Environment and Pollution

**TI:** Forest fire, haze pollution and climate change.

**AU:** Srivastava, -R-K; Dhan-Singh

**AD:** Monitoring and Evaluation, Indian Council of Forestry Research and Education, Dehra Dun (Uttaranchal), India.

**SO:** Indian-Forester. 2003; 129(6): 725-734

**PY:** 2003

**AB:** Forest ecosystems are influenced by a variety of factors, both natural and human-induced, which ultimately led to change in biodiversity and consequently changes the climate of existing system. Climate warming due to anti-environmental human activities has resulted a threat to biodiversity. Forest fire is one of the major factors, which influence the forest ecosystem and climate of the entire region. One factor may not solely responsible for any change in climate. This is a complex system in which biota; plants in particular, interact with climate and with atmospheric gases. Forests play an important role in sequestration of carbon globally. The study of impact of forest fire on existing forest ecosystem is inevitably required for the further mitigation to the problem. The present paper examines the impact of forest fire on climate change and forest biodiversity.

**TI:** Early epidemic of Plecoptera reflexa on Dalbergia sissoo: An indicator of Doon Valley climate change?

**AU:** Rawat-Vijay {a}; Singh-Sudhir

**AD:** {a} Botany Division, Forest Research Institute, Dehra Dun, Uttaranchal, India, India


**PY:** 2003

**TI:** Developing stakeholder based ecotourism in Uttaranchal, India.

**AU:** Rawat-R-B-S {a}; Sharma-Jagmohan

**AD:** {a} National Medicinal Plants Board, Deptt. of ISM and H, Min. of Health and Family Welfare, GoI, New Delhi, India, India


**PY:** 2003

**AB:** Ecotourism holds a great potential for conservation of fragile mountain ecology in the Himalayan State of Uttaranchal and can provide a fresh paradigm for development to the local communities. The scenic landscape, snow clad peaks and high altitude lakes, endemic flora and fauna, unique customs and practices, mythology and history and hospitable local communities, fetch Uttaranchal a hitherto untapped opportunity. Informed involvement of stakeholders is necessary to ensure wide-base sustainable ecotourism. Stakeholder participation can substantially augment the infrastructure for ecotourism, sharing the burden of the government. Creation of stakeholders, equipping them with the required skills, networking them, supporting the initiatives taken by them and emphasizing the conservation and development linkages, are important issues in developing stakeholder based ecotourism in Uttaranchal.

**TI:** Limnological characteristics of the river Ganga at Haridwar (Uttaranchal).

**AU:** Khanna, -D-R [Author,-Reprint-Author]; Bhutiani, -Rakesh [Author,-Reprint-Author]

**AD:** Department of Zoology and Environmental Sciences, Gurukul Kangri Vishwavidyalaya, Haridwar, 249 407, India
AB: Haridwar is stretched in an area of about 12,032 sq. kms at an altitude of about 292.7 m. The Ganga is a holy river of India with whom people are sentimentally attached since time immortal. The river Ganga regarded as the Cradle of Indian Civilization, has been gradually shrinking on account of its over exploitation in the most clandestine and notorious way starting from the foot hills. The present study has been carried out to assess the pollution load of the river Ganga at foot hills of Garhwal Himalaya during the year 2002 in different seasons. The samples were collected from three different sites viz. Har-ki-pauri, Prem Nagar ashram ghat and Jatwarapul ghat. Various physico-chemical parameters such as water temperature, total solids, total dissolved solids, total suspended solids, velocity, turbidity, conductivity, pH, alkalinity, acidity, dissolved oxygen, BOD, free CO2 and hardness were analyzed. Besides these parameters qualitative and quantitative distribution were also examined.

TI: Carbon sequestration and role of carbon emission from forest fire on climate change.

AU: Srivastava,-Rajiv-K [Author,-Reprint-Author]; Singh,-Dhan [Author]; Khanduri,-V-P [Author]
AD: Monitoring and Evaluation, ICFRE, Dehra Dun, Uttaranchal, India
SO: Indian-Forester. 2003; 129(7): 844-852
PY: 2003
AB: Biological transformation of carbon is a primary mechanism for removing carbon from the atmosphere. Standing stock of vegetation plays a major role in carbon sequestration at present as well as in the future. This biospheric carbon sequestration is essentially a huge natural biological scrubber for all emission sources of carbon. An estimated value of 2GtC is removed from the atmosphere each year by the earth's mantle of vegetation. Forest fires the world over due to ever increasing population pressure, release stored carbon into the atmosphere in large quantities every year. Forest fires not only damage the forest wealth but also release huge amount of the secured storage of carbon in the form of forests into the atmosphere. The present paper examines the carbon sequestration and consequences of forest fire carbon emission to the climate.

TI: Treatment of industrial effluents. Tannery effluent.

