行政院及所屬各機關出國報告 (出國類別:開會)

參加第一屆二十一世紀國際私有林會議報告

服務機關:行政院農業委員會林業試驗所

出國人 職 稱:副研究員兼主任 姓 名:吳俊賢

出國地區:美國

出國期間:90年3月23日~90年3月30日

報告日期: 90年6月30日

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壹、目的

第一屆二十一世紀國際私有林會議(First International Conference on Private Forestry in the 21st Century)之召開,係為因應對森林永續性及私有林在維持與加強環境品質之角色方面之漸增關懷,以提供林業政策爭議重新聚焦的新機會。此次會議提供林業專家學者機會以發表目前對私有土地森林經營之未來藍圖之重要事項。本會議亦期融合因市場全球化及國內政策之環境關懷而直接或間接影響森林經營之挑戰。本會議係由 IUFRO 資助,今年三月於美國亞特蘭大舉行,經農委會選派筆者出席大會並發表論文,以與各國專家代表交流及吸取新知,同時可提昇我國際林業聲望。

貳、過程

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3	月	27	日	亞特蘭大		大會	論文	發表	`			
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參、心得

第一屆二十一世紀國際私有林會議首次在美國亞特蘭大召開,顯示私有林之經營對環境及經濟之重要性已漸受國際社會之重視與肯定。筆者能代表農委會出席大會並發表論文,甚感榮幸。本次大會係由美國奧本大學森林政策中心(Forest Policy Center, Auburn University)主任 Larry Teeter 教授主辦。筆者前於農委會林業處森林科服務時,即負責「公私有林經營發展及優質材培育推廣計畫」,故即以該計畫推動之私有林經營發展實驗區之成果為內容,在大會發表「台灣私有林經營發展實驗及林業政策」(Private Forest Management Improvement Experiment and Forestry Policy in Taiwan),如附件一。行前英文稿曾先請農委會英文顧問鍾博先生修正,再以 Power Point 簡報軟體穿插掃瞄圖檔做成簡報。

本次大會雖以私有林為主,但是內容非常廣泛,包括認證 (Certification)、貿易(Trade)、全球與地區需求和供給(Global and regional demand/supply)、比較的稅與誘因計畫(Comparative tax/incentive programs)、環境事務與立法(Environmental issues/legislation)、非政府機構及私有林經營(NGOs and private forest management)、林業及經濟發展(Forestry and economic development)、稅政策(Tax policy)等。與會代表來自二十幾個國家,如附件二。大會會場在 Sheraton Buckhead Hotel,距離亞特蘭大國際機場約三十分鐘車程。

大會在三月二十五日下午五點開始註冊、報到,晚上七點開始歡 迎會,備有飲料與簡餐,同時亦展示海報。三月二十六日早上八點正 式開始舉行會議,首先由森林政策中心主任 Larry Teeter 做開幕介 紹, 奥本大學森林及野生動物科學學院主任兼教授 Richard Brinker 致歡迎詞,再由美國農業部森林署區域森林家 Elizabeth Estill 致詞歡 迎到亞特蘭大。接著開始四場專題演講,第一場是由 Jagmohan Maini (Coordinator and Head, United Nations Forum on Forests) 演講「關於國 家政策及作法之全球森林對話含意」(Implication of Global Dialogue on National Policy and Practices), 第二場是由 Birger Solberg (Professor, Agricultural University of Norway)演講「影響森林產品之需求、供給 及貿易之主要因素 - 歐洲展望」(Main Factors Affecting Demand, Supply, and Trade of Forest Products - a European Perspective),第三場 是由 Clark S. Brinkley (Chief Investment Officer, Hancock Timber Resource Group)演講「在歷史長期擺盪的森林」(Forests in the Long Sweep of History), 第四場是由 George H. Weyerhaeuser, Jr., (Senior Vice-President, Weyerhaeuser Company)演講「私有林及公共財」(Private

Forests and Public Goods) •

三月二十六日下午及三月二十七日早上進行分組論文發表,筆者分到三月二十六日下午之「永續林業」分組,該分組之主持人是 Rory Fraser 教授(Alabama A & M University),如附件三。

台灣地區純私有林面積僅 186,000 餘公頃,只占林野總面積 2,102,400 公頃之 8.85% ,但民營林地尚包括原住民保留地之官林地 177,300 餘公頃,國有林林務局出租造林地 87,500 餘公頃(占全島 160 萬公頃國有林班地之 5.5%),以及國有財產局委託各縣市政府管理、 放租造林之公有山坡地宜林地與國有原野地等,且大多屬中、低海拔 之經濟林人工造林地,其分布地區又較接近道路與都市消費市場,可 滅少木材生產成本之運費,因此其重要性不能忽視。然私有林等民營 林地因受限於經營面積小、勞力缺乏、材價低迷、工資高昂等因素之 影響,以致木材生產利不及賣,再加上松材線蟲、竹類天狗巢病等病 蟲害之侵襲,使林業經營更雪上加霜,林農之造林意願日益低落,山 村經濟嚴重衰退,林農之生活日趨困苦。部分林農轉而種植果樹、茶 葉、蔬菜、檳榔等高經濟作物,導致破壞國土保安與水土保持,危害 國民生命財產安全。經過地震、颱風、豪雨之侵襲後,土石危害已成 為社會大眾注意焦點。一般山坡地廣達5萬8千公頃之超限利用地正 由水土保持局、原住民委員會、及地方政府設法處理中,國有林地5 千 4 百餘公頃未依租約完造林者,林務局正積極擬議由擴大獎勵、補 償回收、混農林經營輔導、訴訟強制收回等途徑處理。

自台灣光復之後,由於山區橫貫公路的開闢,伴隨著沿線山林的 開發,以及山坡地產業道路網的建立,政策性鼓勵山地農牧經營;尤 其在退輔會各大農場的引領之下,高山地區溫帶果蔬大量生產,但亦 因此導致山區土地被大量超限利用的不合理現象。台灣地區地狹人 稠,山村聚落早已成形。長年以來因木材價格低落,山區林農為維生 計,於租地或自有林地上進行違規或超限利用,種植非林木之經濟作 物。每逢選舉年,農民及民意代表即陳情、關切不斷,成為當前各級 政府林政管理之棘手問題。另一方面,近數十年來,台灣經濟發展快 速,在工業化、都市化的趨勢下,使得農村經濟日漸落後於都會區, 其中尤以位於山區之聚落、村莊為甚。由於山區交通條件較差,各項 公共建設均不及一般平原地區;加上山地主要經濟收益來源--木竹材 --價格長期不振,山村經濟多半蕭條,卻也只有這些超限墾殖高價作 物之鄉、村,呈現暫時的繁榮景象,但在過度耗用環境資源的情況下, 實不利於土地、產業甚至人類之永續發展,更別論因應未來農產品開 放進口的衝擊了。為突破台灣民營林業之困境,解決山村地區經濟蕭 條與林農生活困苦等問題,農委會自八十一年度開始支助前台灣省政 府秘書處第五組,研擬當前林農較能接受之各項改善措施與經營模

依據任憶安等氏(1997)對獎勵私人造林政策所進行之林農反應調查結果指出,若獎勵金額度為六年間150,000元,則僅有27.9%林主會實施造林;但若獎勵金額度提高為六年間250,000元,表示願意造林者將增為70%。另一方面,針對已實施造林而不種植其他作物之林農深入探究其原因,則以其他作物收益不佳(28.5%)、年齡及體力不逮(24.1%)、個人喜愛造林(19.6%)及林地情況不適合農作(8.8%)等原因最多。可見已造林者若因農作經濟利益考量而從事農墾者,最多不超過三成,但卻有高達七成未造林者會因提高造林獎勵金而造林。如果再配合實施混農林業,則台灣山坡地超限利用之問題將可以解決。

肆、建議與結論

此次參加第一屆國際私有林會議,雖然勞累但是獲益良多。許多出席此國際會議之專家學者,都是林業學術上頗有成就之士。有此機會與大師級人物共聚一堂,聆聽其精彩報告,這是筆者第一次的經驗,筆者以初生之犢前往發表論文,可算勇氣十足。筆者已經在該國際會議留下記錄,論文並將登錄在大會報告上。此外,本次大會安排George H. Weyerhaeuser, Jr.專題演講「私有林及公共財」,顯示Weyerhaeuser 公司在美國林業界之影響力與地位不減,其執美國私有林經營之牛耳情況將會繼續。George H. Weyerhaeuser, Jr.一頭白髮,有企業家風度與氣質。

私有林經營之重要性將來會漸增,國際上將來亦會增加對私有林經營之研究與討論。今年是第一屆會議,已獲得IUFRO之資助支持,相信國際私有林會議爾後會持續下去,農委會已經踏出第一步,希望能繼續走下去。

