APFISN

Invasives

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

Contents

About APFISN

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.


Rubus ellipticus Sm

INVASIVES, monthly newsletter of the Asia-Pacific Forest Invasive Species Network (AFPISN) 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). This newsletter is supported by the Food and Agriculture Organization of the United Nations (FAO) and USDA Forest Service.

Himalayan raspberry (*Rubus ellipticus*)

Rubus ellipticus (Rosaceae), commonly called Himalayan raspberry, is a thorny shrub which was introduced to many countries as an ornamental and for its edible fruits. The native range of *Rubus* is Asia and it is currently

Himalayan raspberry - Leaves

distributed in Australia and Hawaii (USA) in the Asia-Pacific region and has become naturalized in some other parts of world. The plant threatens the growth of native raspberry (*Rubus hawaiiensis*). The Global Invasive Species Database listed this plant among 100 of the World's worst invaders. The seeds are dispersed by fruit-eating birds and mammals. In Hawaii, it is listed as a noxious weed and its island transport is illegal.

Rubus is a stout, weak-climbing evergreen shrub. The stem is often 4.5 m tall, forming impenetrable thickets several meters wide. Primocanes are usually erect, covered with spreading prickles up to 5 mm long; floricanes are covered with stout, recurved, longitudinally elongate prickles up to 6 mm long and densely covered with slender spreading prickles. Leaves are persistent, palmately compound, thick; leaflets number 3, are broadly obcordate, the terminal one being the largest, usually 6 - 8 cm long and 5 - 6.5 cm wide. Those of the primocanes are slightly smaller, the upper surface is sparsely pilose, the lower surface is densely velvety pilose; the midrib has a few small, stout, recurved prickles and smaller straight ones; margins are serrate; petiolules 1.5-3 cm long; petiolules and petioles are densely covered with long, straight prickles and scattered stout, recurved prickles. Flowers, arranged in short terminal panicles, are tomentose and covered throughout with short prickles; pedicels are 3-10 mm long; petals are white, obovate, 7-9 mm long. The fruit is yellow, a depressed-hemispherical shape ca. 0.8 cm long and glabrous. The seeds are dispersed by fruit-eating birds and mammals. The species spreads by root suckers and can regenerate from underground shoots after fire or cutting.

Himalayan raspberry - Infestation

Himalayan raspberry -Fruits

The plant is usually found in moist to wet forests and is present within an elevation range of 700 to 1,700 meters and a rainfall range between 1,250 and 7,000 mm. It often invades land disturbed by feral pigs. *Rubus* is well adapted to open canopy forests and pastures as well as the dense shade of rain forests.

R. ellipticus forms impenetrable thickets through vigorous vegetative growth and crowds out native species in moist to wet disturbed areas of Hawaii. Also, the plant supports populations of *Drosophila* that breed mainly on rotting fruit.

The inner bark of *Rubus* is used in traditional Tibetan medicine. The juice of *Rubus* fruit is used in the treatment of fever, colic, cough and sore throat. The plant is also a renal tonic and antidiuretic, used for the treatment of weakening of the senses, vaginal/seminal discharge and polyuria.

Mechanical control is very difficult due to the plant's sharp prickles and dense thickets. The roots need to be burned if burning is used as a method of control. Use of glyphosate or triclopyr ester and picloram applied to stumps has been found effective in controlling *Rubus*. The plant is sensitive to foliar application of triclopyr. Biological control is unknown.

News

Genomic clues to invasive and endangered plants

A recent study published in the *Journal of Ecology* shows that there are strong links between the number of sets of chromosomes a plant has and whether it is in danger of becoming rare or invasive. The findings showed clear trends and demonstrated the value of genomic attributes as risk factors of vulnerability to endangerment or invasiveness in plants. Scientists involved in the study collated a huge dataset on chromosomes in 640 endangered and 81 invasive species and their related species. They found that endangered plants are likely to have only 2 sets of chromosomes (diploid) and invasives generally had multiple sets of (polyploid) chromosomes. To summarize, the invasive plants are 20% more likely to be polyploids than diploids and a species is 12% more likely to become invasive if its chromosome number doubles. Interestingly, the study showed that, endangered plants are 14% less likely to be polyploids than diploides. Apparently, having multiple sets of chromosomes is associated with a plants vigour and the ability to adapt to different environments. This is a helpful trait in invasive plants. The results of the study would be helpful in efforts to assess the risks of invasive and endangered species.

New publications

Kennett, J., Mc Elhinny, C. and P. Gibbons. 2011. Environmental and management factors controlling the potentially invasive native species violet kunzea (*Kunzea parvifolia*). Ecological Management & Restoration, 12: 69 - 71.

Hussain, M. I., Gonzalez, L. and M. J. Reigosa. 2011. Allelopathic potential of *Acacia melanoxylon* on the germination and root growth of native species. Weed Biology and Management, 11: 18 - 28.

