



Newsletter

Pakistan Forest Institute, Peshawar



Chief Patron: Syed Said Badshah Bukhari
Director General

Vol.2, Issue No.3
July - September, 2010

Editor: Tanvir Ahmad Qureshi
Extension Specialist

MONSOON TREE PLANTATION CEREMONY 2010 AT PFI, CAMPUS

A tree plantation ceremony for monsoon 2010 was organized in PFI, Peshawar on September 7, 2010 at PFI, Campus. All the officers, staff and students of PFI participated in the ceremony. The ceremony was started with the recitation from Holy Quran by Mr. Ghulam Sarwar, Superintendent. Mr. Tahir Laeeq, Director, Forestry Research Division welcomed all the participants and requested Director General, PFI to inaugurate the Tree Plantation Ceremony Monsoon 2010.

Syed Said Badshah Bukhari, Director General, PFI in his inaugural address enlightened the religious, economic and environmental aspects of trees. He iterated in his address that trees are important for survival and existence of life on the globe, play a vital role in maintaining biodiversity on the planet, and serve as carbon sinks and thus they are a remedy for global warming. He also added that the trees are essential for soil erosion control and they are vital in reducing flash floods thus saving habitat of man kind.

DG also stressed that masses in the general public be involved in the planting of trees by motivation and education.

He requested all the participants to participate actively in current season's tree planting campaign. Inaugurating the ceremony, DG, PFI planted a sapling of Olive in PFI campus.

The session concluded with the vote of thanks by DFRD and he assured on behalf of participants that they will take plantation of trees as a mission. During this planting campaign about 490 seedlings were planted in the PFI campus by PFI staff members and students.

TRAINING COURSE AT PFI FIELD STATION, SHINKIARI

Asif Kamal Siddiqui,
PD - URFS Project

In continuation to the HRD programme of the PSDP Project "Upgrading & Reconstruction of PFI Field Station, Shinkiani" a training course on "Efficient Techniques of Timber Harvesting & Transportation" was conducted at Field



Director General PFI, Inaugurating Tree Planting Campaign at Pakistan Forest Institute, Peshawar

Station, Shinkiani for the field officers of provincial Forest Departments including PFI, from June 26 to July 4, 2010. A total of 12 trainees were nominated by their departments to take part in the training course. Beside Project Director and Project Consultant of URFS Project, senior field officers were also invited as resource persons to deliver lectures to the trainees. This include Mr. Khurshid Anwar Conservator of Forests, Abbottabad and Mr. Muhammad Zaid, AFM from FDC. Trainees were also taken to the Kamalban RF for observing various logging operation being carried out there by the FDC. The closing ceremony was graced by Mr. Khurshid Anwar, Conservator of Forests as the Chief Guest and he awarded the course completion certificates to the trainees.



Group Photograph of the Chief Guest with resource persons and trainees

NEWS OF FOREST EDUCATION DIVISION

HAKIM SHAH
Director, Forest Education

Various activities and initiatives were under taken in the Forest Education Division of PFI during the months of July - August 2010 as given below:

Admissions

The applications were invited for admissions in M.Sc and B.Sc Forestry (2010-2012) session. The admission committee finalized the merit list as per approved admission policy based on academic record and entry test conducted by NTS. The M.Sc & B.Sc Forestry classes of the new session will commence from 25 October 2010 positively.



Mr. Hakim Shah, DFED inspecting the examination centre for NTS 2010-12

During last three years the sessions remained late by many months. This year session will start as per academic calendar due to the energetic efforts of DFE and faculty members of Forest Education Division.

Study Tours

Hill Tour

The students of M.Sc and B.Sc 2009-11 session undertook the Forest Types Tour of Chir Pine and Moist Temperature Forests from 27-31 July, 2010. The program officers Mr. Asif Jah, APOF & Dr. Mamoona Wali Muhammad, APOF accompanied the classes. They visited Balakot Watershed Division, Hassa Nursery, Baz Khan Forest, Ayubia National Park, Dhodial Nursery, and Dhodial Pheasentry.