依據林務局農林航空測量所之調查,台灣公私有山坡地宜林地之 超限利用面積達5萬8千公頃之多,造成環境極大的負擔。台灣山坡 地多年來被大面積墾殖之單作茶園,近年多已面臨生產力低落、品質 劣化之困境,今後可輔導農民採行林茶複合經營模式,一方面改善生 產條件,另一方面亦可減緩水土流失。如果是超限利用的茶園,更應 強制間植深根性樹種,以達成確保水土保育、兼顧山區居民生活之政 策目標。混農林業具有產品多樣性的特色,可以避免單一產品產銷失 衡的風險,但卻也因為少量多樣,無法達成經濟生產規模,較缺乏市 場競爭力。以台灣之經濟發展與環境保護現況而言,山村之振興仍應 以農林綜合經營為主軸。除應導入無礙生態且具地方特色之混農林業 技術體系外,更應加強基礎公共建設,包括農林生產所需之運銷通 路、農村生活所需之醫療、衛生與教育設施,以及促進農林業邁入第 三級產業所需之環境品質改善、遊憩、水土保育及綠美化設施等。必 要時,更可補助必要之經費與設備,賦予村民山林巡護及防範火災、 盗伐、濫墾之責。只有在山村居民生活無虞之情況下,才能徹底解決 各種資源濫用之弊病,也才能確立國家長治久安之基石。山地混農林 業之實施,應限定在已遭不當墾殖之林地,而非鼓勵已造林人增加農 作面積,因為森林經營仍是林地保育的最佳方式。私有林經營改善實 驗區是個好的開始示範,將來我們應該在既有的成果與經驗上,擔大 推廣適合台灣自然環境與條件的混農林業經營模式,使農業與林業、 政府與農民均能雙贏。

Private Forest Management Improvement Experiment and Forestry Policy in Taiwan

Chin-shien Wu

Head, Division of Forestry Economics, Taiwan Forestry Research Institute.

Council of Agriculture, Executive Yuan

I. INTRODUCTION

Agriculture has been used to support other industries, leading to the development of these sectors and resulting in Taiwan's economic miracle. However, agriculture's non-economic functions, such as ensuring the safety of the food supply, promoting an open and comfortable living space, greening and protecting the environment and promoting a balanced ecosystem, cannot be replaced by other industries.

Forestry developed vigorously during the 50s and 60s, and large-scale forest exploitation was carried out for timber production. Timber production made up about 90 percent of total forestry output value. Starting in the 70s, forestry policy gradually shifted from timber production toward resource conservation. Current forestry policy has emphasized nature conservation, sustainable management, multiple-use management, and ecosystem management. Wood demand in Taiwan reached the historical peak at 8.36 million cubic meters in 1992, and then leveled off and declined to 4.96 million cubic meters in 1998. As a result, forestry production on the whole exhibited a negative growth. Since 1990, no cuttings were allowed for natural cypress stands within national forests. Since 1991, all the cuttings were prohibited in nature forests. In recent years, although the economic production ratio of forestry is very low, public welfare of forest is very high, including the function of ensuring the safety of the economic infrastructure and of residents' lives and property.

II. FOREST DESCRIPTION AND FORESTRY POLICY

Since Taiwan is located in both the tropical and subtropical regions, its climate is hot and humid. Taiwan's heavily variable geography has created a variety of different sites suited to the existence of a variety of wild flora and fauna. Such an environment breeds more than 4,000 species of higher vascular plants, with 25 percent of them being endemic species. There are 18,368 recorded species of wildlife, with endemic species comprising 60 percent of the total animal population, including 157 species of freshwater fish, 113 species of reptiles, 428 species of birds, 61 species of mammals and 17,609 species of insects, making Taiwan essentially a natural museum. With such abundant flora and fauna resources, and a high percentage of endemic species, Taiwan is very important to both academic research and resource conservation. Population pressures and rapid economic development have resulted in serious

damage to Taiwan's environment, making conservation a must.

Taiwan is located in an area where there is a high incidence of typhoons. Typhoons regularly hit the island during the summer, necessitating dense forest cover to prevent soil erosion, mitigate extreme temperature fluctuations, and ensure the safety of people. In 1996, Typhoon Herb visited Taiwan and inundated most of Taiwan with torrential rains, causing the island's worst flooding and resulting in the greatest damage to agriculture in decades. Because some people lack the concept of protecting the environment and natural resources, many mountainous areas have been illegally developed and utilized, resulting in deterioration of water and soil resources in the forests. Since the ROC's citizens have gradually begun to place increasing importance on quality of life, environmental protection, and natural resource conservation, the agricultural sector must, beside following the market's lead and adjust its production structure, place greater emphasis on promoting environmental quality. Therefore, enforcing reforestation, improving forest management, and prohibiting illegal cultivation, to name a few, are some of the most important forestry practices in the future.

Taiwan is also known for highly rugged terrain, with 75 percent of hilly land and half of the land above 1,000 meters. Overall, 200 peaks are above 3,000 meters. According to the third survey of forest resources and land utilization, there are about 2.102 million hectares of forested land in Taiwan, comprising 59 percent of the national territory, increasing from 52 percent in 1990. At present, national forests make up 71.1 percent of the total, with public and private forests and aboriginal reserves comprising the remaining 28.9 percent. Most forests are natural forests (86.56 percent of total forest volume and 72.7 percent of total forest area). Taiwan forest contains growing stock of 358.7 million cubic meters, with the net annual growth of about 5 cubic meters per hectare. The average volume per hectare is 171 cubic meters.

In 1975, the government approved the Taiwan Forestry Management Reformation Act. Since then, the practice of forest management has been derived from timber production to protect forest resources. Base on current Forest Law, the major objective of forest management in Taiwan is long-term profit of national land protection. Timber cutting is no longer the income of forest management. According to Taiwan Forest Management and Administration Act, which was sanctioned in 1990 and revised in 1991, the conservation of natural resource and ecology are the objectives of forest management. In addition, cutting has been totally prohibited in nature forests, protective forests of reservoir watershed, ecological protective zones, nature reserves, national parks, and the forests of unable reforesting areas.

Furthermore, clear cutting area is limited to less than 5 hectares that would increase

management costs and difficulties.

Other related laws and regulations regard forestland uses include Water and Soil Conservation Law, Slope Land Conservation and Utilization Regulation, Non-Urban Land Use Control Regulation, Wildlife Conservation Law, and Environmental Impact Assessment Law. Moreover, some relevant laws have great impact on forest management. For example, since the enactment of the National Park Act in 1972, six national parks have been set throughout the island. The total area of national parks is 322,845 hectares, which account for 9 percent of national territory. Meanwhile, 95 percent of national parks territories are in national forests. In addition, based on Culture Heritage Preservation Act, passed in 1982, eighteen nature reserves, with a total area of 63,279 hectares, have been established.

Taiwan's timber industry has now been heavily relying upon imported timber. Over 99 percent of timber supply comes from foreign countries. For the purpose of supporting a prosperous forest industry, Taiwan needs not only to diversify its timber purchasing but also to maintain its own sustainable supply. For decades, timber production has played an important role in supporting Taiwan's economic development. However, in 1999, agriculture only comprised 2.61 percent of Gross Domestic Product, and forest product value comprised 0.2 percent of agriculture product value. Although the economic value ratio of forestry is very low, non-market value of forest, social welfare of national land protection and environmental protection, is huge. Forestry is a kind of social welfare, economic and sustained career.

Since Typhoon Herb in 1996, the Council of Agriculture has pushed the "National Reforestation Campaign" in Taiwan. In order to promote incentive of reforestation, subsidy of reforestation has greatly been increased. The total amount of subsidy in the first six years is 250,000 NT dollars (US \$ 7,686) per hectare. From the seventh year to twentieth year, the subsidy of reforestation management is 20,000 NT dollars (US \$ 615) per year per hectare. The total amount of subsidy in twenty years is 530,000 NT dollars (US \$ 16,295) per hectare.

III. PRIVATE FOREST MANAGEMENT IMPROVEMENT EXPERIMENT

Because of the increase in population and the need for food in Taiwan, the government has tried to develop agricultural production vigorously. Crops have been cultivated in higher elevation areas. Many tree farmers have started to cultivated agricultural crops on private forestland, leased national forestland, or aboriginal reservation forestland despite of high elevation or steep slope condition in these lands.

There are 186,000 hectares of private forest, making up only 8.8 percent of the total forestlands. However, the area of privately managed forests, including private

forestlands, aboriginal preserved lands, released land in the national forests, protected forests, public lands, or national wilderness, which are similar to Non-Industrial Private Forest (NIPF) in the States, is about 600,000 hectares, far more than the 280,000 hectares of commercial forests in the national forests. Therefore, the privately managed forests are very important in Taiwan. Moreover, because these forests occur in the middle and lower elevation areas and are closer to the cities, its timber harvest costs could be lower there. However, due to some disadvantageous factors among private forests, such as the small scale and dispersed land, lack of capital, low timber price, and high labor cost, the commercial forest management activities have almost stopped. Compared to other agricultural production, the revenue from commercial plantation is relatively low. Landowner's interest in reforestation has been lost and local economies have been depressed.

