

XXIII IUFRO World Congress, Seoul, Korea.

第二十三屆世界林學大會

發表論文題目：

海報發表

The Habitat Spatial Dispersal and Ecological
Invasion of Two Exotic Plants in Taiwan

系所別：生物資源研究所

研究生：魏浚紘

派赴國家：韓國

出國期間：99年8月21~28日

中華民國九十九年九月一日

摘要

國立屏東科技大學生物資源研究所博士生魏浚紘參加第二十三屆世界林學大會(XXIII IUFRO World Congress, Seoul, Korea.)，並以海報發表論文，題目為 The Habitat Spatial Dispersal and Ecological Invasion of Two Exotic Plants in Taiwan(圖 1)。本次會議共 100 多國參與，共分為九個主題(Forests and Climate Change, Biodiversity Conservation and Sustainable Use of Forest Resources, Forest Environmental Services, Asia's Forests for the Future, Forest Products and Production Processes for a Greener Future, Emerging Technologies in the Forest Sector, Frontiers in Forest and Tree Health, Forests, Communities and Cultures and Forests, Human Health and Environmental Security)，共計口頭發表 931 篇，海報發表 1154 篇(圖 2 與表 1)



圖 1 世界林學大會發表海報

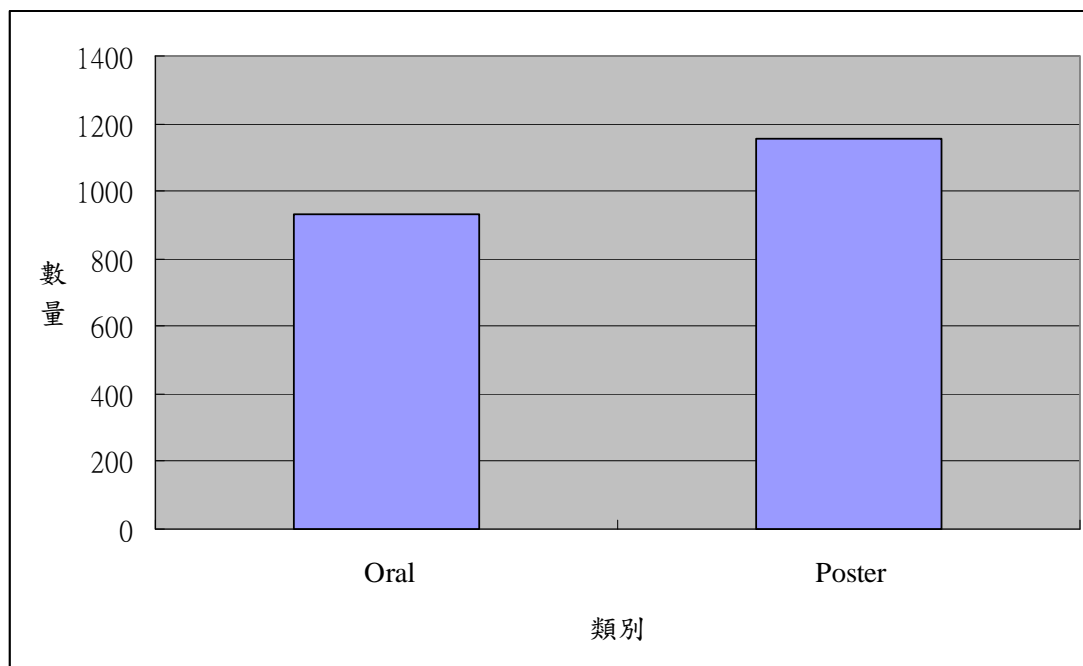


圖 2 世界林學大會發表篇數

表 1 各類別發表數量

類別	數量
Forests and Climate Change	267
Biodiversity Conservation and Sustainable Use of Forest Resources	353
Forest Environmental Services	197
Asia's Forests for the Future	248
Forest Products and Production Processes for a Greener Future	254
Emerging Technologies in the Forest Sector	176
Frontiers in Forest and Tree Health	265
Forests, Communities and Cultures	228
Forests, Human Health and Environmental Security	97

一、目的

世界林學大會每五年舉辦一次，希望藉由本次國際研討會交流，除了可以瞭解目前全球林業趨勢外，亦可將本次研究重點與其他國家學者交流，互相交換意見，並尋求外來合作機會。

二、參加會議經過

2010年8月21~28日於韓國首爾參加第二十三屆世界林學大會，開幕當天除了韓國傳統表演外，韓國總統出席開幕，說明森林對全球暖化與氣候變遷所扮演的重要性，並倡導保護環境的重要(圖3)。



圖3 世界林學大會開幕介紹

本次會議除了九大主題外，更邀請了五位重量級的講者，其中兩位(Un Ko and Elinor Ostrom)於2009年獲得諾貝爾獎(圖4)，藉由他們專業的發表與論述，更可使學生增廣見聞，透過他們獨到的見解使學生瞭解未來林業的發展趨勢。

Keynote Speakers

Dr. Kim Ki
President of the Korean Forest Research Institute (KFORI)
President of the Korean Forest Research Institute (KFORI)

Dr. Francis J. Seymour
Director General of the Centre for International Forestry Research (CIFOR)
Director General of the Centre for International Forestry Research (CIFOR)

Dr. John Joseph Carbon
Director General of the Tropical Agricultural Research and Development Centre for Asia (TARDEC)
Director General of the Tropical Agricultural Research and Development Centre for Asia (TARDEC)

Dr. Elmar Osterwald
President of the International Union of Forest Research Organizations (IUFRO)
President of the International Union of Forest Research Organizations (IUFRO)

Dr. Peter Brian Ashton
Director General of the Forest Research Institute of New Zealand (FRINZ)
Director General of the Forest Research Institute of New Zealand (FRINZ)

Dr. Yoon Gook
President of the Korean Forest Research Institute (KFORI)
President of the Korean Forest Research Institute (KFORI)

The world's largest 'low-carbon, green growth' IUFRO festival

The World became One by Korea forest



A view of the main hall of the IUFRO festival in the Convention Center, Seoul, Korea, during the IUFRO festival.

