



➤ INVASIVES

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

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- Global impact of biological invasions: transformation in pest management approaches.

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.



Participants in APFISN Bhutan Workshop

➤ Recent books

- The Ecological and Socio-economic Impacts of Invasive Plant Species
- Invasive Plant Ecology in Natural and Agricultural Systems

➤ Forthcoming symposia/workshops

- 1-5 November 2010. 8th IOBC International Workshop on Biological Control and Management of *Chromolaena odorata* and other Eupatorieae and 1st IOBC International Workshop on Biological Control and Management of *Parthenium hysterophorus*, Nairobi, Kenya.



Maesopsis eminii- Seedlings

APFISN- List of Member Countries and National Coordinators



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.



Umbrella tree (*Maesopsis eminii*)

Maesopsis eminii, commonly called umbrella tree is rapidly spreading and replacing native vegetation in Kerala state, South India. This tree, a native of west and central Africa, is currently invasive in Puerto Rico,



Umbrella tree invasion

Rwanda, India and East Africa. It can easily be identified by its leaves with dentate margins and very visible glands. The leaves are also characterized by the presence of domatia in the axils of secondary nerves on the dorsal surfaces. The tree was initially introduced in Coffee and Cardamom plantations in South India as a shade tree from where it spread quickly posing threat to native plants. The tree thrived in unmanaged or abandoned plantations. The spread of *M. eminii* within the state and neighboring states was apparently helped by transport of cow dung (which is used as manure) containing tree seeds.

M. eminii can grow up to 30 m in height, the bark is pale brown and furrowed. The branchlets are pubescent. Leaves are oppositely arranged; flowers greenish yellow, 6 mm across. Fruit is a drupe, oblong - obovoid, muricate, orange in colour and with a single seed in each fruit which are dispersed by birds. Flowering period of the tree ranges from September to April. The tree is characterized by self pruning. Branches upto 5 cm from the base dry up and shed or pushed down by wind or animals. When the trees are old, they lose the shedding ability and produce a spreading and rounded

crown. The tree can grow between 500-1500 m above sea level with an annual rainfall of 800 - 3100



Umbrella tree - branches with fruits

mm. The seedlings of *M. eminii* can survive under forest canopy and become dominant in forest gaps. Young seedlings can outcompete native saplings and when it grows to the top canopy, it spreads out over nearby trees cutting sunlight available to them. Reports from Tanzania shows that it aggressively invades natural forests. The tree is introduced in many parts of the tropics as a fast growing timber yielding species. It increases pH of the soil, alters soil properties and helps soil erosion. It is not normally considered as an invasive tree because of its useful timber. The wood is used for many purposes like making boxes, crates, mill work and plywood. In Congo, its bark is used as a roofing material. Control methods for the tree are currently unknown.

Diamond cholla (*Cylindropuntia ramosissima*)

Occurrence of *Cylindropuntia ramosissima* (Cactaceae), an invasive spiny cactus has recently been recorded from Kerala state, South India.

This forms the first report of the occurrence of the weed in the state.

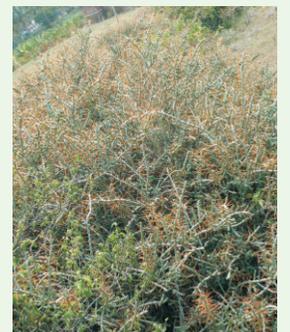


Diamond cholla- Habit

C. ramosissima is a native of south western United States and northern Mexico where it is mainly seen in dry areas. The initial introductions of the plant in India may have been as an ornamental species but currently it is widely used as a hedge plant to protect agricultural land from wild animals. It is locally known as 'Surai mullu' because of the papery covering on its sharp and conspicuous thorns. The thorns are poisonous when struck and it is not easy to remove the thorns because of its reverse barbed nature which makes them grab firmly to the skin. The weed grows in open areas and

road sides replacing native flora and fauna. In Kerala, it appears to be introduced from the neighboring state of Tamil Nadu to use as a hedge plant. The plant can easily be propagated vegetatively.

