

Third International Rangeland Congress Overview

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Congress

The 3rd International Rangeland Congress (IRC) met in New Delhi, India, November 7-11, 1988. Plenary sessions were held each morning (Monday through Friday) covering subject areas related in Indian, African, North American, and Australian rangelands, rangeland production predictors, condition and trend diagnosis, and integrated resources inventory and mapping, and agroforestry technologies. Eleven symposia, including both formal and poster paper sessions, were conducted in the following subject areas:

1. Range resources inventory—concepts and methods.
2. Primary productivity and carrying capacity of rangeland ecosystems.
3. Dynamics and system analysis of rangelands.
4. Succession range ecosystem—diversity dominance and production.
5. Physiological process, water relation and range production.
6. Genetic improvement of range species.
7. Management of grazing resources.
8. Secondary producers—range resource interaction, animal health and efficiency.
9. Silviculture on rangelands.
10. Eco-sociology and range resources: People's involvement for range improvement, its eco-sociology for the development of range resources.
11. Rangeland problems in tropics and grazing policy.

About 400 participants from 51 countries attended the formal sessions of the Congress. The following list includes most of the countries at the IRC:

Afghanistan	Israel	Sri Lanka
Argentina	Italy	Syria
Australia	Japan	Thailand
Bangladesh	Kenya	The Netherlands
Bangalore	Kuwait	Tunisia
Bhutan	Malaysia	Uganda
Chile	Mexico	United Kingdom:
China	Morocco	England and Scotland
Finland	Nepal	USA
France	Nigeria	West Germany
India	Somalia	Yemen Arab Republic
Iran	Spain	New Zealand

Twenty-two representatives from the U.S. attended the Congress. Among them were Dr. William Laycock, President of SRM, and Pete Jackson, Executive Vice-President of SRM.

The host country and society did an outstanding job of organizing and conducting the Congress. Dr. Panjab Singh is to be commended for his leadership role in assuring the success of the Congress.

The opening ceremonies were impressive and the commitment to the art and science of range management was apparent when the President of India, Shri R. Venkataraman, gave the opening address (see pages 70, 71 *Rangelands* for the entire address). The theme was set by the

President with these opening comments, "Rangeland resources are one of the prime endowments of the Mother Earth which has been revered since Vedic times as *Mata Bhumi Putroham Prithivyam* (The earth is the mother; I am the son of the Mother Earth'), *Rakshay Prakritim Patnu Lokah* ('Global sustenance is possible only through the protection of nature')."

Tours

Six post-Congress tours offered the opportunity to see India rangelands research facilities and wildlife sanctuaries while learning Indian culture and lifestyles.

We chose the tour that took us to Srinagar, Kashmir, in northern India.

Land Values and Ownership

Land ownership and control in India can be separated into three classes: (1), Forest lands (22%) which are government owned, include both forest and rangeland in about equal proportions; (2) Communal lands which are government owned but community controlled; and (3) Privately owned lands.

In Kashmir the forest and communal lands probably exceeded the private lands due to the proximity of the Himalayan Mountain Range.

Nomads have no one in parliament and, therefore, are continually being moved off the various lands. However, they still have traditional authority to continually use the communal and forest lands for summer grazing of livestock.

Valley lands in Kashmir are owned by private individuals. Some people own large areas, others small, and some none. Common land values quoted from the local inhabitants were as follows: Forested mountain lands are government property. Trees also belong to the government and are sold to local commercial loggers or individual cutters either by the truckload or smaller amounts, even as small as one tree. Often cutters would get a permit for a couple of trees but would cut several more; they then transported the excess trees out the back side of the mountain for selling in town since road checks were used to monitor the wood harvest. Fuel wood sold for 50 rupees/100kg or \$3.50 (Exchange rate—15 rupees = \$1.00 US). The nomads cut trees without regard to permit or conservation since they use the wood for fuel on site in the mountain areas.

