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Workshop on Management Techniques for Sustainable Forest Management in a Changing Climate

July 1-12, 2013
Yunnan, China

Background

Climate change is one of the most important threats to the capacity of forest landscapes to provide ecological, economic and social services in the Asia-Pacific region. Meanwhile, the potential of forests to mitigate climate change also represents a major opportunity for the forest sector. Forest ecosystems can either serve as a carbon sink or carbon source depending on their level of health and their resilience to climate change. However, there is remarkably little evidence that science-based decision-making processes are being incorporated into forest management practices in the region. As a result, considerable uncertainty exists over management policies aimed at enabling forests and forest-dependent communities to adapt to climate change.

The research project "Adaptation of Asia-Pacific Forests to Climate Change" sponsored by APFNet and led by Faculty of Forestry, UBC, has been applying state-of-the-art technologies and analytical approaches from climate modeling, geospatial analysis, and sustainable forest management to develop essential tools for climate change adaptation. Using tools developed in this project and pilot field studies carried out by a research network, the research team has been developing adaptive strategies and recommendations for sustainable forest management practices in the Asia-Pacific region. As the fifth APFNet workshop under the training stream of Forestry and Rural Development since 2009, this workshop aims to take the advantages of the expertise of this project team to conduct training on methodologies and approaches to conduct research and applications for forest adaptation to climate change from a practical perspective. The tools developed through this project will also be introduced including a high-resolution climate model ClimateAP (climate model for the Asia Pacific Region) and several ecological and carbon dynamic models. Recommendations forest management practices through integration of different models will also be discussed using a pilot site as examples.

Objectives

- Review the current status of climate change impacts and adaptation strategies in Asia Pacific region through sharing information among the participants;
- Learn the essential methodologies and approaches to conduct research and applications for forest adaptation to climate change;

- Learn how to use the tools that are developed by the UBC project team that are essential for conducting climate change related studies and for predicting impacts of climate change on forest tree species distributions, productivities and carbon dynamics;
- Discuss possible recommendations through an integration of different model predictions and observed interactions between forest management practices and climate change at a pilot site to optimize forest management practices for adaptation to climate change.
- Build a network that connects scientists, forest managers and policy makers will facilitate information sharing and knowledge.

Course Structure and Training Approaches

Keynote lectures: keynote lectures will be delivered by invited resource persons and will cover fundamental and topical issues related to forest adaptation to climate change;

- Participant presentation: participants are required to make presentations during the workshop based on their case study;
- Working groups and discussions: participants will be encouraged to take part in the training actively via the lectures, group discussions and doing exercises with your own data;
- Field visits: field visits will showcase performance and practices of field inventory for forest adaptation studies and applications.

Data you may want to bring to the workshop

- Weather station data with coordinates (latitude, longitude and elevation) for validation of the high-resolution model ClimateAP at your region.
- Coordinates including latitude, longitude and elevation (optional) of your experiments located at multiple geographic locations where you want to obtain climates for the past and future.
- The coordinates for a single location where you have time series observations, such as tree ring data. We can help you to obtain time series climate data for the past 100 years.
- Observations from your experiments that may be related to climate. We can use your experiments as examples for demonstration to: 1) obtain high-resolution climate data for over 80 climate variables for each of your test sites; 2) obtain time series climate data for a single or multiple locations; 3) establish relationships between your observations and climate variables; and 4) predict the performances of your subjects in future climates.
- GIS shape files for species or ecosystem distributions. With this information, we may be able to help you to establish bioclimatic envelope models to predict the future climate niches for the species or ecosystems.

Program Schedule

Part 1: Indoor session

(Golden Spring Hotel, 1-6 &11 July 2013)

Date	Time	Contents	Remarks
30 June	Whole day	Participants arrival and Registration	MODERATOR: APFNet-KTC
1 July	8:00-9:00	BREAKFAST	2nd floor. hotel
	9:00-9:30	**Opening Ceremony** **--Overview of the workshop on strategies and approaches for sustainable forest management in a changing climate**	MODERATOR-- - APFNet-KTC -UBC
	9:30-10:00	Group photo and tea break	
	10:00-11:50	• **Warming up** -- Self-introductions. • **Group discussion** -- Key issues and challenges for SFM -- Expectations and suggestions	MODERATOR: -- UBC
	12:00-13:00	LUNCH	Dining room
	14:00-15:30	Keynote Lecture 1: Dr. Guangyu Wang, UBC Faculty of Forestry: **Sustainable forest management in a changing climate**	MODERATOR: -- UBC -- APFNet-KTC
	15:30-16:00	Tea Break	
	16:00-17:30	Keynote Lecture 2 Prof. Peter Marshall, Associate Dean, UBC Faculty of Forestry: **Overview of forest inventory techniques and applications**	
	18:00-19:00	WELCOME DINNER	2nd floor, hotel
2 July	8:00-8:40	BREAKFAST	
	8:40-9:00	Morning Welcome and Daily Review	MODERATOR: -- UBC
	9:00-10:30	Keynote Lecture 2: Prof. Peter Marshall, Associate Dean, UBC Faculty of Forestry: **Remote Sensing data collection and analysis**	MODERATOR: -- UBC -- APFNet-KTC
	10:30-11:00	Tea Break	