President Lee, Myung-bak
Keynote (summary)

President Lee Myung-bak delivered a keynote address at the IUFRO festival, which is the most significant event in the history of the International Union of Forest Research Organizations (IUFRO). He stressed the importance of forests in achieving sustainable development and the role of forests in addressing climate change.

President Lee said that forests are not only a source of timber and other forest products, but also a vital part of the environment. He emphasized the need for sustainable forest management and the role of forests in providing ecosystem services, such as carbon sequestration, water regulation, and biodiversity conservation.

President Lee also highlighted the importance of international cooperation in forest management and the role of the IUFRO festival in promoting such cooperation. He expressed his confidence that the festival would be a success and that it would contribute to the achievement of the United Nations Millennium Development Goals.

The IUFRO festival is the largest international gathering of forest researchers and practitioners from around the world. It provides a unique opportunity for researchers to share their latest findings and discuss the challenges facing the forest sector. The festival also features a variety of activities, including workshops, seminars, and exhibitions, which provide a platform for researchers to network and collaborate.

The IUFRO festival is organized by the International Union of Forest Research Organizations (IUFRO), a global organization of forest researchers and practitioners. The festival is held in a different country every two years, and it is a major event in the forest research community.

The IUFRO festival is a major event in the forest research community, and it provides a unique opportunity for researchers to share their latest findings and discuss the challenges facing the forest sector. The festival also features a variety of activities, including workshops, seminars, and exhibitions, which provide a platform for researchers to network and collaborate.

The IUFRO festival is organized by the International Union of Forest Research Organizations (IUFRO), a global organization of forest researchers and practitioners. The festival is held in a different country every two years, and it is a major event in the forest research community.

圖 4 世界林學大會重大議題-減碳與綠色發展

本次九大主題(附件 1)以生物多樣性保育與永續利用森林資源本項發表數量最多共計 353 篇，其次為氣候變遷與森林、森林健康與綠色林產品發展與未來，學生本次發表的內容主要以外來種入侵為主(圖 5)，國際間對於全球暖化與氣候變遷所延伸出外來種入侵的議題所佔比例也相當高，氣候變遷造成各國高山植物不斷向上推移，面積減少，更使外來種入侵現象更為嚴重，以台灣為例，溫度以及雨量的改變，使銀合歡與蔓澤蘭影響台灣的方式也發生改變。

Posters proving to be a feast for the eyes



More than 1,100 posters add splashes of color - and reams of scientific knowledge - to the main Congress hall after delegates hung them for viewing yesterday. They will remain up all week long.



圖 5 海報會場一隅

學生另一部分研究是以遙測技術為主，本次會議亦有注意相關內容，包括目前遙測航測趨勢與發展與空載與地面光達發展趨勢與應用

面，發現本次會議以光達為主題的共有 27 篇包括空載光達與地面光達，兩者在應用上因尺度的不同，所研究的範疇也會有所差異，主要應用包括碳蓄積、高精度數位高程模型、萃取樹高樹冠等相關議題，未來若還有相關研討會，一定會在參加，使自己能夠不斷提昇能力。

三、與會心得

聽了許多場次報告者專業的報告後，學生覺得在專業知識及技術方面還有許多進步空間，學生將未來求學生涯分成三階段來一一實行。加強閱讀英文書籍、加強文法與說的能力，並增加自己英文字彙，考托福、多益與全民英檢等相關考試，多閱讀生物相關文章，期許自己在日常英文與生物相關方面多加增進。除了加強英文以外，也要主動與老師互動，在遇到瓶頸時，與師長進行解決方法之討論，尋求最好的解決方法。未來希望可以將所研究針對森林資源調查著手，利用先進遙測技術，希望可以更快獲得資訊、節省人力與物力，未來希望可以加入農業相關究行列，讓我更瞭解目前社會所需要的自然知識及教育，配合森林資源多目標經營之發展趨勢，培育林木、遊憩及野生動物資源等之經營管理訓練後，使自己能夠發揮所學專長，讓森林資源發揮永續性、公益性及經濟性之最大效益。



圖 6 世界林學大會會場一隅

四、考察參觀活動

DMZ(Demilitarized Zone)非武裝地帶，位於南北韓交界北緯 38 度線所在地，雙方在 1953 年韓戰結束後，簽署停戰協議，南北雙方各向後撤退 2 公里，形成一條寬 4 公里東西長 250 公里的非武裝地帶，當地屬於共同警戒區，包括十幾個國家共同駐守，故當地受到人為干擾的程度較低，成就了高度的生物多樣性，成為當地一個特殊的景象。



