ALIEN SPECIES ARE RAPIDLY AFFECTING NATIVE BIODIVERSITY CONSERVATION

The Conservation Biology Research Group (CBRG-UM), led by Dr. Adriana Vella actively studies biodiversity in different Maltese habitats to assess their conservation status. This research is vital especially when an increasing number of threats seriously affect the preservation of native biodiversity.

Through globalisation, trade and tourism the increasing introduction of alien species is contributing to one of the major pressures on biodiversity and ecosystem functioning, with consequences on the goods and services which alien species uniquely provide in different parts of the world. In the invasion of alien species critically influences their native counterparts, this factor is exacerbated by climate change.

For years, exploitation, habitat degradation and habitat loss have driven structural changes to biodiversity, which is the last line of defence against climate change and future changes. Invasive alien species have become increasingly severe, they are a major threat to ecosystems. These rapid and unprecedented changes occurring changes may wipe out vulnerable local species unless detailed research, monitoring and effective management are put in place at a local level.

As living organisms are introduced intentionally or accidentally outside their natural range, they may become "invasive" if they have negative effects on their surrounding biodiversity by out-competing, introducing pathogens and invading on native species that have evolved without specific adaptations to them. The local ecosystems are sensitive to the presence of alien species, which can cause population collapse of native species and populations.

According to the European Union, Alien species listed as critically endangered, endangered or vulnerable by the IUCN are alien species. 110 are in Malta. Moreover, 15 species are alien to the Mediterranean Sea. The Mediterranean is a unique and biologically rich area, covering a range of habitats from the Atlantic to the Black Sea. This region is home to a high number of alien species, which pose the threat to all other species and human societies.

Through its long-term research the CBRG-UM has discovered numerous alien species in local habitats. In the marine environment such new discoveries date back to 2017 and since then new records of species discovered locally include; Rainbowfish, Common and baby Giant Cichlids, Dory Sunfish, Indo-Pacific Sergeant, Sergeant Major, African Sunfish, Yellowtail, Squirrelfish, Lionfish, Pufferfish, Serranid, Yellowtail, Spotted Drum, Flounder, Spotted Drum, Flounder, Pufferfish amongst others. Many of these discoveries were first scientifically recorded in the Maltese waters as well.

Collectively invasive species are frequently being introduced to new areas. The CBRG-UM was the first to scientifically record the Oceanic Pufferfish and the Blunthead pufferfish in Maltese waters. The latter is very abundant in the Eastern Mediterranean Sea. The former was not discovered before in Mediterranean Sea as well.

The Silvery-cheeked toadfish is of particular interest, as this species is highly toxic to most animals and humans. It has achieved an effective contribution towards the scientific identification of species, which has an important role in the management and conservation of marine ecosystems.

The CBRG-UM has significantly contributed to the scientific understanding of these invasive species. It is exploring new avenues for scientific research for the benefit of conservation and the sustainable management of marine resources. The CBRG-UM is a leader in the field of marine biodiversity and conservation research. Its research group has achieved an effective contribution towards the scientific identification of species, which has an important role in the management and conservation of marine ecosystems.

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