AU: Thakur,-I-S
AD: Department of Environmental Sciences, College of Basic Sciences and Humanities, G. B. Pant University of Agriculture and Technology, Pantnagar, Uttaranchal, India.
SO: Concise-encyclopedia-of-bioresource-technology. 2004; 158-166
PY: 2004
AB: This paper presents the effects of tannery effluents on soil health, crops, water resources, and human health, and discusses different pollution control measures for these contaminating materials. The various treatment processes involved include: primary treatment of the effluent; chemical treatment of the effluent; biological treatment methods (fungal degradation, bacterial degradation, degradation by mixed culture or consortium); use of bioreactors; advanced methods (membrane technology, freeze concentration, solar evaporation, ultrafiltration reverse osmosis and microfiltration reverse osmosis); in situ bioremediation; and phytoremediation by aquatic weeds.

TI: On bringing people and park together through ecotourism: the Nanda Devi National Park, India.

AU: Singh,-T-V; Shalini-Singh
PY: 2004
AB: Nanda Devi National Park in Uttaranchal (India) is presented as an unsavoury example of people and park relationship. It is India's highest park after Kangchendzongha (Sikkim). Characterized by high altitude ecology, the park (625 sq. km) is profoundly rich in biodiversity, mountain-lores and mythologies. Indigenous communities, particularly Bhotias, have enriched the landscape by their bizarre ways of life. After Tilman and Shipston's successful ascent (1936) of Nanda Devi peak (7817 m), an era of mountaineering and trekking ensued which resulted in degradation of the fragile Himalayan environment. Poaching of musk deer and herb smuggling also raised alarm. Considering the dire need to preserve genetic resources and the diversity of species, the area was declared as a national park in 1982. Subsequently, the park was closed for ecological quarantine. Later it was declared a biosphere reserve (1988) and a World Heritage Site in 1992. Customary to Third World practices, the park emphasized a policing role excluding local people, displacing them arbitrarily with meager or little compensation for their losses of livelihood. Ban on tourism activities further added to their livelihood problem. The paper discusses the cleavage of park and people and argues that development of sound community-based ecotourism can resolve this conflict and bring park and people together.

TI: Bioremediation of pulp and paper mill effluent with Phanerochaete chrysosporium.

AU: Singhal,-V; Kumar,-A; Rai,-J-P-N
AD: Eco-technology Lab, Department of Environmental Sciences, G.B. Pant University of Agriculture and Technology, Panthnagar - 263 145 (Uttaranchal), India.
PY: 2005
AB: The present study reports on the treatment of pulp and paper mill effluent by Phanerochaete chrysosporium and the same has been compared at two different pH, 5.5 and 8.5. At both the pH, colour, chemical oxygen demand (COD), lignin content and total phenols of the effluent significantly declined after bioremediation. However, greater decolorization and reduction in COD, lignin content and total phenols were observed at pH 5.5. The study has also been extended to investigate the effect of such bioremediated effluent on seed germination of wheat (cv. UP 2425) to assess its agro-potentiality. Such bioremediated effluent of pulp and paper mill could gainfully be utilized for crop irrigation.


AU: Piyush-Malaviya; Rathore,-V-S
AD: Department of Environmental Sciences, University of Jammu, Jammu - 180 006, India.
PY: 2007
AB: The present study was undertaken with the objective to study the characteristics of the effluent of Century Pulp and Paper Mill, Lalkuan (Uttarakhand) in different seasons. The variations in the physicochemical characteristics were observed and monitored upto 12 months at three different sites. Mean values of temperature, pH, chlorides and total phenols of the effluent were found below, whereas colour, BOD5, COD and lignin concentrations were above the minimum national standards (MINAS).
**TI:** Sequential anaerobic and aerobic treatment of pulp and paper mill effluent in pilot scale bioreactor.

**AU:** Pratibha-Singh  
**AD:** Environmental Biotechnology Laboratory, Department of Environmental Sciences, College of Basic Science and Humanities, G. B. Pant University of Agriculture and Technology, Pantnagar - 263 145, India.  
**SO:** Journal-of-Environmental-Biology. 2007; 28(1): 77-82  
**PY:** 2007

**AB:** In the present study sequential anaerobic and aerobic treatment in two step bioreactor was performed for removal of colour in the pulp and paper mill effluent. In anaerobic treatment, colour 50%, lignin 62%, COD 29%, absorbable organic halides (AOX) 25% and phenol 29% were reduced in eight days. The anaerobically treated effluent was separately applied in bioreactor in presence of fungal strain, Paecilomyces sp., and bacterial strain, Microbrevis luteum. Data of study indicated reduction in colour 80%, AOX 74%, lignin 81%, COD 93% and phenol 76 per cent by Paecilomyces sp. where as Microbrevis luteum showed removal in colour 59%, lignin 71%, COD 86%, AOX 84% and phenol 88% by day third when 7 days anaerobically treated effluent was further treated by aerobic microorganisms. Change in pH of the effluent and increase in biomass of microorganism's substantiated results of the study, which was concomitant to the treatment method.