Due to the limited land and highly populated in Taiwan, communities in the mountain areas have been formed. Because timber price has been low for many years. tree farmers in the mountain areas have grown non-timber high economic crops in their private forestland or leased land for earning the living, which is an inappropriate use or overuse, or even violation of the regulations. For example, betel nut palm (Areca catechu) on the sloping land areas has become a serious problem in agroforestry, because the betel nut palm is a kind of shallow-rooted tree and may cause soil erosion. In addition, in the trend of rapid economic development. industrialization, and urbanization recently in Taiwan, however, the economies of communities in suburb regions or mountain areas are worse than metropolitan areas. In order to solve dilemmas of privately managed forestry and problems of depression and harsh living in the mountain areas, the Council of Agriculture has supported Taiwan Provincial Government's pilot project of private forest management improvement experiment since 1992. The major points of the project were to draw up the improvement methods and management models that the tree farmers were willing to accept. In accessing the appropriate alternative experiment areas, three regions have been selected, which are Da-San-Bay and Shang-Ping regions in Hsin-Chu County, Shau-Ban-Tan region in Nan-Tou County, and Shyr-Jwo region in Chia-Yi County. The preliminary effect of the project is good and response from tree farmers is positive. The project included the experimental methods to grow commercial trees, such as Taiwan incense cedar (Calocedrus formosana), camphor tree (Cinnamomum camphora), white fruit (Ginkgo biloba), among the tea plantings and betel nut palms, which is a kind of agroforestry, in order to find the balance between water and soil conservation and farmers' benefits. Now part of trees mixed in betel nut palms have grown up and are higher than betel nut palms, however, the farmers' benefits have not been decreased. Moreover, some farmers expressed that due to

appropriate shading of trees, the quality of tea has been improved, and the price of tea has increased by about 300 NT dollars (US \$ 9.2)per kilogram. This is an obvious effect of agroforestry implemented in Taiwan. The accomplishment of this project in the first stage of six years (1992~1997) includes completing the draft for improving management practices for the private forests, and the program of improving management for the private forests in three experimental areas. Also, 622 hectares of reforestation, 82 hectares of thinning and pruning, 140 hectares of fertilizing plantation, 28,927 meters of road widening, 1,936 meters of constructing green shower roads, 5,218 meters of improving streamside recreation sites, and 25,181 square meters of subsidizing agricultural management equipment have been completed. Besides, 260 hectares of tending and regenerating bamboo stands and 780 hectares of improving management for bamboo stands have been performed. In addition, a silvicultural practice team has been established, and a bamboo shoot processing plant and a forestry exhibition hall have been constructed. Furthermore. different kinds of flowers have been planted and native fry of fish, and firefly have been released as well, in order to improve the natural ecosystem, quality of living, and reforestation willingness of farmers in the area. The second stage of the project (1998~2001) has also been underway. Two other experimental areas will be included in this project in the coming year.

IV. Conclusion and Discussion

According to the investigation by Agricultural and Forestry Aerial Survey Institute, the total area of over-used land is 58,000 hectares and this situation has resulted in a negative impact on our environment. Large scale cultivated areas of pure tea planting for years among the slope lands in Taiwan has faced the problems of low productivity and degraded quality. It will be a good way to help farmers adopt the management model of combining tree and tea. In addition, the production condition will be improved; meanwhile, soil erosion will be reduced. If the tea planting is in over-used forestland, deep-rooted tree species should be planted forcibly, in order to achieve the objectives of water and soil conservation and caring of the living of people in mountain areas. The products from agroforestry are diverse, but the small economy scale of production and less competition on the market are the disadvantages. As to the current situation of economic development and environmental protection, prosperity of mountain village still depends on agroforestry. Moreover, basic infrastructures should be promoted in mountain villages, including the necessary marketing transportation, facilities of medical treatment, sanitation, education, recreation, water and soil conservation, and greening. The implementation of agroforestry in mountain areas should be limited in inappropriate cultivated forestland,

instead of encouraging the tree farmers to increase crop areas there. Soil and water conservation will be the major concern in future agroforestry. We still believe the best method of forestland conservation is forest management. The private forest management improvement experiment area is a good start for demonstration. The government will enlarge and extend the management model of agroforestry that suits nature environment and conditions in Taiwan, in order to obtain a win-win among agriculture and forestry, and government and farmers.

In the near future, Taiwan will be a member of the World Trade Organization. We expect our agriculture production will face great impact very soon. High labor cost and land cost will threaten agriculture and agroforestry production. Many privately managed forestlands will have to quit economic crop farming. The opportunity cost of planting trees will become low and it will be a good chance to enforce agroforestry. Although the current forestry policy emphasizes nature conservation and forest protection, it is not necessary to set aside all the forests and stop regular forest management. A sound forest management is the guarantee of sound resource conservation. Private forest management is an important part in Taiwan forest management.

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Global Initiatives and Public Policies: First International Conference on Private Forestry in the 21st Century

Shelda Addison F & W Forestry Services, Inc. P.O. Box 3610 Albany, GA 31706 USA

Janaki R. R. Alavalapati Assistant Professor University of Florida 365 Newins-Zeigler Hall SFRC/IFAS, PO Box 110 410 Gainesville FL 32611-0410 USA

Phone: 352 846 0899 Email: janaki@ufl.edu

Ralph Alig Research Economist USDA Forest Service, PNW Station 3200 SW Jefferson Way Forestry Sciences Lab Corvallis, Oregon 97331 USA Phone: (541) 750-7267 Email: ralig@fs.fed.us

Marie-Annick Amyot Forest Sector Analyst Natural Resources Canada Canadian Forest Service, Forest 2020 580 Booth Street, Room 8B7 Ottawa Ontano K1A 0E4 Canada Phone: 613-947-3465 Email: Mamyot@NRCan.gc.ca

Kathryn G. Arano Graduate Research Assistant Mississippi State University Phone: 662-325-8358 Email: kga2@ra.msstate.edu

Mary Elien Aronow Forest Economist Hancock Natural Resource Group D/B/A Hancock Timber Resource Group 99 High Street, 26th Floor Boston MA 2110 USA Phone: 617-747-1566 Email: maronow@hnrg.com

Per-Åke Arvidsson Programme manager SkogForsk Uppsala Science Park Uppsala, S-751 83 Sweden Phone: -589246 Email: per-ake.arvidsson@skogforsk.se

Graeme Auld Student School of Forestry and Wildlife Sciences 108 M. White Smith Hall Auburn University Auburn AL 36849-5418 USA Phone: (334) 844-1053 Email: auldgra@auburn.cdu Sara Baldwin Research Coordinator Timber Mart South, University of Georgia Warnell School of Forest Resources Athens, GA 30602 USA Phone: 706-542-4760

Email: sbaldwin@smokey.forestry.uga.edu

Ulrike Bauer Student FH Weihenstephan - Auburn University Holzacckerstr. I Kollnburg 94262 Germany Phone: 011-49-9942-1728 Email: bauer_ulrike@yahoo.de

Jim Bean Business Relations Manager BASF Corporation 904 Lanceleot Lane Collierville, TN 38017 USA Phone: 901-853-1444 Email: beanj@basf.com

Ted Beauvais
Assistant Director, Cooperative Forestry
USDA Forest Service
201 14th Street, SW
P.O. Box 96090
Washington DC 20090-6090 USA
Phone: 202/205-1190
Email: tbeauvais@fs.fed.us

Researcher Telemark Research Institute Pb. 4 Bö, Telemark 3833 Norway Phone: +47 3506 1529 Email: bergseng@tmforskbo.no

Even Bergseng

Clark S. Binkley Chief Investment Officer Hancock Timber Resource Group 99 High Street, 26th Floor Boston, MA 02110-2320 Phone: 617-747-1600

Larry M. Bishop
Forester
USDA Forest Service
Cooperative Forestry
1720 Peachtree Rd. NW
Atlanta, Georgia 30309 USA
Phone: 404-347-2067
Email: lbishop@fs.fed.us

Nadine Block Program Associate Pinchot Institute 1616 P Street NW Suite 100 Washington DC 20036 US Phone: (202) 797-6585

Phone: (202) 797-6585 Email: neblock@pinchot.org Richard W. Brinker
Dean, School of Forestry & Wildlife Sciences
Auburn University
Auburn University, AL 36849 USA
Phone: 334-844-1004
Email: brinkrw@auburn.edu

Mark P. Buccowich USDA Forest Service/Northeastern Area 11 Campus Boulevard Suite 11 Newtown Square PA 19073 USA Phone: 610-557-4029 Email: mbuccowich@fs.fed.us

Steve Bullard Professor Mississippi State University Phone: 662-325-2781 Email: sbullard@cfr.msstate.edu

Rod Busby Research Forester USDA Forest Service Rm. T-10034, PSB 701 Loyola New Orleans LA 70113 USA Phone: 504-589-7129

Email: rbusby@fs.fed.us

Brett Butler
Research Forester
USDA Forest Service
Northeastern Research Station
11 Campus Blvd., Suite 200

Newtown Square, PA 19073 USA Phone: (610) 557-4045 Email: bbutler01@fs.fed.us

Hugh Canham Professor SUNY College of Environmental Science and Forestry Syracuse NY 13210 USA Phone: 315-470-6694 Email: hocanham@esf.edu

Rick Cantrell
Senior Director
American Forest & Paper Association
256 Lehotsky Hall
Clemson University
Clemson, SC 29631 USA
Phone: 864-656-6572
Email: Rick_Cantrell@afandpa.org

