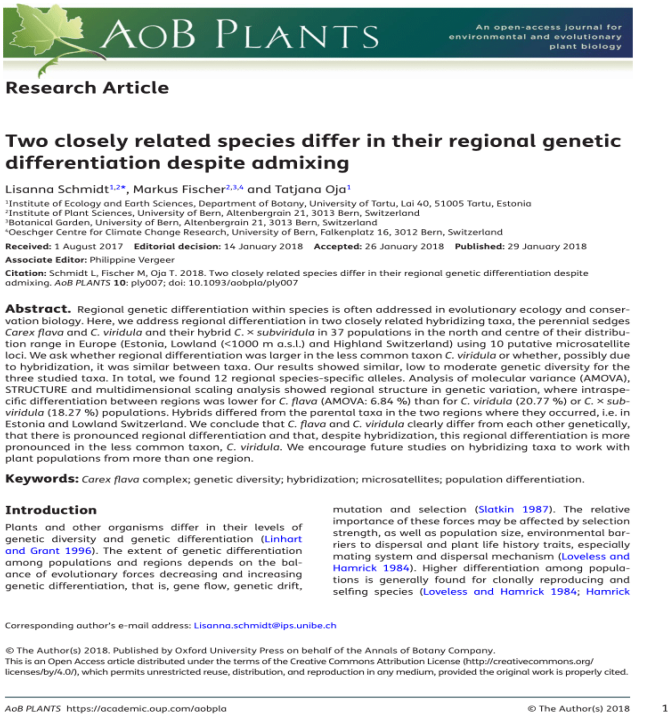
Genetic Differentiation And Dispersal In Plants



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Research Article

Two closely related species differ in their regional genetic differentiation despite admixing

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Abstract. Regional genetic differentiation within species is often addressed in evolutionary ecology and conservation biology. Here, we address regional differentiation in two closely related hybridizing taxa, the perennial sedges *Carex flava* and *C. viridula* and their hybrid *C.* × *subviridula* in 37 populations in the north and centre of their distribution range in Europe (Estonia, Lowland (<1000 m a.s.l.) and Highland Switzerland) using 10 putative microsatellite loci. We ask whether regional differentiation was larger in the less common taxon *C. viridula* or whether, possibly due to hybridization, it was similar between taxa. Our results showed similar, low to moderate genetic diversity for the three studied taxa. In total, we found 12 regional species-specific alleles. Analysis of molecular variance (AMOVA), STRUCTURE and multidimensional scaling analysis showed regional structure in genetic variation, where intraspecific differentiation between regions was lower for *C. flava* (AMOVA: 6.84 %) than for *C. viridula* (20.77 %) or *C.* × *subviridula* (18.27 %) populations. Hybrids differed from the parental taxa in the two regions where they occurred, i.e. in Estonia and Lowland Switzerland. We conclude that *C. flava* and *C. viridula* clearly differ from each other genetically, that there is pronounced regional differentiation and that, despite hybridization, this regional differentiation is more pronounced in the less common taxon, *C. viridula*. We encourage future studies on hybridizing taxa to work with plant populations from more than one region.

Keywords: *Carex flava* complex; genetic diversity; hybridization; microsatellites; population differentiation.

Introduction

Plants and other organisms differ in their levels of genetic diversity and genetic differentiation (Linhart and Grant 1996). The extent of genetic differentiation among populations and regions depends on the balance of evolutionary forces decreasing and increasing genetic differentiation, that is, gene flow, genetic drift, mutation and selection (Slatkin 1987). The relative importance of these forces may be affected by selection strength, as well as population size, environmental barriers to dispersal and plant life history traits, especially mating system and dispersal mechanism (Loveless and Hamrick 1984). Higher differentiation among populations is generally found for clonally reproducing and selfing species (Loveless and Hamrick 1984; Hamrick

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Plants The Interfaces (Genetics, Physiology, Demography, Biogeography)", with a specific profile on "Diversification of Plant Populations in relation to Modes of.Genetic differentiation and dispersal in plants. Front Cover. P. Jacquard, G. Heim, J. Antonovics, North Atlantic Treaty Organization. Scientific Affairs Division.Genetic Differentiation and. Dispersal in Plants. Edited by. P. Jacquard, G. Heim and J, Antonovics. CNRS, Centre L Emberger. Route de Mende, B.P. Available in the National Library of Australia collection. Author: NATO Advanced Research Workshop on Population Biology of Plants, (Montpellier.google-logo. Genetic differentiation and dispersal in plants. Loading Translate with. google-logo. translator. This translation tool is powered by Google. FAO is.Genetic Differentiation and Dispersal in Plants. Proceedings of a Workshop Held at Montpellier (France), May , P. Jacquard, G. Heim, J. Antonovics.Genetic Differentiation and Dispersal in Plants. This volume is based on a workshop on "Population Biology of. Plants The Interfaces (Genetics.2 Molecular markers vary, displaying different amounts of variation and . Gene flow in plants has been studied intensively with the use of.Passive dispersal involves both plants and animals that cannot themselves move the genetic structure of populations, wherein genetic differentiation is directly.In this scenario, the rates of gene exchange and dispersal ability are important Studies performed with different plant species and at different.() Dispersal Pathways and Genetic Differentiation among .. an invasive plant can create a melting pot of genetic diversity derived from a.We aimed to quantify morphological and genetic differentiation Morphological and genetic differentiation in populations of the dispersal-limited coco de Aims Developing plant conservation strategies requires knowledge.In this study we assess the genetic diversity and structure and infer the Thus, a given plant species might be pollinated or dispersed.Analysis of population structure showed significant genetic differentiation Upon maturation in early December, the fruits are dispersed by wind and gravity.now think, the spatial scale of gene dispersal: (1) is still small enough to allow ancing it in the course and maintenance of microgeographic differentiation.