

Ecological Impact of Vetiver in Foreign Environments

Richard Grimshaw OBE
Chairman, The Vetiver Network



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A native (indigenous) species is one that occurs in a particular region, ecosystem, and habitat without direct or indirect human actions.



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Invasiveness:

An invasive species is one that displays rapid growth and spread, allowing it to establish over large areas.



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Invasiveness is enhanced by such features as:

- **strong vegetative growth**
- **abundant seed production**
- **high seed germination rate**
- **long-lived seeds**
- **rapid maturation to a sexually reproductive (seed-producing) stage.**



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Ecological impacts of invasive plants

- **reduction of biodiversity**
- **loss of and encroachment upon endangered and threatened species and their habitat**
- **loss of habitat for native insects, birds, and other wildlife**
- **loss of food sources for wildlife**
- **changes to natural ecological processes such as plant community succession**
- **alterations to the frequency and intensity of natural fires**
- **disruption of native plant-animal associations such as pollination, seed dispersal and host-plant relationships.**



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Invasive alien plants:

- **compete with and replace rare and endangered species**
- **encroach upon limited habitat of rare and endangered species**
- **disrupt insect-plant associations necessary for seed dispersal of native plants**
- **disrupt native plant-pollinator relationships**
- **reduce and eliminate host plants for native insects and other wildlife**
- **serve as host reservoirs for plant pathogens and other organisms that can infect and damage desirable native and ornamental plants**



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Invasive alien plants:

- **replace nutritious native plant foods with lower quality sources**
- **prevent seedling establishment of native trees and shrubs**
- **reduce the amount of space, water, sunlight and nutrients that would be available to native species**
- **increase erosion along stream banks, shorelines and roadsides**
- **change characteristics of the soil structure and chemistry**
- **alter hydrological flows and conditions**



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IS VETIVER GRASS INVASIVE??

The south Indian variety of *Vetiveria zizanioides* has never been reported as being invasive. This variety and its cultivars have been domesticated for the aromatic oil industry and are used for the Vetiver System under cultivar names such as “Sunshine”, “Monto” and “Hoffman”.

DNA tests show these cultivars to have the same genotype.



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IS VETIVER GRASS INVASIVE??

In Australia a test was done on 119,000 sessile spikelets (seed structures) of “Monto” vetiver. Only 3 caryopses (a level of fertility of 1:40,000) were found. This level of fertility is far too low to allow a natural spread of vetiver grass

The north India vetiver and *Vetiveria nigriflora* from Africa are fertile and are not recommended for Vetiver System application



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Is vetiver grass a reservoir for pests and diseases ??

Vetiver has been planted as an aromatic grass alongside other plants for centuries. There is no record of vetiver serving as a reservoir for pests or plagues even when infected plants grow alongside hosts. Of the few pests that infect vetiver also infect other plants and therefore vetiver is not forming a unique refugia.



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Positive attributes of vetiver grass

Pioneer species

Habitat and (forage) for fauna

Improved drainage and desalinization of soils

Improving soil organic matter

Surface and ground water quality improvement

Green house gas carbon dioxide sink

Potential alternative source of energy



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The Vetiver Network:

Email: vetiver@vetiver.org

Homepage: <http://www.vetiver.org>