Bruce Carroll
Vice President, Information Technology
& Forest Economics
Forest Technology Group
125 Crosscreek Drive
Summerville SC 29485 USA
Phone: (843)832-4192
Email: bruce_carroll@ftgrp.com

Global Initiatives and Public Policies: First International Conference on Private Forestry in the 21st Century

Doug Carter Associate Professor University of Florida 357 N-Z Hall PO Box 110410 Gainesville, FL 32618 US Phone: 352-846-0893 Email: drcart@ufl.edu

Ben Cashore Assistant Professor School of Forestry and Wildlife Sciences Auburn University 108 M. White Smith Hall Auburn AL 36849-5418 USA Phone: 334 844-1078 Email: cashobw@auburn.edu

Kirsten Cassingham Student

North Carolina State University

316 Perry St. Raleigh, NC 27608 US Phone: 919.832.6729

Email: kcassingham@yahoo.com

Joseph Chang Professor Louisiana State University SChool of FWF Louisiana State Universitry Baton Rouge LA 70803 USA Phone: 001-225-578-4167 Email: xp2610@lsu.edu

Mary Chapman Executive Director Forest Stewards Guild P.O. Box 8309 Santa Fe, NM 87504 USA Phone: 505-983-3887

Email: mary@foreststewardsguild.org

Chad Christman Graduate Student University of Tennessee 800 Longview Road Apt.#233 Knoxville TN 37919 US Phone: 865-588-1779 Email: cchristm@utk.edu

Mike Clutter Director, Decision Support The Timber Company 22 North Main Street P.O. Box 1069 Watkinsville, GA 30677 USA

Phone: 706-540-4570 Email: mike_clutter@ttcmail.com

Tim Cooney Managing Director Bush & Cooney, LLC 11440 Carmel Commons Blvd. Suite 103 Charlotte North Carolina 28226 USA Phone: 1-704-540-2411 Email: timcooney@bush-cooney.com Frederick W. Cubbage Professor North Carolina State University 3120 Jordan Hall 2800 Faucette Dr.

Raleigh, NC 27695-8008 USA Phone: 919-515-7789 Email: fred_cubbage@ncsu.edu

Tamara Cushing Forest Economist F & W Forestry Services, Inc. 2330 Whispering Pines Rd. Albany GA 31707 USA Phone: 229-420-6222 Email: tcushing@fwforestry.com

Gouranga Gopal Das Post-Doctoral Fellow University of Florida 208 Newins-Zeigler Hall SFRC/IFAS, PO Box 110 410 Gainesville, FL 32611-0410 USA Phone: 352 846 0877 Email: ggdas@ufl.edu

Ed deSteiguer Professor University of Arizona 312 Bio Sciences East School of Renewable Natural Resources Tucson AZ 85721-0043 USA Phone: 520-621-3241 Email: jedes@ag.arizona,edu

Brian Doherty USDA Forest Service 701 Loyola Avenue Room T-10034 New Orleans, LA 70113 USA Phone: 5045897132 Email: bdoherty@fs.fed.us

Mark Dubois

Associate Professor Auburn University School of Forestry and Wildlife Sciences 108 M. White Smith Hall Auburn University Alabama 36849-5418 USA

Phone: 334-844-1037 Email: dubois@forestry.auburn.edu

Gary W. Dunning Director Yale Forest Forum Yale School of Forestry and Environmental Studies 205 Prospect Street New Haven, CT 6511 USA Phone: 203-432-5966

Email: gary.dunning@yale.edu

Jeannette Espinoza Graduate Student North Carolina State University 2900 E.S. King Village Apt. A-14 Raleigh NC 27607 USA Phone: (919) 512-9782 Email: jeannette_espinoza@hotmail.com

Elizabeth Estill Regional Forester US Forest Service 1720 Peachtree Rd., Rm 760S Atlanta, GA 30309 USA Phone: 404/347-4110 Email: eestill@fs.fed.us

Rory Fraser Department of Forestry Alabama A&M University Huntsville AL

Eley Frazer Chairman of the Board F & W Forestry Services, Inc. 1310 W. Oakridge Drive Albany, GA 31707 USA Phone: (229) 883-0505 ext. 103 Email: efrazer@fwforestry.com

Sharon Friedman National Research Program Leader USDA Forest Service 14th and Independence SW Washington DC 20250 Phone: 202-205-0859 Email: sfriedman@fs.fed.us

Bruno Fritschi President Resource Management Services, Inc. 100 Corporate Ridge, Suite 200 Birmingham, AL 35242 USA Phone: 205-991-9516 Email: bfritschi@resourcemgt.com

Barin N Ganguli Senior Consultant Jaakko Pöyry Oy I-1783 Chittranian Park. New Delhi Delhi 110019 INDIA Phone: 91-11-648-9775 Email: barin@mail2.bol.net.in

Madhav P Ghimire Hubert Humphrey Fellow Cornell University Box 14 Kennedy Hall Ithaca, NY 14853 USA Phone: 607 2558752 Email: mpg25@comell.edu

Global Initiatives and Public Policies: First International Conference on Private Forestry in the 21st Century

Caron Gibson Program Analyst USDA Forest Service 201 14th Street, SW P.O. Box 96090

Washington DC 20090-6090 USA Phone: 202/205-1376 Email: cgibson@fs.fed.us

Tom Gilpin
CFA Supervisor
Florida Division of Forestry
3125 Conner Boulevard
Tallahassee, FL 32399-1650 USA
Phone. 850-414-9912
Email: gilpint@doacs.state.fl.us

Steve Grado Associate Professor Mississippi State University Phone: 662-325-2792 Email: sgrado@cfr.msstate.edu

Jim Granskog Project Leader USDA Forest Service 701 Loyola Ave. New Orleans, LA 70113 USA Phone: 504/589-6651 Email: jgranskog@fs.fed.us

Don Grebner Mississippi State University Phone: 662-325-0928 Email: dgrebner@cfr.msstae.edu

John L. Greene Principal Economist USDA-FS Southern Research Station 701 Loyola Ave., Room T-10034 New Orleans, LA 70113 USA Phone: 504-589-7130 Email: jgreene01@fs.fed.us

Phil Guillery Program Director Community Forestry Resource Center 2105 First Ave S Minneapolis MN 55404 USA Phone: 612-870-3456 Email: pguillery@iatp.org

John Gunter Professor Mississippi State University Phone: 662-325-0754 Email: jgunter@cfr.msstate.edu

Rachel B. Habig Graduate Research Assistant Mississippi State University 104 D Gladney Lane Starkville MS 39759 USA Phone: 662-324-5385 Email: rbhabig@hotmail.com Richard W. Hall 3556 Piedmont Road #306 Atlanta, GA 30305 Fulton Phone: 4042661193

Email: rhall@buckheadresources.com

Matt Hancock
President/CEO
Hancock Land Company
1059 Meadow Road
P.O. Box 299
Casco ME 4015 US
Phone: 207-627-7036
Email: mhancock@hancockland.com

Stephen Harris State University of New York

College of Environmental Science & Forestry 100 Avondale Place Syracuse, NY 13210 Email: stharms@mailbox.syr.edu

Angela Hansfield student University of Tennessee 825 Crest Forest Rd. Knoxville TN 37923 USA Phone: 865-6904625 Email: JHarts4625@aol.com

Pajuoja Heikki Finnish Forest Research Institute Jokiniemenkuja I Pl 18 Vantaa, 1301 Finland Phone: +358 9 8570 5727 Email: heikki.pajuoja@metla.fi

Denny A Hill Senior Business Analyst The Campbell Group One S.W. Columbia Suite 1720 Portland, OR 97258 USA Phone: (503) 275-9675 Email: dhill@campbellgroup.com

Alex Hinson
Shaw, McLeod, Belser & Hurlbutt, Inc.
407 N. Pike Road East
PO Box 1919
Sumter SC 29153 USA
Phone: 803-773-5461
Email: smbh@ftc-i.net

Don Hodges Associate Professor The University of Tennessee P.O. Box 1071 Department of Forestry, Wildlife and Fisheries Knoxville, Tennessee 37901 USA

Phone: 865-974-2706 Email: dhodges2@utk.edu Ching-Hsun Huang Research Associate Atephen F. Austin State University PO Box 5303, SFASU Nacogdoches TX 75962 U.S.A. Phone: 936-468-1089 Email: G_huangc@titan.sfasu.edu

Department of Forest Resources Seoul National University

Peter James Ince Reserach Forester USDA Forest Service Forest Products Lab One Gifford Pinchot Drive Madison WI 53705 USA Phone: (608) 231-9364 Email: pince@fs.fed.us

C. Denise Ingram
Policy Analyst
USDA Forest Service International Programs
1099 14th St., NW
Suite 5500W
Washington, DC 20005-3402 USA
Phone: (202) 273-4733
Email: edingram@fs.fed.us

Javed Iqbal Mr. EPA, Pakistan VETS, Chamkani Mor NWFP Peshawar Pakistan Peshawar NWFP 24330 Pakistan Phone: 0092-91-261499 Email: javedial@hotmail.com

Lloyd C. Irland President The Irland Group RR#2, Box 9200 Winthrop, ME 4364 USA Phone: 207-395-2185 Email: Irland@aol.com

Fred Kaiser Director US Forest Service 201 14th St SW Washington DC 20250 USA Phone: 202 205-1747 Email: fkaiser@fs.fed.us

Bob L. Кагт

Associate Dean
College of Forest Resources
Mail Stop 9680
Mississippi State, Mississippi 39762 USA
Phone: 662-325-2953
Email: bkarr@cfr.msstate.edu

Global Initiatives and Public Policies: First International Conference on Private Forestry in the 21st Century

Michael Kelly Vice President Forest Investment Associates 15 Piedmont Center Suite 1250 Atlanta, GA 30305 USA

Phone: 404-261-9575 Email: mkelly@forestinvest.com

Henry Kernan Private Forest Owner 204 CO HWY 40 Worcester NY 12197 USA Phone: 607-397-8805

Michael A. Kilgore Executive Director

Minnesota Forest Resources Council 2003 Upper Buford St.

