

Alien invaders

Why are we losing Biodiversity?

"Finding out & Action"

Learners investigate threats posed by invasive (alien) plants and organise a 'hacking project'

Grading: YYY

Time: Long term

Place: Inside&Outside

Group size: Group / Individual Project

Activity Outcomes:

Learners are able to:

- understand threats posed by invasives to indigenous plants.
- practice investigative and research skills
- appreciate Southern Africa's indigenous species.

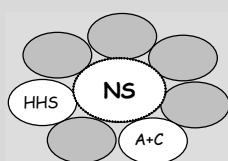
Assessment:

- Educator assesses activities completed by learners individually
- Use a rubric to give impression marks on hacking project report back

Skills:

- Exploring and record observations
- Analyse and interpret data
- Co-operating with communities

Cross-curriculum links



Background

Introduced species pose one of the most serious threats to the survival of various valuable and rare, indigenous plant species and are destroying our country's natural veld. A recent study by the Water Research Commission (WRC) found that alien plants have now invaded a total area of 10,1 million hectares (6,82 %) of South Africa and Lesotho.

A large number of plant species in your area has been introduced from various overseas countries for a variety of economic reasons (eg. black wattle for its bark used in the tanning of skins, and Rooikrantz to stabilise sand dunes.)

It is estimated that it will cost somewhere in the region of R7,42 billion to clear the invaded areas over the next 20 years, assuming that the spread of aliens can be kept down to a rate of 5 % each year.

The main reason why these plants seem to be more successful than local species is that they have no natural enemies or diseases in our country. Native species often have no defences against the introduced species or the diseases they carry. This causes unfair competition. Introduced species thrive - often at the expense of indigenous plants. (See examples of typical plant invaders at the end of the activity guidelines)

Activity Guidelines

Needed: Paper, pencil, glue, resource material, camera

Each learner should complete the following activities individually.

- ✂ Collect specimens of the leaves, flowers and seeds of an invader plant in your area. Make a sketch of a whole plant. Stick your specimens next to your sketch.
- ✂ Examine the natural veld where the invader plants are not growing. Get a rough idea of how many different types of plants there are in the natural veld.
- ✂ Now examine an area where aliens are growing strongly. How many plant types from the natural veld have managed to survive? Do they look as healthy as in the natural veld?



Alien invaders are also referred to as: **introduced, exotic or non-native** species



Find out more about the tiny gall-forming wasp from Australia and inform the learners how they helped to bring the long-leafed wattle under control in South Africa








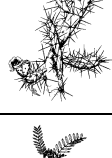
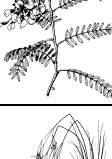



See article : "Gardening with indigenous plants" - Earthyear Edition 12

- ✂ Which is easier to move through: the natural veld or a thicket of aliens? Why?
- ✂ Where do you see more ground cover vegetation - under aliens or under indigenous trees and shrubs? What effect might this have on soil erosion.
- ✂ Speak to someone who has lived in the area for a long time. Try to find out when the alien invasion started in that area and exactly where it started. Write a short report on the information obtained.
- ✂ Obtain the book "Plant Invaders: Beautiful but Dangerous" which is published by the Cape Department of Nature and Environmental Conservation. Use this book, or any other reference material you can find, to answer the following questions:
 - ↳ What is the name of your alien plant?
 - ↳ Which country does it originally come from?
 - ↳ In what year was it introduced to South Africa?
 - ↳ Why was it brought to South Africa?
 - ↳ In which ways can the spread of the plant be controlled?
- ✂ Organise a "hacking project" with your classmates. Concentrate on an area where aliens are just beginning to invade. (Dense stands of alien vegetation need to be dealt with by professionals).
- ✂ Approach the project scientifically and complete the following tasks:
 - ↳ List the organisations who supplied you with information on how to eradicate these plants.
 - ↳ Describe the most effective method(s) used to get rid of alien species in your area (eg. chemical weed killers, chopping and sawing).
 - ↳ Discuss follow-up work on how to eradicate any new invader plants.
 - ↳ Compile an information booklet (pamphlet) with complete instructions on how to get rid of aliens in your area which you will distribute amongst local farmers and other learners.
 - ↳ To complete your hacking project, supply the name of a suitable endemic plant species to cover the area that you have cleared.