C. ramosissima is a shrub, branches scandent, tubercles with solitary, long and yellow spines which are up to 3 cm long surrounded by tufts of bristles at their base. Flowers up to 1.5 cm across, pale yellow, solitary in the axils of tubercles. Berries 1.5 x 0.8 cm, obconical, with tufts of bristles. The flowering and fruiting occurs from May to September.



Diamond cholla infestation in vacant land

Report on the APFISN Workshop on 'Pathways of Biological Invasions into Forests' organized at Thimphu, Bhutan on 8 & 11 June 2010.

Background

Biological invasions have impacted the economic, ecological and cultural arenas in a highly significant manner than ever before. Invasions by Invasive Alien Species (IAS) are recognized to be much faster than the natural rate of migration of species. The large-scale increase in global transport of goods and people is the primary cause of this widening invasion scenario. Among the various worldwide efforts to contain the invasive species, APFISN, in its period of existence had tried to map the general contours of the problem as a function of sustainable management of natural and planted forests.

The network has been focusing on preparation of country reports on IAS, publication of fact sheets on major invasive species, deliberating on the impact of IAS on biodiversity and is active in disseminating information on forest invasives across the Asia-Pacific. The network realized that the compilation and dissemination of information and establishing direct contact with stakeholders in various countries as an essential and continuing effort and the problems caused by biological invasions warrant urgent action. Efforts to contain biological invasion is an integrated activity which should look into the origin, transport, arrival, establishment and naturalization of the species that move. Among these various phases of the invasion process, the one with the quickest intervention probability is the transport phase, which can be monitored and checks implemented at the earliest. Considering the immediate need for action in many of the potential invasive species, APFISN workshop at Thimphu, Bhutan focused on the pathways of biological invasion.



Objectives of the workshop

- Stock taking of current and potential invasive species transport pathways both within and across countries.
- Listing the agencies at national and international levels that need to be sensitized in biological invasions.
- Planning of awareness programmes targeting governments, media and business establishments.
- Identifying linkages within APFISN and multi-agency system within member countries for targeted campaign at regional levels.

The workshop started off with the introductory remarks by Mr. Patrick Durst, Senior Forestry officer on behalf of FAO. Dr. KV Sankaran, Coordinator, APFISN, explained the objectives of the workshop. This was followed by presentation of country reports from China, Nepal, Bhutan, Japan, Sri Lanka, Philippines, Maldives, Bangladesh, Malaysia, Cambodia, India and Indonesia. Dr. Shao Winxia made a special presentation on the pest risk analysis protocol for non-crop plants in China. Following this, there were presentations on "Detecting target pests and risk analysis" by Ross Wiley, "Pathways of plant invasions and mechanisms and factors contributing to success of invasion" by Inderjit, "Forest surveillance and pathway analysis" by Ross Wylie, "Global invasive species program" by Tim Christophersen, "Phytosanitary standards in forestry" by Jose Antonio Prado and "Interventions at pathways – problems and prospects" by T.V. Sajeev. Each of the presentations were followed by lively discussions on the topic. The workshop also deliberated on: target pests of the region, major pathways, action plans for forest surveillance and risk analysis, institutional mechanism for intervention at transport phase, listing of stakeholders and awareness literature for the region. A total of 35 delegates from 16 countries attended the workshop.

The Workshop was held in conjunction with the 23rd APFC meeting.

Recommendations

1. Regional grouping of countries: Neighboring countries showing similar invasive species problems should be grouped together, so as to facilitate need - based training. The workshop identified 5 regional groups for this as follows:
 - a. India, Sri Lanka, Bhutan, Nepal, Maldives, Pakistan, Myanmar, Bangladesh
 - b. Lao PDR, Thailand, Vietnam, Cambodia
 - c. China, Korea, Japan, Mongolia
 - d. Malaysia, Indonesia, Philippines, Timor Leste
 - e. Fiji, Samoa, PNG, Solomon Islands, Vanuatu, Australia, New Zealand, US

2. Resource mobilisation: The network has drawn up excellent action plans for the future, but we are with zero resources to support these activities. So, all the international organizations are urged to earmark some funds for the network.
3. Need new communication channels: There exists lack of communication between scientists, foresters, policy makers and quarantine personnel. The APFC may recommend member countries to promote such communications.