	11:00-11:40	Prof. Peter Marshall, Associate Dean, UBC Faculty of Forestry: **Recent developments in field date collection and analysis**	
	12:00-13:00	LUNCH	1st floor, hotel
	14:00-15:30	Keynote Lecture 3: Dr. Qinglin Li, BC Ministry of Forests: **Basic modeling concepts and implementation in forest ecosystem**	MODERATOR: -- UBC -- APFNet-KTC
	15:30-16:00	Tea Break	
	16:00-17:30	Keynote Lecture 4: Dr. Qinglin Li, , BC Ministry of Forests **Forest growth and yield models for natural stands and managed stands**	
	17:30-18:00	Wrap-up	MODERATOR: -- UBC
	18:00-19:00	DINNER	2nd floor, hotel
3 July	8:00-8:40	BREAKFAST	
	8:40-9:00	Morning Welcome and Daily Review	MODERATOR: -- UBC
	9:00-10:30	Keynote Lecture 5: Dr. Tongli Wang, UBC Faculty of Forestry: **ClimateAP and application**	MODERATOR: -- UBC -- APFNet-KTC
	10:30-11:00	Tea Break	
	11:00-11:40	Dr. Tongli Wang, UBC Faculty of Forestry: **Ecosystem niche modeling for AP Region**	
	12:00-13:00	LUNCH	1st floor, hotel
	14:00-15:30	Keynote Lecture 6: Dr. Craig Nitschke, University of Melbourne **Application of TACA and LANDIS-II for pilot sites**	MODERATOR: -- UBC -- APFNet-KTC
	15:30-16:00	Break	
	16:00-17:30	Dr. Craig Nitschke, University of Melbourne **Application of TACA and LANDIS-II for pilot sites**	
	17:30-18:00	Wrap-Up	MODERATOR: -- UBC
4 July	8:00-8:40	BREAKFAST	
	8:40-9:00	Morning Welcome and Daily Review	MODERATOR: --UBC

	9:00-10:30	Keynote Lecture 7: Dr. Brad Seely, UBC Faculty of Forestry **Application of FORECAST model for pilot sites**	MODERATOR: -- UBC -- APFNet-KTC
	10:30-11:00	Tea Break	
	11:00-11:50	Dr. Brad Seely, UBC Faculty of Forestry **Application of FORECAST model for pilot sites**	
	12:00-13:00	LUNCH	1st floor. hotel
	14:00-15:30	Keynote Lecture 8: Dr. Qinglin Li, BC Ministry of Forests: **Integrated resource analysis -system dynamic modeling concepts and applications**	MODERATOR: -- UBC -- APFNet-KTC
	15:30-16:00	Break	
	16:00-17:30	Dr. Qinglin Li, BC Ministry of Forests: **Forest ecosystem carbon budgets and modelling approaches**	
	17:30-18:00	Wrap-Up	MODERATOR: -- UBC
	18:00-19:30	DINNER	2nd floor, hotel
5 July	8:00-8:30	BREAKFAST	
	8:40-9:00	Morning Welcome and Daily Review	MODERATOR: -- UBC
	9:00-10:30	**Guest Lecture 9: Prof. Sally Aitken:** UBC Faculty of Forestry **Can genetic management improve forest health and productivity under climate change?**	MODERATOR: -- APFNet-KTC
	10:30-11:00	Tea Break	
	11:00-11:50	Guest Lecture 10: Mr. Jack Woods, Manager of BC Forest Genetic Council: **Applying forest genetic management to improve timber supply and respond to climate change**	
	12:00-13:00	LUNCH	
	Free for trainees, and Mid-term evaluation for UBC Group) (July 5, Midterm evaluation)		
6 July	8:00-8:40	BREAKFAST	
	8:40-9:00	Morning Welcome and Daily Review	MODERATOR: --UBC
	9:00-10:00	Keynote Lecture 11: Prof. Innes, Dean and Professor, UBC Faculty of Forestry: **Sustainable forest management and forest adaptation - policy implication**	MODERATOR: -- UBC -- APFNet-KTC

	10:00-10:20	Tea Break	
	10:20-11:50	Prof. Innes, Dean and Professor, UBC Faculty of Forestry: **Sustainable forest management and forest adaptation - policy implication**	
	12:00-13:00	LUNCH	
	14:00-15:30	**Group presentations**	MODERATOR: -- UBC -- APFNet-KTC
	15:30-16:00	**Tea Break**	
	16:00-17:00	**Group presentations**	
	17:00-17:30	Review of field trip activities	
	18:00-19:30	DINNER	
7-10 July		Field trip to Pu'er City	MODERATOR: -- APFNet-KTC
11 July	8:30-9:00	BREAKFAST	
	9:00-10:30	- Workshop evaluation - Farewell remarks by participants	MODERATOR: -- UBC -- APFNet-KTC
	10:30-11:00	Tea Break	MODERATOR: -- APFNet
	11:00-12:00	Closing Ceremony - Presentation of certificates	
	12:00-13:00	LUNCH	
	13:00-17:30	Free	
	17:30-19:00	Farewell Dinner	MODERATOR: -- APFNet-KTC -- SWFU
12 July		Participants departure	MODERATOR: -- APFNet-KTC

