

## Culture and Biodiversity Conservation: Case studies from Uttarakhand, Central Himalaya

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*Received 02.02.2010; revised 27.10.2010*

Cultural diversity is closely linked to biodiversity. The study of these interrelationships need to be studied mainly for the simple reason that culture is not only the ethical imperative for development, it is also a condition of its sustainability; for there exists a symbiotic relationship between habitats and cultures, between ecosystems and cultural identity, and that this relationship constitutes a determining factor in ensuring sustainable human development. The association of religion with eco-system management is interwoven in the symbolic network of the Himalayan traditional communities. Infact no one can think of ecology in the Himalaya without religion. The present study deals with the study of sacred natural sites (forests/groves, pastures, water bodies) along with the phenomenon of dedication of the forests to a deity, and the inherent *taboos* with regard to the resource exploitation and other traditional beliefs and customs being practiced in the Central Himalaya, and attempts to bring out the inherent environmental principles behind these practices.

**Keywords:** Conservation, Culture, Sacred forests, Traditional knowledge-based systems

**IPC Int. Cl.<sup>8</sup>:** C12M, C12N, G01S 3/72, G01S 7/42, A23B, A01N 3/00

Since a long time, the idea that indigenous people and some other small societies are exemplary conservationists gained widespread recognition in popular media as well as academic circles<sup>1</sup>. This indigenous conservationism has often been attributed to a spiritual respect, and a practical understanding of the natural world<sup>2-4</sup>. Evidences offered in support to this characterization include culturally expressed conservation ethics, animistic religious beliefs conceptualizing species in general as social beings, and relatively higher biodiversity richness found within the sacred forests<sup>5-9</sup>.

Sustainable natural resource management is driven by the beliefs and behaviours of human communities, and local cultures are strengthened by their intimate connections to the natural environment that sustains them. Our modern world is often poorer for the Scientific rationalism that treats objective and sacred knowledge as separate entities, while traditional cultures do not make such distinctions<sup>10-14</sup>. However, the traditional knowledge based systems (TKBS) could qualify as having conservation value, only if they satisfy two basic criteria: (a) prevent or mitigate resource depletion, species extirpation, or habitat degradation, and (b) be designed to do so<sup>1,15,16</sup>. With these two facts in view, the present paper attempts to

bring forth the inherent role of the sacred forests, traditional knowledge based systems, as practiced in the state of Uttarakhand, Central Himalaya.

### Methodology

The knowledge based systems methodology for acquisition of local ecological knowledge suggested by Walker<sup>17</sup> and Sinclair & Walker<sup>18</sup> was adopted, involving knowledge collection from a small sample of deliberately chosen individuals, thought to be knowledgeable by other villagers about the field of interest<sup>17,18</sup>. The knowledge was collected through repeated, focused interviews, with information being sought from the location of sacred natural sites (SNS), related features, local perception about the sacredness of the SNS, and management (inclusive of caste dynamics).

### Perception of conservation inherent in cultural landscape

The traditional knowledge based systems in practice in the landscape has been dealt with as per Smith & Wishnie<sup>1</sup>, and thus has been discussed under the sub-heads-(i) harvesting restraint, (ii) protection or propagation of resource species, (iii) regulating onset or duration of harvests, (iv) avoidance of harmful

habitat modification, and (v) system to maximize overall return rates. Additionally (vi) phenomenon of dedication of forests to a deity too has been discussed.

**(i) Harvesting restraint**

The type of resource utilization that most clearly meets the conservation design criterion is harvesting restraint that raises short term production cost. Examples from the landscape include the system that one come across a number of sacred pastures and landscapes, principally in the Vyas valley, wherein grazing pressure is regulated through means of *taboos*, viz. in *Hya-Roshe bugyal* (*bugyal*-alpine meadows/pastures) near the village Napalchhu, and Putuk-tu bugyal near the village Kuti, wherein only sacred Yak (*Bos mutus grunniens*) and its local hybrid *Jhuppu* and *Jomos*, are allowed to graze. Such is the fear that no shepherd dares to make use of these pastures. Similarly, the inhabitants of the Vyas valley religiously guard against killing of *Fiya* (Himalayan marmot- *Marmot bobak* Muller), which is regarded as a totem.

