Effects of shading on

Effects of surface shading were measured on above- and below-ground biomass and fruit production of Vallisneria natans (Lour.) H. Hara plants grown from seed in replicated microcosm experiments, based on a control (no shading) and four treatments (25%, 50%, 75% and 90% shading). Above- and below-ground biomass was significantly reduced at treatments above 50% shading and first pistillate and staminate florescence dates were significantly delayed above 75% and 50% shading, respectively. Ratios of mature to unripe fruits produced (both in number or dry weight) did not differ between shading treatments, but dry weight fruit production was significantly reduced at 90% shading. We conclude that above 50% surface shading, V. natans plants suffer reductions in accumulated biomass and investment in sexual reproduction. We contend that recent expansions in the extent of the native floating water chestnut Trapa spp. at seasonally inundated wetlands in the Yangtze River floodplain could, by shading, have contributed to the reduction in annual biomass and seed production of V. natans, contributing to declines in distribution and abundance.

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Obtenir le document : EDP Sciences
Mots clés : China, Macrophyte reproduction, Vegetative reproduction, Yangtze River, Chine, reproduction macrophytes, reproduction végétative, Yangtsé
Thème (issu du Text Mining) : MILIEU NATUREL
Date : 2013-08-20
Format : text/xml
Source : https://doi.org/10.1051/kmae/2013062
Langue : Anglais
Télécharger les documents : https://www.kmae-journal.org/10.1051/kmae/2013062/pdf
Permalien : https://www.documentation.eauetbiodiversite.fr/notice/effects-of-shading-on0