THE PROBLEM OF THE NON-NATIVE PLANT SPECIES IN THE MONDRAGÓ NATURE RESERVE

Rock samphire (*Crithmum maritimum*) (Native specie)

Non-Native Plant Species

Most plants that can be found in our gardens were originally from other parts of the globe; that is, they are introduced or alien species.

Some of them are not able to colonize natural areas, but others multiply and spread easily from one place to another without man's help, becoming naturalized species that grow in areas where they were not planted. If these alien species swiftly colonize areas of countryside and start to replace the native vegetation, they can be considered to be invasive.

Plants that become invasive species can have serious impacts on natural plant communities. Under certain conditions and in fragile ecosystems, they can contribute to the extinction of certain plants, because the invasive species competes with the native one for the same ecological niche. What is more, invasive plants are sometimes also associated with plagues and plant disease, which can have a negative effect on local plant species and lead to a loss of biodiversity.

The problem of invasive plant species is causing international concern and these plants are currently regarded to be the second cause of the planet's loss of biodiversity after the destruction of habitats.

For years now, the control of invasive alien species has been an issue of key importance in the management of our natural spaces.



Aloe (*Aloe maculata*)

The resulting problem for Mondragó Nature Reserve

In Mondragó Nature Reserve and its immediate vicinity, there are lots of private gardens where invasive or potentially invasive alien plant species are widely grown. These species often spread beyond the limits of these gardens and rapidly multiply in parts of the countryside, becoming a threat for the nature reserve's own species and habitats.

Given this problem, in 2013 a study was drawn up aimed at the control and eradication of invasive alien plant species in Mondragó Nature Reserve's terrestrial ecosystems and, since then, ongoing efforts are made to reverse the situation.

One of the areas that is most sensitive to the presence of alien species is the coastline. The rounded noon-flower (*Disphyma crassifolium*), sour fig or hottentot-fig (*Carpobrotus spp.*) and other species from the Aizoaceae family are very commonly used as ornamental plants since they need little water, are evergreens and feature large numbers of attractive flowers. They can spread beyond gardens and colonize rocky areas close to the sea.

The main problem they cause is the formation of a big mantle that spreads over the natural vegetation, preventing its normal growth and finally killing it off. Many people think that these species are native to our coastline, but in reality they were introduced years ago and, in some cases, they have come to replace species typical of our coastal cliffs, such as sea-lavender (*Limonium spp.*), rock samphire (*Crithmum maritimum*) or the member of the dandelion family *Launaea cervicornis*.

In the nature reserve's scrubland, creeping groundsel (*Senecio angulatus*) is currently one of the plants that causes the most problems because it grows very swiftly. It creeps along the branches of trees and bushes close to it, making it very hard to remove.

Another very difficult species is the bridal creeper (*Asparagus asparagoides*). This creeper and member of the lily family takes over stretches of land where native flora used to grow through its mass colonization of areas above the ground, where it grows very thickly, and below it, due to the large number of bulbs and roots that are formed.

Other species that also need some type of control, due to their rapid growth and proliferation through the dispersal of seeds or natural vegetative propagation are the century plant (*Agave americana*), Aloe (*Aloe arborescens* and *Aloe maculate*) and prickly pear (*Opuntia spp*).

The foremost invasive species found in Mondragó Nature Reserve:

Sour fig
Carpobrotus edulis and *Carpobrotus acinaciformis*
Family: Aizoaceae
Origin: South Africa
Propagation: Seed dispersal or vegetative propagation through offshoots (the tender part of the plant, like the stem or buds)
Eradication: All the different offshoots must be removed until the original root is reached and dug up. It is important to ensure that no sections of the plant remain that might take root.

American aloe
Agave americana
Family: Agavaceae
Origin: Mexico
Propagation: Mainly vegetative propagation (through offshoots, a root or rhizome).
Eradication: The plant must be carefully removed, including all its rhizomes (underground stems) to prevent it from growing back.