**(ii) Protection or propagation of resource species**

Another form of conservation involves practices designed to protect or propagate resource species. Examples include the institution of *Kathburiya Devi* and *Nabu samo-* (a) *Kathburiya Devi*-after traversing a tough climb, atop the ridges are sacred heaps or piles referred to as *Kathburiya* or wayside goddess. The locals pay homage to *Kathburiya Devi* usually by placing a small piece of branch- preferably of deodar or the cones of the same, and very often a fruiting branch of the native vegetation, referred to as *Chiyunli*, as a thanks giving for the successful climb to that point; (b) *Nabu samo-* *Nabu* stands for insects and *Samo* means to destroy, i.e. the festival symbolizes the victory over the harmful (crop destroying) insects. Each and every member of the village collectively gather insects (in a cloth) from their fields; the collections are then tied to the horns of a goat, which is then sacrificed. *Kathburiya* and *Nabu samo* thus, represents an effective means of (i) regeneration of flora at the hilltop, and (ii) an effective way of getting rid of harmful insects, respectively.

**(iii) Regulating onset or duration of harvests**

Controls governing timing of resource harvests, as well as, who has the right to participate in harvesting are widespread in small scale societies. One prime example of the practice includes the *Nanda Astami*

(celebrated in the praise of the local goddess-*Nanda Devi*, the highest peak in Western Himalaya) and associated with the harvesting of the sacred flower of *Brahmkamal* [*Saussurea obvallata* (DC.) Edgew], invariably carried out towards the end of August. The celebration of the festival brings forth the salient aspect of ethics of conservation inherent in the cultural ethos. On the festival day, only two souls (out of the hundreds of the *Johaaris* gather together in the village Martoli, Johaar valley), are delegated to collect the *Brahmkamal*, from Salang Gwar (sacred alpine pasture, where the species abounds). These two souls, after taking the ritualistic bath, walking naked feet and dressed in all white, and carrying with them the seasonally available cucumber (an offering to the goddess), upon reaching the meadow, offer due prayers to the resident deity, after which the collection begins. Only fully opened and mature *brahmkamals* are selected for the offering (Fig. 1). *Nanda Astami* brings out the inherent message of conservation by the traditional people- (i) It is celebrated only after the flowering and the shedding of the seeds by the species, and hence, collection of the same do the least damage, and helps in regeneration, (ii) the restriction imposed on the number of harvesters, is an effective means to restrict harvest.

**(iv) Avoidance of harmful habitat modification**

Some types of habitats are more sensitive to the effects of modification than others, and hence avoidance or mitigation of such habitat change can be a form of conservation. For examples, the *taboo* exercised on the collection of Aalam Sammo (described subsequently) from the sacred forests; the restricted grazing, allowing only the milch cows, or the sacred yaks in some of the sacred pastures (*Hya-roshe* and *Putuk-tu bugyals*) in the Vyas valley; the regulated means of cyclical grazing practice, as prevalent in Chipla Kedar and Ralam valley, suffice to bring forth the conservation practices, inherent in the customary lifestyle of the inhabitants of Askote Conservation landscape (hence forth ACL). However, for the present, the *taboo* system surrounding the sacred natural sites (sacred forests/groves, pastures and water bodies) are described below:

**Sacred natural sites and the taboo system**

The sacred natural sites (SNS), are distributed through out the state of Uttarakhand (Figs. 1-6), the prime examples of sacred forests offered within the

