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National Parks Visitors Centre
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CORALLITA—Mexican Creeper

A first step to controlling this invasive plant on St Eustatius

This one-year pilot project aims to provide an insight in the ecology of *Antigonon leptopus* (Corallita), an invasive vine, which has overgrown the native vegetation. The project also aimed to find ways for controlling the species.

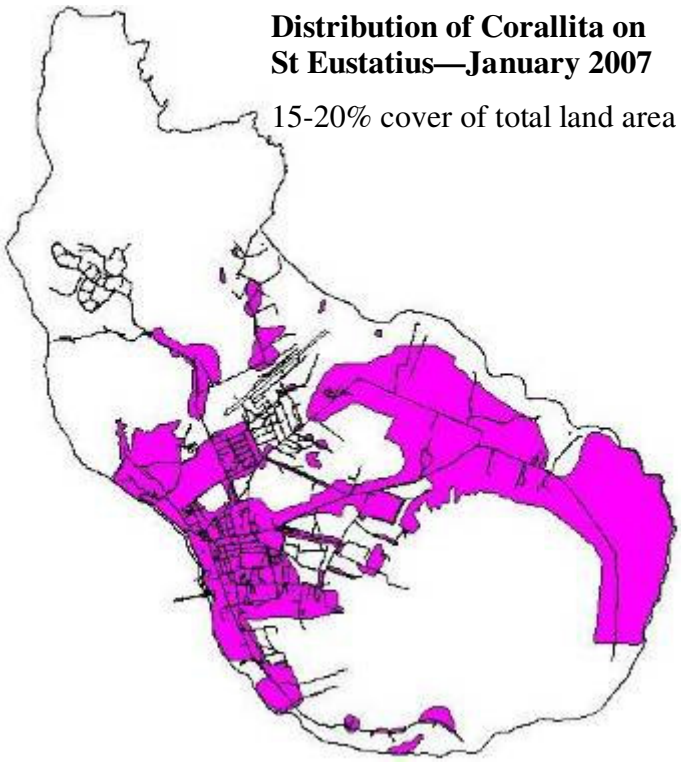
Refer to the report 'Corallita Pilot Project in St Eustatius' (Joris Ernst and Pieter Ketner, January 2007) for the complete information on research methodology, results and recommendations, including all data/citations quoted in this handout.

Background and justification for the need to control Corallita

St Eustatius native vegetation is in competition with Corallita. This vine was introduced to St Eustatius many years ago as an ornamental species, and has become a pest on the island. Native vegetation is overgrown with this species, and fences around private houses are torn down by the weight of the vine, allowing for roaming animals to enter and destroy yards. Large trees are killed by the vine which overgrows and chokes them.

A very common sight on St Eustatius is the coverage of vegetation. In some places, this plant has covered the whole vegetation, resulting in die-off of the undergrowth. It grows fast over tree crowns, blocking the sunlight from reaching the leaf surface and hence hampering the growth of the plants. Many beautiful and often valuable wild fruit trees are overgrown and do not bear fruit any more. Around 15-20% of the island is covered with the vine.

Although various countries have put the species on their list of pests (potential or already invasive species) which need control management, no proper control methods have been found so far. There are no initiatives for control management of Corallita in the Caribbean. Additionally, hardly any ecological research has been done on this species which makes the problem more complicated. Therefore, this present project is unique and must be considered as a pilot project. This project hopes to contribute to maintenance of biodiversity of flora and fauna on St Eustatius.



Distribution of Corallita on St Eustatius—January 2007

15-20% cover of total land area

Distribution

The species is native to Mexico (from Baja California, Sonora, Chihuahua) through Oaxaca south to Central America (Guatemala, Salvador, Costa Rica) and common in many tropical and warm countries, where it has been intentionally (as an ornamental plant) or unintentionally introduced and in many places naturalized to become a pest.

Research questions

1. What is the distribution of *Antigonon leptopus* on St. Eustatius, qualitatively as well as quantitatively?
2. What is the life cycle of the plant?
3. Which animals eat the fruits?
4. How does the species behave if treated with potential control means?
5. By what means can the species be contained, controlled or eradicated?

Results of the pilot project—November 2005—December 2006

Life cycle—plants were checked for flowering and fruiting at 3 locations. Flowering and fruiting takes place almost the whole year, except in periods with more than normal rainfall. The fruits stay on the plants for a long time. Fallen fruits decompose due to fungi and insects. In very few cases seedlings were found. Seeds taken from the plant show an average germination rate of almost 50%. Dispersal of the plant is mainly through stem and root cutting and tubers. In heavily infested areas up to 280 tubers per m² were found.

Animals—field observations have showed that it is not very likely that animals (cows, goats, sheep, donkeys) are eating the fruits and dispersing them. In general these animals occasionally nibble on the leaves. There were no seeds found in cow dung. It might be possible that during a (real) dry season, when leaves turn brown, cows eat the fruits.

Repeated cutting down of the plant only weakens the plant but re-growth continues. Cutting and subsequent burning have no additional effect. However (manually) cutting/clearing in combination with application of herbicides (foliage spray) causes serious damage to the plant and tubers.