St. Paul, MN Phone: 651-603-0108

Email: mkilgore@forestry.umn.edu

Michael A. Kilgore Executive Director

Minnesota Forest Resources Council 2003 Upper Buford Circle St. Paul MN 55108-6146 USA Phone: 651-603-0108

Email: mkilgore@forestry.umn.edu

Jeff Kline Research Forester Pacific Northwest Research Station 3200 SW Jefferson Way Corvallis, Oregon 97331 USA Phone: 541-758-7776

Email: jkline@fs.fed.us

Chaiwat Kongsom Mississippi State University 23J Wallace Cr. Starkville MS 39759 Phone: 662-325-5399 Email: ck2@ra.msstate.edu

Gary D. Kronrad Professor Stephen F. Austin State University PO Box 6109, SFASU Nacogdoches, Texas 75962 USA Phone: (936) 468-2473 Email: gdkronrad@sfasu.edu

Bill Kurtz Professor University of Missouri-Columbia 124 A-BNR School of Natural Resources Columbia, MO 65211 USA

Phone: 573-882-4567 Email: Kurtzw@missouri.edu David Laband Professor Forest Policy Center - Auburn University 205 M. White Smith Hall Auburn University Auburn AL 36849 USA Phone: 334-844-1074

Keville Larson CEO, Larson & McGowin, Inc. 254 N. Jackson St. Mobile, AL 36603 usa

Email: labandn@auburn.edu

Phone: 334/438-4581 Email: gsirmon@larsonmcgowin.com

Jamie Lawson Research Associate School of Forestry and Wildlife Sciences 108 M. White Smith Hall Auburn University Auburn AL 36849-5418 USA Phone: (334) 844-1052 Email: jlawson@canoemail.com

Priscilla Lewis USDA Forest Service 201 14th Street, SW P.O. Box 96090 Washington, DC 20090-6090 USA

Phone: 202/205-1374 Email: plewis01@fs.fed.us

Bruce R. Lippke Director, Rural Initiative University of Washington P.O. Box 35100 Seattle WA 98195 U.S.A Phone: 206 616 3218 Email: blippke@u.washington.edu

Jack Lutz Resource Economist James W. Sewall Company 147 Center Street

Old Town, Maine 4468 USA Phone: 207-827-4456 Email: jlutz@JWS.com

Peter C. Madden Senior Analyst The Timber Company 22 North Main St.

Watkinsville GA 30607 USA Phone: (706) 769-2513

Email: Pete_Madden@TTCMAIL.com

Jagmohan Maini Coordinator & Head United Nations Forum on Forests 2 UN Plaza, Room # DC2-1259 New York, N.Y. 10017 USA

Andy Malmquist Central States Manager Forest Technology Group 601 Clarkline Road Paducah Kentucky 42003 USA Phone: 843,442,0203 Email: Andy@FTGrp.com

Catherine M. Mater Vice President Mater Engineering, LTD 101 SW Western Blvd Corvallis, OR 97333 USA Phone: (541) 753-7335 Email. mater@mater.com

Barrett B. McCall President Larson & McGowin, Inc. 254 N. Jackson St. Mobile AL 36603 USA Phone: 334/438-4581

Email: gsrmon@larsonmcgowin.com

John McCoy Director of North American Forestry UPM-Kymmene 115 SW First Street Grand Rapids, Minnesota 55744 USA Phone: 218-327-5274 Email: john.mccoy@upm-kymmene.com

Will McDow Southern Environmental Law Center 200 West Franklin Street Suite 330 Chapel Hill NC 27516 USA

Phone: 919-967-1450 Email: wmcdow@selcnc.org

Ruth McWilliams National Sustainable Development Leader USDA Forest Service 201 14th Street, SW Washington, D.C., 20250 USA Phone: 202-205-1373 Email: rmcwilliams@fs.fed.us

Marcus Measells Graduate Research Assistant Mississippi State University Box 9681 Mississippi State, Mississippi 39762 USA Phone: 662-320-6652 Email: mkmeas@hotmail,com

Sayeed Mehmood Research Associate Auburn University 108 M. White Smith Hall Auburn, AL 36849 USA Phone: 334-844-1052

Email: mehmosr@auburn.edu

Global Initiatives and Public Policies: First International Conference on Private Forestry in the 21st Century

John Mills Research Forester USDA Forest Service Portland Forestry Sciences Lab 1221 S.W. Yamhill, Suite 200 Portland OR 97205 USA Phone: 503-808-2076 Email: jmills@fs.fed.us

Steverson Moffat Policy Analyst USDA Forest Service Room T-10034 701 Loyola Avenue New Orleans, LA 70113 USA Phone: (504) 589-7133 Email: smotfat@fs.fed.us

David Morman Program Director Oregon Dept. of Forestry 2600 State Street Salem OR 97310 USA Phone: (503)945-7413 Email: dmorman@odf.state.or.us

lan Munn Mississippi State University Mississippi State, Phone: 662-325-4546 Email: imunn@cfr.msstate.edu

Stephen Newton
Executive Director
Forest Landowners Association
4 Executive Park N.E.
Suite 120
Atlanta, GA 30329
Phone: 800-325-2954
Email: snewton100@aol.com

Joyce Niggley
Vice President
Wachovia Timberland Investment
Management
191 Peachtree N E
Atlanta, Georgia 30303 USA
Phone: 404-332-1204
Email: joyce.niggley@wachovia.com

John Nittler
Chief of Party-BOLFOR
Chemonics International
1133 20th ST N.W., suite 600
Washington D.C. 20036 USA
Phone: 591-3-487364
Email: jnittler@bibosi.scz.entelnet.bo

Iwao Noda Kyushu Res. Center, Forestry & Forest Products Research Insitute Kurokami 4-11-16 Kumamoto-city, Kumamoto 860-0862 IAPAN

Email: noda12@ffpri-kys.affrc.go.jp

Phone: 81-96-343-3168

Anders Q. Nyrud PhD Student Agricultural University of Norway P.O.Box 5044 1432 AAS NORWAY Phone: +47 6494 8880 Email: anders.qvale.nyrud@isf.nlh.no

Vice President, Resource Management Division Potlatch Corporation 601 W RIVERSIDE AVE Spokane WA 99201 USA Phone: 509 835 1586 Email: john.olson@potlatchcorp.com

John Olson

David Ostermeier
Professor
University of Tennessee
Department of Forestry, Wildlife & Fisheries
PO Box 1071
Knoxville, Tn 37901
Phone: 865/974-8843
Email: daveo@utk.edu

Mehmet Pak Research Assistant Karadeniz Technical University, Faculty of Forestry, Department of Forest Engineering, Division of Forest Economics 61080 Trabzon/TURKEY

Dawn W. Parks
Resource and Environmental Policy Analyst
ArborGen
P.O. Box 840001
Summerville, SC 29484-8401 USA
Phone: 843-851-4654
Email: dwparks@westvaco.com

Naomi Pena Environmental Analyst Pew Center on Global Climate Change 2101 Wilson Blvd Suite 550 Arlington, VA 22201 USA Phone: 703-516-0609 Email: penan@pewclimate.org

Ann Kristin Petersen
Department of Forest Sciences
Agricultural University of Norway
PO Box 5044
Aas N-1432 Norway
Phone: +47 64948880
Email: ann-kristin.petersen@isf.nlh.no

Karen Potter-Witter Professor Michigan State University

111 Natural Resources Building Department of Forestry East Lansing, MI 48824 USA Phone: 517 353 8474

Phone: 517.353.8474 Email: karen@msu.edu Doug Richards
Department Head
Department of Forestry
Mississippi State University
P.O. Box 9681
Miss. State MS 39762 USA
Phone: 662-325-2948
Email: drichards@cfr.msstate.edu

Mark Rickenbach Assistant Professor & Extension Specialist University of Wisconsin 120 Russell Labs 1630 Linden Dr Madison Wi 53706 Phone, 608-262-0134 email:mrickenbach@cals.wisc.edu

W. Rhett Rogers Graduate Research Assistant Mississippi State University Phone: 662-325-8358 Email: rhett_rogers@hotmail.com