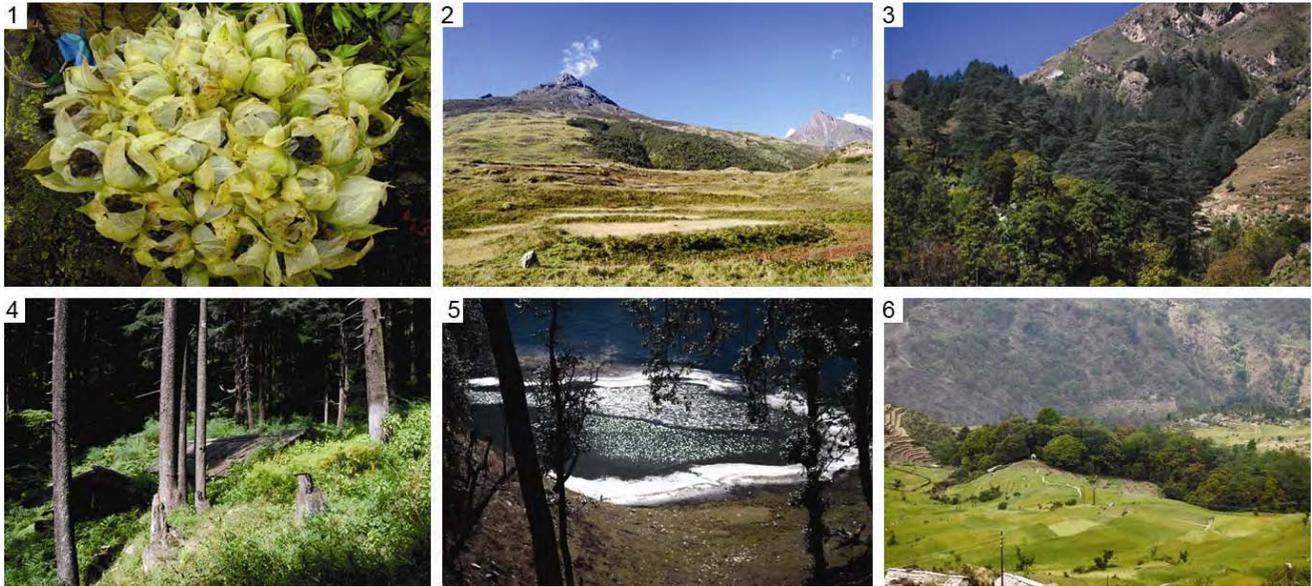


Fig. 1—The sacred *Brahmkamal* (*Saussurea obvallata*) is harvested only during the festival of Nanda Astami; Fig. 2—*Bhujani*, the sacred forest located above the village Martoli in Johaar valley, remains the only refuge for the endangered species of Musk deer (*Moschus chrysogaster chrysogaster*); Fig. 3—The sacred dedicated forest of Maanthaat-villagers enter the forest only once in a year, during celebration of the resident deity; Fig. 4—Sacred forest of Madhkeshwar; the doors are opened once in 60-70 years! Probably the most feared sacred forest in the State of Uttarakhand, and most extensive too. Even the local deities dare not infringe upon the sacrosanct boundary; Fig. 5—The sacred Thamri Kund remains the only water hole for the wild animals, and thus one wishing to sight the animals, such as Sambhar (*Cervus unicolor* Kerr) or Serow (*Capricornis sumatraensis*), could easily view these animals drinking water, as hunting is a *taboo*; Fig. 6—The sacred forest of Hokara Dev

ACL, being Bombasing (above the village Tedang) and Bhujani (above the village Martoli, Fig. 2), where the same are referred to as *Se-Rong* (*Se-god, Rong-forest*). The villagers would not dare to enter these forests for the fear of angering the resident deity, or defy the norms to procure dead wood, fodder grasses or any produce from the forest, except on the singular occasion of annual festivals! One could easily visualize the important role played by these sacred forests in the protection of the village, situated down below, from the impending avalanches during the winter months, or sliding mountain debris throughout the year, or as the only source of water. It is only during the festival of *Aalam Sammo* that the villagers venture into these restricted forests, to procure *Aalam*-an upright/straight stem of the *Raga* (*Cupressus torulosa* D. Don) or at times *Bhojpatra* (*Betula utilis* D. Don), used as sacred pole staff.

#### *Characteristic features of the sacred forests*

Some of the characteristic features associated with the sacred forests in the landscape, with minor variants, are as follows:

1. Are mostly the Panchayat or civil soyam forests without any legal status.

2. Usually dominated either by *Banj* (*Quercus leucotrichophora* A. Camus, or *Q. semecarpifolia* Smith), *Raga* (*Cupressus torulosa* D. Don), *Deodar* [*Cedrus deodara* (Roxb. Ex Lambert.) G. Don], *Bhojpatra* (*Betula utilis* D. Don), or *Ratpa* (*Rhododendron campanulatum* D. Don) or at greater altitudes, by *bil* (*Juniperus communis* L., *J indica* Bertol.), which in turn are treated as sacred species.
3. Lopping, felling of trees is strictly prohibited; however regulated resource use, viz. collection of the dead wood or twigs, or fodder grasses, at times are allowed. In rare cases, no resource use is permitted, except for the purposes of the resident deity of the forest, during specific occasions of festivals surrounding the deity.
4. The most conspicuous *taboo* relates to segment *taboo*, which restricts the pregnant and menstruating ladies, as well as the lower castes from entering into these sacred forests.
5. Where the sacred forest remains the only source of water, more stringent are the *taboo* systems in practice.

