

技术应用

盐沼植被光谱特征的间接排序识别分析

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摘要:

运用ASD地物光谱仪, 采用12个小型机载成像光谱仪(CASI)默认的植被波段组, 以上海崇明东滩自然保护区的盐沼植物群落为对象, 应用主成分分析法和相关分析研究了不同群落光谱特征与生态环境因子之间的关系。结果表明: 运用PCA间接排序法能够识别盐沼植被中光滩、海三棱藨草群落、芦苇群落和互花米草群落等光谱特征; 绝大多数盐沼植物的群落组成与所选波段的光谱特征之间有显著的相关关系; 可见光和近红外波段数据可以分别识别低盖度的海三棱藨草群落和高盖度的互花米草和芦苇群落; 对光谱反射率影响最大的生态环境因子是植物群落的高度和盖度, 而高程和其它环境因子的影响次之。

关键词: 盐沼植被 地物光谱 CASI 冠层反射光谱 间接排序法

THE IDENTIFICATION OF SPECTRAL CHARACTERISTICS OF SALT MARSH VEGETATION USING INDIRECT ORDINATION

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Abstract:

Principal Component Analysis (PCA), an indirect ordination technique, was applied to the examination of the relationships between the community characteristics of salt marsh vegetation and their associated spectral reflectance measured at ground level using a FieldSpecTm Pro JR spectroradiometer. Paired measurements of community characteristics, including environmental factors, and spectral reflectance were collected for a range of salt marsh vegetation types on the Chongming Dongtan Natural Reserve, Shanghai. In total, 53 sample quadrats were collected along three transects within the study site. The spectral data were converted to simulate a 12-channel bandset of the Compact Airborne Spectrographic Imager (CASI) instrument. The results of the PCA applied to the simulated spectral data identified the bare mudflat, scirpus mariqueter community, spartina alterniflora community and phragmites australis community. The vegetation height and cover of the salt marsh communities were found to be most significantly related to variations in spectral reflectance.

Keywords: Salt marsh vegetation Spectroradiometer CASI Canopy reflectance Indirect ordination

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