五、建議

感謝恩師陳朝圳教授讓學生有機會可以參加本次國際研討會，也感謝教育部及本校在經費方面的補助交通費(9,000 元)，使學生能順利參與 2010 世界林學大會。本次大會不僅讓學生在專業知識上有更深入的瞭解，讓學生瞭解到目前世界林業上的發展趨勢，除了在增廣見聞外，更學習到許多報告及解說的技巧，使學生不會再畏懼用英文報告與回答，未來若還有機會上台發表，必會發揮所學。整體而言，本次研討會圓滿落幕，對學生而言獲益良多，受用無窮。

六、攜回資料名稱及內容

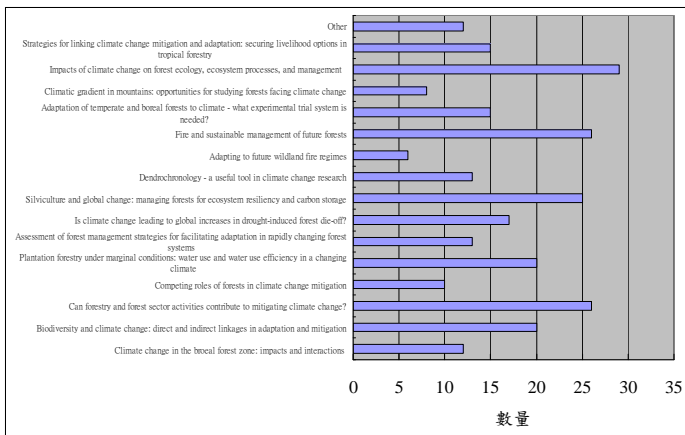
第二十三屆世界林學大會論文集摘要、論文集光碟、相關海報與書籍。



附件 1

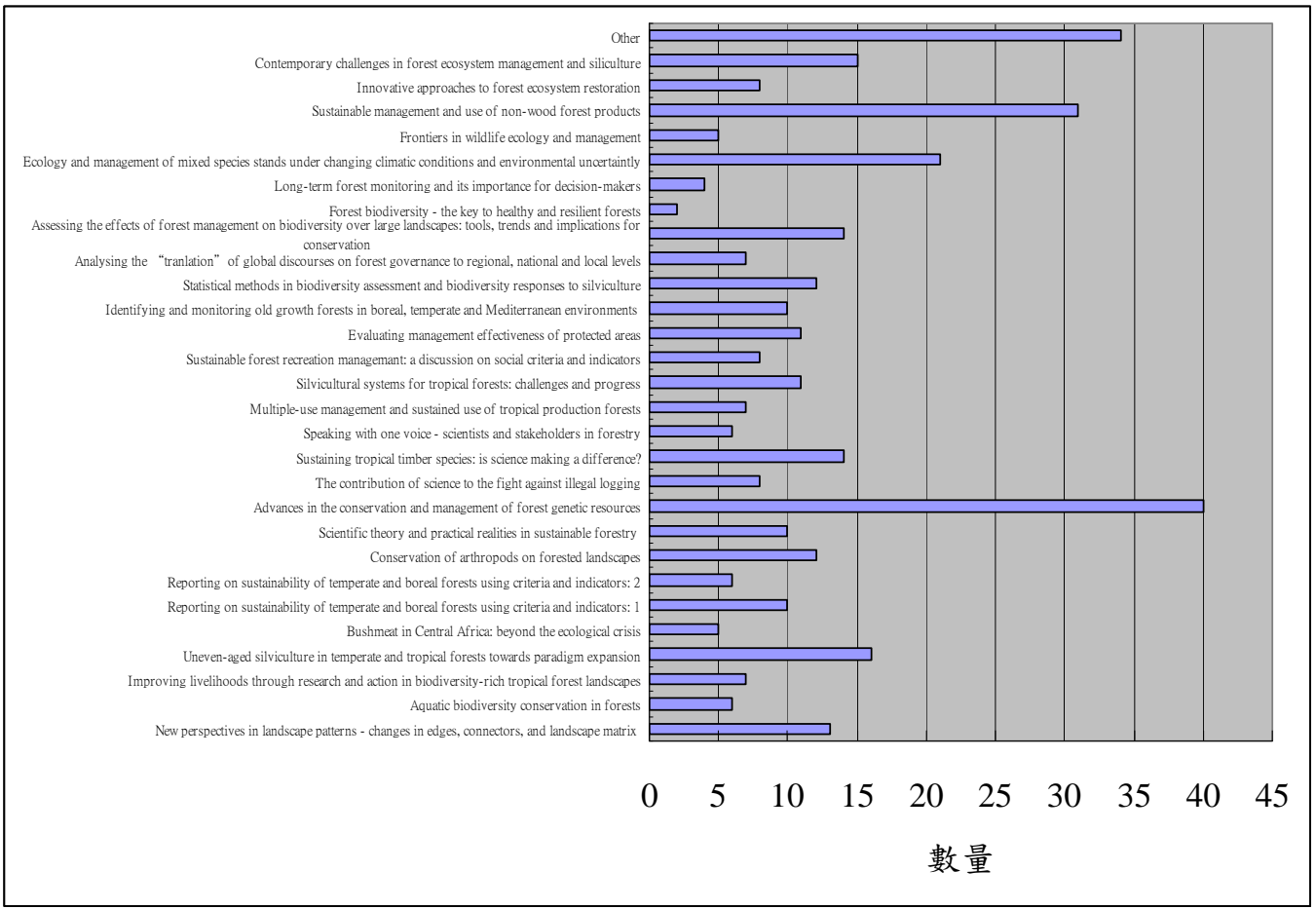
Theme A: Forests and Climate Change

Theme A: Forests and Climate Change	Oral	Poster	Total
Climate change in the boreal forest zone: impacts and interactions	9	3	12
Biodiversity and climate change: direct and indirect linkages in adaptation and mitigation	12	8	20
Can forestry and forest sector activities contribute to mitigating climate change?	6	20	26
Competing roles of forests in climate change mitigation	7	3	10
Plantation forestry under marginal conditions: water use and water use efficiency in a changing climate	8	12	20
Assessment of forest management strategies for facilitating adaptation in rapidly changing forest systems	6	7	13