Creeping groundsel
Senecio angulatus
Family: Asteraceae
Origin: South Africa
Propagation: Seed dispersal or vegetative propagation through offshoots and runners.
Eradication: It must be removed before the fruit forms and the seeds are dispersed. No shoots must be left that might take root.



Waterbush
Myoporum tenuifolium
Family: Myoporaceae
Origin: Australia
Propagation: Mainly by seed dispersal, although it can spread by putting out shoots.
Eradication: The bush must be removed before the berries form to prevent them from falling to the ground and the seeds germinating.

Bridal creeper
Asparagus asparagoides
Family: Liliaceae
Origin: South Africa
Propagation: By seed dispersal and vegetative propagation through the division of the roots and rhizomes.
Eradication: Both the section of plant that grows above the soil and its mass of underground bulbs must be removed. Regular checks must be made and any new shoots pulled out from seeds that have germinated in the soil.



Rounded noon-flower, round-leaved pigface
Disphyma crassifolium
Family: Aizoaceae
Origin: South Africa
Propagation: By seed dispersal and vegetative propagation by putting out shoots.
Eradication: All the offshoots must be removed until the original root is reached and dug up. It is important to ensure that no sections of the plant remain that might take root.

Aloe
Aloe arborescens and *Aloe maculata*
Family: Aizoaceae
Origin: South Africa
Propagation: Vegetative propagation by putting out runners. Its proliferation is closely related to the dumping of garden debris.
Eradication: It must be removed by hand, making sure that no remains are left in the countryside.

The following list shows other alien plant species found at Mondragó Nature Reserve:

- **Golden wreath wattle/orange wattle** (*Acacia saligna*)
- **Tree aeonium/Tree houseleek/Irish rose** (*Aeonium arboreum*)
- **Heartleaf iceplant/Baby sun rose** (*Aptenia cordifolia*)
- **Giant cane/Giant reed/Arundo grass** (*Arundo donax*)
- **Devil's backbone/Mother-of-thousands Alligator plant/**
- **Mexican hat plant** (*Bryophyllum daigremontianum*)
- **African flag** (*Chasmanthe floribunda*)
- **Eucaliptus/Tasmanian blue gum** (*Eucalyptus globulus*)
- **Night-blooming cactus/White-fleshed pitahaya/**
- **Strawberry pear** (*Hylocereus undatus*)
- **Blue morning glory/Blue dawn flower** (*Ipomoea indica*)
- **Bearded iris/German iris** (*Iris germanica*)
- **Coppery mesemb/Red ice plant** (*Malephora crocea*)
- **Tree tobacco** (*Nicotiana glauca*)
- **Prickly pear** (*Opuntia spp.*)
- **Canary Island date palm** (*Phoenix canariensis*)
- **Porkbush/Elefant bush/Dwarf jade** (*Portulacaria afra*)
- **Devil's apple/Fruit of Sodom/Poison eggplant** (*Solanum linnaeanum*)
- **Garden nasturtium/Indian cress** (*Tropaeolum majus*)
- **Yuca** (*Yucca spp.*)

The advantages of growing native species in gardens

In recent years, numerous alien plant species have been removed from different parts of Mondragó Nature Reserve. The best way of reducing associated environmental risks and saving on manpower and money is to prevent the use of these species.

The problems mentioned previously can be avoided by replacing alien plant species in gardens with native ones that have similar ornamental characteristics. Eye-catching gardens can be achieved using local plants.

Some of the advantages of using native plants in gardens include:



ADAPTED TO THE LOCAL CLIMATE AND SOIL

These gardens feature plants adapted to the local climate and soil. They do not need a lot of water and so, after the first years of their growth, they are able to survive with hardly any watering.



FEW FERTILIZERS OR CHEMICAL PRODUCTS

They barely need fertilizers or chemical products. They are also more resistant to plagues and plant disease



MORE CHEAPER

Gardens stocked with local plants are low on maintenance, given their woodland nature and the characteristics of the plants. Due to this and to the above facts, Mediterranean gardens are cheaper to run than a conventional or exotic garden.