Part 2: Schedule of Field Trip

7 July	08:30 - 12:30	Drive from Kunming to Pu'er City	
	12:30 - 13:30	Lunch in Mojiang County (on the way)	
	15:30 - 16:00	Check-in Hotel	
	16:30 - 17:30	Meeting with Pu'er Municipal Government and Pu'er Forestry Bureau; -- Introduction of local representatives and international participants; -- Overview of forest management in Pu'er.	
	18:00	Welcome dinner hosted by Pu'er Municipal Government	
8 July		Field work: Collecting and assessing data sources for implementing models. Dr. Qinglin Li and Dr.Guangyu Wang UBC Faculty of Forestry: The participants will be split into 3-5 groups (lottery draws), each group will work as a team to finish the following tasks: - Assemble available data sources (provided by the field site), possible data sources are forest inventory, field plot measurements, various professional surveys' data, etc. - Identify data gaps for each model. - Propose solutions for missing data.	
9 July		Field work: Forest management/climate scenarios and forest adaptation strategies Dr. Guangyu Wang and Dr. Qinglin LI, UBC Faculty of Forestry - Morning: group discussions with local representatives to address data gaps issues, management strategies, and potential climate impacts scenarios - Afternoon: each group select one representative to present their findings: such as models are suitable for the visited site, data gaps for the selected models, management strategies/scenarios to address current issues etc.	
10 July	09:30 - 11:30	Return to Kunming, with lunch in Mojiang County	
	11:30 - 12:30	Lunch in Mojiang County (on the way)	
	16:00	Check-in at Golden Spring Hotel	
	18:00	Dinner	

Name List of Participant

NO	NAME	ECONOMIES	INSTITUTE	TITLE	E-MAIL
1	Quazi Md Nurul Karim	Bangladesh	The Forest Department of Bangladesh	Assistant Conservator of Forests	quazikarim@yahoo.com
2	Akosita Tiko Lewai	Fiji	The Ministry of Fisheries and Forests, Forest Department	Acting Principal Forest Officer	akosita_lewai@yahoo.com
3	Suhardijono	Indonesia	Directorate of Watershed Planning and Evaluation, Ministry of Forestry	Deputy Director for Watershed Planning	suhardij@yahoo.com
4	Phetdaovong Namphachan	Laos	REDD+ Office, Department of Forestry, Ministry of Agriculture and Forestry	Technical Staff	npcphet@gmail.com
5	Ismail Bin Parlan	Malaysia	The Forest Research Institute, Malaysia	Research Officer	ismailp@frim.gov.my
6	Purevragchaa Battulga	Mongolia	Institute of Geoecology, Mongolian Academy of Sciences	Researcher	moff.forest@gmail.com
7	Saw Daniel	Myanmar	Ministry of Environmental Conservation and Forestry, Forest Department	Assistant Director	daniel.dandoh@gmail.com
8	Rudra Bahadur Raya	Nepal	Integrated Development Society Nepal	The Climate Change Adaptation and Forest Officer	rudra7raya@gmail.com
9	Devesh Mani Tripathi	Nepal	Department of Forest, Ministry of Forest and Soil Conservation	Under Secretary	deveshmanitripathi@yahoo.com
10	Condori Rosales Carlos Alberto	Peru	The General Directorate of Forestry and Wildlife, Ministry of Agriculture	Forestry Specialist	ccondori@minag.gob.pe
11	Tavune Maman Bokath	PNG	The PNG Forest Research Institute	Scientific Officer	mtavune@fri.pngfa.gov.pg
12	Areeyapat Petcharat	Thailand	Forest Research and Development Bureau, the Royal Forest Department	Forestry Technical Officer	Areeyapat57@yahoo.com
13	Pang Yong	China	Institute of Forest Resource Information Techniques, Chinese Academy of Forestry	Associate Professor	caf.pang@gmail.com
14	Li Wei	China	Yunnan Academy of Biodiversity	Assistant professor	54430368@qq.com

Lecture Speakers' Biography

JOHN INNES

Professor and Dean
Faculty of Forestry, University of British Columbia
E-mail: john.innes@ubc.ca

BIOGRAPHY

Dr. John Innes was appointed as Dean of the Faculty of Forestry for a six-year term, effective July 1, 2010.

Dr. Innes is a Professor and FRBC Chair of Forest Management at UBC. He received a BA (Hons) and PhD from the University of Cambridge, and held positions at several universities in the UK including Cambridge University. In 1986, he was appointed as Senior Scientific Officer with the UK Forestry Commission tasked with assessing the health of Great Britain's forests. In 1992, he was recruited to join the Swiss Federal Institute of Forest, Snow and Landscape Research for assessing national forest health and developing a new Department.

Since coming to UBC in 1999, Dr. Innes' research has focused on sustainable forest management involving projects as diverse as slope stability, bird population studies, the effects of cumulative impacts of development on the way of life of First Nations in northeast BC, community-based forest management in Mexico and Brazil, and forest management standards in China. His research with Aboriginal communities focuses on the relationship between Aboriginal people and forests; the impacts of climate change on forest-dependent communities and adaptation of those communities to their changing environment.

Dr. Innes has written or edited a number of books on forest health, environmental change and air pollution and numerous scientific papers, and in 2007 as contributor to the Intergovernmental Panel on Climate Change, along with many other scientists, Dr. Innes shared in the Nobel Peace Prize. Dr. Innes has strong international interests, and his teaching has concentrated on international issues on Forestry, ecology, conservation, management and environment. He is currently one of the Vice Presidents of the International Union of Forest Research Organizations (IUFRO), and Vice Chair of the Commonwealth Forestry Association.