Is climate change leading to global increases in drought-induced forest die-off?	13	4	17
Silviculture and global change: managing forests for ecosystem resiliency and carbon storage	8	17	25
Dendrochronology - a useful tool in climate change research	7	6	13
Adapting to future wildland fire regimes	6	0	6
Fire and sustainable management of future forests	8	18	26
Adaptation of temperate and boreal forests to climate - what experimental trial system is needed?	7	8	15
Climatic gradient in mountains: opportunities for studying forests facing climate change	6	2	8
Impacts of climate change on forest ecology, ecosystem processes, and management	7	22	29
Strategies for linking climate change mitigation and adaptation: securing livelihood options in tropical forestry	5	10	15
Other	0	12	12
total	115	152	267



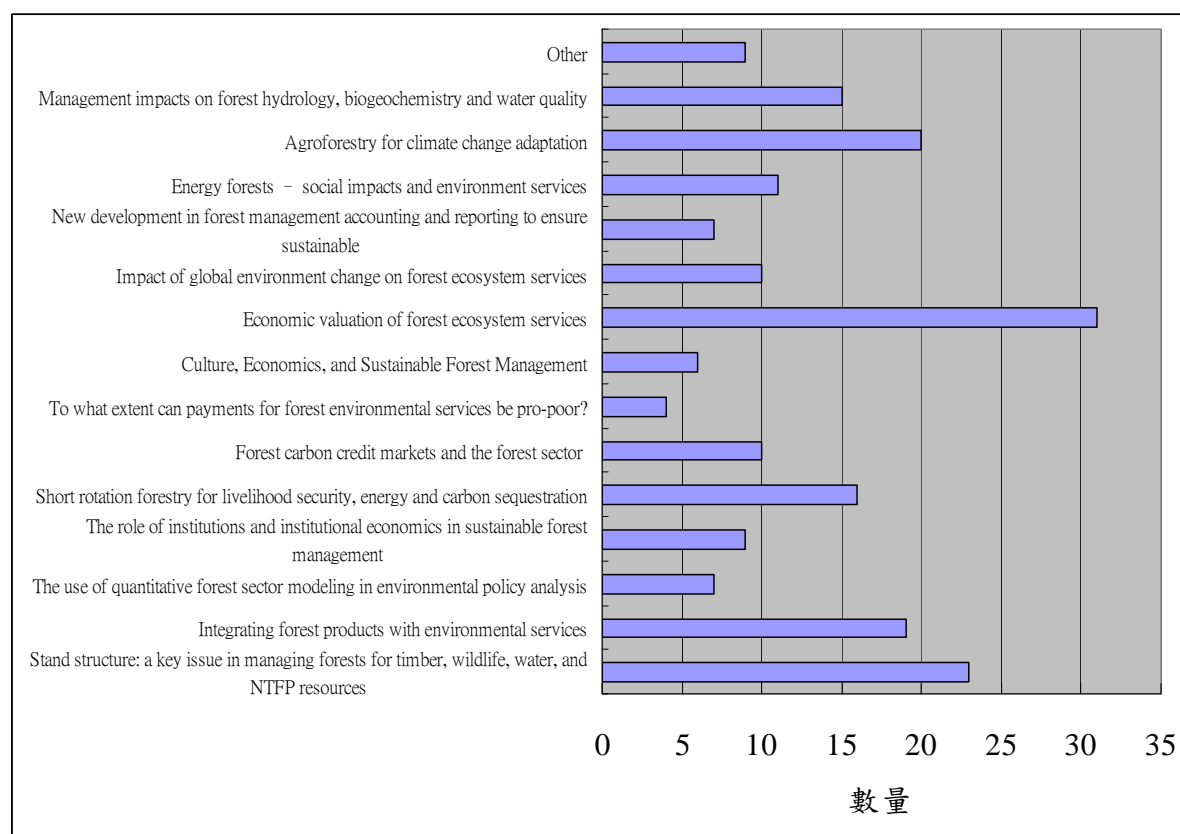
Theme B: Biodiversity Conservation and Sustainable Use of Forest Resources