Jerry Rose Sustainable Forestry Consultant National Association of State Foresters 7486 Upper 20th St. Oakdale, MN 55128 U.S.A. Phone: 612-624-7286 Email: jroseforestry@aol.com

Michael F. Ryan
Bureau of Rural Sciences
P.O. Box E11
Kingston
Australian Capital Territory 2604 Australia
Phone: 61 2 6272 4937
Email: Michael.F.Ryan@hrs.gov.au

Scott Sacco Vice President, Business Operations Forest Systems, LLC 51 Main Street North Easton, MA 2356 U.S.A. Phone: 508 230-0404 Email: ssacco@forestsystems.com

Erika Sasser Visiting Assistant Professor Duke University LSRC A118B Box 90328 Durham NC 27708 USA Phone: (919) 613-8083 Email: erika.sasser@duke.edu

Dick Schaertl
Manager, Finance & Admin.
Temple-Inland
259 Mays Bridge Road
P.O. Box 100
Coosag, GA 30129-0100 USA
Phone: 7062365417
Email: gschaer@templeinland.com

Global Initiatives and Public Policies: First International Conference on Private Forestry in the 21st Century

John Schelhas USDA Forest Service 112 Campbell Hall Tuskegee University Tuskegee AL 36088 USA Phone: 334-727-8131 Email: john Schelhas

Rita Schoeneman Non-Federal Land Specialist USDA Forest Service 201 14th Street, SW P.O. Box 96090

Washington, DC 20090-6090 USA Phone: 202/205-1612 Email: rschoeneman@fs.fed.us

Eric Schwefler Investment Analyst Forest Investment Associates 15 Piedmont Center Suite 1250

Atlanta GA 30305 USA Phone: (404) 261-9575

Email: eschwefler@forestinvest.com

Suraj Prasad Shrestha Graduate Research Assistant School of Forestry and Wildlife Sciences, Auburn University Auburn, Al 36849 USA Phone: (334) 844-1062 Email: shressp@mail.aubum.edu

Ram Shrestha Postdoctoral Fellow University of Florida 356 Newins-Ziegler Hall PO Box 110410

Gainesville Florida 32611 USA Phone: 352-846-0892 Émail: shrestha@ufl.edu

Bill Siegel Volunteer Research Forester USDA Forest Service RM T-10034 U. S. Postal Services Building

701 Loyola Avenue New Orleans, LA 70123 USA

Phone: (504) 737-0583 Email: wcsiegel@aol.com

Erio Sills NC State University Dept of Forestry Raleigh NC 27695-8008 Phone: 919-515-7784 Email: erin_sills@ncsu.edu

Jacek P. Siry Research Assistant Professor North Carolina State University 3120 Jordan Hall 2800 Faucette Dr.

Raleigh, NC 27695-8008 USA Phone: 919-515-5780 Email: jsiry@unity.ncsu.edu

Sten-Gunnar Skutin Senior researcher SkogForsk, The Forestry Research Institute of Sweden

Uppsala Science Park UPPSALA SE-751 83 Sweden Phone: +46 18 18 85 00

Email: sten-gunnar.skutin@skogforsk.se

Birger Solberg Professor

Agricultural University of Norway (NLH)

P. O. Box 5044 N-1432 Ås, NORWAY Phone. - 47 64 94 89 28 E-mail: birger.solberg@isf.nlh.no

Andrew Stainback Graduate Student University of Florida 3600 S.W. 19th Ave. Apt. #41

Gainesville Florida 32607 U.S.A.

Phone: (352)337-1942 Email: gandrew@ufl.edu

Susan Stein

Landowner Assistant Program Specialist USDA Forest Service 201 14th Street, SW P.O. Box 96090

Washington, DC 20090-6090 USA Phone: 202/205-0837

Email: sstein@fs.fed.us

Anne Stenger INRA rue Girardet Nancy 54000 France Phone: 33 3 83 39 68 63 Email: stenger@nancy-engref.inra.fr

Jim Stevens Forest Economist The Campbell Group One S.W. Columbia Suite 1720

Portland, OR 97258 U\$

Phone: 503 275-9675

Email: jstevens@campbellgroup.com

Bryce Stokes National Program Leader USDA Forest Service 201 14th Street

Washington .D.C. 20250 USA Phone: 202-205-1147 Email: bstokes@fs.fed.us

Niels Strange Assistent Professor KVI. Rolighedsvej 23

Frederiksberg, 1958 Denmark Phone: +45 35 28 22 35

Email: nst@kvl.dk

Charles M. Tarver President, Forest Investment Associates 15 Piedmont Center Atlanta GA 30305 USA Phone: 404-495-8600

Email: ctarver@forestinvest.com

Frank E. Taylor 3228 Bob O'Link Ct. Plano, TX 75093 Phone: 972 307 1206 Email: fetjr@aol.com

Frank E. Taylor 3228 Bob O'Link Ct. Plano TX 75093 USA Phone: 972-307-1206 Email: fetjr@aol.com

George F. Taylor, II Coordinator, New Entry Professional Program US Agency for International Development

3007 North Tuckahoe Street Arlington, VA 22213 USA Phone: 202-712-5636 Email: gtaylor@usaid.gov

Larry Teeter Director, Forest Policy Center 201 M. White Smith Hall Auburn University

Auburn, Alabama 36849-5418 USA Phone: 334-844-1045

Email: teeter@auburn.edu

Bo Jellesmark Thorsen Assistant Professor RVAU Rolighedsvej 23

Copenhagen, 1958 Frederiksberg Denmark Phone: +45 35 28 22 27

Email: bjt@kvl.dk

Anna Tikina Yale School of Forestry 858 Orange St. New Haven CT 6511 USA Phone: 1 (203) 776-1665 Email: anna_tikina@hotmail.com

Dave Titzer Director, International Forestry International Paper 1201 West Lathrop Ave Savannah, GA 31415 USA Phone: 912-238-7255 Email: dave.titzer@ipaper.com

Ritva Toivonen Research Manager

Pellervo Economic Research Institute Eerikinkatu 28

Helsinki 00180 Helsinki Finland Phone: -3488495

Email: ritva.toivonen@ptt.fi

Global Initiatives and Public Policies: First International Conference on Private Forestry in the 21st Century

Mustafa Turker Associate Professor

Karadeniz Technical University,

Faculty of Forestry,

Department of Forest Engineering, Division of Forest Economics 61080 Trabzon/TURKEY

Knut Veisten Researcher

Agricultural University of Norway (NLH)

Ås NO-1432 NORWAY Phone: +47 64948880 Email: isfkv@isf.nlh.no

Rich Vlosky Associate Professor LSU AgCenter

Room 227 Forestry, Wildlife, and Fisheries

Building

Louisiana State University Baton Rouge, LA 70803 USA Phone: 225-578-4527 Email: vlosky@lsu.edu

Bud Watson Policy Director

Southeast Forest Project-Dogwood Alliance

14031 Independence Road Ashland VA 23005 USA Phone: (804) 798-0988 Email: Bmwatson3

Roger Wehner Graduate Researcher Virginia Tech 505 Green St. Blacksburg, VA 24060 Phone: 540-961-9489

Email: rowehner@vt.edu

George H. Weyerhaeuser, Jr. Senior Vice President Weyerhaeuser Company CH 1K35C

P.O. Box 9777

Federal Way, WA 98063-9777 Phone: (253) 924-2345

George.Weyerhaeuser@weyerhaeuser.com

Mark Willhite

Forestland Acquisition Manager Merrrill & Ring 12000 SE Laughing Water Road

Sandy, Oregon 97055 USA Phone: 1-503-695-6419 Email: bwillhite@juno.com

Christian Wippermann

University of Goettingen/ Yale University

PO Box 204236 New Haven CT 6520 USA Phone: 001 (203) 436-2698

Email: christian.wippermann@yale.edu

Grace Wong PhD Student University of Florida PO Box 110410

Gainesville, FL 32611-0410 USA

Phone: 352 846-0902 Email: gracew@ufl.edu

Rachel Wood Forestry Consultant Wood Resource Group 389 Webb Cove Road

Asheville North Carolina 28804 USA

Phone: 828-285-0134

Email: racwood@buncombe.main.nc.us

Chin-shien Wu

Taiwan Forestry Research Institute, COA

53 Nan-hai Road

Taipei, Taiwan 100 Republic of China Phone: 886-2-2382-5946

Email: johnwu@serv.tfri.gov.tw

Lan Wu Graduate Student University of Florida

School of Forest Resources and Conservation

P.O. Box 110410 Gainesville FL 32611 USA Phone: 1-352-846-0874 Email: wulan@ufl.edu

Daowei Zhang Associate Professor Auburn University 108 M. White Smith Hall Aubum, Alabama, 36849-5418 Phone: 334-844-1067 Email: zhangd l @auburn.edu

Xiaoping Zhou Research Forester USDA Forest Service Portland Forestry Sciences Lab 1221 S.W. Yamhill, Suite 200 Portland OR 97205 USA Phone: 503-808-2017 Email: xzhou@fs.fed.us

Kevin Zobrist

Graduate Research Assistant University of Washington College of Forest Resources

P.O. Box 35100 Seattle, WA 98188 U.S.A. Phone: 206 543 8684 Email: kzobr@u.washington.edu