(v) Patch-switching to maximize overall return rates

The pastoralists often move their herds to better grazing areas before the current area is completely depleted, since the likelihood of obtaining higher foraging returns elsewhere, seem more economical<sup>16,19,20</sup>. This foraging strategy (practiced throughout the ACL) involves the regulation of the livestock grazing pressure, wherein the precise movement of the *anwals* (the shepherds), accompanied by their livestock population is strictly monitored, and duly excised by one of the villagers, who is detailed not just to ascertain the precise size of the livestock, but also to ascertain that the duration of grazing in one locality (the alpine pasture) is not extended beyond the permissible limit.

#### (vi) Dedication of forests to a deity

The practice of dedicating forests to a deity is a very recent phenomenon, invariably born out of the need to impede the fast dilution of the traditional *taboo* system governing the resource utilization, and thus to reinforce or strengthen the same. The deity invariably in all the villages remain much feared goddess-*Kotgyari*, and the period for which the forests are dedicated varies from a minimum of 5-20 yrs. It is an effective example of indigenous conservation practice, utilized by local communities to stop excessive exploitation of community forests and thus to regenerate the same to the extent, wherein a sustainable means of exploitation of fodder could be put into practice. Strict adherence to the norms surrounding the dedicated forests is adhered to, principally out of the inborn fear of the wrath of the presiding deity. Invariably, the communities do not tend to dedicate the complete forest, but rather retain a small patch. There are specified norms governing the use and extent of the use to be permitted in the sanctified area, which are priorly defined to the deity at the time of the dedication, as enumerated in the paper. At times of dire need, the community decides to open up the forest, allowing restricted collection of the litter mass and fodder.

#### Conclusion

Anthropologists have ascribed various social functions to *taboos*- they function to distinguish between sacred and profane entities in a culture<sup>21</sup>; relate to animist and magical belief systems<sup>22</sup>; serve psychological ends<sup>23</sup>, and even serve ecological adaptations<sup>24,25</sup>. Infact, it may be difficult to distinguish among ecological, social, or religious origins and functions of *taboos*<sup>26,27</sup>. *Taboo* often apply

to certain sets of natural resources, which are particularly vulnerable to overexploitation, and thus the imposition of temporal *taboos* regulates access to resource/s on either a sporadic, weekly, monthly or even seasonal basis<sup>27</sup>. Social *taboos* represent good examples of informal institutions<sup>28</sup>, which are based on cultural norms independent of government promulgation or enforcement<sup>29</sup>. These have very often been neglected in conservation designs in biodiversity rich, developing countries<sup>30,31</sup>, where protection through Biosphere Reserves or Wildlife Sanctuaries or National Parks remains the major approach for protecting biodiversity<sup>32,33</sup>. However, since most of the world's biodiversity exist outside of protected areas<sup>34</sup>, informal institutions, such as sacred forests, may play an important role in nature conservation.

The institution of *Nabu samo*, the strong sense of faith and reverence for the local deities, all bring forth, not just the significance of ethno-sociological concepts vis a vis environmental management, but importantly, the scope of their practical application. The institution of sacred natural sites, along with the strict norms and *taboos* that relates to resource utilization, invariably relates to the sustainable resource management practices<sup>35-39</sup>. However, lately dilution of the *taboo* system has occurred, born out of western type of education, due to the immigration of people, who very often have no respect for local traditions, and due to the lack of modern legislation to reinforce traditional rules<sup>35,37,40</sup>. Needless to emphasize, there is an urgent need to set forth specific guidelines to safeguard the sacred areas and promote the traditional knowledge of conservation, namely: the revitalization and enforcement of traditional education; the delineation of boundaries; the improvement of relevant knowledge and their official recognition through legislation<sup>41-45</sup>.

#### Acknowledgement

The author gratefully acknowledges the financial help received from the Director, Uttarakhand State Council for Science & Technology, Government of Uttarakhand, Dehradun. The study however, would not have been possible without the help of the village residents, who very willingly shared their traditional knowledge base.

