



# INVASIVES

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

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## Threats

- Mexican poppy (*Argemone mexicana*)

## News column

- Species extinction – A biodiversity crisis?

## New publications

- Weighing abiotic and biotic influences on weed seed predation
- Genetic differences in the elevational limits of native and introduced *Lactuca serriola* populations
- Population expansion in an invasive grass, *Microstegium vimineum*: a test of the channelled diffusion model
- Native-exotic species richness relationships across spatial scales and biotic homogenization in wetland plant communities of Illinois, USA
- Experimental introduction of the alien plant *Hieracium lepidulum* reveals no significant impact on montane plant communities in New Zealand
- Does allelopathy explain the invasiveness of *Campuloclinium macrocephalum* (pompom weed) in the South African grassland biome?
- The alien flora of Greece: taxonomy, life traits and habitat preferences
- Interactions between invasive plants and insect herbivores: A plea for a multitrophic perspective
- Two views on the ecology and economics of intervention against invasive species
- Principles for ecologically-based invasive plant management

## Recent books

- Mapping and management of invasive species: *Chromolaena odorata*
- Wildfires, fuels and invasive plants

## Forthcoming symposia/workshops

- 7 - 9 March 2011. 2<sup>nd</sup> International invasive bird conference, Cape Town, South Africa

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.



*Argemone mexicana* - Flower with pods



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.



## Threats

### Mexican poppy (*Argemone mexicana*)



*Argemone mexicana* - Habit

poisoning and death have been reported from India, Fiji, South Africa and other countries. The plant contains several alkaloids, including berberine and protopine in the herb, and sanguinarine and dihydro-sanguinarine in the seed oil, which display significant cytotoxic and antimicrobial properties.

Mexican poppy is a coarse, erect annual herb with milky sap and prickly stems and leaves. Stems are 0.3 - 0.12 m long, branched, and sparsely to moderately covered with prickles. The leaves are thistle-like, glaucous, oblong-obovate, pinnately lobed, 1/2 - 3/4 to midrib; both surfaces are sparsely covered with prickles along the veins; margins are somewhat sinuate-dentate; the teeth are tipped with a prickle, sessile, the upper ones usually somewhat clasping the stem. Buds are subglobose, 1.2 - 1.6 cm long, sparsely prickly; flowers are sessile, yellow, showy, up to 6 cm wide, sepal horns are terete, 5 - 10 mm long; petals are bright yellow, 1.7 - 3 cm long; stamens 30 - 50; ovary 4 - 6 - carpellate. Capsules are oblong to broadly ellipsoid, 3 - 4.2 cm long, each valve with 9 - 15 prickles, the longest one 7-10 mm long. Seeds numerous, 1.2-1.5 mm in diameter. In India, flowering occurs all year



Mexican poppy - Infestation

*Argemone mexicana*, commonly called Mexican poppy (Papaveraceae), is a prickly, annual herb native to Mexico and the West Indies. The plant has spread to several countries including South Africa, Australia, China, India, Indonesia, Japan, Maldives, Philippines, Samoa, Thailand, the U.S.A. and Vanuatu, and has become naturalized in some of these countries. Because of the similarity between the Mexican poppy and *Brassica nigra* (mustard) seeds, the former is widely used for adulteration purposes. Due to this, several instances of seed and oil

round. The main propagation method is through seeds.

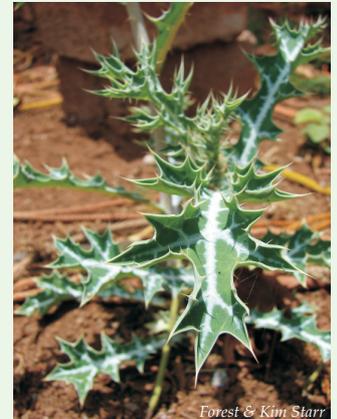
*Argemone* is commonly seen near forests, agricultural fields, orchards and in waste lands from 0-2,900 m asl. It has the ability to adapt to a wide range of habitats and climatic conditions.

The plant prefers sandy and well drained soils and can grow in nutritionally poor soil. It cannot grow in the shade but can tolerate drought.

The seeds of Mexican poppy contain 22-36% of a pale yellow non-edible oil (argemone oil) which contains the toxic alkaloids sanguinarine and dihydro-sanguinarine. The seed oil causes lethal dropsy when used with mustard oil for cooking. The plant is unpalatable to animals.

*A. mexicana* is an analgesic, antispasmodic, antioxidant and a diuretic. It has a wide range of potential medicinal uses. It cures skin diseases, inflammations, ulcers and bilious fevers. Dried and powdered plants are recommended as green manure. The seed oil is used as an illuminant, lubricant, in soap making and for protection from termites. The seed pod secretes a pale yellow latex which is used as a sedative in many countries. The narcotic effects of the herb, juice and flowers are well known. In Mali, *Argemone* is used to treat malaria.

Mechanical methods to control the plant include pulling, hoe-cutting and cutting the flowering stalks while in early bloom. Cultivation of the ground destroys the weed if continued for a sufficient time to stir all dormant seeds into growth. Chemicals like glyphosate, triasulfuron and 2,4-D amine are used to control Mexican poppy. Biocontrol methods are not known.