Examples of typical plant invaders:

Name	Introduced from	Distribution
Rooikrantz Acacia cyclops Shrub, short tree 	Australia	In lowland fynbos from Port Nolloth to East London
Port Jackson Acacia saligna Shrub, thickets 	Australia	From Olifants River to Great Kei; South-Western Cape
Water Hyacinth Eichhornia crassipes Water plant 	Central and South America	All nine provinces
Hakea (3 species) Hakea sericea Shrub 	Australia	Cape Town to Grahamstown as far as 100 km inland
Lantana Lantana camara Large shrub 	USA via Europe	Southern & Eastern Cape Transkei, Natal, Transvaal
Parrot's feather Myriophyllum aquaticum , water weed Blocking water ways 	South America	River systems of all provinces
Oleander Nerium oleander Shrub poisonous 	Mediterranean Region	Cedarbert, Oudtshoorn, Ladismith, Port Elizabeth, Grahamstown
Jointed Cactus Opuntia aurantiaca Shrub, 	South America	Eastern Cape and areas with high rainfall
Sesbania Sesbania punicea Shrub, poisonous 	South America	Kwazulu, Natal, Western Cape, Gauteng
Nasella Tussock Stipa trichotoma Grass 	South America	Grassland eg Somerset East, Bedford, Cathcart, Cape Town, Swellendam

Variations



See Enviro-Facts -
Indigenous, alien and invasive
- no 35



Exhibition

Collect samples of invasive plants from your local environment and arrange an exhibit in a place where it can be seen by as many people as possible. Label the display so that people will learn to recognise these invaders.



Class Report

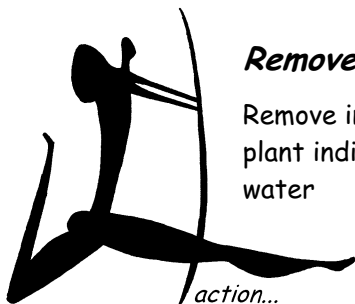
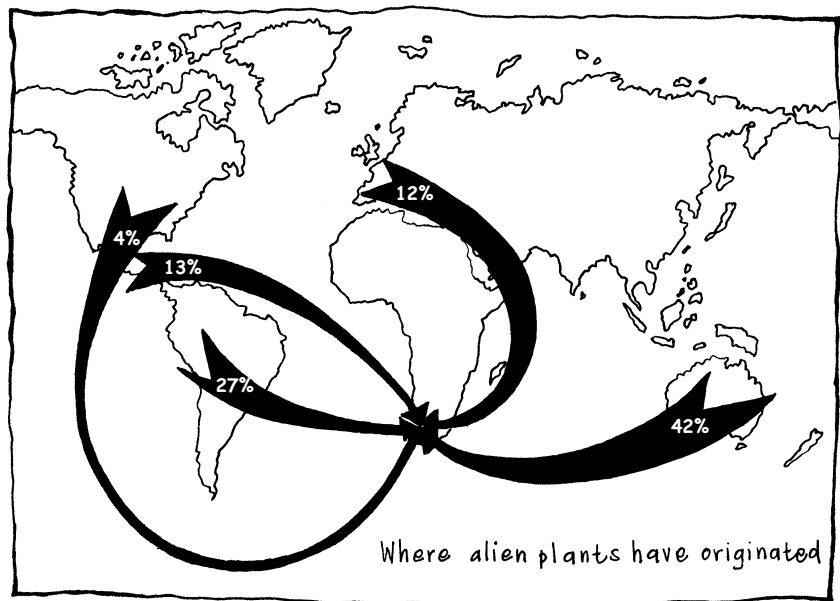
**When writing a report
keep the following in
mind:**

- Title
- Introduction
- Methods used
- Results and observations
- Interpretation of results
- Conclusion
- References used

"Cape Town's water supplies are seriously threatened by alien plants which invaded catchments and use much more water than the indigenous fynbos"

Write a class report on this statement. The following headings may serve as guidelines:

- ↳ How serious is the problem?
- ↳ What causes the problem?
- ↳ What is being done about the problem?
- ↳ Are alien plants posing a threat to more than just water?



Remove

Remove invasive alien plants in your garden or surrounding areas and plant indigenous vegetation, which is just as beautiful and uses less water