CONFERENCE PROGRAM

Sunday March 25, 2001

5:00-9:00 pm - Registration - Atrium Level

7:00-9:00 pm - Conference Reception - Atrium Courtyard

7:00-9:00 pm - Posters on Display (through Monday, March 26) - Atrium Level

Monday March 26, 2001

7:00 am - Continental Breakfast - Atrium Level

8:00 am - Plenary Session - Heritage Ballroom B

Introductions, Overview of Conference Logistics - Larry Teeter, Forest Policy Center Welcome - Richard Brinker, Dean and Professor, School of Forestry & Wildlife Sciences, Auburn University

Welcome to Atlanta - Elizabeth Estill, Regional Forester, R8, USDA Forest Service

8:30 am -9:15 am KEYNOTE ADDRESS - Implications of Global Forest Dialogue on National Policy and Practices - Jagmohan Maini, Coordinator and Head, United Nations Forum on Forests

9:15 am - 10:00 am KEYNOTE ADDRESS - Main Factors Affecting Demand, Supply and Trade of
Forest Products - a European Perspective - Birger Solberg,
Professor, Agricultural University of Norway

10:00 - 10:30 - Mid-morning Break

10:30 - 11:15 KEYNOTE ADDRESS - Forests in the Long Sweep of History - Clark S. Binkley, Chief Investment Officer, Hancock Timber Resource Group

11:15 - 12:00 KEYNOTE ADDRESS - Private Forests and Public Goods - George H. Weyerhaeuser, Jr., Senior Vice-President, Weyerhaeuser Company

12:00 - 1:30 - Luncheon - Atrium Courtyard

Concurrent Sessions I -1:30 - 3:00

Concurrent Session I-A – Private Forest Management - Heritage Ballroom A Moderator – Michael Ryan, Bureau of Rural Sciences, Kingston, Australia

NGO's, Private Forest Management, and FSC Certification -- Phil Guillery and Kathryn Fernholz, Community Forestry Resource Center of the Institute for Agriculture and Trade Policy, Minneapolis, MN

Ensuring the Application of Sound Forest Practices on Private Forests: Challenges Facing the Design and Implementation of State Compliance Monitoring Programs -- Michael A. Kilgore, Minnesota Forest Resources Council, Paul V. Ellefson, University of Minnesota, Michael J. Phillips, Minnesota Forest Resources Council

(Session I-A cont.)

Global Initiatives, Public Policies & Private Forestry in Bolivia: Lessons to Date and Remaining Challenges — George Taylor, USAID Global Bureau Environment Center, Washington DC, John Nittler, Bolivia Sustainable Forestry (BOLFOR), Ivo Kraljevic, Chemonics International, Joshua C. Dickinson, The Forest Management Trust.

Concurrent Session I-B – Certification 1 - Attitudes and Support - Heritage Ballroom B Moderator – Steverson Moffat, USDA Forest Service, Southern Research Station

A Look at Forest Certification Through the Eyes of United States Wood and Paper Producers - Graeme Auld, Benjamin Cashore, and Deanna Newsom, Forest Policy Center, Auburn University

Certification: A Comparison of Perceptions of Industrial and Non-Industrial Private Forestland Owners in Louisiana -- Richard P. Vlosky, Louisiana State University, James E. Granskog, USDA Forest Service

Understanding the Opinions of Alabama Landowners on Sustainable Forestry Initiatives and Forest Certification -- Deanna Newsom, Benjamin Cashore, and Graeme Auld, Forest Policy Center, Auburn University

Concurrent Session I-C – *Timber Supply* - Heritage Ballroom C

Moderator – Karen Potter-Witter, Department of Forestry, Michigan State University

Projecting the US Timber Supply with a Spatial Look at Private Timber Resources-Assumptions and Projections from the 2000 RPA Timber Assessment -- John Mills and Xiaoping Zhou, USDA Forest Service

Some Forestry Implications of Agricultural Short-rotation Woody Crops in the United States - Peter J. Ince, USDA Forest Service and Alexander N. Moiseyev, European Forest Institute

Alternative Mechanisms for Capping the Cut: A Preliminary Policy Analysis -- Lloyd C. Irland, The Irland Group

Concurrent Session I-D – *Pricing Issues* - Buckhead 1

Moderator – David Laband, Forest Policy Center, Auburn University

Price Elasticities in the Norwegian Private Non-Industrial Roundwood Supply: Sensitivity of Econometric Methods and Price Aggregation -- Torjus Folsland Bolkesjø and Birger Solberg, Department of Forest Sciences, Agricultural University of Norway

Price Reporting and Forest Management – Barry N. Rosen, City University of New York and H. Fred Kaiser, Jr. USDA Forest Service

Forecasting Norwegian Pulpwood Prices - an Empirical Study Regarding the Role of Causal Information, and Deterministic Shifts in Economic Forecasting -- Anders Q. Nyrud, Department of Forest Sciences, Agricultural University of Norway

Concurrent Session I-E – Carbon Markets/Biotechnology - Buckhead 2

Moderator -- Sayeed Mehmood, Auburn University

The Effects of a Carbon Credit Market and Sequestration Policies on Private Forestry in the Southern United States — Gary D. Kronrad and Ching-Hsun Huang, Stephen F. Austin State University

An Economy-wide Assessment of a Forest Carbon Policy in the U.S. — Grace Y. Wong and Janaki R.R. Alavalapati, School of Forest Resources and Conservation, University of Florida

Forest Biotechnology: Sorting Out the Issues -- Dawn Parks, ArborGen

Concurrent Session I-F – Local Behavior - Lenox

Moderator – Mark Dubois, Forest Policy Center, Auburn University

Agrarian Household Behavior and Land Use in Tropical Forests: Empirical Analysis in the Brazilian Amazon -- Jeannette Espinoza, North Carolina State University

Changing Landowner Preferences, Forest Fragmentation, and Absenteeism: Results from Virginia -- Gregory S. Amacher, M. Christine Conway, and Jay Sullivan, VPI & State University, Blacksburg, VA

Efficiency and Potential Merger Gains in the Danish Forest Extension Service — Peter Bogetoft, Niels Strange, and Bo Jellesmark Thorsen, Royal Veterinary and Agricultural University, Denmark

Mid-afternoon Break - 3:00 - 3:30

Concurrent Sessions II - 3:30 - 5:00

Concurrent Session II-A – Certification 2 - Case Studies - Heritage A

Moderator -- Erin Sills, North Carolina State University

Forest Certification Experiences in Maine and the Canadian Maritimes: A Comparative Institutional Study -- Benjamin Cashore and James Lawson, Forest Policy Center, Auburn University

The Certification Race: Understanding the Emergence of Certification Institutions in the Forest Sector – Erika N. Sasser, Nicholas School of the Environment, Duke University

The Continuing Journey of Certification: Defensive Driving, Traffic Jams and Road Maps — C. Denise Ingram, USDA Forest Service

Concurrent Session II-B – Certification and Sustainable Forestry - Heritage B Moderator – Michael Kilgore, Minnesota Forest Resources Council

Educational Application of Sustainable Forestry and Certification Programs – A Case Study for Clemson University – Patricia A. Layton, Allen Dunn, Clemson University School of Natural Resources and Rick Cantrell, American Forest & Paper Association

(Session II-B cont.)

Developing and Implementing Forest Certification on Nonindustrial Private Forest Lands in the South: A Case Study of Forests and Foresters in North Carolina -- Frederick Cubbage, Warren Boyette, Daniel Richter, William Gardner, Judd Edeburn, Larry Jervis, and Susan Moore; The Southern Center for Sustainable Forests

Wisconsin NIPF Owners Discussing Participation in Forest Management Programs -- Mark Rickenbach, Ray Guries, Dan Schmoldt, and Mary Sisock; University of Wisconsin-Madison

Concurrent Session II-C – Impacts of Policy Instruments - Heritage C

Moderator – Richard Vlosky, Louisiana State University

Management Alternatives Under Salmon Protection Regulations: Importance of Case Studies in Understanding Impacts — Kevin Zobrist, Bruce Lippke, B. Bruce Bare, Larry Mason, The University of Washington

The Role of Private Lands in Regional Economic Development – Henry H. Webster and Daniel E. Chappelle, University of Minnesota

Growing Certification of Public Forestlands in the US and the Impacts to Private Forestland Managers -- Catherine M. Mater, Mater Engineering, Ltd.