The grass and other forage in the hills and mountains traditionally belong to the nomad clans and are used indiscriminately, without regard for conservation. Therefore, heavy grazing is prevalent throughout the region. During the summer migrations of the nomads, the local Srinagar people are required to allow the nomadic herds of sheep, goats, and cattle to pass through and utilize their valley grazing lands. The nomads are required to

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cross the valley area within a 10-day period. However, even this short period greatly depleted the forage supply for the resident people due to the vast size of the livestock herds. The "locals" felt that they would have sufficient forage for their own livestock if the nomads were not permitted by law to pass through the area and deplete the forage supply twice each year (to and from the mountains in spring and fall).

Range

Rangelands are interspersed among the forest in the mountain areas. Many of the hills are completely devoid of the forest thus often providing large open grazing areas. Overgrazing is prevalent over all the range and forest-range areas. Although evidence of abusive grazing and excessive soil erosion is prevalent, several demonstrations of recovery were observed where protected areas had progressed from low seral to mid- or even high successional stages in just a few short years (7-10 years). Often on the hillsides *Stipa siberica*, a relatively impalatable grass, had increased due to the continued overuse. Also *Chrysopogon echinulatus*, a native sod-forming grass, was often present on the heavily grazed ranges. Native species found on the range areas included *Poa pratensis*, *P. annua*, *Festuca* spp., *Oryzopsis* spp., *Indigofera gerardiana* (a fodder shrub-legume), and *Agrostis alba*. Introduced forages such as orchardgrass (*Dactylis glomeratus*), timothy (*Phleum pratensis*), red clover (*Trifolium pratensis*), crown vetch (*Coronilla varia*), wheat-grasses (*Agropyron* spp.), and white clover (*Trifolium repens*) were being established in demonstration areas for deterring soil erosion and forage purpose on some of the slopes. However, any establishment demonstration had to be protected and continually guarded to prevent trespass and overgrazing by the local livestock.

Forestry-Forest Grazing

Coniferous forests were mainly located from about 1,500 to 2,500 m elevation with average annual precipitation of about 600 mm. Temperatures during summer vary from lows of 15° to highs of 32° C. Soils are loamy and trees included mainly blue pine (*Pinus walichiana*), fir (*Abies pindrow*), and spruce (*Picea smithiana*) with some fir forests going up to about 3,000 m. Broadleaf trees (*Escula inclisa*, *Quercus dilatata*, etc.) are interspersed throughout the coniferous forests. Other trees and shrubs dispersed through these forests included *Prunus* spp., *Salix alba* (foliage used as livestock fodder), *Sambucus* spp., *Viburnum foetans*, *Populus ciliata*, *Ulnus villose*, *Acer* spp., *Juglans* spp., and others.

In the lower elevations (400 to 1,000 m) oaks (*Quercus incana*), acacias (*Acacia modesta*, *A. catechu*), and other hardwood trees and shrubs are prevalent.

Some agroforestry or silvopastoral systems are being practiced along the roads and hillsides. Although grazing by sheep, goats, or cattle is ever present, tree windbreaks or small plantations or orchards are common along the roadways. Trees commonly seen included black locust (*Robbinia pseudoaccacia*), mulberry (*Morus* spp.), and

apple or other fruit-producing trees. Mulberry trees are used in the silkworm industry as larva food during the summer.

Banks of the waterways are commonly lined with poplars (*Populus ciliata*) and willows (*Salix alba*). Also, very little sycamore trees (*Platanus* spp.) were growing along the roads and waterways.

Domestic Livestock

Domestic livestock owned by landowners included water buffalo, cattle, sheep, goats, horses, pigs, chickens, dogs, and cats. The cattle included a "local" breed and some jersey crosses. Many of the local cattle are small (200 to 300 kg) and used for meat and milk. The small-sized animals are either bred for lower forage consumption requirements or are small by natural selection from scarcity of forage supplies.