PETER L MARSHALL

Professor and Associate Dean
Faculty of Forestry, University of British Columbia
E-mail: peter.marshall@ubc.ca

BIOGRAPHY

Peter Marshall is a Professor in the Department of Forest Resources Management and has been Associate Dean in the Faculty of Forestry at University of British Columbia (UBC) for 15 years. He received a BScF in 1976 and MScF in 1979 from the University of Toronto. He worked for the University of Toronto as a lecturer and for the government of the province of Ontario as a forest biometrician for a few years before undertaking a PHD in forest management at UBC. He has been a faculty member at UBC since 1983 where he has taught courses in forest mensuration, growth and yield, sampling design, and forest management.

Dr. Marshall's research interests is in quantifying and forecasting stand and forest dynamics, particularly with respect to uneven-aged and/or mixed species (complex) stands. He also has a long-running interest in designing sampling approaches for various natural resources applications. In the last few years, much of his sampling design work has focused on efficient methods of quantifying downed dead woody material (coarse woody debris).

Dr. Marshall has been active professionally throughout most of his university career. His professional work has taken place essentially on two fronts: firstly service to the province, via membership on several technical committees and individual or university-based contracts, and secondly service to the forestry profession through his previous membership on the governing council of the Association of B.C. Professional Foresters (ABCFP), long-time membership on the Board of Examiners and the Complaints Resolution Committee of the ABCFPand involvement with the Canadian Institute of Forestry. He is particularly interested in forestry curriculum development and accreditation and he currently serves as the Chair of the Canadian Forestry Accreditation Board.. In recognition of his contributions to forestry in Canada, he received the Canadian Forestry Achievement Award in 2005.

QINGLIN LI

Senior Analyst
Carbon modeling and Forest Inventory Forest Analysis and Inventory Branch, Ministry of Forests, Lands, and Natural Resource Operations
Victoria, BC, Canada
E-mail:Qinglin.Li@gov.bc.ca

BIOGRAPHY

Dr. Li received education and training in forest ecology, landscape ecology, GIS and ecosystem modelling. He has worked on several projects focus on investigating landscape heterogeneity and complexity, mechanisms of pattern-process, disturbance impacts on ecosystem processes and functions, ecosystem adaptation and resilience, ecosystem mapping and three dimensional results visualization, and balancing landscape multiple values and services in multi-dimensional decision space for policy implications at different temporal and spatial scales. His research covers: effects of natural and anthropogenic disturbances on forest ecosystem carbon cycling; climate change and ecosystem resilience; GIS applications in landscape ecology; remote sensing and environments; mechanisms of ecosystem processes, functions, and environments; ecosystem modeling.

BRAD SEELY

Research Associate
Faculty of Forestry, University of British Columbia
E-mail: brad.seely@ubc.ca

BIOGRAPHY

Dr. Seely is a Research Associate at UBC. He received his PhD in terrestrial ecology at Boston University, Massachusetts, U.S.A in 1996. Using his expertise in modeling forest sustainability and water/nutrient interactions in forests, he currently focuses on modelling the relationship between climate and tree growth and working to develop landscape-level ecosystem management forest models: LLEMS. Dr. Seely also contributed to the publication of the book: Forecasting Forest Futures: A Hybrid Modelling Approach to the Assessment of Sustainability of Forest Ecosystems and their values.

TONGLI WANG

Associate Director
Faculty of Forestry, University of British Columbia
E-mail: tongli.wang@ubc.ca

BIOGRAPHY

Dr. Wang is a Research Associate in the University of British Columbia's Department of Forest and Conservation Sciences and Assistant Director of the Centre for Forest Conservation Genetics at the University of British Columbia. Dr. Wang has been working on several climate changes related studies. His major research interests include: 1) developing climate models; 2) projecting bio climate envelopes of ecosystems and species ranges for future climates; 3) building climate response functions for tree populations; and 4) developing climate-based seed transfer systems. The output of these studies has served as part of the basis for this project. Tongli has modeled BC ecosystems and species ranges using climate variables and has projected the shifts in their bio climate envelopes for future periods. These models are critical for climate change impact assessments and for developing adaptive forest resource management strategies.

SALLY N AITKEN

Forest Genetics
Faculty of Forestry, University of British Columbia
E-mail: Sally.Aitken@ubc.ca

BIOGRAPHY

Sally N. Aitken is a Professor in the Department of Forest and Conservation Sciences and Director of the Centre for Forest Conservation Genetics at the University of British Columbia. She studies the population, conservation, and ecological genetics and genomics of forest trees. She is fascinated by the capacity of tree species to adapt to local conditions across large and ecologically heterogeneous ranges, and for individual trees to tolerate considerable temporal variation in climate over centuries or millennia, and investigates the capacity of populations to adapt genetically to projected future climates. She completed her PhD at the University of California, Berkeley and was a faculty member at Oregon State University prior to joining the Faculty of Forestry at UBC. She teaches forest biology, alpine ecology and conservation genetics, and is involved in forest genetic conservation initiatives in North America and Europe. Sally is happiest when outside traipsing around British Columbia's mountains and forests.