Theme B: Biodiversity Conservation and Sustainable Use of Forest Resources	Oral	Poster	Total
New perspectives in landscape patterns - changes in edges, connectors, and landscape matrix	8	5	13
Aquatic biodiversity conservation in forests	4	2	6
Improving livelihoods through research and action in biodiversity-rich tropical forest landscapes	7	0	7
Uneven-aged silviculture in temperate and tropical forests towards paradigm expansion	8	8	16
Bushmeat in Central Africa: beyond the ecological crisis	5	0	5
Reporting on sustainability of temperate and boreal forests using criteria and indicators: 1	6	4	10
Reporting on sustainability of temperate and boreal forests using criteria and indicators: 2	3	3	6
Conservation of arthropods on forested landscapes	7	5	12
Scientific theory and practical realities in sustainable forestry	7	3	10
Advances in the conservation and management of forest genetic resources	14	26	40
The contribution of science to the fight against illegal logging	7	1	8
Sustaining tropical timber species: is science making a difference?	7	7	14
Speaking with one voice - scientists and stakeholders in forestry	3	3	6
Multiple-use management and sustained use of tropical production forests	7	0	7
Silvicultural systems for tropical forests: challenges and progress	6	5	11
Sustainable forest recreation management: a discussion on social criteria and indicators	6	2	8
Evaluating management effectiveness of protected areas	6	5	11
Identifying and monitoring old growth forests in boreal, temperate and Mediterranean environments	8	2	10
Statistical methods in biodiversity assessment and biodiversity responses to silviculture	6	6	12
Analysing the “translation” of global discourses on forest governance to regional, national and local levels	4	3	7
Assessing the effects of forest management on biodiversity over large landscapes: tools, trends and implications for conservation	7	7	14
Forest biodiversity - the key to healthy and resilient forests	0	2	2
Long-term forest monitoring and its importance for decision-makers	4	0	4
Ecology and management of mixed species stands under changing climatic conditions and environmental uncertainty	8	13	21
Frontiers in wildlife ecology and management	4	1	5
Sustainable management and use of non-wood forest products	5	26	31
Innovative approaches to forest ecosystem restoration	5	3	8
Contemporary challenges in forest ecosystem management and silviculture	4	11	15
Other	0	34	34
Total	166	187	353



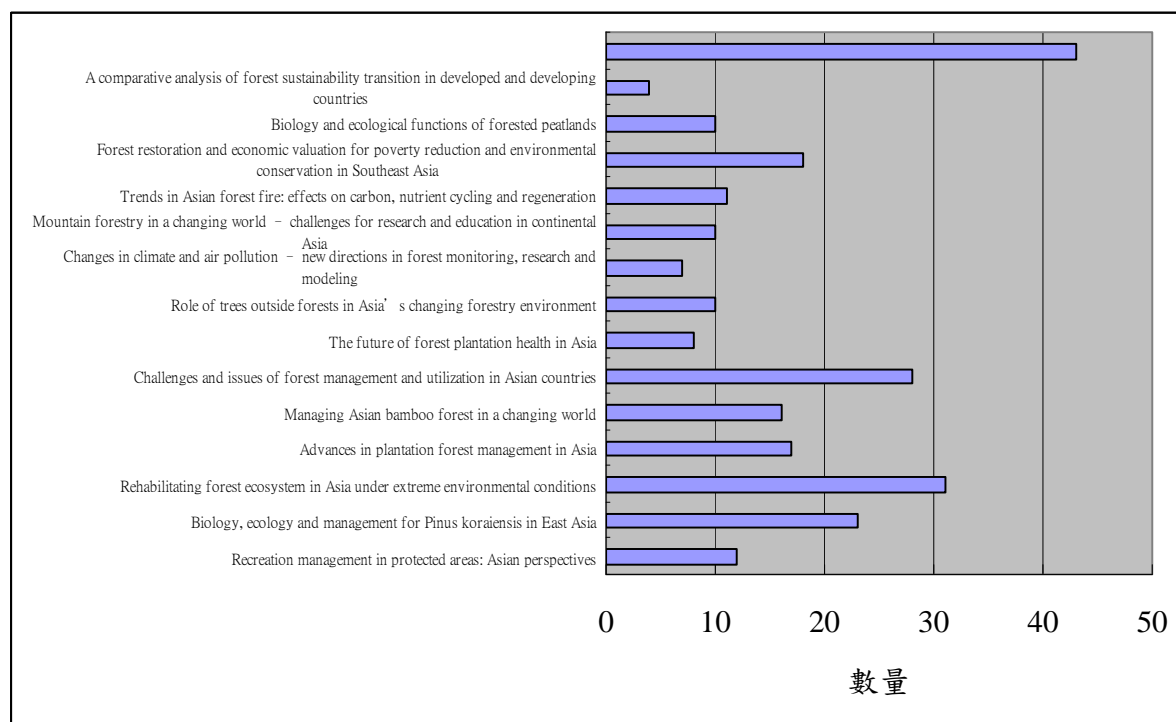
Theme C: Forest Environmental Services

Theme C: Forest Environmental Services	Oral	Poster	Total
Stand structure: a key issue in managing forests for timber, wildlife, water, and NTFP resources	12	11	23
Integrating forest products with environmental services	7	12	19
The use of quantitative forest sector modeling in environmental policy analysis	6	1	7
The role of institutions and institutional economics in sustainable forest management	5	4	9
Short rotation forestry for livelihood security, energy and carbon sequestration	7	9	16
Forest carbon credit markets and the forest sector	7	3	10
To what extent can payments for forest environmental services be pro-poor?	4	0	4
Culture, Economics, and Sustainable Forest Management	4	2	6
Economic valuation of forest ecosystem services	17	14	31
Impact of global environment change on forest ecosystem services	6	4	10
New development in forest management accounting and reporting to ensure sustainable	4	3	7
Energy forests – social impacts and environment services	8	3	11
Agroforestry for climate change adaptation	9	11	20
Management impacts on forest hydrology, biogeochemistry and water quality	6	9	15
Other	0	9	9
Total	102	95	197



