



Bulletin

International Association for Landscape Ecology

A RESOURCE QUEST IN THE HIMALAYAN SCENERY

by Kalpana Bhakuni

The natural scenery of the Himalayas has waited long for the resource appreciation by the people who are awed by its sublimity and care about its aesthetics. Today, the Himalayan scenery is no more feared for its unknown territories and unfamiliar environs. The resource managers have found a new resource proposition in natural scenery of this region where other productive resources are scattered over vast areas, thus the utilization of these resources would only be possible at high costs. In the old times those who sought complete solitude in the spiritual quest and those who were somehow guided by the spirit of adventure, visited the inner recesses of the Himalayas, but they can not be called Nature Romantics by any standard. It was the pleasure seekers from the cityscapes who explored destinations in these mountains in order to satisfy their visual aspirations. As a matter of fact, such resource became in many minds an important factor for well-being and happiness in situations of mental and physical stress. This trend was further complemented by other factors, such as a shorter workweek, paid vacations, faster communication and holiday incentives.

Whereas, the people coming from outside recognize the Himalayan scenery as a valuable resource, the natives see their land through accustomed spectacles. They somehow never attached any material value to their natural settings as far as their aesthetic aspirations were concerned. This could be because of the simple reason that it cost them nothing to derive visual pleasure from their own landscapes around them. At the most they regarded Himalayan beauty as a positive aspect of their life amidst the innumerable hardships of this terrain. Nevertheless, it needs to be researched empirically how the natives perceive the scenery in their own natural settings and whether they differ in their perception from the resource users coming from outside the region. Perceptions of the resource users from outside may be a much more varied subject.



The natural scenery of the Himalayas (© K. Bhakuni)

The validity of scenery as a resource is examined by the utility criterion, which suggests that it is a potential asset that becomes actual only when valued. It would stimulate a higher emotive response than mere associational reactions through visual experience, and in turn fulfil the aesthetic aspirations of the observer. Although, the matter pertains to the aesthetic of the landscape, the contemporary researchers use the term 'aesthetic' with a degree of reservation, because preference is what is detected not the aesthetic value. Preference provides the necessary index to assess the scenic resources as real, otherwise it is not possible to evaluate something as intangible as scenery. The image of the scenery may be formed from the perception of objective phenomena, but the interpretation of the observer must be essentially subjective, and therefore variable.

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The scenery can be assessed in terms of a variety of visual characteristics that contribute to how much they are preferred. In the context of Himalayan scenery such characteristics could be many which stimulate the perceptual responses; the snowbound peaks, the wide open panorama from the top of the mountains, the open and close valleys, the special rock formations, the pure stands of conifers, the widespread wilderness areas, the water bodies as rivers, lakes, waterfalls, springs etc, the built up features like forts, temples etc with historical and architectural significance, the terraced fields, traditional house types, the fairs and festivals, the exotic flora and fauna and, last but not the least, the natives.

The empirical studies of landscape have so far relied upon distinct statistical approaches such as regression analyses, where preference or scenic quality is the dependent variable and the independent variables consist of ratings of various visual attributes. The validity of the perceptual evaluation of the scenic resources has justifiably established itself, therefore more and more perceptual input is being accepted in this domain. However, the overall visual characteristics in scenery compose 'landscape', therefore the format of appraisal is landscape, not the individual component of scenery. Thus holistic landscape evaluation "on-site" could well be the ultimate set-up instead of using the limited possibility of surrogates and simulated environments. To find a means to consider natural scenery a resource is essentially a way to recognize scenery as real.

In the Himalayas the natural scenery reigns supreme. A region with great potential like this must consider that potential. By revealing the potential in the scenic resources they can be realized in the interest of resource users, and included in the resource base of the Himalayan region with

a categorical priority. So that ultimately it should emerge in the highest esteem of a Himalayan resource for which the scriptures of this land had sworn '...In hundred ages of the Gods I would not tell thee of the glories of the Himalayas'.

