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Positive Interactions among Plants in Pinegroves over Quarzitic Sands

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Abstract : The investigation is carried out on the Protected Area of San Ubaldo, toward the interior of an open pinegrove with palm trees in a dry plainness of quar zitic sands, belonging to the Floristic Managed Reservation San Ubaldo-Sabanalamar, Guane, Pinar del Río, Cuba. This area is characterized by drastic seasonal variations, high temperatures and water evaporation, strong solar radiation, with sandy soils of almost pure quartz, which are very acid and poor in nutrients. The objective of the present work is to determine evidence of facilitation and its relationship with the structure and composition of plant communities in these peculiar ecosystems. For this study six lineal parallel transepts of 100 m are traced, in those, a general recording of the flora is carried out. To establish which plants act as nurses, is taken into account a height over 1 meter, canopy over 1.5 meter and the occurrence of several species under it. Covering was recorded using the line intercept method; the medium values of species richness for the taxa under nurses is compared with those that are located in open spaces among them. Then, it is determined which plants are better recruiter of other species (better nurses). An experiment is made to measure and compare some parameters in pine seedlings under the canopy of the Byrsonima crassifolia (L.) Kunth. and in open spaces, also the number of individuals is counted by species to calculate the frequency and total abundance in the study area. As a result, it is offered an up-to-date floristic list, a phylogenetic tree of the plant community showing a high phylodiversity, it is proven that the medium values of species richness and abundance of species under the nurses, is significantly superior to those occurring in open spaces. Furthermore, by means of phylogenetic trees it is shown that the species which cohabit under the nurses are not phylogenetically related. The former results are cited evidences of facilitation among plants, as well as it is one more time shown the importance of the nurse effect in preserving plant diversity on extreme environments.

Keywords : facilitation, nurse plants, positive interactions, quarzitic sands
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