PFI students visiting Bioengineering Watershed Management Techniques at Balakot

They studied the Chir pine Forest and its management and Moist Temperate Forests, various aspects of watershed management, wild life management, nursery growing and its management.

Survey Camp

The survey camp of B.Sc and M.Sc Forestry (2009-11) session was conducted at Shinkiari Field station from 01-12 August, 2010.



PFI Students collecting Forest Survey Data

The Director Forest Education also joined the classes for one day at camp and addressed the students. He gave practical tips to conduct forest survey. Mr Asif Kamal, PD Shinkiari project, Ch. Abdul Khaliq senior faculty member and Dr. Mamoona conducted the tour.

Field Engineering Tour

The Field Engineering Training at Military College of Engineering, Risalpur (MCE) has been organized for M.Sc and B.Sc Forestry (2008-10) session and M.Sc

and B.Sc Forestry (2009-11) session. It was held w.e.f 22 September to 05 October 2010, at (MCE), Risalpur.



PFI students actively listening lecture at MCE

To conduct training at MCE Risalpur is the compulsory part and old tradition of forestry education and training since its beginning. The practice was disrupted in the last three years due to delay in academic calendar and security risks. It was made possible due to the sincere efforts of the DFE and its team which make it possible not only to conduct the training for the M.Sc and B.Sc Forestry (2008-10) session but M.Sc and B.Sc Forestry (2009-11) session students also completed this training in scheduled time as per academic calendar. The series of meetings between DFE and MCE commandant resulted in this accomplishment. A farewell party was also arranged. Syed Said Badshah Bukhari, DG PFI also graced the occasion. The institutions' monogram shields were exchanged in a graceful ceremony.



Director General, PFI presenting PFI Shield to Maj. Gen. Imtiaz Ahmad, Commandant MCE Risalpur

Examination

Annual Examination of M.Sc and B.Sc Forestry session (2008-10) 3rd term; M.Sc Forestry session (2007-09) 4th term; and M.Sc Forestry session (2007-09) 5th term were conducted from 10th August to 06th September 2010. Supplementary Examination of M.Sc and B.Sc Forestry session (2007-09) 3rd term; and M.Sc and B.Sc Forestry session (2008-10) 2nd term were also completed from 15th July to 13th August 2010. Moreover, Annual Examination of B.Sc Forestry session (2007-09) 4th term and 5th term were held from 11th to 15th October, 2010. This is record in the history of PFI to conduct examination in the shortest possible time which was made possible due to coordinated efforts with and support of the University of Peshawar.

General Viva

The senior forest officers were requested for general viva of M.Sc and B.Sc Forestry session (2007-09). They very impressed with the knowledge of the students and gave the remarks that the standard of forestry education at PFI is progressing and its not depleting as it is generally perceived.

Thesis Evaluation

The thesis evaluation examiners also appreciated the work of the students. They were impressed with the quality of the Master Thesis research work and come up with the comments that the research work was quite better as compared to the past years.

Results

The results of M.Sc & B.Sc Forestry session (2007-09) 3rd term Supplementary Examination, M.Sc and B.Sc Forestry (2008-10) 2nd term Supplementary and M.Sc Forestry session (2007-09) 4th term Annual were declared. The result of M.Sc and B.Sc Forestry (2007-09) 5th term Annual Examination is awaited with that this session will successfully be passed out.

Extra Curricular Activities: National Planting Day 2010

The students of PFI participated in the National planting Day 2010, organized by Punjab Forest Department on 10th August, 2010. The Director Forest Education Division along with faculty members accompanied the students to participate in this event at Murree Express Way. The media got special interviews from the faculty and students which was highlighted on TV channels and national Newspapers. The well organized and highly disciplined forestry students were conspicuous in this large national gathering.