CRAIG NITSCHKE

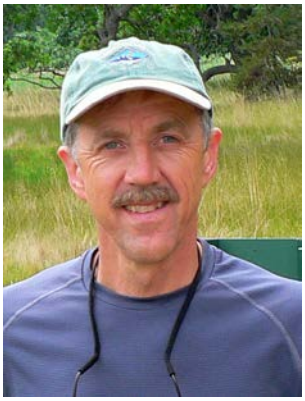
Research Fellow in Forests Vulnerability to Climate Change
Department of Forest and Ecosystem Science,
The University of Melbourne
E-mail: craign@unimelb.edu.au

BIOGRAPHY

Dr. Nitschke is a Research Fellow in Forests Vulnerability to Climate Change, Department of Forest and Ecosystem Science, The University of Melbourne, Australia. He completed his B.Sc.F. (Hons) in Forest Resources Management in 2000 and his Ph.D. in Forest Vulnerability and Sustainable Forest Management under Climate Change in 2006 from the UBC.

After completing his Ph.D. in 2006, Dr. Nitschke went on to work on a 6 month postdoc investigating the cumulative impacts of resource development on biodiversity in northeast British Columbia, Canada. He then worked on another 6 month postdoc at the University of Melbourne where he developed a theoretical model to assess the vulnerability of Victorian tree species to climate change. Following this postdoc he returned to British Columbia, Canada where he has been involved in several research projects that relate to assessing the vulnerability of tree species and ecosystems to climate change and investigating alternative strategies for managing forests under climate change.

From 2007 to current, Dr. Nitschke has worked as an adjunct research with a non-government research organisation (Bulkley Valley Research Centre) in British Columbia conducting climate change vulnerability research on sub-boreal ecosystems. Since 2008 he has worked as a Research Associate with the University of British Columbia on a project investigating the ecology and role of disturbance in increasing the sensitivity of forest ecosystems in the southwest Yukon, Canada to recent and predicted climate change.



JACK WOODS

FGC Program Manager
E-mail: jwoods.fgc@shaw.ca

BIOGRAPHY

Jack Woods is currently the Program Manager for the Forest Genetics Council of BC (FGC), a cooperative that includes the government of the Province of British Columbia (BC), Canada, forest companies operating in BC, universities and the Canadian Forest Service, a department of the Federal Government. The Council oversees business planning for forest genetic resource management activities in BC and provides a forum for stakeholders to interact for the efficient delivery of provincial programs. Jack also leads SelectSeed Ltd., a company that is wholly owned by the Forest Genetics Council. SelectSeed has interest in 14 seed orchards sells genetically selected tree seed for use in BC. Prior to joining the FGC and SelectSeed, Jack was a scientist and tree breeder with the BC Forest Service, with responsibility for the coastal Douglas-fir breeding program. Jack is involved with all aspects of forest genetics resource management in BC, from research planning to the delivery of tree seed to operations. He is also involved with provincial policy development through the Forest Genetics Council.

GUANGYU WANG

Director and Asia Research Associate
Faculty of Forestry, University of British Columbia
E-mail: guangyu.wang@ubc.ca

BIOGRAPHY

Dr. Wang is a Director of Asian Strategies in the Faculty of Forestry. His current research is focused on sustainable forest management and integrated watershed management by using GIS and computer modeling. He has completed several research project on watershed scale forest restoration and sustainable development projects, where he has used system dynamic approaches, bioregional assessments, geography information systems (GIS), and satellite remote sensing (SRS) techniques analyzing the mechanisms of ecosystem degradation, and modelling the all over land use management. A computerized optimized model has been developed to define the parameters of water quality and quantity, soil erosion and productivity, biodiversity, and societal satisfaction–to estimate the result of various applications of land use patterns, silvicultural systems, and forest practice techniques in the watershed.

As a business professional for many years in China and the US, He is also interested in strategic planning, financial management, marketing promotion, and project management. He has successfully completed several marketing, investment and development projects, and initiated several promotional events for multi-national forestry companies entering China's market.

Gengeral Information

Asia-Pacific Network for Sustainable Forest Management and Rehabilitation (APFNet)

The establishment of the Asia-Pacific Network for Sustainable Forest Management and Rehabilitation (APFNet), proposed by China and co-sponsored by Australia and the United States, was agreed by the 15th APEC Economic Leaders' Meeting in September 2007 in Sydney, incorporated in its Sydney Declaration and formally launched in 2008.

The vision of APFNet is to expand forest cover and improve forest ecosystem quality in Asia and the Pacific to promote the multiple functions of forests, help mitigate and adapt to climate change and meet the changing socio-economic and environmental needs of the region. The mission of APFNet is to help promote and improve sustainable forest management and rehabilitation.

The APFNet secretariat is initially hosted by China and based in Beijing and provides technical and administrative support for APFNet. APFNet implements its mandate in the Asia-Pacific region through capacity-building, information-sharing, regional policy dialogues and pilot projects.

As a main component of the capacity building program, APFNet develops annual thematic trainings respectively in July and November since 2009, under two thematic training domains, i.e. "Forestry and Rural Development" and "Forest Resource Management". Those trainings aim to share knowledge, technical skills and practical experiences and provide a platform for regional forestry officials to interact with leading experts on innovations in forest science, policy and practices.

Please refer to www.apfnet.cn for more information of APFNet.

