in the forests. Wind and water also play a significant role in dispersing seeds and thereby strengthening the forest ecology.

In countries such as India, social forestry has been advocated and promoted in many regions, to strengthen the rural ecology and economy, reduce the pressure on forests and increase the tree cover, and to increase agricultural production[1–3]. There are several factors that affect the success of social forestry for rural development, among which soil condition, water table, cattle grazing, and labour-intensive tree planting are critical for success. It is generally accepted that increasing the number of bunds (checkdams) and tanks (artificial lakes) will improve the water table, as has been shown in many regions of India. It is generally accepted that alternative sources of energy for the villages and stall-feeding of cattle will reduce the pressure on forests. This may be essential for increasing the tree cover and the success of social forestry.

Given the role that herbivores play in forest ecology, it is relevant to ask how this may be adapted and imitated in the context of social forestry in the village setting. A plausible option may be to plant some fruit trees near the lake and/or stream of a village, and not to harvest the fruits. Instead, the fruits may be eaten by birds, squirrels, some herbivores and village children. While and after they munch the fruits, they will disperse the seeds over a wide and varied area, depending on their migratory patterns (animals) or guided playing habits (children). These new-found friends of social forestry could, with suitable guidance and constraints, maintain a steady supply and dispersion of fruit seeds as an ecological cycle, which may be essential for ensuring the success of afforestation with fruit trees and social forestry. By increasing the number of village tanks and supporting the villages with renewable energy and electricity, social forestry would be strengthened considerably.

Some informal projects of this nature are being initiated before and after the first monsoon rains along some lakes near Bangalore, tributaries of the Cauvery and at Lake Nilshi near Lonavala (Maharashtra). It has been suggested that this method may be initiated informally elsewhere by interested persons, e.g. the Konkan coastal region. In this context it is suggested that farmers may participate in social forestry by distributing fruits (to village children) or leaving some of the fruits on the trees (for herbivores). Interestingly, by way of an example, 1% of the fruit production would correspond to about 500 million to 1 billion seeds being dispersed each year by the friends of social forestry, which are about 2–5 fruits per village child per year. The value of increasing the forest cover from the current level of 20% to 25 to 30% of the land area is estimated to be significant for the rural ecology and economy. As an initial attempt at a forward-looking guestimate for social forestry, if such fruit trees grow 7 m apart and cover 5% of India (about 3 billion trees), and yield on an average 30 kg of fruits each year, this would be 95 million tonnes of fruits or 0.25 kg of fruits per person per day, for a population of 1.05 billion people. As dried fruits, pickles, sherbets and herbal medicines have been healthy traditions in all regions of India since ancient times, the fruits of social forestry are likely to be welcomed in the country. This would be complementary with other way of increasing agricultural production[4].

Given the importance of increasing the forest cover, strengthening the rural ecology and economy, and increasing agricultural production[3,4], the role of the rediscovered friends of social forestry cannot be over-emphasized. Importantly, this would strengthen the rural ecology and economy, improve nutrition and health, enhance their experience of well-being, and may be extended to other countries in Asia.

1. Involvement of Village Community and VAs in Regeneration of Degraded Forests, 1 June 1990; http://www.iifm.ac.in/databank/jfm/moefres.html faolex.fao.org/docs/texts/ind21949.doc
2. Sarin, M., *Unasylva*, 1995, **46**, 30–36; http://www.fao.org/docrep/v3960e/v3960e00.htm
3. Swaminathan, M. S., *Curr. Sci.*, 2001, **81**, 948–954.
4. John, J. E. and Louis, M., *Curr. Sci.*, 2007, **92**, 1659.

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Highest ever 24-hours rainfall value

Jenamani *et al.*[1] have reported that 'Kasauli' (Himachal Pradesh) recorded maximum one-day rainfall of 99.6 cm on 17–18 June 1899. We have checked this with original records of the India Meteorological Department (Pune) and found that the highest rainfall given for Kasauli station is wrong. The actual highest one-day rainfall recorded at Kasauli station

Table 1. Highest one-day rainfall (cm) at stations in northwestern India (1875–2000) (arranged east to west; Dhar and Nandargi[2])

Region	Station	Highest one-day rainfall (cm) (>30 cm)	Date of occurrence
Garhwal–Kumaun	Ascote	40	28.7.1968
	Nainital	31	15.9.1957
	Mussoorie	32	5.8.1964
	Nagina	82	18.9.1880
	Najibabad	72	18.9.1880
	Dehradun	49	25.7.1966
Himachal Pradesh	Dharamsala	32	6.8.1958
	Dalhousie	41	9.9.1966
	Pathankot	36	14.7.1980
Jammu and Kashmir	Jammu	30	31.7.1961

was 99.5 mm (3.92 in) on 28 June 1899. The highest one-day rainfall recorded at stations in northwestern India, especially in the foothills of the western Himalayas, is given in Table 1.

Table 1 shows that no station in the western Himalayan region recorded more than 82 cm of rainfall in one day during the last 125 years. Therefore, the rainfall record of 99 cm at Kasauli station in the foothills of the western Himalayas (Himachal Pradesh) in one day needs correction.

1. Jenamani, R. K., Bhan, S. C. and Kalsi, S. R., *Curr. Sci.*, 2006, **90**, 1344–1362.
2. Dhar, O. N. and Nandargi, S., *J. Meteorol.*, 2005, **30**, 83–91.

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Response:

Errors have occurred in Table 2 of our paper[1], related to the highest 24-hours station rainfall values recorded over India.

Table 1. Highest 24-hours rainfall records in India

Rainfall (cm)	Station (state/UT)	Date
156.3	Cherrapunji (Meghalaya)	15–16 June 1995
116.8	Amini Devi (Lakshadweep)	5–6 May 2004
103.6	Cherrapunji (Meghalaya)	13–14 June 1876
99.7	Cherrapunji (Meghalaya)	11–12 July 1910
98.9	Mausynram (Meghalaya)	9–10 July 1952
98.7	Dharamapur (Gujarat)	1–2 July 1941
98.5	Cherrapunji (Meghalaya)	12–13 September 1974
94.4	Santacruz (Maharashtra)	26–27 July 2005

We give in Table 1 highest 24-hours rainfall records based upon data from the Office of ADGM®, India Meteorological Dept, Pune. One may note from the table that not only the rainfall data of Kasuli has been deleted from the 24 hours ever highest extreme station rainfall values but the place and date of most extraordinary rainstorm ever recorded in India is now changed to 156.3 cm recorded over Cherrapunji (Meghalaya) on 15–16 June of 1995 instead of 116.8 cm at Amini Devi, on 5–6 May 2004 as noted in our paper[1].

1. Jenamani, R. K., Bhan, S. C. and Kalsi, S. R., *Curr. Sci.*, 2006, **90**, 1344–1362.

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