

京杭运河淮安段不同植物护坡模式消风减噪及小气候效应

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Effects of Pattern of Vegetative Protection of River Slopes on Wind, Noise and Micrometeorology Along the Huai' an Section of the Grand Canal

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摘要

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摘要 对京杭运河淮安段5种植物护坡模式的消风减噪及小气候效应进行测定,结果表明,植物护坡对风速、噪声、光照强度、气温、相对湿度等均有明显调节作用。与无植物对照地相比,有芦苇(*Phragmites australis*)分布的近水区风速明显变小,噪声降低,随着苇群密度和宽度的增加,其削减效果加强。桃树(*Prunus persica*)+芦苇群落消风、遮光和增湿效应明显,并有一定经济收益,在京杭运河护坡设计中可进一步推广应用;水杉(*Metasequoia glyptostroboides*)+芦苇群落具有一定的降温 and 增湿作用,但减噪和遮光效果不好,可设计在地势低洼的河岸带,利于人们冬季休闲观光;梨树(*Pyrus bretschneideri*)+芦苇群落有明显的消风和减噪作用,但由于人为干扰等原因影响了群落小气候效应的发挥;狗牙根(*Cynodon dactylon*)草地+芦苇群落生态效应明显不足,在河岸带护坡设计中应尽量避免使用该模式。

关键词: 京杭运河 植物护坡 消风减噪 小气候

Abstract: Effects of five different patterns of vegetative protection of river slopes on wind, noise and micrometeorology along the Huai' an Section of the Grand Canal were studied. Results show that the effects of vegetative protection regulating wind speed, noise level, sunlight intensity, air temperature and relative humidity were quite obvious. Compared with the control of vegetation-free slope, the slope with *Phragmites australis* had lower wind speed and noise level at the water side and the effects became stronger with the reed community growing wider and denser. The vegetative protection formed of *Prunus persica*+*Phragmites australis* was very effective in reducing wind speed, providing shade and increasing humidity, and what' s more, in creating some economic profit, so that, it is a pattern worth further extrapolating along the Grand Canal. The vegetative protection composed of *Metasequoia glyptostroboides*+*Phragmites australis* had certain effect of reducing air temperature and increasing humidity, but little of dulling noise or providing shade, so that, it can be used for slopes low in depression, providing people with sightseeing spots in winter. The vegetative protection of *Pyrus bretschneideri*+*Phragmites australis* reduced wind speed and noise level significantly, but its effect on micrometeorology was affected by artificial interference. The vegetative protection formed of *Cynodon dactylon* +*Phragmites australis* was limited in effect. It is advisable to avoid the use of this pattern as much as possible in designing vegetative protection of river slopes.

Keywords: the Grand Canal vegetative protection of river slope effects of reducing wind speed and noise level micrometeorology

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