WIDE VARIETY

Given the wide variety of available native plants, they can be combined to broad-ranging visual effect, with contrasting shapes, colours and smells. Different species can be found that flower at different times of year, and so a Mediterranean garden can be designed with some flowers in bloom throughout the whole year.



BLEND INTO THE SURROUNDING COUNTRYSIDE

Gardens with native species blend into the surrounding countryside scenically and visually. In addition, the bushes and shrubs provide places for insects, other invertebrates, small birds and mammals to nest, take shelter and feed.

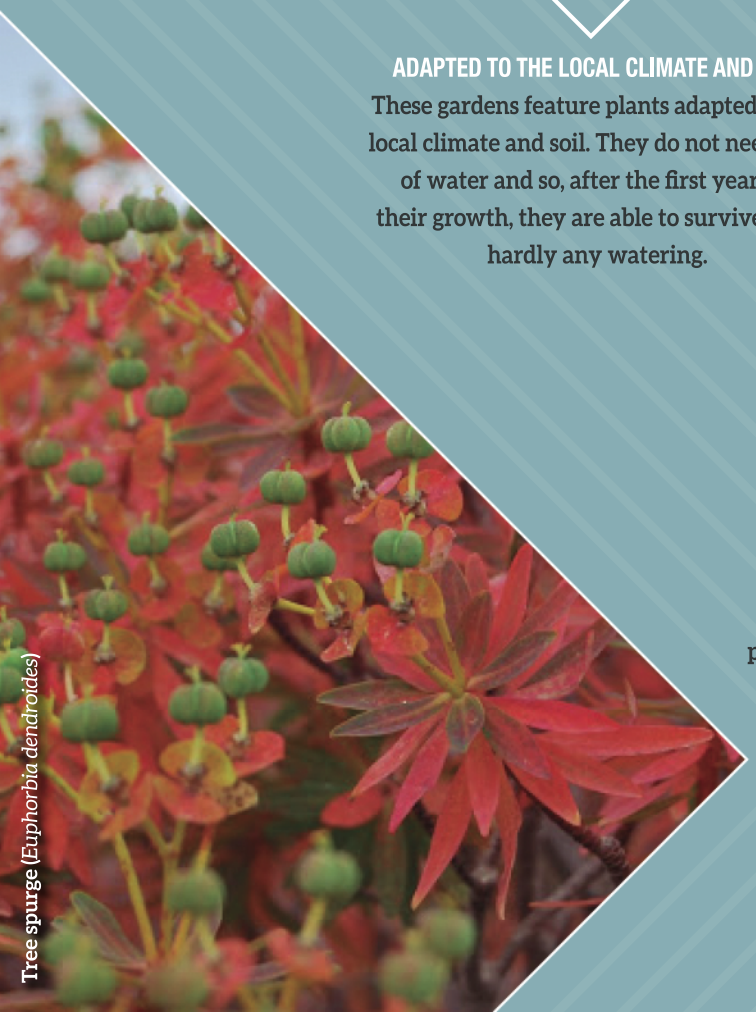


ARE PERENNIAL

Most native plant species are perennial and so they do not lose their leaves. The garden will therefore always be green.



Evergreen honeysuckle (*Lonicera implexa*)



Tree spurge (*Euphorbia dendroides*)

Mastic bush/Lentisk
Its compact branches make it very useful in gardens as a hedge. The plant's small round berries are first green, then red and finally black. Thrushes and blackbirds love to eat them.



White rockrose/Montpellier cistus
Cistus monspeliensis
A bush with long, scented, sticky dark green leaves, with single white flowers.

French Lavender
Lavandula dentata
A bush that can bloom from winter through to summer. It has a lilac-coloured inflorescence in the form of a spike at the top of a peduncle separating it from the leaves.

Native species that can be grown in gardens

Mondragó Nature Reserve's plant communities feature strikingly beautiful, fascinating native species that can be used as ornamental plants.