APFNet Kunming Training Center (APFNet- KTC)

APFNet Kunming Taining Center (APFNet-KTC) was established in Southwest Forestry University (SWFU), November 2012, with the supports from State forestry administration of China and Aisa-Pacific Network for Sustainable Forest Management and Rehabilitation (APFNet). APFNet-KTC operates under the direct lead of APFNet and SWFU, launches a series of workshop and trainings which focusing on forest rehabilitation and sustainable management in Asia-pacific region, the aim is to share successful experiences among Asia-pacific countries, prop up regional collaborative programs which originate from the framework of Asia-pacific Forest Rehabilitation and Sustainable Management Organization in the future. Besides, APFNet-

KTC will establish and consolidate international communication and dialogue channel within Asia-Pacific region, promote forest rehabilitation and sustainable operation, diminish forest destruction and degradation, facilitate economic development in forest regions, achieve the goals in Sydney Declaration, collectively unleash the vital effect of forest in coping with global climate change.

The establishment of APFNet-KTC will build a platform for communication, understanding, learning and friendship among Asia-pacific countries, and propels forest rehabilitation and sustainable development in the region.

Southwest Forest University (SWFU)

Southwest Forestry University (SWFU) (http://www.swfc.edu.cn/) was initially founded as the Department of Forestry in Yunnan University in 1939. Following the establishment and merger of Kunming College of Agriculture and Forestry and Yunnan Forestry College, Southwest Forestry College was founded as a separate institution in 1978Its campus is located in Kunming City in Yunnan Province. The campus occupies 80 hectares and has an arboretum of 46.2 ha and floor space of 488,600 m^2. . The university's mission is to serve the economic and social development of the Southwest frontier regions of China by focusing on the building of a sound ecological environment and the development of the forestry sector in the region.The university has been a recipient of the awards for "University of Excellence in Campus Greening in Yunnan", "National Advanced Greening Collective Institute", and National Model Institute for Greening Campaign".

In total, the university has nine faculties and five departments which have enrolled 12,463 fulltime students, including 817 students registered for Master's Degree programs and 11,155 for Bachelor's Degree programs. The university has 1,027 faculty members, including 739 instructors of whom 114 are professors, 282 associate professors, 10 mentors for PhD candidates and the rest are adjunct faculty members.

SWFU's fields of study are mainly centered on disciplines relevant to forestry, with special features and excellence in environmental and biological subjects that encompass multidisciplinary degree programs in agriculture, science, engineering, law, arts and management. Its multi-tier education programs include mainly Bachelor's, Master's degrees and PhD, as well as continuing education programs. Also included are higher professional and vocational education programs, together with special programs for international students. The teaching and research competency at SWFU pioneers its peer universities in plateau wetland research, biodiversity and nature conservation, silviculture, forest management, forest protection, bamboo research, and wood science and technology. Unique regional features have developed in the fields of landscape gardening and ecotourism. Outstanding achievements were made in research on birds, fishes and ants.

The university has established cooperative and exchange ties with universities and research institutes in the United States, Canada, France, Germany, Netherlands, Australia, New Zealand, Japan, Thailand, Philippines and Vietnam for joint research and the training of graduate and undergraduate students. Based on reciprocal credit transferrable programs, SWFU has started to develop joint-education programs for undergraduate students based on "2+2" model, as well as exchanging graduate students for field practicum which are mandatory for thesis research with universities in the US, Canada, Netherlands, Thailand and Poland. Joint research and training programs have been conducted in cooperation with the World Wildlife Fund (WWF), the Global Environment Facility (GEF), The Nature Conservancy (TNC), the MacArthur Foundation and the Ford Foundation (FF).

For more details about the university, please visit its web: http://www.swfc.edu.cn/

Faculty of Forestry, University of British Columbia (UBC)

For over 50 years, the University of British Columbia's Faculty of Forestry (http://www.forestry.ubc.ca/), Canada's leading school of Forestry, has strengthened forestry in British Columbia and internationally by providing the best possible resources and conditions for learning and research to help meet the needs of an increasingly knowledge-based forest sector.

The Faculty offers students the choice of five undergraduate programs: natural resources conservation, forest science, forest management, forest operations, and wood products processing. The students may also pursue graduate work in all these areas. With the Faculty's state-of-the-art facilities and more than 550 undergraduate and 260 graduate students currently enrolled in its programs, the Faculty is one of the largest and most recognized schools of forestry and associated studies in the world. Faculty's student body is very international; 13% of the undergraduate students and more than half of the graduate students are international, representing 38 countries.

The Faculty is research intensive with a healthy and expanding graduate program, three departments composed of about 60 faculty members covering a wide and comprehensive range of specialties and disciplines that encompass forestry, broadly defined. The Faculty is presently ranked as the second most research intensive faculty (after medicine) at UBC with external research funding of about $13 million in 2009-2010. Faculty houses several research units that include Forestry faculty members and outside colleagues as integral parts of their operations. **The British Columbia Forum on Forest Economics and Policy** (http://www.bc-forum.org) brings together UBC faculty, visiting scholars, graduate students, community leaders, industry representatives and government and non-government organizations in an unbiased, collaborative environment in which new ideas can be put forward for public discussion & further research. **The Centre for Advanced Wood Processing** (http://www.cawp.ubc.ca/) is Canada's national centre of excellence for education and research related to wood products processing and