Suhr, E. L., Dowd, D. J., Mc Kechnie, S. W. and D. A. Mackay. 2011. Genetic structure, behaviour and invasion history of the Argentine ant supercolony in Australia. Evolutionary Applications, 4: 471 - 484.

He, K. S., Rocchini, D., Neteler, M. and H. Nagendra. 2011. Benefits of hyperspectral remote sensing for tracking plant invasions. Diversity and Distributions, 17: 381 - 392.

Roy, B. A., Coulson, T., Blaser, W., Policha, T., Stewart, J. L., Blaisdell, G. K. and S. Gusewell. 2011. Population regulation by enemies of the grass *Brachypodium sylvaticum*: demography in native and invaded ranges. Ecology, 92: 665 - 675.

Wang, Y., Huang, W., Siemann, E., Zou, J., Wheeler, G. S., Carrillo, J. and J. Ding. 2011. Lower resistance and higher tolerance of invasive host plants: biocontrol agents reach high densities but exert weak control. Ecological Applications, 21:729 - 738.

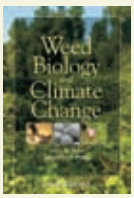
Foxcroft, L. C., Jarosik, V., Pysek, P., Richardson, D. M. and M. Rouget. 2011. Protected-area boundaries as filters of plant invasions. Conservation Biology, 25: 400 - 405.

Sousa, R., Morais, P., Dias E. and C. Antunes. 2011. Biological invasions and ecosystem functioning: time to merge. Biological Invasions, 13: 1055 - 1058.

Walters, L., Odom, R. and S. Zaleski. 2011. The aquarium hobby industry and invasive species: has anything changed? Frontiers in Ecology and the Environment, 9: 206 - 207.

Hyvonen, T., Glemnitz, M., Radics, L. and J. Hoffmann. 2011. Impact of climate and land use type on the distribution of Finnish casual arable weeds in Europe. Weed Research, 51: 201 - 208.

Books



Weed Biology and Climate Change. By Lewis H. Ziska and Jeffrey Dukes, Wiley-Blackwell, 2011. This book provides a synthesis of the probable impact of environmental change on weed biology. Impacts of weed biology on agriculture, invasive species that limit ecological diversity and weeds that serve as health risks are discussed. In addition, it looks at current weed management strategies and how they will be affected by global climate change. Incidence of invasion around the world poses a major threat to indigenous biological diversity. The book examines these aspects by citing examples from the NW Himalaya, India.

Future events

30 August - 3 September 2011. 11th International Conference on the Ecology and Management of Alien Plant Invasions, Szombathely, Hungary. The main objective of the conference is to bridge the gap between scientific knowledge and management practice in dealing with invasive plants. The main topics which will be discussed are: 1) Introduction pathways and spread of invasive species; 2) Biology and ecology of invasive plants; 3) Interaction with other trophic levels: enemies and mutualists; 4) Genetics and evolution of invasive plants; 5) Invasion patterns and invasibility of habitats; 6) Impact of plant invasions (on plant communities, on other trophic levels, and on ecosystem functions and services); 7) Mapping, inventories, databases and internet resources; 8) Risk assessment, prioritisation, policy and programs for early detection and rapid response; 9) Managing alien plant invasions through policy and vegetation management practices (including practical management experiences); 10) Restoration and rehabilitation after successful control; 11) Plant invasion in a changing world: relationship between plant invasion and other global change components (climate change, pollution, eutrophication and land use change); 12) Communication and outreach; and 13) Networking and international cooperation. Contact: bdz@botanika.hu

11-16 September 2011. XIII International Symposium on Biological Control of Weeds (ISBCW), Waikoloa, USA. This symposium will provide a unique opportunity to scientists to take stock of a century of biocontrol in the Pacific and examine emerging issues, including climate change, that affect invasive plant management across the globe. The major themes to be covered are: 1) Target and agent selection; 2) Pre-release testing of agents; 3) Post-release evaluation and management; 4) Ecological and evolutionary processes; 5) Social and economic assessments of biocontrol; 6) Evaluating benefits and risks; 7) Emerging issues in regulation of biocontrol; 8) Managing invasive plants under climate change; 9) History and prospects for weed biocontrol in Pacific islands; and 10) Integrating biocontrol and restoration of ecosystems. Contact: isbcw@hawaii.edu

Position vacant

Live and Learn Environmental Education, a non–government, nonprofit organization, in Vanuatu has invited application for the post of Project Co-cordinator (invasive species). The post is full time for 5 years. The purpose of the position is to coordinate overall management of the project 'Testing and modeling preventive measures to limit the spread and ecological impact of invasive species in Small Island Development States'. For further information, please contact: Ian Kalsuac- ian.kalsuak@livelearn.org

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