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**DEADLINE FOR
THE NEXT BULLETIN IS
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The IALE Bulletin is distributed six times a year to the members of the IALE. The IALE - International Association for Landscape Ecology was founded in 1982 to promote communication between scientists, planners and interdisciplinary scientific research. IALE Executive Committee: **President:** Richard J. Hobbs (CSIRO Wildlife and Ecology, Private Bag, P.O., Wembley WA 6014, Australia), tel +61 8 9333 6442 fax +61 8 9333 6444 email Richard.Hobbs@per.dwe.csiro.au; **Past President:** John A. Wiens (USA), email jaws@lamar.colostate.edu; **Vice Presidents:** Duning Xiao (China), email Indscp@iae.syb.ac.cn; Kathryn Freemark (Canada), email kathryn.freemark@ec.gc.ca; Margareta Ihse (Sweden), email ihse@natgeo.su.se; Francoise Burel (France), email francoise.burel@univ-rennes1.fr; **Secretary General:** Michael Moss (Faculty of Environmental Sciences, University of Guelph, Guelph, Ontario, N1G 2W1 Canada), tel +1 519 824-4120 ext.4800 fax +1 519 763-4686 email mmoss@uoguelph.ca; **Bulletin Editor and Deputy Secretary General:** Felix Kienast (Swiss Federal Institute of Forest, Snow and Landscape Research WSL, CH-8903 Birmensdorf, Switzerland), tel +41 1 739 23 66 fax +41 1 737 40 80 email felix.kienast@wsl.ch; **Treasurer:** Rob Jongman (WAU, Department of Physical Planning and Rural Development), Gen. Foulkesweg 13, 6703 BJ Wageningen, The Netherlands, tel +31 317 483 713 fax +31 317 482 166 email rob.jongman@plano.rpv.wau.nl

IALE on the Internet: IALE International: <http://www.crle.uoguelph.ca/iale/>

PERSONAL PORTRAIT: THE ‘PARENTS’ OF FRAGSTATS[®]



FRAGSTATS - the name of this famous software sounds familiar to all those who work with landscape metrics and quantitative pattern analyses. However, who stands behind the anonymous computer code? Read the following personal portrait and get some interesting information on new developments!

by Kevin McGarigal

When I entered the doctoral program in the Forest Science Department at Oregon State University (OSU) in 1989, I had no idea that I would eventually become a landscape ecologist and develop the now infamous FRAGSTATS software for quantifying landscape structure. I began my program as a research assistant under the supervision of Dr. Bill McComb, where my responsibilities were to build and coordinate a wildlife research program under the auspices of the Coastal Oregon Productivity Enhancement (COPE) program, a multi-disciplinary research and technology transfer program designed to investigate the management of coastal Oregon's natural resources. We decided our first task would be to conduct a problem analysis and find out what managers perceived as the most important questions to address in our program. This analysis revealed that managers wanted to know more about the effects of forest fragmentation on wildlife communities; in particular, fragmentation of late-seral forests by timber harvesting.

Hence, we designed and initiated a large-scale field experiment to investigate how the amount (extent) and configuration (fragmentation) of late-seral forest at the scale of small watersheds affected the presence and abundance of breeding bird species. In reviewing the literature on habitat fragmentation and designing our experiment, it became apparent that fragmentation was not a simple thing to quantify and would require a multivariate perspective. We calculated a simple measure of late-seral forest edge density and used this as an index of fragmentation for purposes of selecting experimental units (landscapes), but recognized that this metric alone would not suffice as a way to fully quantify fragmentation. Through our review of the literature, we learned of many useful metrics, but could not find a software program that would compute a com-

prehensive suite of metrics, or one compatible with the ArcInfo GIS system.

Not being a computer programmer, I sought the help of Barbara Marks, a GIS programmer in the Quantitative Sciences Group at OSU. Barbara and I quickly joined forces to design a program that would calculate the long list of metrics. Our relationship became one of perfect complementarity. I provided the conceptual framework and the suite of metrics and their mathematical formulas, while Barbara provided the GIS technical expertise and did all the programming. To this day, our professional collaboration remains the most mutually satisfying and professionally successful relationship I have ever had.

Our original intent was to develop a program that would suffice for my research project needs, not one for public distribution. However, soon after colleagues heard about our work, we began receiving inquiries about the availability of the software. By the time I finished my dissertation in 1993, we had received so many requests and made so many enhancements to the program to accommodate other users, that we decided to formally distribute the software in the public domain. This required formal beta testing, documentation, and publication of the software, a project that was funded by the US Forest Service Pacific Northwest Research Station and a host of other organization.

For the first couple of years after its release in 1995, Barbara provided technical support for the software and I designed and taught several workshops on the analysis of landscape structure. Then, in 1998, I took a position as a landscape ecologist in the Department of Natural Resources Conservation at the University of Massachusetts and Barbara accepted a position as a programmer/manager with Hewlett Packard. Unfortunately, this meant the end of formal technical support because neither of us had the time or funds to continue to provide support. Fortunately, most of the bugs in the software had been worked out by this time.