advanced wood products manufacturing. CAWP offers a wide range of training courses, continuing education programs, and industry services. **The Centre for Applied Conservation Research** (http://cacr.forestry.ubc.ca/) is a multidisciplinary research centre in applied conservation research which identifies, develops and proposes solutions to interdisciplinary problems in natural resource conservation with innovative, novel and unbiased research and stakeholder engagement. Membership includes more than 70 faculty, research scientists, and graduate students covering a broad mandate incorporating ecological, biological, and social sciences and economics into applied conservation research. **Sustainable Forest Management Research Group** (http://sustain.forestry.ubc.ca) fosters innovative research on various topics related to sustainable forestry throughout the world. All aspects of management are considered, ranging from ecological to social and economic issues. Graduate students come from a variety of academic disciplines, currently including Canada, France, India, Russia, China, Australia, Korea, Switzerland, Nepal and the USA. Our **Collaborative for Advanced Landscape Planning** (http://www.calp.forestry.ubc.ca/) group works with community planners and stakeholders to determine how various climate change related challenges can be faced, and what a low carbon community might look like. The group is developing a process that communities could use for envisioning and assessing local futures with climate change. **The Forest Products Biotechnogy Group** is developing technologies to produce wood-based second generation transportation biofuels, which have the potential to significantly reduce the ecological impact of the transportation sector. **The Integrated Remote Sensing Studio (**http://www.forestry.ubc.ca/irss) has a number of projects integrating remote sensing imagery with stand-level simple physiological growth models. These projects produce landscape predictions, of the potential and actual forest growth to provide consistent estimates of timber yield baselines and future forest volume.

Our faculty is world renown in their fields of expertise. Our Dean John Innes, Werner Kurz and Stewart Cohen were awarded a share of the 2007 Nobel Peace Prize for their work as members of the Intergovernmental Panel on Climate Change. Professor and former Dean Jack Saddler, advises policy-makers at the highest levels in bioenergy issues; he contributes significantly to the work of the UN's Food and Agricultural Organization (FAO), the US DoE, USDA and the International Energy Agency (IEA). Adjunct Professor Hosny El Lakany, former Assistant Director-General of FAO, remains involved with international forestry issues through many boards and advisory bodies (CIFOR, ICRAF, WORLD BANK). Professor Gary Bull builds models for introducing ecosystems services payments in Mozambique, China and Afghanistan.

Professor Rob Kozak explores conservation-based business and tenure models for forest dependent communities in West and Central Africa.

The faculty operates three Research Forests: The Malcolm Knapp Research Forest near Maple Ridge on the coast, the Alex Fraser Research Forest near Williams Lake in the central interior of BC and the Aleza Lake Research Forest, near Prince George (jointly operated with the University of Northern British Columbia). The mission of the Research Forests is to support the Faculty of Forestry, other partner universities and research organizations in serving the people of BC through teaching and research. This is accomplished by hosting research from a variety of disciplines in order to create teaching opportunities for students from UBC, other post-secondary institutions and continuing education programs.

Faculty has a wealth of experience in organizing international training and events. In May 2007, our International Land and Resource Management Symposium brought together over 150 delegates from around the world to discuss new approaches, share best practices and to explore how collective experiences might inform new processes to transform discussion on participatory land use planning into action. In December 2008, Faculty joined China Forestry Education Association, the Beijing Forestry University, and the International Partnership for Forestry Education (IPFE) to organize International Symposium on Forestry Education and the 1st Training Forum on Forestry Education in China (Beijing). The symposium gathered senior level administrators from more than thirty Chinese universities, five Canadian university forestry schools and representatives from other universities internationally (USA, Finland, Australia, Malaysia, Venezuela, Indonesia) to discuss problems facing post-secondary forestry education and possibilities to share our combined expertise. A follow-up symposium was organized in May 2010 in Vancouver at the University of British Columbia with 45 universities participating from 13 countries. In August 2009, UBC Faculty of Forestry organized an International Energy Agency conference which brought together 250-300 scientists, policy makers and industry representatives from around the world and featured presentations from international experts in bioenergy technology, policy, and strategy. Our Centre for Advanced Wood Processing (CAWP) is currently doing a capacity building project in South Africa, which is funded by Canadian International Development Agency (CIDA). The project is a collaborative relationship between CAWP, South African University partners, and local industry and government. The project's ultimate goals are to increase employment in the value-added wood processing sector and cause a shift from the export of lumber in an unprocessed form to the export of more highly-manufactured products.

For more details about the faculty, please find our annual reports at: http://www.forestry.ubc.ca/Publications/AnnualReport/

Kunming and Field Trip Locations

Yunnan Province

Yunnan is the most Southwestern province in China, with the Tropic of Cancer running through its southern part. The province has an area of 394,100 square kilometres, 4.1% of the nation's total. The northern part of the province forms part of the Yunnan-Guizhou Plateau. The province borders Guangxi and Guizhou in the east, Sichuan in the north, and the Tibet Autonomous Region in the northwest. It shares a border of 4,060 kilometres with Burma in the west, Laos in the south, and Vietnam in the southeast.

Yunnan has a generally mild climate with pleasant and fair weather because of the province's location on south-facing mountain slopes, receiving the influence of both the Pacific and Indian oceans, and much of the province lies within the subtropical highland or humid subtropical zone, with mild to warm winters, and tempered summers, except in the almost tropical south, where temperatures regularly exceed 30 °C in the warmer half of the year. In general, January average temperatures range from 8 to 17 °C; July averages vary from 21 to 27 °C. Average annual rainfall ranges from 600 to 2,300 millimetres, with over half the rain occurring between June and August. The plateau region has moderate temperatures. The western canyon region is hot and humid at the valley bottoms, but there are freezing winds at the mountaintops.