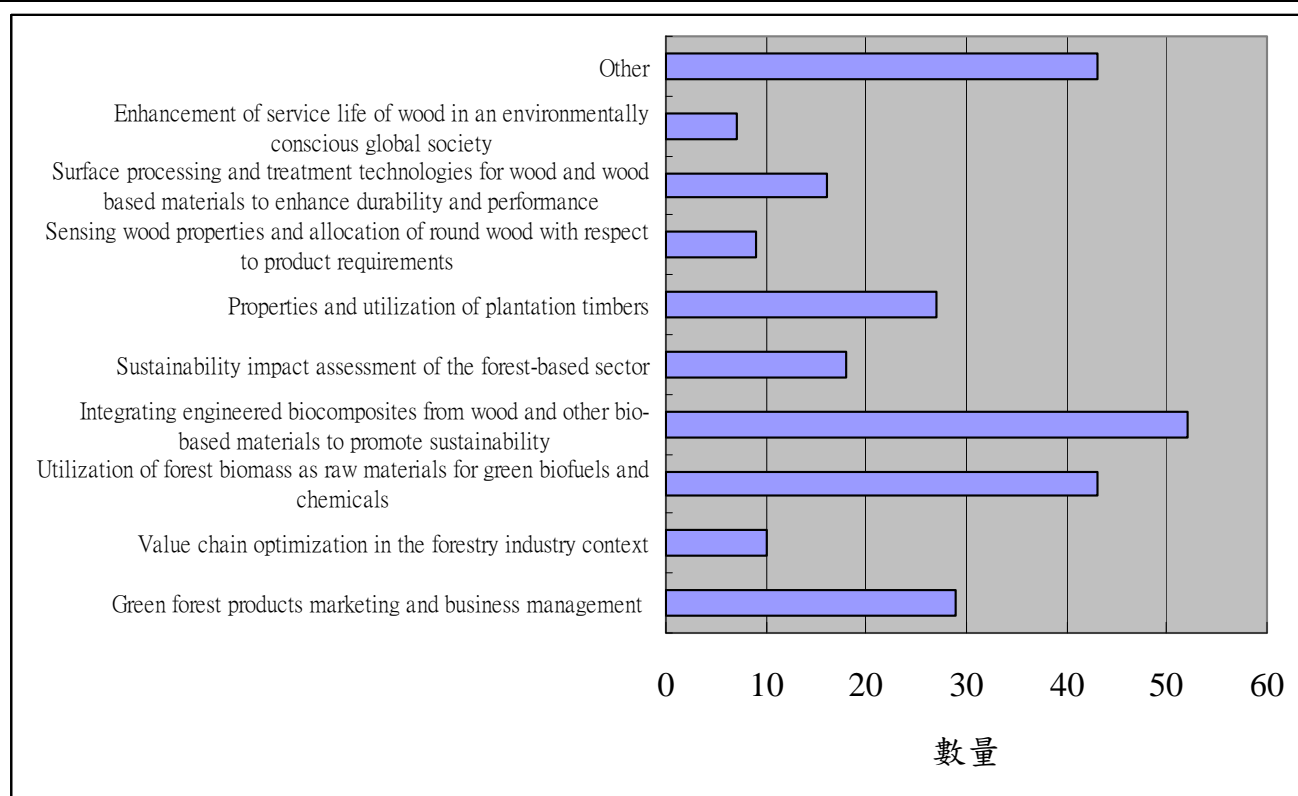
Theme D: Asia's Forests for the Future

Theme D: Asia's Forests for the Future	Oral	Poster	Total
Recreation management in protected areas: Asian perspectives	7	5	12
Biology, ecology and management for <i>Pinus koraiensis</i> in East Asia	11	12	23
Rehabilitating forest ecosystem in Asia under extreme environmental conditions	7	24	31
Advances in plantation forest management in Asia	7	10	17
Managing Asian bamboo forest in a changing world	6	10	16
Challenges and issues of forest management and utilization in Asian countries	12	16	28
The future of forest plantation health in Asia	5	3	8
Role of trees outside forests in Asia's changing forestry environment	5	5	10
Changes in climate and air pollution – new directions in forest monitoring, research and modeling	6	1	7
Mountain forestry in a changing world – challenges for research and education in continental Asia	5	5	10
Trends in Asian forest fire: effects on carbon, nutrient cycling and regeneration	9	2	11
Forest restoration and economic valuation for poverty reduction and environmental conservation in Southeast Asia	10	8	18
Biology and ecological functions of forested peatlands	8	2	10
A comparative analysis of forest sustainability transition in developed and developing countries	4	0	4
Other	0	43	43
Total	102	146	248