**TI:** Removal of chromium and pentachlorophenol from tannery effluents.

**AU:** Shaili-Srivastava; Ahmad,-A-M; Thakur,-I-S  
**AD:** Department of Environmental Sciences, G.B. Pant University of Agriculture and Technology, Pantnasar - 263 145, Uttaranchal, India.  
**SO:** Bioresource-Technology. 2007; 98(5): 1128-1132  
**PY:** 2007

**AB:** Three bacterial strains, including, one Acinetobacter sp. PCP3, grown in the presence of minimal salt medium and pentachlorophenol (PCP) as sole carbon source in the chemostat showed higher utilization of PCP and adsorption of chromium. In sequential bioreactor, tannery effluents treated initially by bacterial consortium followed by fungus removed 90% and 67% chromium and PCP respectively, whereas in another set of bioreactor in which effluents was treated initially by fungi followed by bacteria could remove 64.7% and 58% chromium and PCP, respectively.

**TI:** A suitable site for in situ (on-farm) management of plant diversity in traditional agroecosystems of western Himalaya in Uttaranchal state: a case study.

**AU:** Bisht,-I-S; Rao,-K-S; Bhandari,-D-C; Sunil-Nautiyal; Maikhuri,-R-K; Dhillon,-B-S  
**AD:** National Bureau of Plant Genetic Resources, Pusa Campus, New Delhi 110 012, India.  
**SO:** Genetic-Resources-and-Crop-Evolution. 2006; 53(7): 1333-1350  
**PY:** 2006

**AB:** There is a growing realization world over that the introduction of modern agriculture has to be supplemented with measures to conserve biodiversity in situ if yield gains are to be stabilized. Hence, there is a growing interest from agricultural development specialists and conservation biologists for understanding the socioeconomic factors determining the conservation of biodiversity in situ. The present study was conducted with the objective of understanding the in situ (on-farm) conservation of agrobiodiversity in traditional agroecosystems taking the Urgam valley in north-western Himalaya of India, as a case study. An inventory was made of traditional crops and wild economic species for subsistence, and the structure of forest resource base, traditional knowledge related to resource management and use. Institutional and scientific challenges for in situ (on-farm) management of crop diversity were studied and are discussed in this paper. Complementarity of in situ (on-farm)
conservation with ex situ conservation together with crop improvement in such marginal areas are suggested.

**TI:** Changing trends of climate of Doon Valley.

**AU:** Laxmi-Rawat  
**AD:** Forest Ecology and Environment Division, Forest Research Institute, Dehra Dun, India.  
**SO:** Indian-Forester. 2006; 132(5): 615-622  
**PY:** 2006  
**AB:** Dehra Dun (Doon Valley), the capital of Uttarancal has been experiencing tremendous changes in its climate since last many decades. The population and number of vehicles in the valley have been increasing day by day, ultimately causing changes in its weather and climate patterns. The effect of changing climate has direct impacts on its atmospheric conditions and water resources. This article deals with changes in temperature and rainfall patterns in Doon Valley during last seventy two years (1931-2002). The variability in decadal temperature has been the highest during 1991-2000, although there is no difference in average temperature during last 3 decades. Rainfall during last 72 years has shown swinging pattern till 1979, but the rainfall has been below normal (2015.9 mm) in continuous 5 years during eighties and continuous 6 years during nineties. 1991 has received the lowest rainfall (1288.1 mm) in 72 years. The article also reports increase in population in the valley in last 60 years and vehicular concentration on Dehra Dun-Delhi highway.

**TI:** Hydrological impact of deforestation in the central Himalaya.

**AU:** Haigh-MJ; Rawat-JS; Bisht-HS; Molnar-L (ed.)  
**AD:** Geography Unit, Oxford Polytechnic, Headington, Oxford, UK.  
**SO:** Hydrology of mountainous areas. IAHS-Publication. 1990, No. 190, 419-433; Proceedings of the international workshop held at Strbske Pleso, Vysoke Tatry, Czechoslovakia, 7-10 June 1988; 60 ref.  
**PY:** 1990  
**AB:** Evidence is presented to show that deforestation is a serious environmental problem in Uttarakhand, Uttar Pradesh, India. Deforestation and forest degradation, rainfall interception and runoff, desertification and floods, sediment production and channel response are considered. Preliminary results from the first hydrological monitoring station in Kumaun, set up in 1987, are presented. The catchment is set in dense chir (Pinus roxburghii) forest on a steep slope over mica schist. The results demonstrated a pattern of sediment flushing associated with the rising flows from the monsoon.