#### References

- 1 Smith EA & Wishnie M, Conservation and subsistence in small-scale societies, *Ann Rev Anthropol*, 29 (2000) 493-524.
- 2 Vecsey C, American Indian environmental religions, In: *American Indian Environments: Ecological Issues in Native*

- American History*, edited by Vecsey CT & Venables RW, (Syracuse University Press, Syracuse, New York), 1980, 1-37.
- 3 Martinez D, First people, firsthand knowledge, *Sierra*, 81(6) (1996) 50-51.
  - 4 Berkes F, *Sacred Ecology: Traditional Ecological Knowledge and Resource Management*, (Francis & Taylor, Philadelphia), 1999.
  - 5 Duming AT, Guardians of the Earth: Indigenous Peoples and the Health of the Earth, Worldwatch Paper No. 112, Worldwatch Inst., Washington, DC, 1992.
  - 6 Gadgil M, Berkes F & Folke C, Indigenous knowledge for biodiversity conservation, *Ambio*, 22 (1993) 151-156.
  - 7 Callicott JB, *Earth's Insights: A Multicultural Survey of Ecological Ethics from the Mediterranean Basin to the Australian Out-back*, (University of California Press, Berkeley), 1994.
  - 8 Alcorn JB, Is biodiversity conserved by indigenous peoples?, In: *Ethnobiology in Human Welfare*, edited by S K Jain (Deep Publications, New Delhi), 1996, 234-238.
  - 9 Bodley JH, *Anthropology and Contemporary Human Problems*, (Mountain View, Mayfield Publications, CA), 1996.
  - 10 Malhotra KC & Mark P, Forest regeneration through community protection, (Forest Department, West Bengal), 1989.
  - 11 Joshi PC, Afforestation, development and religion: A case from the Himalayas, In: *Himalaya: Environment, Economy and People*, edited by Singh SC, (RK Publications, New Delhi, India), 1992, 453-465.
  - 12 Kumbhojkar MS & Kulkarni DK, Environmental impacts of sacred groves in Western Ghats of Maharashtra, *Sci Cul*, 64 (1998) 205-207.
  - 13 Negi CS, Role of traditional knowledge and beliefs in conservation- Case studies from Central Himalaya, India, *Man in India*, 83 (3&4) (2003) 371-391.
  - 14 Negi CS, Religion and biodiversity conservation: Not a mere analogy, *Inter J Biodiver Sci Manag*, 1(2) (2005) 85-96.
  - 15 Alvard MS, Evolutionary ecology and resource conservation, *Evol Anthropol*, 7 (1998) 62-74.
  - 16 Ruttan LM & Borgerhoff MM, Are East African pastoralists truly conservationists?, *Curr Anthropol*, 40 (1999) 621-652.
  - 17 Walker DH, Sinclair FL, Joshi L & Ambrose B, Prospects for the use of corporate knowledge bases in the generation, management and communication of knowledge at a front-line agricultural research centre, *Agric Syst*, 54 (3) (1997) 291-312.
  - 18 Sinclair FL & Walker DH, A utilitarian approach to the incorporation of local knowledge in agroforestry research and extension, In: *Agroforestry in Sustainable Agricultural Systems*, edited by Buck LE, Lassoie JP & Fernandes ECM, (CRC Press LLC, Boca Raton, FL, USA), 1999, 245-275.
  - 19 Charnov EL, Optimal foraging, the marginal value theorem, *Theoret Popul Biol*, 9 (1976) 129-136.
  - 20 Winterhalder BP, Foraging strategies in the boreal environment: An analysis of Cree hunting and gathering, In: *Hunter-Gatherer Foraging Strategies*, edited by Winterhalder BP & Smith E, (University of Chicago Press, Chicago), 1981, 66-98.
  - 21 Durkheim E, *The Elementary Forms of the Religious Life*, Allen and Unwin, London, UK. (Translated from E. Durkheim 1912. *Les formes elementaires de la vie religieuse: le systemes totemique en Australia*. Free Press, New York, USA), 1915.
  - 22 Frazer JG, *The Golden Bough*, (Chaucer Press, Bungay), 1922.
  - 23 Malinowski B, *Agronauts of the Western Pacific: An account of native enterprise and adventure in the archipelagoes of Melanesian New Guinea*, (Routledge and Kegan Paul, London, U.K), 1922.
  - 24 Harris M, *Culture, Man and Nature: An Introduction to General Anthropology*, (Thomas Y Crowell, New York, USA), 1971.
  - 25 Rappaport RA, *Pigs for the Ancestors: Ritual in the Ecology of a New Guinea People*, (Yale University Press, New Haven, Connecticut, USA), 1968.
  - 26 Colding J & Folke C, The relations among threatened species, their protection and *taboos*, *Conserv Ecol*, 1 (1) (1997) 6.
  - 27 Colding J & Folke C, Social *taboos*: 'Invisible' systems of local resource management and biological conservation, *Ecol Appl*, 11 (2) (2001) 584-600.
  - 28 North DC, Economic performance through time, *Am Econ Rev*, 84 (3) (1994) 359-368.
  - 29 Posner RA & Rasmusen EB, Creating and enforcing norms, with special reference to sanctions, *Inter Rev Law Econ*, 19 (1999) 369-382.
  - 30 Alcorn JB, Economic botany, conservation, and development: what's the connection?, *Ann Missouri Bot Garden*, 82 (1995) 34-46.
  - 31 Robbins P, Nomadization in Rajasthan, India: Migration, institutions, and economy, *Hum Ecol*, 26 (1998) 87-112.
  - 32 McNeely JA, Biological and cultural diversity: The double helix of sustainable development, In: *Biodiversity & Health: Focusing Research to Policy*, Proceedings of the International Symposium, Ottawa, Canada, 2003, 3-9.
  - 33 Gadgil M, Conservation: Where are the people? *Hindu Survey of the Environment*, 1998, 107-137.
  - 34 Murphree MW, The role of institutions in community-based conservation, In: *Natural Connections: Perspectives in Community-based Conservation*, edited by Western D, Wright, RM & Strum SC, (Island Press, Washington DC and Covelo, California), 1994, 403-427.
  - 35 Fargey PJ, *Assessment of the conservation status of the Buabeng Fiema Monkey Sanctuary*, Report submitted to the Flora and Fuana Preservation Society, 1991.
  - 36 Dorm Adzorbu C, Ampadu-Agyei O & Veit PG, *Religious Beliefs and Environmental Protection: The Malshegu sacred grove in Northern Ghana*, (WRI Washington, DC, USA and Acts Press, Africa Centre for Technology Studies, Kenya), 1991.
  - 37 Ntiamao-Baidu Y, *Indigenous vs. Introduced Biodiversity Conservation Strategies: The Case of Protected Area Systems in Ghana*, African Biodiversity Series Number 1, May 1995, Biodiversity Support Program, Washington, DC, 1995.
  - 38 Hagan GP, Traditional laws and methods of conservation and sustainable use of biodiversity, In: *Proceedings of the Third UNESCO MAB Regional Seminar on Biodiversity Conservation and Sustainable Development in Anglophone Africa (BRAAF)*, edited by Amlalo DS, Atsiatorne LD & Fiati C, Cape Coast, 9-12th March 1997. Accra, Egypt, 1998.