*Argemone mexicana* - Thorny leaves



Mexican poppy - Seed pod

### Species extinction – A biodiversity crisis?

Globally, one in five plant species is under threat of extinction and many more are near threatened, says a global analysis conducted by the Royal Botanic Gardens, Kew in collaboration with the Natural History Museum, London and the International Union for the Conservation of Nature (IUCN).

This is the first-ever assessment of the true extent of the threat to the world's estimated 380,000 known plant species. The work relied heavily on the botanical information and specimens held in the Kew herbarium and Natural History Museum, London. The study confirms that plants are under threat and the main cause is human-induced habitat loss.

Human impact threats include: 1) residential and commercial development and tourism; 2) commercial agriculture; 3) wood plantations; 4) logging and wood extraction; 5) mining and transportation; 6) pollution; 7) human disturbances like war and recreational activities; 8) harvesting for food and medicine; and 9) competition with invasive species.

The study also revealed that: 1) about 1/3 of the species in the sample are insufficiently known to carry out a conservation assessment, which means that many plants are still too poorly known to determine whether they are endangered or not; 2) plants are more threatened than birds, as threatened as mammals and less threatened than amphibians or corals; 3) gymnosperms are the most threatened group; 4) the most threatened habitat is tropical rain forest; 5) most threatened plant species are found in the tropics; and 6) the most threatening process is man-induced habitat loss, mostly the conversion of natural habitats for agriculture or livestock use.

## New publications

- Davis, A. S. and S. Raghu. 2010. Weighing abiotic and biotic influences on weed seed predation. *Weed Research*, 50: 402 - 412.
- Alexander, J. M. 2010. Genetic differences in the elevational limits of native and introduced *Lactuca serriola* populations. *Journal of Biogeography*, 37: 1951 - 1961.
- Miller, N. P. and G. R. Matlack. 2010. Population expansion in an invasive grass, *Microstegium vimineum*: a test of the channelled diffusion model. *Diversity and Distributions*, 16: 816 - 826.
- Chen, H., Qian, H., Spyreas, G. and M. Crossland. 2010. Native-exotic species richness relationships across spatial scales and biotic homogenization in wetland plant communities of Illinois, USA. *Diversity and Distributions*, 16: 737 - 743.
- Meffin, R., Miller, A. L., Hulme, P. E. and R. P. Duncan. 2010. Experimental introduction of the alien plant *Hieracium lepidulum* reveals no significant impact on montane plant communities in New Zealand. *Diversity and Distributions*, 16: 804 - 815.
- Goodall, J., Witkowski, E. T. F., Ammann, S. and C. Reinhardt. 2010. Does allelopathy explain the invasiveness of *Campuloclinium macrocephalum* (pompom weed) in the South African grassland biome? *Biological Invasions*, 12: 3497 - 3512.
- Arianoutsou, M., Bazos, I., Delipetrou, P. and Y. Kokkoris. 2010. The alien flora of Greece: taxonomy, life traits and habitat preferences. *Biological Invasions*, 12: 3525 - 3549.
- Harvey, J. A., Bukovinszky, T. and W. H. Putten. 2010. Interactions between invasive plants and insect herbivores: A plea for a multitrophic perspective. *Biological Conservation*, 143: 2251 - 2259.
- Parkes J. 2010. Two views on the ecology and economics of intervention against invasive species. *Conservation Biology*, 24: 1431 - 1432.
- James, J. J., Smith, B. S., Vasquez, E. A. and R. L. Sheley. 2010. Principles for ecologically-based invasive plant management. *Invasive Plant Science and Management*, 3: 229 - 239.

## ➤ Recent books

**Mapping and management of invasive species: *Chromolaena odorata*:** By Chudamani Joshi and Jan de, LAP Lambert Academic Publishing, 2010. The book presents a spatial and temporal analysis of the enduring problem of bioinvasion in the modern world, and the role of GIS and remote sensing imagery in mapping and management of *Chromolaena odorata*. It also gives a new perspective of the capabilities of indirect use of remote sensing tools in mapping and management of invasive species.

**Wildfires, fuels and invasive plants:** Ed. Louise E. Willems, Nova Science Pub Inc, 2010. The main reason for the occurrence of wildfires is climate change and partly by the increasing number of homes in and near the forest. However, it is known that wildfire suppression and historic land management practices have led to unnaturally high accumulations of biomass in many forests, primarily in the intermountain West. While high-intensity conflagrations (wildfires that burn the forest canopy) occur naturally in some ecosystems (called crown-fire or stand-replacement fire ecosystems), abnormally high biomass levels can lead to conflagrations in ecosystems when such crown fires are rare. This book explores wildland fires, fuels and non-native invasive plants in our forest ecosystems.

## ➤ Forthcoming symposia / workshops

**7 - 9 March 2011. 2nd International invasive bird conference, Cape Town, South Africa.** The aim of the conference is to explore developments in invasive bird biology, to assess the level of understanding of the different facets of bird invasions and our ability to manage them, and to discuss priorities for the future. The programme will be structured to address key themes presented through keynote talks and oral and poster presentations. For more information visit: [www.iibc2011.co.za](http://www.iibc2011.co.za)