The students pose with Honorable Federal Minister of Environment, CCF Punjab, DFE & Program Officer

Farewell party

A farewell iftar-cum-dinner party was organized by Forest Education Division to good bye M.Sc Forestry (2007-09) session on 26th July 2010. Director General was the Chief Guest of the occasion. All the teaching staff of the institute participated in the party. This type of events was part of annual activities but the tradition was flouting for the last seven years.

Special lectures

The special lecture program was also continued in these months. The lectures on Forestry topics were arranged for M.Sc and B.Sc Forestry students. The following are the glimpses of the lectures:

The lectures on "Chir pine Forest Management in Hazara" and "History of Forest Management in KPK" were delivered by Mr. Muhammad Iqbal Swati, Ex. Chief Conservator of Forests KPK on 30th July 2010 at Field Station, Shinkhari Manshera.

BENEFICIAL ROLE OF TERMITES IN ECOSYSTEM

Naveed Ahmed

Asstt. Forest Entomologist

Termites, one of the highly successful groups of social insects are integral component of the ecosystem. Termites are predominantly thought of as destructive and menacing creatures, due to their wide range of distribution across the world. In urban environment termites are most destructive pest. However, the beneficial role play by termites is immense and has not yet been highlighted. They are the most important soil fauna in the semi-arid tropics as they bring about significant physical and chemical modifications in soils. They are known to play an important role in detritus decomposition and maintaining soil structure, thereby modifying soil chemical characteristics as a result of upturn of soil.

Termites can be used to counteract land degradation. Their bioturbating activities accelerate the soil rehabilitation process by (i) breaking up of surface crusts, (ii) reducing soil compaction, (iii) increasing soil porosity, (iv) improving water infiltration into the soil and (v) enhancing water holding capacity of the soil, thereby reducing surface runoff. Termites improve vegetation growth first by improving certain physical properties of soil (soil structure, water infiltration and water storage capacity, and soil rootability) and second by improving the chemical cycling in soil (nutrient release from the mulch into the soil).

Termites also burrow a lot in the soil, making numerous tunnels which permit air and water to penetrate the soil. This helps with aerating the soil and fixing nitrogen in the soil, which helps soil bacteria convert the nitrogen in the air into a form more easily absorbed by plant roots. So termites also help a lot with the growth of plants and trees in the forest.

THE DEWFALL PHENOMENON

**Tariq Mahmood
(WMS) & Zulfiqar Ali (RO)**

Strictly speaking, the formation of dew is not ameteorological phenomenon. Infact, it is the deposit of water on exposed surface of plants or soil which results from condensation of water vapors from the surrounding atmosphere. When the nights are calm and clear, the air is comparatively dry, nocturnal cooling occurs near the ground by outgoing radiation in the case of vegetation as well as the soil. Water vapors in contact with leaves and plants becomes chilled and if the chilling process is allowed to continue beyond certain point, a stage is reached when water vapors begins to condense. In nature, the deposit is known as dew and the air in the vicinity is said to have reached its dew point. Accordingly, dew has been internationally defined as the "Water droplets which are deposited by direct condensation from the surrounding air layer on essentially horizontal surface which have cooled off during the night by radiation".



Dew on Leaves

When the sky is clouded at night, the chances of cooling by radiation are much less because the clouds are known to be good reflectors, that is, they will return to the surface almost as much as the surface loses to the atmosphere. As a result the surface of the vegetation will not be cooled to such an extent so as to favor the information of dew even during the stillest night. The following saying gives some indication for the phenomenon to occur:

When the dew is on the grass
Rain will never come to pass
And

When the grass is dry at morning sight,
Look for rain before the night.

FORESTS AND RANGELANDS - THE MAJOR SOURCE OF CARBON SEQUESTRATION

Ashar Farooq

Range Management Officer

What is Carbon Sequestration?

It literally means storing atmospheric carbon (C). Carbon sequestration occurs in

an ecosystem when the amount of carbon dioxide (CO₂) absorbed by growing plants through photosynthesis is greater than the amount of the gas released via respiration, harvest and management.

