



➤ INVASIVES

Newsletter of the Asia-Pacific Forest Invasive Species Network (APFISN)

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- 9-11 June 2010. 23rd Asia-Pacific Forestry Commission, Thimpu, Bhutan

The Asia-Pacific Forest Invasive Species Network (APFISN) has been established as a response to the immense costs and dangers posed by invasive species to the sustainable management of forests in the Asia-Pacific region. APFISN is a cooperative alliance of the 33 member countries in the Asia-Pacific Forestry Commission (APFC) - a statutory body of the Food and Agriculture Organization of the United Nations (FAO). The network focuses on inter-country cooperation that helps to detect, prevent, monitor, eradicate and/or control forest invasive species in the Asia-Pacific region. Specific objectives of the network are: 1) raise awareness of invasive species throughout the Asia-Pacific region; 2) define and develop organizational structures; 3) build capacity within member countries and 4) develop and share databases and information.



Spathodea campanulata - Habit



INVASIVES, bimonthly newsletter of the Asia-Pacific Forest Invasive Species Network (APFISN) is intended to share information among countries in the Asia-Pacific region on Forest Invasive Species (FIS) and the threats they pose in the region. If you have any items of news value on FIS to share between national focal points of APFISN and more widely among foresters, agriculturists, quarantine personnel and policy makers, please pass them on to the editor - Dr. K. V. Sankaran, APFISN Coordinator, Kerala Forest Research Institute, Peechi-680 653, Kerala, India (sankaran@kfri.org). The newsletter is supported by the Food and Agriculture Organization of the United Nations (FAO) and USDA Forest Service.



African tulip tree (*Spathodea campanulata*)

Spathodea campanulata (Bignoniaceae), also called flame of the forest, is a large, upright evergreen tree native to West Africa. This handsome



Spathodea campanulata - leaves and flowers

ornamental tree, considered to be one of the world's worst invaders, is widely planted throughout tropics because of its beautiful red tulip-like flowers. Although the tree is now naturalised in different parts of the world, its aggressive growth is observed in countries like Australia, Fiji, Kiribati, Malaysia, Nauru, Palau, Samoa, Tonga, USA and Vanuatu in the Asia-Pacific region. It favours moist habitats and grows well wherever unhindered sunlight is received. It can bloom at early ages of growth. The trunks and limbs of the tree are weak and cannot withstand wind very well; branches can break off easily as the tree gets older.

The tree can grow up to 80 feet in height and 1-1.5 feet in trunk diameter. The trunk is stout and tapering, somewhat buttressed, and covered with a warty light gray bark. The branches are thick, sub-glabrous to thinly puberulent and marked with small white lenticels. The leaves are 1-2 feet long, oppositely arranged and widely diverging. The leaflets are 11-15 in number, broadly elliptic or ovate; the apex slightly acuminate; base somewhat asymmetrically obtuse, 15 x 7.5 cm in size, with 7-8 principal veins on each side. Lower leaflets are somewhat reflexed; the rachis is nearly straight with brownish puberulent; petiole is up to 6 cm long, thickened at the base; the raceme is 8-10 cm long on a peduncle of about the same length, with a pair of reduced leaves about halfway up the pedicels. The calyx is strongly curved upward, asymmetric, about 5cm long, tapering and somewhat ribbed; the corolla is bright vermilion or scarlet, 10-12 cm long, mouth of limb about 7 cm across, lobes about 3 cm long, obtuse,



African tulip tree - Infestation

margins strongly crispate, orange-yellow in color, filaments about 5 cm long, dull orange anthers are arcuate, linear, very dark brown, 15 mm long. The style is yellowish, 8 cm long; stigma is reddish; capsule is lanceolate and slightly compressed. The pods are 12.7 - 25.4 cm long, green/brown, finger-like and pointing upwards and

outwards above the foliage. Each of these pods contains about 500 tissue papery seeds. The tree flowers in spurts all through the growing season, but peak bloom is usually seen in the spring. There is a rare yellow variety of the tree called *Lutea*. The seeds are mainly dispersed by wind but spread is also through root suckers and cuttings. The flowers are pollinated by birds and bats.

This weedy tree commonly grows in agricultural areas, natural forests and abandoned land. Though it favours moist, fertile, deep and well drained loams for good growth, it can also tolerate dry and heavily eroded sites and a bit of salinity. African tulip is capable of smothering other trees and crops and dominates in areas wherever it grows.

The wood of the tree is soft and is commonly used for nesting by birds. It is also used to make drums, blacksmith's bellows and witch doctor's wands in Africa. The tree is



Seeds of African tulip tree

commonly grown for fire resistant landscaping, shade and for ornamental purposes. In Africa and Haiti, the flowers are thought to have magical properties; the flowers and leaves are also used in traditional medicine. African hunters make use of

the hard nuts by boiling the centres to extract arrow poisons. The cup-shaped flowers hold rain and dew, making them attractive to many birds.

Pines and sugar cane seem to be highly competitive with young stands of African tulip tree. Mechanical control measures of the tree include digging out and hand pulling saplings when the soil is moist. Cutting the large trees and treating the stumps with herbicides like dicamba and glyphosate and application of 2,4 - D and triclopyr to the basal bark of saplings are effective chemical control methods. Biological control is so far unknown.

➤ News column

Mountain plants at risk to exotic invasion

The Mountain Invasion Research Unit (MIREN), composed of scientists from Spain, Germany, Switzerland, Australia, the United States and Chile who studied the distribution of invasive species in alpine environments, reported that the mountain plants are under high risk by invasion of exotic species. Their study was also aimed at analyzing factors that make the plants in these areas more vulnerable to invasion by exotic species. According to MIREN, factors like movement of plant propagules by human activities, increasing level of environmental disturbance, low level of biological resistance, increased transport between high mountain areas and the risk due to climate change help invasion in the mountains. They warranted establishment of a work agenda to evaluate not only the current invasions but also those that could happen in the future.