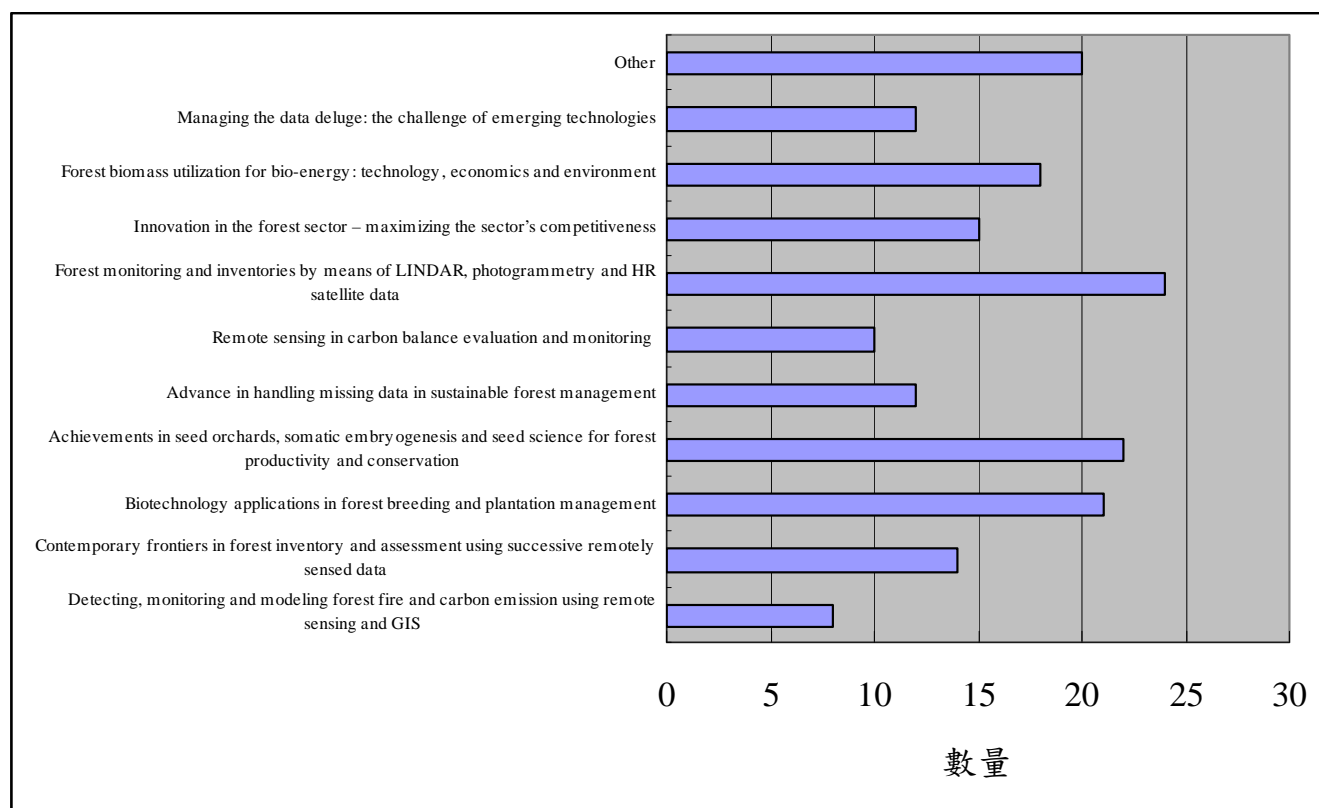
Theme E: Forest Products and Production Processes for a Greener Future

Theme E: Forest Products and Production Processes for a Greener Future	Oral	Poster	Total
Green forest products marketing and business management	13	16	29
Value chain optimization in the forestry industry context	5	5	10
Utilization of forest biomass as raw materials for green biofuels and chemicals	8	35	43
Integrating engineered biocomposites from wood and other bio-based materials to promote sustainability	18	34	52
Sustainability impact assessment of the forest-based sector	8	10	18
Properties and utilization of plantation timbers	5	22	27
Sensing wood properties and allocation of round wood with respect to product requirements	7	2	9
Surface processing and treatment technologies for wood and wood based materials to enhance durability and performance	6	10	16
Enhancement of service life of wood in an environmentally conscious global society	0	7	7
Other	0	43	43
Total	70	184	254



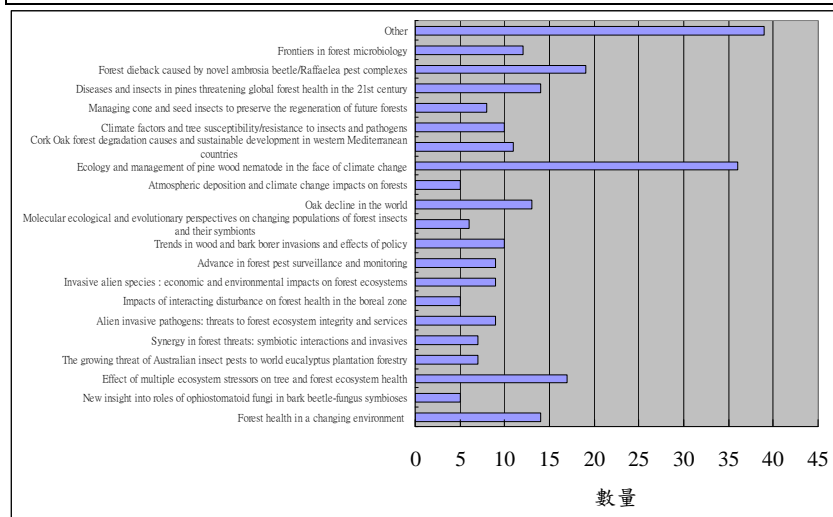
Theme F: Emerging Technologies in the Forest Sector

