APFISN

Invasives

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

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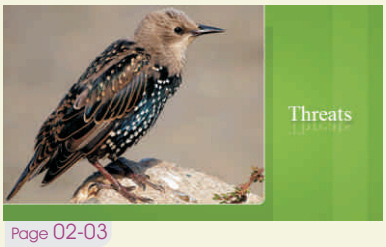

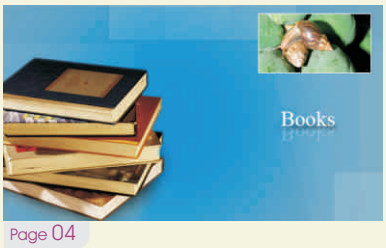

About APFISN

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.

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.

European starling (*Sturnus vulgaris*)

Sturnus vulgaris, commonly called the European starling, is a synanthropic, omnivorous bird that was introduced intentionally in some cases and inadvertently from its native range into many countries across the globe. The

European starling - flock

Global Invasive Species Database has cited this bird as one among 100 of the world's worst invaders. The native range of the bird is Europe, Asia and North Africa. The bird was introduced from Britain to the USA in 1890 as part of a program to bring all birds mentioned in Shakespeare's plays to America. It was first released in New York City's Central Park, where it aggressively multiplied; currently, the population of European starling in North America is estimated to be around 200 million. The bird is now widely distributed in Australia, Bhutan, China, Fiji, Maldives, Myanmar, New Zealand, South Korea, Thailand, Tonga, United States of America, Vanuatu and Vietnam in the Asia-Pacific region.

European starling - eggs

There are around 114 species in the Starling family. But the best known Starling is in the genus *Sturnus*. The European starling is a small bird approximately 21 cm long and 70 to 90 gm in body weight. It has a wing length of 118 - 135 mm, a short neck, strong, long legs, sharp claws and a short tail. The bill is sharp, thin, long and bends slightly downward. The bills of adult males and females are dark in colour, but appear yellow during the reproductive cycle. The wings have a triangular shape when outstretched in flight. The adult males have black plumage with a glossy metallic shimmer of different shades such as purple, violet, blue, green or copper. The wings and tail are fulvous and the legs are reddish brown in colour. Starlings walk rather than hop as Mynahs do. Their normal life span is around 20 years.

After locating an appropriate site for nesting, the male bird sings to attract a mate. While singing, it waves its wings by half extending and rotating them. The male also builds the nest and brings fresh flowers, green leaves and herbs to supply the nest. The females normally have two clutches of 4 - 5 eggs per year. The eggs are blue or bluish-green, generally without spots but occasionally there are eggs with spots. The male and female take turns incubating the eggs for 13 - 15 days. Both parents feed the nestlings.

The European starling feeds on a variety of insects (e.g., centipedes, spiders, moths, beetles, grubs), earthworms, vertebrates (e.g., lizards and frogs), and the fruits and seeds of plants. One positive aspect is that they also feed on harmful insects and hence are used as biocontrol agents in certain countries to manage insect populations.

The bird can nest in a wide variety of spaces such as house roofs, trunk hollows, ground burrows, and cliff edges located in cities, towns, farms, open woodlands, fields and lawns. During breeding time, it requires holes for nesting and vegetation fields for feeding. Predators of the birds are various species of hawks.

European starling can adversely impact agricultural crops and cultivated fruits such as grapes, peaches, figs and cherries due to its voracious feeding behavior. It aggressively occupies tree cavities and displaces other cavity-nesting birds such as bluebirds, flickers, woodpeckers and wood ducks. The bird is also a carrier of parasites such as *Salmonella*, *Toxoplasmosis*, *Histoplasma capsulatum*, ticks and mites, which may be transmitted to native birds and humans. In short, the bird is a menace because of health concerns, filth, noise, odor, economic damage and the threat to native birds. The slippery accumulation of droppings causes a safety problem and the droppings are corrosive due to the acid content. Large flocks of Starlings are also a threat to aircraft, either through collisions or when sucked into engines. Successful methods used to control Starling populations include shooting, trapping, the use of repellants, frightening devices, exploders and lights.

S. vulgaris - threat to air crafts

News

Level of impact of invasive plants on native biodiversity depends on spatial scale

Kristin Powell and co-workers at Washington University recently examined whether biological invasions are one of the major threats to native biodiversity. They conducted a meta analysis to synthesize results from several previous studies and developed a model to investigate mechanisms that might explain their results. They compared differences in species richness between plots with and without invasive plant species, and regressed that against the study plot size to understand whether there is a relationship between the effects of invaders and the spatial scale. They found that while invasive plants at small spatial scales (plots <100 m^2) severely decreased native species richness, the impact decreased as the size of the plot increased. In short, invasive plants cause large losses in biodiversity at small scales but this effect disappears at larger scales. Moreover, while invasive species may lead to native plant extinctions at the local level, it may take a much longer time (decades or centuries) for these plant species to become extinct at the regional or global level.

To seek an explanation for this effect, the research team developed a model based on the idea that invasive plants might change the abundance and structural pattern of native plants depending on how many rare and common species are present in the areas in question. The study indicated that "in order for invasive species to drive native species extinct at the regional (or broader scale) level, the system must have many rare species which are strongly and disproportionally influenced by invasive species relative to the more widespread, common species. In all other scenarios, invasive species would have bigger or similar impacts at the local rather than the regional level." The results of the study are published in the latest issue of the *American Journal of Botany* (98: 539 - 548).