➤ New publications

Quinn, L.D. and J.S. Holt. 2009. Restoration for resistance to invasion by giant reed (*Arundo donax*). *Invasive Plant Science and Management*, 2: 279 - 291.

Hanula, J.L., Horn, S. and J.W. Taylor. 2009. Chinese Privet (*Ligustrum sinense*) removal and its effect on native plant communities of riparian forests. *Invasive Plant Science and Management*, 2: 292 - 300.

Frid, L. and J.F. Wilmschurst. 2009. Decision analysis to evaluate control strategies for crested wheatgrass (*Agropyron cristatum*) in grasslands national park of Canada. *Invasive Plant Science and Management*, 2: 324 - 336.

Panetta, F.D. 2009. Weed eradication -An economic perspective. *Invasive Plant Science and Management*, 2: 360 - 368.

Onofri, A., Carbonell, E.A., Piepho, H.P., Mortimer, A.M. and R.D. Cousens. 2010. Current statistical issues in weed research. *Weed Research*, 50: 5 - 24.

Bartomeus, I., Vila, M. and I.S. Dewenter. 2010. Combined effects of *Impatiens glandulifera* invasion and landscape structure on native plant pollination. *Journal of Ecology*, 98: 440 - 450.

Smolik, M.G., Dullinger, S., Essl, F., Kleinbauer, I., Leitner, M., Stadler, L.M. and G. Vogl. 2010. Integrating species distribution models and interacting particle systems to predict the spread of an invasive alien plant. *Journal of Biogeography*, 37: 411 - 422.

Dunham, A.E. and A.S. Mikheyev. 2010. Influence of an invasive ant on grazing and detrital communities and nutrient fluxes in a tropical forest. *Diversity and Distributions*, 16: 33 - 42.

Fischer, L.K., Lippe, M. and I. Kowarik. 2009. Tree invasion in managed tropical forests facilitates endemic species. *Journal of Biogeography*, 36: 2251 - 2263.

Leishman, M.R., Thomson, V.P. and J. Cooke. 2010. Native and exotic invasive plants have fundamentally similar carbon capture strategies. *Journal of Ecology*, 98: 28 - 42.

➤ Recent Books

Regulation of Biological Control Agents in Europe. Ed. Ralf-Udo Ehlers, Springer, 2010. This book is the result of the Europe-wide, two-year policy support action, REBECA, a forum for representatives of academia, regulation authorities and biocontrol industry to discuss improved regulation rules. It provides a comprehensive review of existing data requirements and registration procedures. Risks and benefits of biocontrol in relation to trade-off effects resulting from unbalanced regulation are also discussed. Proposals for innovative and balanced regulation procedures are also presented, including recommendations on how to accelerate the authorisation process. Considering concerns about possible non-target effects of beneficial insects, mites and nematodes, the book proposes harmonisation of regulation rules and provides comprehensive material on the data requirements for authorisation, including guidelines for completion of possible application forms for macro-organisms.

Pesticide Resistance, Population Dynamics and Invasive Species Management. By Colln A. Carter, James A. Chalfant, Rachael E. Goodhue, Frank G. Zalom, Gregory J. Mckee (Ed.), Nova Science Publishers Inc, 2010. This book describes a dynamic bio-economic simulation model that represents the biological, economic, and regulatory features of a specific invasion management problem - the invasion of California strawberries by the greenhouse whitefly, *Trialeurodes vaporariorum*, and the pesticide use restrictions imposed by California regulators to manage pesticide resistance. The model described in this book has three components: 1) the population dynamics of the greenhouse whitefly; 2) a population-yield damage function; and 3) grower profit maximisation. This book consists of public domain documents which have been located, gathered, combined, reformatted, and enhanced with a subject index, selectively edited and bound to provide easy access.

➤Forthcoming Symposia / Workshops

11-13 May 2010. Biocontrol in the Americas – Past, Present and Future, Ontario, Canada. The International Organization for Biological Control of Noxious Animals and Plants (IOBC) is hosting a scientific conference to promote awareness and networking of biocontrol issues of common interest among the Americas. The three-day conference will include symposia topics ranging from invasive pests, risks and benefits of exploration for biocontrol agents in the Americas, ecosystem landscapes and habitat management for IPM, challenges and successes for commercialization and implementation of biocontrol agents, microbial biological control, weed biocontrol, biological control with egg parasitoids, etc. Contact: Dr. Les Shipp (Les.Shipp@agr.gc.ca).

9-11 June 2010. 23rd Asia-Pacific Forestry Commission, Thimpu, Bhutan. The theme of the 23rd session is “Forests - our heritage, our future”. There will be a pre-session workshop on 8 June 2010: 1) “Forests: moving beyond GDP contributions to gross national happiness considerations”. The Asia-Pacific Forest Invasive Species Network (APFISN) is organizing a workshop entitled “Pathways of biological invasions into forests” on 8 (afternoon) and 11 (forenoon) June 2010. The workshop is supported by USDA Forest Service and FAO. In addition to the business sessions, topics which will be dealt by this session of the APFC include: State of forestry in the Asia-Pacific region: forestry in transition; Asia-Pacific forests – now and in the future; Forests and biodiversity: conservation and sustainable use of our forest treasures; Progress in improving forest law enforcement and governance in the region; Forests, climate change and REDD: beyond Copenhagen and Harnessing new opportunities for financing sustainable forest management. Details can be had from: apfc2010@gmail.com; www.dof.gov.bt/apfc2010.