The terrain of Yunnan is largely mountainous, especially in the north and west. A series of high mountain chains spreads across the province. There is a distinct canyon region to the west and a plateau region to the east. Yunnan's major rivers flow through the deep valleys between the mountains.The average elevation of Yunnan is 1,980 metres. The highest point in the north is the Kawagebo Peak in Deqin County on the Diqing Plateau, which is about 6,740 m; and the lowest is in the Red River Valley in Hekou County, near the Vietnamese border, with an elevation of 76.4 m.

The eastern half of the province is a limestone plateau with karst scenery and unnavigable rivers flowing through deep mountain gorges; the western half is characterized by mountain ranges and

rivers running north and south. These include the Nujiang (Salween river) and the Lancangjiang (Mekong river). The rugged, vertical terrain produces a wide range of flora and fauna, and the province has been called a natural zoological and botanical garden.

Yunnan is China's most diverse province, biologically as well as culturally. The province contains snow-capped mountains and true tropical environments, thus supporting an unusually full spectrum of species and vegetation types. During summer, the Great Plateau of Tibet acts as a barrier to monsoon winds, trapping moisture in the province. This gives the alpine flora in particular what one source has called a "lushness found nowhere else."

This topographic range combined with a tropical moisture sustains extremely high biodiversity and high degrees of endemism, probably the richest botanically in the world's temperate regions. Yunnan Province has less than 4% of the land of China, yet contains about half of China's birds and mammals, and about 17,000 species of higher plants, of which an estimated 2,500 are endemic, can be found in the province. The province is said to have "as much flowering plant diversity as the rest of the northern hemisphere put together".

Kunming City

Kunming, the capital of Yunnan Province, dates back to a history of more than 2400 years and owes its importance as the gateway to the celebrated Silk Road that facilitated trade with Tibet, Sichuan, Myanmar and India. Today, the city is the political, economical and cultural center of Yunnan and the provincial center for transport, science and technology. Consequently, it has become the most popular spot for tourism in Southwest China. Kunming enjoys a pleasant climate and does its best to live up to its title of 'the City of Eternal Spring'. The average temperature is expected to be 18°C~26℃ during the season of the training workshop, with slightly lower temperatures in the morning and evening.

Some 26 ethnic minorities such as Yi, Bai, Miao, Dai, Hani inhabit the region and each group has its own festivals - the Torch Festival and the Golden Temple Fair, for example. The hugely successful 1999 International

Horticultural Exposition enhanced Kunming's influence in the world and, as a result, more and more foreigners come to discover this enchanting part of China. Its alluring highland scenery, bewitching karst landform, varied and exotic habitats and customs, and places of historical interest can be found at major scenic spots such as Dianchi Lake, Stone Forest, the Village of Ethnic Culture, and Grand View Pavilion. Kunming is also renowned for many delicious local dishes, the most famous being Across the Bridge Rice Noodles and Xuanwei Ham. You can enjoy them both at local restaurants or the night markets where you will find many pubs, bars and cafes that serve good quality meals.

Pu'er City

Pu'er City is situated in Southwest region of Yunnan Province and administers one district and nine counties over a jurisdiction area of 45,385 km2. It is the largest prefecture in Yunnan in terms of area. Pu'er City is 470 km from Kunming. Pu'er Prefecture borders the Laos and Vietnam in the Southeast and adjoins Myanmar in the Southwest, sharing an international border of 625 km with these countries. The Lancang (Mekong) River, Red River and Nankang River flow to the neighboring countries. A significant segment of the famous Southern Silk Road traverses Pu'er City. The total population of Pu'er Municipality is 2.37 million, of which 1.44 million are ethnic minority peoples, accounting for 61% of the total. There are 36 ethnic minorities in the prefecture and 14 of whom are indigenous inhabitants, which include mainly the Hani, Yi, Dai, Lahu, Wa, Bulang and Yao peoples. It is an important production area of the renowned Pu'er Tea and one of the largest tea production areas in China.

Distributed within the territories of Pu'er Municipality are vast undulating mountains that occupy 98.3% of its landscape. Due to its proximity to the Tropics of Cancer and an integrative impact of the physiognomy and varying elevation gradient from 376 to 3,306 meters, distinctive vertical climate zones are widespread in the region. Being located at the same latitude with that of Cuba in Central America and Taiwan Province of China and as a result of its location on the transient area between the northern and southern bio-geographic regions, its landscape has long been reputed as "a magic natural museum" which is composed of mainly species diversity, lush primary forest vegetation, rare and special animals, a broad array of exotic flowers and rare herbs and uplifted landscape that are supplemented by a strong tinge of ethnic cultures, Yi folklores and other indigenous humanistic landscapes.

Hotel Information

Golden Spring Hotel (金泉大酒店 Jin Quan Da Jiu Dian in Chinese pronunciation)
No.93 East Renming Road, Kunming City, Yunnan Province, China.
Tel: (+86)-0871- 63196888

Golden Phoenix Hotel (金凤大酒店 Jin Feng Da Jiu Dian in Chinese pronunciation)

No.8 Middle Renming Road, Pu'er City, Yunnan Province, China.

Tel: (+86)-0879-2138868

Emergency Contact

Police: 110

Ambulance: 120

Contact Persons in Case of Emergency

1、Dr. Zhang Yuan, (+86)-15887084973 (mobile)

2、Prof. Shen Lixin, (+86) 13708468944 (mobile)