

Gracilaria salicornia

SYSTEM

Marine

COMMON NAMES

English: red alga

Philippines: canot-canot; caocaoayan

DESCRIPTION

Gracilaria salicornia varies in colour from a bright yellow at the tips to orange, green or brown at the base. The thallus is cylindrical (0.5cm in diameter) and dichotomously branched with constrictions at the base of each dichotomy. In Hawai'i it generally grows in three-dimensional mats that are tightly adherent to hard substrata and can be up to 25-40cm in thickness; in calm environments it may grow in an upright and more openly branching form (Smith Pers. Comm. 2003).

KNOWN INTRODUCED RANGE

ASEAN: Indonesia, Malaysia, Philippines, Singapore, Thailand, Viet Nam

World: Australia, Fiji, India, Iran, Kenya, Madagascar, Mauritius, Mozambique, Oman, Seychelles, Solomon Islands, Sri Lanka, Tanzania, United States, Yemen, China, Guam, Japan, Kuwait, Micronesia, Northern Mariana Islands, Pakistan, Reunion, South Africa, Taiwan

PATHWAY

Transport – Ship/boat ballast water; Ship/boat hull fouling

Intentional release

REASON FOR INTRODUCTION

Gracilaria salicornia was introduced intentionally to two reefs on O'ahu, Hawai'i, in the 1970s for experimental aquaculture for the agar industry (Smith et al. 2004). A likely vector of transport of invasive marine algae is through ship fouling and/or ballast water. In Hawaii many alien algae were first collected in or around harbors and gradually dispersed to neighbouring areas (Smith Hunter and Smith 2002).

IMPACTS

In tropical regions, blooms of indigenous algae (such as *Gracilaria salicornia*) have often been tied to reductions in grazing intensity and increases in anthropogenically derived nutrient levels (Miller et al. 1999, McClanahan et al. 2001, McCook et al. 2001, Smith et al. 2001, Stimson et al. 2001, Thacker et al. 2001, in Smith Hunter and Smith 2002). *G. salicornia* is likely to damage native coral environments by over-growing native benthic organisms such as algae and marine invertebrates. Because of its large

morphological stature and the dense mats it forms (5 to 10cm thick), *G. salicornia* can have large effects on benthic ecology by monopolising stratum (Smith et al. 2004). In many cases, red alga becomes ecologically dominant and grows over coral reefs. For example, in areas of Hawaii such as Waikiki *G. salicornia* has become the single-most dominant benthic species in an area that before invasion was home to over 60 species of macroalgae (Doty 1969, in Smith et al. 2004). The long-term consequences of phase shifts from coral to algal dominance may include the loss of biodiversity, a decrease in the intrinsic value of the reef, changes in the community structure (eg: a reduction in the numbers of reef fish dependent upon corals for habitat and shelter), and erosion of the reef (Hughes 1994, in Smith Hunter and Smith 2002).

Global Invasive Species Database (GISD) 2015. Species profile *Gracilaria salicornia*. Available from: <http://www.iucngisd.org/gisd/species.php?sc=1026> [Accessed 09 September 2019]



Photo by Eyes of the Reef Hawaii accessed at https://eornetwork.files.wordpress.com/2013/08/mi_gra_gracilariasalicornia07.jpg on 11 September 2019