So what's in store for the future of FRAGSTATS. Recently I teamed up with another superb programmer by the name of Chris Holmes and we have completely revamped the program. The revised program, written in Visual C++, accepts a variety of raster data formats, and has a windows graphical user interface, a great deal of flexibility in the choice of metrics to calculate and output, a large number of new metrics, and a moving window analysis routine. We expect the new software to be available this Fall at the following web site: <http://www-unix.oit.umass.edu/~fragstats/>

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“LAND USE POLICY” - SISTER JOURNAL OF “LANDSCAPE ECOLOGY”

Land Use Policy is an international journal covering economic, environmental, social and political aspects of land use and other topics that have a bearing on land-use policies. It is published four times per year, with occasional special issues that focus on particular themes. For example most of the issue of July 2000 (Volume 17 Number 3) is devoted to papers on the “Full value of forests”. Papers are subjected to peer review prior to acceptance for publication, and every effort is made to provide prompt decisions and early publication.

The journal is interdisciplinary, and is steered by a prestigious International Editorial Board consisting of experts drawn from around the world. The journal provides a forum for the exchange of ideas and information from the diverse range of disciplines and groups with interests in land-use policies. The journal’s audience includes agricultural, forest and soil scientists, conservation personnel, ecologists, economists, geographers, landscape architects and ecologists, planners, public policy analysts, political scientists, and social scientists.

“Land use” is interpreted broadly, encompassing for example issues of environmental change and environmental management. While many papers on urban and transport-related topics have been published, a growing emphasis is on rural land-use issues. Papers on such issues are especially welcomed from the landscape-ecology community, members of which are likely to find much of interest in the pages of the journal.

The contents of recent issues are listed on the journal’s web site (<http://www.elsevier.com/locate/landusepol/>), from which a sample copy can be requested. Information for authors is available on the same website, and prospective authors are invited to contact the editor (Professor A. Mather, Department of Geography, University of Aberdeen, Aberdeen AB24 3UF Scotland (a.mather@abdn.ac.uk)) if further information is required.

JOB HUNTING?

Land Use: Analysis, Management, Planning, Policy

The University of Wisconsin-Madison seeks individuals for three full-time positions (open rank assistant, associate, or full professor) for this new, cross-campus, and interdisciplinary initiative in the area of land use: analysis, management, planning, policy.

These positions are anticipated to be the first set of what may be up to 10 land use related positions over the next five years. Three appointments will become available in the summer or fall of 2001. Two additional faculty positions may also become available by the fall of 2001. These additional two positions

will be solicited through traditional departmental channels. Selected faculty members will have the opportunity to participate actively and contribute significantly to the implementation of this exciting new initiative.

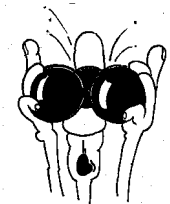
Vision: This cross-discipline, campus-wide initiative is intended to enrich the UW-Madison’s capacity to draw upon and connect existing and new land-related faculty activities and centers on campus, and to strengthen UW-Madison as a national and international center of land study, research, and outreach.

Knowledge and Expertise: These positions are in the general area of land use: analysis, management, planning, policy. Individuals from any discipline with specialization and demonstrated expertise in one or more areas including (but not limited to) the following areas are encouraged to apply.

To be assured of consideration, applications must be received by October 13, 2000. Review of applications begins October 16, 2000. Selected candidates will be invited to campus during the spring semester of 2001. Positions can begin in the summer or fall of 2001.

More information: <http://www.cals.wisc.edu/LandUsePositions/>

DIARY



October 2-6, 2000

ITC International short course: Environmental modelling with GIS and Remote Sensing. International Institute for Aerospace Survey and Earth Sciences. Enschede, The Netherlands.

<http://www.itc.nl/ha2/ace/shortcourse/flyer.html>

October 16 – 20, 2000

ERS-ENVISAT Symposium: Looking down to Earth in the New Millennium

<http://www.esa.int/sympo2000/>

October 18-21, 2000

International Conference: Multifunctional Landscapes. Interdisciplinary Approaches to Landscape Research and Management. Roskilde (Denmark), Organised by the Centre for Landscape Research University of Roskilde, Denmark

<http://www.geo.ruc.dk/vlb/conference.htm>

July 2-6 2001

Veterinary Conservation Biology: Wildlife Health and Management in Australasia. Taronga Zoo, Sydney, Australia

<http://www.farmwide.com.au/nff/vetasscn/confer/conservation.htm>