Theme F: Emerging Technologies in the Forest Sector	Oral	Poster	Total
Detecting, monitoring and modeling forest fire and carbon emission using remote sensing and GIS	5	3	8
Contemporary frontiers in forest inventory and assessment using successive remotely sensed data	9	5	14
Biotechnology applications in forest breeding and plantation management	8	13	21
Achievements in seed orchards, somatic embryogenesis and seed science for forest productivity and conservation	5	17	22
Advance in handling missing data in sustainable forest management	8	4	12
Remote sensing in carbon balance evaluation and monitoring	7	3	10
Forest monitoring and inventories by means of LIDAR, photogrammetry and HR satellite data	12	12	24
Innovation in the forest sector – maximizing the sector’s competitiveness	6	9	15
Forest biomass utilization for bio-energy: technology, economics and environment	4	14	18
Managing the data deluge: the challenge of emerging technologies	7	5	12
Other	0	20	20
Total	71	105	176



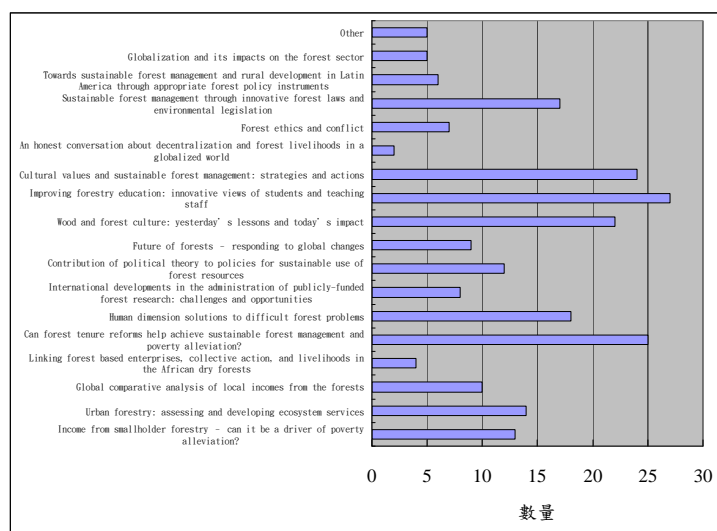
Theme G: Frontiers in Forest and Tree Health

Theme G: Frontiers in Forest and Tree Health	Oral	Poster	Total
Forest health in a changing environment	0	14	14
New insight into roles of ophiostomatoid fungi in bark beetle-fungus symbioses	5	0	5
Effect of multiple ecosystem stressors on tree and forest ecosystem health	11	6	17
The growing threat of Australian insect pests to world eucalyptus plantation forestry	5	2	7
Synergy in forest threats: symbiotic interactions and invasives	7	0	7
Alien invasive pathogens: threats to forest ecosystem integrity and services	5	4	9
Impacts of interacting disturbance on forest health in the boreal zone	5	0	5
Invasive alien species : economic and environmental impacts on forest ecosystems	5	4	9
Advance in forest pest surveillance and monitoring	9	0	9
Trends in wood and bark borer invasions and effects of policy	9	1	10
Molecular ecological and evolutionary perspectives on changing populations of forest insects and their symbionts	4	2	6
Oak decline in the world	7	6	13
Atmospheric deposition and climate change impacts on forests	4	1	5
Ecology and management of pine wood nematode in the face of climate change	7	29	36
Cork Oak forest degradation causes and sustainable development in western Mediterranean countries	6	5	11
Climate factors and tree susceptibility/resistance to insects and pathogens	6	4	10
Managing cone and seed insects to preserve the regeneration of future forests	5	3	8
Diseases and insects in pines threatening global forest health in the 21 st century	7	7	14
Forest dieback caused by novel ambrosia beetle/ <i>Raffaelea</i> pest complexes	8	11	19
Frontiers in forest microbiology	7	5	12
Other	0	39	39
Total	122	143	265



Theme H: Forests, Communities and Cultures

Theme H: Forests, Communities and Cultures	Oral	Poster	Total
Income from smallholder forestry – can it be a driver of poverty alleviation?	9	4	13
Urban forestry: assessing and developing ecosystem services	4	10	14
Global comparative analysis of local incomes from the forests	7	3	10
Linking forest based enterprises, collective action, and livelihoods in the African dry forests	4	0	4
Can forest tenure reforms help achieve sustainable forest management and poverty alleviation?	12	13	25
Human dimension solutions to difficult forest problems	12	6	18
International developments in the administration of publicly-funded forest research: challenges and opportunities	8	0	8
Contribution of political theory to policies for sustainable use of forest resources	7	5	12
Future of forests – responding to global changes	7	2	9
Wood and forest culture: yesterday's lessons and today's impact	15	7	22
Improving forestry education: innovative views of students and teaching staff	12	15	27
Cultural values and sustainable forest management: strategies and actions	17	7	24
An honest conversation about decentralization and forest livelihoods in a globalized world	0	2	2
Forest ethics and conflict	7	0	7
Sustainable forest management through innovative forest laws and environmental legislation	13	4	17
Towards sustainable forest management and rural development in Latin America through appropriate forest policy instruments	5	1	6
Globalization and its impacts on the forest sector	3	2	5
Other	0	5	5
Total	142	86	228



Theme I: Forests, Human Health and Environmental Security

Theme I: Forests, Human Health and Environmental Security	Oral	Poster	Total
Healthy urban forests: healthy people	5	6	11
Health benefits of forests	10	22	32
Urban forestry combating poverty – building a collaborative stakeholders dialogue	6	0	6
Knowledge system, societal participation and sustainable forestry for human wellbeing	10	7	17
Non-timber forest resources and human welfare	6	7	13
Healthy forests, healthy people – gender perspectives on climate change	4	3	7
Other	0	11	11
Total	41	56	97