Rangelands and Carbon Sequestration

"Rangeland" is the earth's most extensive land type. The range lands of the world occupy 47 % of the earth's entire land surface. Rangeland vegetation consists of grasses, forbs, shrubs and trees. Rangelands are a major carbon sink. Assuming 5000 m ha area of rangelands world over, averaging 52-58 tons of carbon per ha, rangelands store around 275 giga tons (275x10⁹ tons) equalling 13% of total terrestrial Carbon. Degradation of rangelands is a contributor to global climate change.

Forests and carbon sequestration

Forests have great potential as a long-term carbon sink. As globally important storehouses of carbon, forests play a critical role in influencing the earth's climate. Forests sometimes act as "carbon sinks," absorbing more of the greenhouse gas carbon dioxide than they release.

Tree planting has greater carbon sequestration potential than other land use practices. Afforestation of crop or pasture land is estimated to have the potential to sequester between 2.2 and 9.5 metric tons of CO₂ per acre per year.

Reforestation and afforestation (two types of planting trees) are ways to increase carbon storage. Carbon sequestration, like so many natural phenomena, works best when natural resources are managed using sound science.

Forests are an effective option for C storage. Forest ecosystems are the largest terrestrial C pool. They store more than 80% of all terrestrial aboveground C and more than 70% of all soil organic C. In an undisturbed forest ~ 74 % of the carbon dioxide (stored as carbon (C)) is stored in live stems and branches, 16 % is stored in roots and 10 % in soils. However, when forests are clear felled or deforested 32 % of the stored C is lost due to decomposition processes. The remaining C is initially retained either on site or in harvested wood products, but this is slowly released over time.

Carbon absorption (sequestration) capacity of natural lands can be increased by:

- Planting trees on un-forested land (i.e. afforestation),
- Facilitating the natural regeneration of forests on marginal land and by

managing forests to increase biomass accumulation.

- Conservation and sound management of existing forests and rangelands - to avoid deforestation, forest degradation or clearing and degradation of our range resources.

To maximize the sequestration of carbon, land managers must keep vegetation as vigorous as possible for as long a time as possible.

PANDA AT THE VERGE OF EXTINCTION

Mian Muhammad Shafiq
Deputy Conservator Wildlife

The giant panda first appeared in the fossil record some three million years ago. The single species, *Ailuropoda melanolancea* (the species name means black and white), is found only in China, where it is considered a living national treasure. However, habitat destruction has caused a great many panda deaths in the wild.

The panda diet consists mainly of bamboo. To obtain sufficient nourishment, a panda consumes as much as 80 pounds (36 kg) of shoots, stems and leaves daily, although bamboo is their favorite food, panda may also hunt birds and small rodents. They enjoy meat, but in the winter only bamboo provides an easy food source. The panda is automatically a carnivore with a simple stomach and short intestine, adapted for digesting meat. On a diet of bamboo shoots which are 90% water it may eat some 650 shoots daily. Unable to digest the bamboo efficiently the animal obtains only a few nutrients from its food. The panda has overcome these problems by barely chewing and digesting its food and by passing it through its body in only five to eight hours. So as not to fill itself with useless bulk, the panda prefer, the leaves and pencil thin stems of arrow bamboo, which grows above an elevation of 8200 feet (2600 m).

The mating season runs from mid March to early May, the gestation period is variable from 97 to 163 days. Most birth occurs in late August or September in a maternity den usually a hollow fir tree. New born are about six inches (15 cm) long and three to four (85 to 113 g) in weight. The skin is pink and almost naked and the eyes are sealed until the baby is more than a month old. The mother often gives birth to two cubs.

Although pandas are solitary animals except during mating, they will share all of part of their range with other pandas. Each female panda has an area of about 75 to 100 acres in which other female are not welcome.

It is the need of the time to conserve/ preserves this natural heritage of wildlife.