Concurrent Session II-D – Policy and Non-market Goods - Buckhead 1 Moderator – Stephen Grado, Mississippi State University

Private Land and Public Goods: Policy Lessons from Habitat Conservation Planning -- Denise Keele and David Ostermeier, University of Tennessee

Values and Attitudes of the Mississippi Department of Wildlife, Fisheries & Parks Relative to the Forest Industry in Mississippi — Marcus K. Measells and Stephen C. Grado, Mississippi State University

Ecological Economic Analysis of Restoring Longleaf Pine on Private Lands in the US South: Implications for Public Policy — Janaki R.R. Alavalapati and Andrew Stainback, University of Florida

Concurrent Session II-E – Sustainable Forestry - Buckhead 2 Moderator – Rory Fraser, Alabama A & M University

Sustainable Forestry and U.S. Public Policy: Assessing Potentials for Policy Change — Steverson O. Moffat, Frederick W. Cubbage, Thomas P. Holmes, and Elizabethann O'Sullivan, USDA Forest Service and North Carolina State University

Private Forestry in Alabama: History as a Guide for Policy -- Warren A. Flick; University of Georgia

Private Forest Management Improvement Experiment and Forestry Policy in Taiwan – Chinshien Wu, Taiwan Forestry Research Institute, ROC

Concurrent Session II-F – Developing Markets - Lenox Moderator – Ritva Toivonen, Pellervo Economic Research Institute, Helsinki, Finland

Big Carrot, Little Stick – Substantive Tax Incentives Stimulate Economic Development and Environmental Protection on Privately-owned Lands in Argentina – *Timothy M. Cooney, Bush & Cooney, LLC*

A Profile of Timber Markets in the U.S. Southeast - Runsheng Yin, Michigan State University

"Se Vende Madera!" An Analysis of the Potential Impacts a Growing Housing Market in the Southern Cone of South America Will Have on Private Forest Owners in the Region -- Richard W. Hall, Buckhead Resources

Tuesday, March 27 – 7:00 a.m. – Continental Breakfast

Concurrent Sessions III – 8:00 - 9:30

Concurrent Session III-A – Communities and Landowners - Heritage A

Moderator – Benjamin Cashore, Forest Policy Center, Auburn University

New Trends in Forest Policy and Management: An Emerging Postmodern Approach? — John Schelhas, Southern Research Station, USDA Forest Service

Experiences of a Private Non-industrial Forest Landowner -- Henry Kernan, Worcester, NY

Investing in Forested Ecosystems and Communities -- Community-based Economic Development in a Global Market -- Valerie A. Luzadis, SUNY College of Environmental Science and Forestry

Concurrent Session III-B - Criteria and Indicators - Heritage B

Moderator - Donald Hodges, Department of Forestry, University of Tennessee

U.S. Implementation of the Montreal Process Criteria and Indicators – Implications for Nonfederal Forest Lands – Michael Washburn, Yale School of Forestry and Environmental Studies; Denise Ingram, Ruth McWilliams, and David Radloff, USDA Forest Service

Strategic Policy and Technical Developments in the State of Oregon Based on International Criteria and Indicators of Sustainable Forestry — Jim Brown, State Forester, David Morman, Forest Resources Planning Director, Gary Lettman, Principle Forest Economist, Kevin Birch, Planning Coordinator, Oregon Department of Forestry

A Framework for Private Native Forest Inventory in Australia -- Michael Ryan and Claire Howell, Bureau of Rural Sciences, Australia

Concurrent Session III-C – Forest Taxation and Financing - Heritage C

Moderator – Daowei Zhang, Forest Policy Center, Auburn University

Effect of the Federal Estate Tax on Rural Land Holdings in the U.S. — John Greene, Tamara Cushing, Steve Bullard, and Ted Beauvais, USDA Forest Service, F&W Forestry Services, Inc., Mississippi State University

(Session III-C cont.)

Assessing the Impact of Property Taxes on Private Forestry -Sun-Joseph Chang, Louisiana State University

The Proposed Mississippi Reforestation Investment Program — John E. Gunter, Mississippi State University, Joshua O. Idassi, Tennessee State University, and James E. Granskog, USDA Forest Service

Concurrent Session III-D – Investment in Forest Management - Buckhead 1 Moderator – Donald Grebner, Mississippi State University

Private Forest Management and Investment in the United States: A Look Ahead -- Ralph J. Alig, John R. Mills, and Brett J. Butler, Pacific Northwest Research Station, USDA Forest Service

Trends in Regeneration Policy on Public and Private Lands: The Gifford Pinchot National Forest and Weyerhaeuser Company -- Anna Tikina, Yale School of Forestry and Environmental Studies

Is Private Forestry in Germany Profitable? - Analyzing Results from an Operational Comparison Among Private Forest Ownerships in Northrhine - Westphalia -- Christian Wipperman and Bernhard Möhring, Yale University and Georg-August Universität Göttingen

Concurrent Session III-E - Country Case Studies - Buckhead 2

Moderator - George Taylor, USAID Global Bureau Environment Center

Policy Without Values: Forest Management in Guyana — Rory Fraser; Alabama A&M University

Today and Tomorrow of Private Forestry in Central and Eastern Europe -- Jacek Siry, North Carolina State University

Private Sector Participation on Public Forest Lands - Challenges and Policy Issues — Barin N. Ganguli, Jaakko Pöyry

Concurrent Session III-F - Markets and Trade - Lenox

Moderator - Greg Amacher, Virginia Polytechnic and State University

Testing Integration of Some European Roundwood Markets — Ritva Toivonen, Anne Toppinen and Tapio Tilli, Pellervo Economic Research Institute and Finnish Forest Research Institute, Helsinki, Finland

Global Trade Liberalization and Forest Product Trade Patterns -- Jianbang Gan and Sabyasachi Ganguli, Tuskegee University

Does Size Matter? Analyzing the Efficiency of Norwegian Sawmilling — Anders Q. Nyrud and Even Berseng, Agricultural University of Norway & Telemark Research Institute, Norway

Mid-morning Break - 9:30 - 10:00

Concurrent Sessions IV - 10:00 - 11:30

Concurrent Session IV-A – Implementing Sustainable Forestry - Heritage A

Moderator – Larry Teeter, Forest Policy Center, Auburn University

Measuring Sustainable Forestry in Minnesota — Gerald A. Rose, Minnesota Department of Natural Resources, Michael A. Kilgore, Minnesota Forest Resources Council, and Paul V. Ellefson, University of Minnesota

Improving Forest Management through the Supply Chain: The State of Wood Procurement Management Systems in the Forest Products Industry -- Stephen Harris and Rene Germain, State University of New York

The Economic Costs of Increasing Forest Conservation in Finland — Jussi Leppäänen, Mika Linden, Jussi Uusivuori, Mikko Toropainen, Heikki Pajuoja; Finnish Forest Research Institute and University of Helsinki

Concurrent Session IV-B – Certification 3 - Approaches - Heritage B Moderator – David Morman, Oregon Department of Forestry

The Case for Choice: Preserving Landowner Options Among Multiple Certification Systems - Bob Simpson, American Tree Farm System

Resource Manager Certification: Obstacles and Opportunities on Non-industrial Private Forests -- Mary Chapman, Forest Stewards Guild

Green Tag Forestry-- Keith Argow, National Woodlands Owners Association

Concurrent Session IV-C – Incentive Programs - Heritage C

Moderator – John Schelhas, USDA Forest Service, Southern Research Station

Recent USDA Forest Service Experience with Forestry Incentives: What Have We Achieved? -- Susan Stein, USDA Forest Service

Comparative Analysis of Incentives for Non-Industrial Private Forest Management in Michigan -- Karen Potter-Witter, Department of Forestry, Michigan State University

Factors Affecting Mississippi's NIPF Landowners' Reforestation Decisions -- Kathryn G. Arano, John E. Gunter, Steven H. Bullard and Ian A. Munn, Mississippi State University

Concurrent Session IV-D - Biodiversity and Fragmentation - Buckhead 1

Moderator - Janaki R.R. Alavalapati, University of Florida

Private Forest Management in Urbanizing Landscapes -- Jeffrey D. Kline, Pacific Northwest Research Station

Optimal Management of Forest Landscapes for Maximizing Biodiversity and Ecosystem Management: The Case for Laissez-Faire Private Ownership — Hugh O. Canham, SUNY College of Environmental Science and Forestry

(Session IV-D cont.)

Management of Biodiversity in Forest: Feasibility, Efficiency and Limits of a Contractual Regulation -- Anne Stenger and Dominique Normandin; LEF(Laboratoire d'Economie Forestière), Nancy, France

Concurrent Session IV-E - Family Forests - Buckhead 2

Moderator - John Mills, USDA Forest Service, Pacific Northwest Research Station

Public Forest Policy, NGOs, Green Certification and the Future of Family Forests -- J. P. Caulfield, R.G. Chambers and C. T. Fields, TimberVest

"Non-Joiner" NIPFs: Factors Which Drive Them to Fragment and Convert U.S. Family Forest Lands -- Catherine M. Mater, Mater Engineering, Ltd.

Evaluations Regarding the Forest Management and Forest Ownership in Turkey -- Mustafa Fehmi Türker, Atakan Öztürk, and Mehmet Pak, Karadeniz Technical University, Turkey

Concurrent Session IV-F – Valuing Non-market Goods - Lenox Moderator – Ian Munn, Mississippi State University

Willingness to Pay for Certified Wooden Furniture: A Market Segment Analysis -- Knut Veisten and Birger Solberg, Agricultural University of Norway

Consumers' Perception on Forest Products in South Korea: With Special Reference to Environmental Concerns — Yeo-Chang Youn and Mi-Hyeon Seol, Seoul National University

Certification as a Buyers' Cartel: Economic and Legal Implications -- David Laband, Forest Policy Center, Auburn University