New publications

Progar, R.A., Markin, G., Milan, J., Barbouletos, T. and M.J. Rinella. 2011. Population dynamics and impacts of the Red-headed leafy spurge stem borer on leafy spurge (*Euphorbia esula*). Invasive Plant Science and Management, 4: 183 - 188.

Ma, J.W., Geng, S.L., Wang, S.B., Zhang, G.L., Fu, W.D. and B. Shu. 2011. Genetic diversity of the newly invasive weed *Flaveria bidentis* (Asteraceae) reveals consequences of its rapid range expansion in northern China. Weed Research, 51: 363 - 372.

Gaigher, R., Samways, M. J., Henwood, J. and K. Jolliffe. 2011. Impact of a mutualism between an invasive ant and honeydew-producing insects on a functionally important tree on a tropical island. Biological Invasions, 13: 1717 - 1721.

Zaiko, A., Lehtiniemi, M., Narscius, A. and S. Olenin. 2011. Assessment of bioinvasion impacts on a regional scale: a comparative approach. Biological Invasions, 13: 1739 - 1765.

Wolkovich, E.M. and E.E. Cleland. 2011. The phenology of plant invasions: a community ecology perspective. Frontiers in Ecology and the Environment, 9: 287 - 294.

Quinn, E.F., Bailey, J.K. and J.A. Schweitzer. 2011. Soil biota drive expression of genetic variation and development of population-specific feedbacks in an invasive plant. Ecology, 92: 1208 - 1214.

Briski, E., Ghabooli, S., Bailey, S.A. and H.J. MacIsaac. 2011. Assessing invasion risk across taxa and habitats: life stage as a determinant of invasion success. Diversity and Distributions, 17: 593 - 602.

Powell, K.I., Chase, J.M. and T.M. Knight. 2011. A synthesis of plant invasion effects on biodiversity across spatial scales. American Journal of Botany, 98: 539 - 548.

Books

Invasive and introduced plants and animals: human perceptions, attitudes and approaches to management. By Robert A. Lambert and Ed. Ian D. Rotherham, EarthScan, 2011. This book deals with the broader context of invasive alien species in terms of potential threats and environmental concerns. Due to the unprecedented scale of environmental changes, coupled with rapid globalization and the fears of bioterrorism and biosecurity, the impacts of biological invasions have been catastrophic. However, reactions to some exotic species, and the justifications for interventions in certain situations, including biological control by introduced natural enemies, rest uncomfortably with social reactions to ethnic cleansing and persecution perpetrated across the globe. In order to redress major ecological losses due to IAS invasions, the reintroduction of native species has been considered and is now widely accepted.However, this option has opened up several questions such as where and when, and with what species or even species analogues, etc. In this context, it may also be noted that many decisions are based on values and perceptions rather than objective science. This book includes a wide range of case studies from around the world which will stimulate a much wider debate.

Future events

2 - 7 October 2011. 3rd International Symposium on Weeds and Invasive Plants, Ascona, Switzerland. This symposium aims at providing a platform to discuss recent trends in invasive plant research. It also plans to achieve an effective communication among emerging scientists and practitioners in various areas of invasion biology. The major areas which will be dealt with are: 1) The causes and impact of plant invasions; 2) Agricultural weeds and plant invaders - what we can learn from each other; 3) How far are control methods transferable between agricultural weeds and plant invaders; 4) The example of *Ambrosia*: management options and their integration across target habitats. *Ambrosia*, the role of a problematic weed in the human society; 5) What impacts to human society are known of agricultural weeds and plant invaders; 6) How should human society deal with plant invasions? Contact: christian.bohren@acw.admin.ch

21 - 24 November 2011. 2nd World Conference on Biological Invasions and Ecosystem Functioning (BIOLIEF), Mar del Plata, Argentina. The conference will provide a forum for presentations, discussions and a synthesis of biological invasion research in its broadest sense. It will place particular emphasis on the studies related to the impact of invasive species on ecosystem functioning and services, irrespective of taxonomic groups or ecosystem types. Topics such as the spread of invasive species into ecosystems, the biogeography and history of plant introductions and the community or species level impact of biological invasions will also be discussed. Contact: biolief@grieta.org.ar

6, 8, 10 and 11 November 2011. APFISN Workshop on "Forest Health Technologies and Phytosanitary Standards". Beijing, China. The workshop will be organized as a side event during the 24th session of the Asia-Pacific Forestry Commission and 2nd Asia-Pacific Forestry week. It will address and deliberate the following: 1) Invasive species survey and mapping techniques; 2) Risk assessment protocols; 3) Early detection and rapid response; 4) Protocols for long-term monitoring of biological invasions in forests; 5) Assessment of the current status of phytosanitary standards and implementation of phytosanitary measures in the member countries; 6) Discussion on existing legislative and regulatory systems in member countries and a presentation and discussion on the "Guide to implementation of phytosanitary standards in forestry"; 7) Identification of knowledge gaps, institutional weaknesses, resource constraints and other areas where national capacities can be strengthened; 8) Preparation of workshops and training materials in local languages for implementation of phystosanitary standards. Contact: sankarankv@gmail.com

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