MORINGA OLEIFERA : MEDICAL EVIDENCE FOR ITS NUTRITIONAL AND THERAPEUTIC PROPERTIES

Muhammad Muslim
Medicinal Plants Botanist

Introduction

Moringa oleifera is the most widely cultivated species of a mono-generic family, the Moringaceae that is native to the sub-Himalayan tracts of Pakistan, India, Bangladesh and Afghanistan. This rapidly-growing tree (also known as horseradish tree, drumstick tree) was utilized by the ancient Romans, Greeks and Egyptians; it is now widely cultivated and has become naturalized in many locations in the tropics. It is a perennial softwood tree with timber of low quality, but which for centuries has been advocated for traditional medicinal and industrial uses. All parts of the Moringa tree are edible and have long been consumed by humans. According to Fuglie the many uses for Moringa include: alley cropping (biomass production), animal forage (leaves and treated seed-cake), biogas (from leaves), domestic cleaning agent (crushed leaves), blue dye (wood), fencing (living trees), fertilizer (seed-cake), foliar nutrient (juice expressed from the leaves), green manure (from leaves), gum (from tree trunks), honey- and sugar cane juice-clarifier (powdered seeds), honey (flower nectar), medicine (all plant parts), ornamental plantings, bio-pesticide (soil incorporation of leaves to prevent seedling damping off), pulp (wood), rope (bark), tannin for tanning hides (bark and gum), water purification (powdered seeds). Moringa seed oil (yield 30-40% by weight), also known as Ben oil, is a sweet non-sticking, non-drying oil that resists rancidity. It has been used in salads, for fine machine lubrication, and in the manufacture of perfume and hair care products. In the West, one of the best known uses for Moringa is the use of powdered seeds to flocculate contaminants and purify drinking water, but the seeds are also eaten green, roasted, powdered and steeped for tea or used in curries. This tree has in recent times been advocated as an outstanding indigenous source of highly digestible protein, Ca, Fe, Vitamin C, and carotenoids suitable for utilization in many of the so-called "developing" regions of the world where undernourishment is a major concern.

Nutrition

Moringa trees have been used to combat malnutrition, especially among infants and nursing mothers. Leaves can

be eaten fresh, cooked, or stored as dried powder for many months without refrigeration, and reportedly without loss of nutritional value. Moringa is especially promising as a food source in the tropics because the tree is in full leaf at the end of the dry season when other foods are typically scarce.

A large number of reports on the nutritional qualities of Moringa now exist in both the scientific and the popular literature. Any readers who are familiar with Moringa will recognize the oft-reproduced characterization made many years ago by the Trees for Life organization, that "ounce-for-ounce, Moringa leaves contain more Vitamin A than carrots, more calcium than milk, more iron than spinach, more Vitamin C than oranges, and more potassium than bananas," and that the protein quality of Moringa leaves rivals that of milk and eggs. These readers will also recognize the oral histories recorded by Lowell Fuglie in Senegal and throughout West Africa, who reports (and has extensively documented on video) countless instances of lifesaving nutritional rescue that are attributed to Moringa. In fact, the nutritional properties of Moringa are now so well known that there seems to be little doubt of the substantial health benefit to be realized by consumption of Moringa leaf powder in situations where starvation is imminent. Nonetheless, the outcomes of well controlled and well documented clinical studies are still clearly of great value.

Action and uses

The bark is abortifacient. The flowers are stimulant and aphrodisiac. The fruit is used in diseases of liver and spleen, pains, tetanus and paralysis. The gum is used for dental carries and mixed with sesame oil poured into the ear for the relief of nostalgia. The oil from the seed is used as external application in rheumatism. The root is used as stimulant in intermittent fever, used in epilepsy and chronic rheumatism, carminative, stomachic, as cardiac and circulatory tonic in form of compound spirit useful for fainting, giddiness, nervous debility, spasmodic affections of the bowels, hysteria and flatulence. The root bark is used to relieve spasm.



Moringa oleifera