Sheep are mainly a "local" breed (black) and Merino, although many are crosses between the two breeds. Sheep weighing 40 to 60 kg are sheared twice each year, once in the spring prior to moving the animals up the slopes to the alpine zone and once in the fall when returning off the mountain. Mutton or lamb meat is sold in the local markets; meat carcass wholesales for about 20 rupees/kg (about \$1.35) and retails for about 40 rupees/kg (about \$2.70).

Farming

Rice is the predominant field crop in the valley areas and many small rice paddies are on slopes. Only one crop of rice is grown each year due to the short summer growing season. However, many of the rice fields are planted with oats (*Avena sativa*) during October and November, but some fields remained unplanted during winter.

Most of the rice and oat fields are prepared for planting by hand hoeing; some of the larger landowners use oxen-pulled plows while a few tractors (Ford) are being used by the more prosperous, larger field valley farmers.

Rice and oat straw are stacked and used as hay following seed harvest. Rice is commonly planted in May or June and harvested in September or October; oats were planted in October or November and harvested in May.

Other forages used as hay for winter feeding of livestock included maize (*Zea mays*), giant reed grass (*Phragmites* spp.), and willow leaves (*Salix alba*). Hay is normally stacked in fence areas or in the crotches of trees about 8 feet above the ground level. The stacking in tree branches protects the hay from the winter snows which reach depths of 3 to 4 feet or more.

Although not used as hay for livestock, the broad-leaf brassica (*Brassica* spp.) leaves were also dried in the crotches of trees similar to the hay crop. The brassica leaves were used as vegetables by the people; the dried leaves were boiled in water and prepared like spinach. Yew (*Taxus* spp.) leaves are commonly used for tea seasoning.

Saffron (*Crocus sativa*) was also grown extensively in Kashmir Valley. It was used as seasoning and tea making; it had an onion-like appearance growing in the fields and

was about 10-15 cm tall in mid-November.

General Observations:

Everything we consider forage plus such plant biomass as dry leaves, small tree stems (too small for fuel wood), straw, or any residue from human food such as banana peels, orange rinds, etc., is consumed by livestock. The important aspect of fodder is the bulk not the quality.

Protected areas are not what we would normally think, such as cemeteries, church yards, or sensitive building sites, but are more oriented to a safety concern related to the presence of animals. Even in these cases, much of the available fodder is harvested under what appeared to be some control. This harvesting included dry grasses, all tree leaves and twigs, and pruning back of the trees.

From some demonstrations we discovered that the potential for recovery of the natural resources far exceeded our wildest dreams. In just a matter of a few years a site can move from a very low seral stage, if not bare ground, to a mid-level seral stage with a good density of high seral stage species. With this, the production increased many times. The local people are satisfied with quantity as they do not understand quality. They are willing to hand harvest the available products in the fall when maximum harvest can occur.

Following are observations on the do's and don'ts for bringing back the range resource in India:

Little attempt should be made toward upgrading the current animals. The exception to this would be to strive to increase milk production without decreasing the hardness or increasing the size of the animals. This is especially important for cows and horses.

Minimize resources spent on research. What the land needs is the application of basic concepts of range management coupled with a lot of common sense which would go a long way towards acceptable recovery.

Patience and tolerance are a must because the biggest barriers are cultural. The best way to overcome these is through demonstrations.

We need to keep in mind the need for multiple products from rangelands, not just fodder, but the fuel for fires and fiber for commercial products that will raise the economic structure of the local community. Increases in meat products for economic gain above the subsistence level will be minimal.

It is necessary to stress the use of hand labor over the use of mechanical techniques for any range or watershed improvement projects. We feel very strongly that the use of mechanical techniques at this time would result in more destruction of the natural resource base. The labor source is available and the cultural acceptance and economics are such that its use is a viable alternative.

Sophistication will result in failures, while the ability of the sites to recover is such that much can be done with minimum changes. We must keep in mind the culture, life style, and day-to-day way of doing business. In other words, minimal change can result in major benefits.



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