Giant African Snail gains sustained status in Kerala, India

Frequent outbreaks of *Achatina fulica* (Giant African Snail) has been noticed in Kerala State, during the last decade. Recent outbreaks indicated maintenance of high population level continuously for the past six months in Konni and neighboring villages. It has become such a menace that people have been frantically trying various control measures to contain the population. APFISN launched a rapid assessment work in this infested areas and submitted a report to the District Authority giving technical advice on how to contain the outbreak. The major objective was to prevent large scale use of chemical molluscicides as instructed initially by the local authorities. Instead, spraying of a combination of tobacco decoction and copper sulphate was found effective in controlling the population with out major environmental hazards. This recommendation is being implemented now in all the infested villages. To know more about Giant African Snail, visit: www.apfisin.net/fact sheet



Giant African snail

➤ New publications

Makowski, D., Chauvel, B. and N. M. Jolain. 2010. Improving a weed population model using a sequential Monte Carlo method. *Weed Research*, 50: 373 - 382.

Ruben, H., Lacerda, I., Ramos, J. A. and J. Memmott. 2010. Evaluation of restoration effectiveness: community response to the removal of alien plants. *Ecological Applications*, 20: 1191 - 1203.

Reynolds, L. K. and K. E. Boyer. 2010. Perennial pepper weed (*Lepidium latifolium*): Properties of invaded tidal marshes. *Invasive Plant Science and Management*, 3: 130 - 138.

James, J. J., Ziegenhagen, L. and Z. T. Aanderud. 2010. Exploitation of nutrient-rich soil patches by invasive annual and native perennial grasses. *Invasive Plant Science and Management*, 3: 169 - 177.

Gross, C. L., Gorrell, L., Macdonald, M. J. and M. Fatemi. 2010. Honeybees facilitate the invasion of *Phylla canescens* (Verbenaceae) in Australia - no bees, no seed!. *Weed Research*, 50: 364 - 372.

Harwood, J. D. and M. N. Parajulee. 2010. Global impact of biological invasions: transformation in pest management approaches. *Biological Invasions*, 12: 2855 - 2856.

➤ Recent books

The Ecological and Socio-economic Impacts of Invasive Plant Species: By Shetie Gatew and Mekuria Argaw, VDM Verlag, 2010. The book reviews ecological distribution and social - economic impact of *Prosopis juliflora* in Afar Regional State of Ethiopia. *Prosopis* was introduced to Ethiopia about 35 years ago to rehabilitate degraded lands and as a shade tree around Afar Regional State. Now, the species has invaded all land use/ land cover of the State and its invasion became severe in acacia woodland than the other land uses. The plant is a source of income for the poor but has deleterious impact on the nomadic and rich people in several ways.

Invasive Plant Ecology in Natural and Agricultural Systems: By Barbara D. Booth, Stephen D. Murphy, Clarence J. Swanton, CABI, 2010. Bringing together reasons for why and where weeds occur and the ecological importance of weed management, this updated edition of "Weed Ecology" provides an in-depth study of plant ecology with greater coverage of invasive plant biology and more concise statistics. It is an essential book for researchers and students in plant ecology, agriculture and horticulture.

Forthcoming symposia / workshops

1-5 November 2010. 8th IOBC International Workshop on Biological Control and Management of *Chromolaena odorata* and other Eupatorieae and 1st IOBC International Workshop on Biological Control and Management of *Parthenium hysterophorus*, Nairobi, Kenya. The 8th IOBC International Workshop on Biological Control and Management of *Chromolaena odorata* and Other Eupatorieae is organized under the auspices of the IOBC, hosted by CABI. The workshop was initiated in 1988 to facilitate the management and biological control of *Chromolaena odorata* in resource-poor tropical and subtropical countries. In 2003 the scope of the workshop was expanded to include closely related species such as *Mikania micrantha*, while retaining an emphasis on the tropics.