Threats to the environment due to Corallita

- **Impacting on development of natural vegetation** (succession) on former arable fields, through smothering the plants under a thick carpet of branches and leaves.
- **Prevention of germination of native species**—particularly detrimental for the survival of (rare) tree species. If there is no regeneration, the population diminishes.
- **A danger to the survival of the tree and large shrubs** along the roads and in gardens of Statia.
- **Modification of soil conditions** through accumulation of litter—a layer of 20-30cm of decomposing litter may be found under the smothering vines.
- **Invasion of the national parks** from the borders, where it climbs into the tree crowns. From there seeds can disperse into the park and germinate in open spaces.
- **Threat to the status of the endangered Lesser Antillean Iguana** (*Iguana delicatissima*) - Corallita is probably a threat to the natural diet and movement of this reptile when habitat is changed by overgrowth of trees/large bushes.
- **Minimal effects on other reptiles**—anoles, dwarf geckos, wall geckos and snakes should not be affected in any substantial way. Ground lizards might be excluded from some areas. If Corallita displaces native plants, affecting pollinators and other interactions, the effects on reptiles could be considerably greater.

Potential methods to contain and control Corallita on St Eustatius

Total eradication of Corallita isn't possible as it has been here for too long and has spread too vigorously
Control is possible to a certain extent— it can be kept under control with some effort in private gardens

Clearing trees in gardens and roads

The best way is **cutting down all plants** in a circle of at least 3 metres around the tree crown.

Burn all the debris that come from the ground and the trees to prevent dispersal of seeds or plant parts

Pruning up tree crowns will reduce the risk of Corallita reaching the branches and growing into the tree again.

Most importantly: keep up the maintenance, otherwise all the hard work is done for nothing.

Clearing backyards, hedges, fences

Manually

Clear infested areas by cutting down the plants to ground level.

Burn the debris to prevent dispersal of seeds.

Dig up or if possible hand plough the area and remove the tubers and roots and burn them.

Sow grass, and mow it regularly; thus keeping Corallita under control.

Chemically—using herbicides

In case of persistent re-growth of Corallita, herbicides could be applied, but strict precautions should be taken!

Read the instructions carefully.

Remove all Corallita and burn debris.

Wait 3-4 weeks to let Corallita sprout until there is re-growth of about 30cm.

Spray now with Glyphosate with high concentration with a maximum of 25% (normal use of the herbicide is 5%)

Wait till the vegetation has died.

Repeat spraying if re-growth occurs.

Supplementary information for Island Government Departments

Approaches to control of Corallita

Containment is feasible to a certain extent: at sites where the species is not yet present in large quantities, where it can be eradicated locally. Containment is appropriate for "Hotspots" of occurrence of Corallita — close to national parks; and isolated locations with low abundance.

Control is also possible to a certain extent. Control the isolated spots where the species was present to prevent spread. With some effort, Corallita can also be kept under control in private gardens.

Mitigation or "to live with" this species is the best achievable approach to limit impacts on biodiversity and endangered species. Methods that do not directly affect invasive species such as Corallita, but which protect native species should be sought.

"Hotspots" are defined as wherever Corallita grows in isolated areas, and along borders where the plant may spread into the National Parks. It is extremely important that plants are eradicated from these areas.

Clearing "Hotspots" of Corallita

Important "hotspots" are:

- Around the Telecom board
- Along the paths near the entrance to the Quill
- End of bird trail, Botanical Garden
- Isolated habitats near Fort deWindt
- Various isolated habitats in Zeelandia (e.g. along the road, outside various properties).

How? Manually and chemically

1. Cut all Corallita to ground level and burn the debris.
2. Let the plants sprout again till the new stems are 30 cm (3-4 weeks) and spray the foliage with herbicides of 25% concentration. **Take the necessary precautions!**
3. Repeat the cutting and spraying again, if necessary.
4. Keep on monitoring the effects of the treatments.

Monitoring the effects of Corallita control measures

Identification of specific sites for regular monitoring of the effects of control measures

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Monitoring the presence/absence of Corallita as an early warning system

Identification of specific sites.

Suggested sites:

- (New) building sites
- Near borders of the Quill sector of the National Park, where it is likely that Corallita will appear, because of transport of fruits, small tubers or cuttings
- In the Boven sector of the National Park
- Locations along the road between Fort de Windt and Oranjestad
- The compound of the Oil Terminal

What to do:

1. Monitor every 2 months; if plants are found note the abundance and phenological state.
2. If fruiting, take away the fruits and burn them.
3. Return to the site: remove the plants and burn the debris. Make sure that the tubers and roots are dug up.
4. Large plants should be cut and, after about 3 weeks of re-growth (new stem of 30 cm), sprayed with an herbicide.

Pay attention to other potential invasive plant species:

***Cryptostegia grandiflora* (Rubber vine)** is planted in several gardens. It is a vigorous climber with prolific growth, with dark green shiny leaves and purple flowers. It has become invasive in many parts in the world, smothering other vegetation to form dense impenetrable thickets. It is a great menace on Curaçao.

***Schinus terebinthifolius* (Brazilian pepper tree or Christmas tree)** was introduced as an ornamental. It produces many small red fruits and white flowers in winter. It is native to Argentina, Brazil and Paraguay. It is a pioneer on disturbed sites and one of the most aggressive of the invasive non-indigenous plants in Florida. It is also successful in undisturbed natural environments, where it displaces native vegetation (www.issg.org).