- 39 Chandran MDS & Hughes JD, Sacred groves and conservation: The comparative history of traditional reserves in the Mediterranean and in South India, *Environ Hist*, 6 (2000) 169-186.
- 40 Abayie Boateng A, 'Traditional conservation practices: Ghana's example', *Inst African Stud Res Rev*, 14 (1) (1998) 42-51.
- 41 Decher J, Conservation, small mammals, and the future of sacred groves in West Africa, *Biodiver Conserv*, 6 (1997) 1007-1026.
- 42 Dorm-Adzobu C & Ampadu-Agyei O, The Malshegu sacred grove, Ghana, In: *Towards Common Ground: Gender and Natural Resource Management in Africa*, edited by Sigot A, Thrupp LA & Green J, (ACTS Press, Nairobi), 1995, 49-64.
- 43 Lebbie AR & Guries RP, Ethno botanical value and conservation of sacred groves of the Kpaa Mende in Sierra Leone, *Econ Bot*, 49 (1995) 297-308.
- 44 McWilliam A, Prospects for the sacred grove: Valuing lulic forests on Timor, *The Asia Pacific J Anthropol*, 2 (2001) 89-113.
- 45 Swamy PS, Kumar M & Sundarapandian SM, Spirituality and ecology of sacred groves in Tamil Nadu, India, *Unasylya*, 54 (2003) 53-58.