The purpose of the 1st IOBC international workshop on biological control and management of *Parthenium hysterophorus* is to bring together international researchers working on *Parthenium* to disseminate information on the weed and its management, to increase collaboration amongst researchers regionally and globally, to optimise resources for the control of this weed, and for technology transfer (supply of biocontrol agents to other countries). Additionally, it is hoped that this workshop will raise awareness of *Parthenium* weed for countries that are at risk, or that are in the early stages, of invasion by this weed. Contact: ZachariadesC@arc.agric.za.

Asia-Pacific Forest Invasive Species Network - List of Member Countries and National Coordinators

[Australia](mailto:Michael.cole@affa.gov.au), Mike Cole, Michael.cole@affa.gov.au; [Bangladesh](mailto:dccf-pln@bforest.gov.bd), MD. Abdul Mutaleb, dccf-pln@bforest.gov.bd; [Bhutan](mailto:db_dhital@moa.gov.bt), D.B.Dhital, db_dhital@moa.gov.bt; [Cambodia](mailto:samrethv@yahoo.com), Samreth Vanna, samrethv@yahoo.com; [China P.R.](mailto:jianwu@forestry.gov.cn), Jian Wu, jianwu@forestry.gov.cn; [Fiji](mailto:lal.sanjana@gmail.com), Sanjana Devi Lal, lal.sanjana@gmail.com; [India](mailto:johari60@yahoo.com), A.K. Johari, johari60@yahoo.com; [Indonesia](mailto:garsetiasih@yahoo.com), Ms. R. Garsetiasih, garsetiasih@yahoo.com; [Japan](mailto:makino@ffpri.go.jp), Dr. Shunichi Makino, makino@ffpri.go.jp; [Republic of Korea](mailto:ymlee99@foa.go.kr), You Mi Lee, ymlee99@foa.go.kr; [Maldives](mailto:agri@fishagri.gov.mv), Aminath Shafia, agri@fishagri.gov.mv; [Myanmar](mailto:friyezin@myanmar.com.mm), Wai Wai Than, friyezin@myanmar.com.mm; [Nepal](mailto:thapahb@yahoo.com), H.B.Thapa, thapahb@yahoo.com; [New Zealand](mailto:Chris.Baddeley@maf.govt.nz), Chris Baddeley, Chris.Baddeley@maf.govt.nz; [Papua New Guinea](mailto:rturia@pngfa.gov.pg), Ruth C.H. Turia, rturia@pngfa.gov.pg; [Philippines](mailto:amaromarsjr@yahoo.com), Marcial C. Amaro Jr., amaromarsjr@yahoo.com; [Samoa](mailto:matur.paniani@mnre.gov.ws), Matur Paniani, matur.paniani@mnre.gov.ws; [Solomon Islands](mailto:raomaerichy@yahoo.com), Richard Raomae, raomaerichy@yahoo.com; [Sri Lanka](mailto:friku@slt.net.lk), Dr. N.D.R. Weerawardene, friku@slt.net.lk; [Thailand](mailto:Sup52@hotmail.com), Supahote Uengwichanpanya, Sup52@hotmail.com; [Timor-Leste](mailto:hakmatek@hotmail.com), Manuel da Silva, hakmatek@hotmail.com; [United States of America](mailto:rmangold@fs.fed.us), Robert Mangold, rmangold@fs.fed.us; [Vanuatu](mailto:rubenmarkwardbakeo@yahoo.com), Ruben Markward Bakeo, rubenmarkwardbakeo@yahoo.com; [Vietnam](mailto:phamquangthu@fpt.vn), Pham Quang Thu, phamquangthu@fpt.vn; [Tuvalu](#), [Kiribati](#), [France](#), [Russia](#), [Laos](#), [Malaysia](#), [Mongolia](#), [Pakistan](#), [Tonga](#) - Nomination awaited.