Rosemary
Rosmarinus officinalis
A highly aromatic evergreen shrub with bright blue flowers. It can flower all year round, although when it grows in the countryside, it tends to bloom in autumn and again in early spring.

Phoenician juniper
Juniperus phoenicea subsp. turbinata
This conifer has greenish-brown spherical berries with a slightly fleshy exterior that some birds and mammals feed on.



Mediterranean heather
Erica multiflora
This small bush has narrow leaves that cover almost all its branches and small pink flowers. It begins to bloom in late summer and can continue into December or even January.

Common name	Scientific name	Type of plant	Blooms in	Colour of flower
Mediterranean buckthorn	*Rhamnus alaternus*	Tree/ Shrub	Spring	Yellow
Narrow-leaved mock privet/ False olive	*Phillyrea angustifolia*	Tree/ Shrub	Spring	White
Butcher's broom	*Ruscus aculeatus*	Shrub	Winter & spring	Green
Rock rose/grey leaved cistus	*Cistus albidus*	Shrub	Spring	Pink
Montpellier cistus/white rockrose	*Cistus monspeliensis*	Shrub	Spring	White
Sage-leaf rockrose	*Cistus salvifolius*	Shrub	Spring	White
Rock samphire	*Crithmum maritimum*	Herbaceous	Winter & summer	Greenish yellow
Broom	*Genista lucida*	Shrub	Spring	Yellow
Cat-thyme germander	*Teucrium capitatum*	Shrub	Spring	Pinkish lilac
Lavender	*Lavandula dentata*	Shrub	Spring & summer	Lilac
Tree spurge	*Euphorbia dendroides*	Shrub	Spring	Greenish yellow
Mastic bush/ lentisk	*Pistacia lentiscus*	Tree/ Shrub	Spring	Green
Pine	*Pinus halepensis*	Shrub	Spring	Brown
Rosemary	*Rosmarinus officinalis*	Shrub	All seasons	Lilac
Phoenician juniper	*Juniperus phoenicea subsp. turbinata*	Shrub	Winter	
	Helichrysum stoechas	Shrub	Spring	Yellow
Grey birdsfoot trefoil	*Lotus cytisoides*	Herbaceous	Spring	Yellow
Wild olive	*Olea europaea var. sylvestris*	Shrub	Spring	White
Fern-leaved clematis	*Clematis cirrhosa*	Woody vine	Autumn & winter	White
Mediterranean heather	*Erica multiflora*	Shrub	Winter	Pink
Evergreen honeysuckle	*Lonicera implexa*	Shrub/ Woody vine	Spring	Yellowish white

Other species that are suitable for gardens although they are not naturally found at the nature reserve are the spurge olive (*Cneorum tricoccon*), Balearic Island sage (*Phlomis italica*), joint pine (*Ephedra fragilis*) and cotton lavender (*Santolina chamaecyparissus*).

EVERYONE'S COLLABORATION IS ESSENTIAL IN ENSURING THAT INVASIVE PLANT SPECIES ARE NOT ALLOWED TO RUN WILD IN THE COUNTRYSIDE. TO ENSURE THAT OUR NATURAL SURROUNDINGS CONSERVE THEIR ECOLOGICAL AND SCENIC CHARACTERISTICS, WE URGE YOU TO TAKE THE FOLLOWING STEPS IN THE FIELD OF PREVENTION AND CONTROL:

- Do not plant invasive species in your garden.
- Check whether you have invasive plant species at home and replace them with others that are not. Using native species is the best option, since they are well adapted to the Mediterranean climate and they are economical because they need little maintenance or watering (see the table of recom ended species).
- If you cannot replace the invasive species, prevent them from spreading outside your garden by always pruning them before they flower and seed.
- Be careful how you dispose of any pruned remains of invasive species. You can take them to a green recycling point or use them as compost in your garden, but never leave them in the countryside.
- Notify the park offices if you detect Non-native plant specie places.

For further information, contact the office at Mondragó Nature Reserve:

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