自然资源学报 2011, 26(3) 429-439 DOI: ISSN: 1000-3037 CN: 11-1912/N

论文

疏勒河中下游绿洲胡杨种群结构与动态研究

刘普幸

西北师范大学 地理与环境科学学院,兰州 730070

摘要:

通过在疏勒河中下游天然胡杨林区设置7个样方6.852 4 hm^2,采用相邻格子法和动态数量值,分析胡杨种群的结构与动态特征。结果表明:中下游及不同生境胡杨种群年龄结构差异显著。中游幼苗缺失,幼树不多,中树最多,占总数的72.15%,大树较多,老树甚少,年龄结构呈正态分布型,林分年轻、稠密、高大,每公顷胡杨总数是下游的13.45倍。下游幼苗缺失,幼树极少,中树较多,大树最多,大、老树占总数的62.54%,年龄结构呈倒金字塔型,林分偏老,稀疏、矮小。中下游均为衰退种群。胡杨种群存活曲线基本接近Deevey I型,为下降种群;且存活率幼、中树高于大、老树,中游明显高于下游。种群数量动态计算表明,幼、中树动态量值为负值,大树、老树为正值,但胡杨总体表现为衰退的结构动态关系。总之,研究区胡杨未来因幼苗缺乏而趋于衰退演替,且下游衰退演替的速度更快。

关键词: 疏勒河中下游 胡杨林 种群结构 衰退演替

Study on Population Structure and Dynamics of *Populus euphratica* in the Middle and Lower Reaches of the Shule River Basin Oasis, Hexi Corridor

LIU Pu-xing

College of Geography and Environment Science, Northwest Normal University, Lanzhou 730070, China

Abstract:

Based on the investigated and selected research plots of 6.8524 hm^2 of *Populus euphratica* which were divided into 566 subplots in 2009 in the middle and lower reaches of the Shule River Basin Oasis, Hexi Corridor, all the trees whose stems are over 2.5 cm in DBH were identified, measured, tagged and mapped by using quaclrat method and every-tree measuring method. The size and age structure and the survival curves were created and the dynamics quantitative estimate was analyzed with field data. The results indicated that the characteristics of the size and age structure of *Populus euphratica* population were obviously different under different habitats in the middle and lower reaches of the Shule River Basin. In the middle reaches saplings were lack, with a few springwood and old trees, the population of the middle age trees was the biggest, occupying 72.15% of the total; more big trees and less old trees made the age structure present a normal distribution type; the forest stand is young, very dense and tall and the total of *Populus euphratica* per hectare is 13.45 times that of the lower reaches. In the lower reaches saplings were lack, with few springwood, more middle and old age trees, the population of big and old trees occupied 62.54% of the total, presenting an inverse pyramid type in age structure; the forest stand is older, very sparse, and dwarfish. They are both declining population in the study area. The survival curves of the population conformed to the type of Deevey I, a type of degressive population. The survival ratio was high in the springwood and middle age trees, low in the big and old age trees. The average survival ratio in the middle reaches was higher than that in the lower reaches, the highest in Qiaozi plot of the middle reaches and the lowest in plot of the lower reaches. The result of the dynamics quantitative estimate indicated that the survival amount in springwood and middle age trees of the population showed a negative value, and a plus value in Ⅶ-Ⅺ size class big and old age trees of the population. A general tendency was a dynamics structure relation of declining population. In a word, the trend is that *Populus euphratica* population, owing to lack of saplings, will be tending to a decline succession in the study area and the rate of succession in the lower reaches will be faster than that in the middle reaches.

Keywords: middle and lower reaches of the Shule River Basin *Populus euphratica* population structure declining succession

收稿日期 2010-08-11 **修回日期** 2010-09-28 **网络版发布日期**

DOI:

基金项目:

国家自然科学基金项目(40961035);甘肃省自然科学基金项目(0803RJZA094);甘肃省教育厅导师项目(0801-11);甘肃省级重点学科自然地理学资助。

通讯作者:

作者简介:

参考文献：

[1] Masaki T, Ota T, Sugita H, *et al*. Structure and dynamics of tree populations within unsuccessful conifer plantations near the Shirakami Mountains, a snowy region of Japan [J]. *Forest Ecology and Management,* 2004: 389-401. [2] 陈占仙. 额济纳旗胡杨林生长过程研究. 呼和浩特: 内蒙古农业大学, 2009. [3] 魏庆莒. 胡杨[M]. 北京: 中国林业出版社, 1990: 1-17. [4] 杨丽. 天然胡杨树体水分输移关系与影响因子研究. 呼和浩特: 内蒙古农业大学, 2006. [5] 达良俊. 杨永川. 宋永昌. 浙江天童国家森林公园常绿阔叶林主要种种群结构及其更新类型研究[J]. 植物生态学报, 2004, 28(2): 376-384. [6] 王巍, 刘灿然, 马克平, 等. 东灵山两个落叶阔叶林中辽东栎种群结构和动态[J]. 植物学报, 1999, 41(4): 425-432. [7] 蔡飞, 宋永昌. 武夷山木荷种群结构和动态的研究[J]. 植物生态学报, 1997, 21(2): 138-148. [8] 陈晓德. 植物种群与群落结构动态量化分析方法研究[J]. 生态学报, 1998, 18(2): 214-217. [9] 金则新. 浙江天台山甜槠种群结构与动态[J]. 生态学杂志, 1999, 18(6): 10-15. [10] 苏志饶, 吴大荣, 陈北光. 粤北天然林优势种群结构与空间格局与动态[J]. 应用生态学报, 2000, 11(3): 337-341. [11] 赖江山, 张谧, 谢宗强. 三峡库区常绿阔叶林优势种群的结构和格局动态[J]. 生态学报, 2006, 26(4): 1073-1079. [12] 杨永川, 达良俊, 陈波. 天童米槠-木荷群落主要树种的结构及空间格局[J]. 生态学报, 2006, 26(9): 2927-2938. [13] 杨慧, 娄安如, 高益军, 等. 北京东灵山地区白桦种群生活史特征与空间分布格局[J]. 植物生态学报, 2007, 31(2): 272-282. [14] 冯云, 马克明, 张育新, 等. 北京东灵山地区辽东栎种群生活史特征与空间分布(*Quercus liaotungensis*)[J]. 生态学杂志, 2009, 28(8): 1443-1448. [15] 于大炮, 周莉, 董百丽, 等. 长白山北坡岳桦种群结构及动态分析[J]. 生态学杂志, 2004, 23(5): 30-34. [16] 彭杰, 韩路, 王海珍, 等. 塔里木盆地胡杨群落结构特征研究[J]. 林业资源管理, 2009(1): 60-64. [17] 韩路, 王海珍, 彭杰. 塔里木河上游灰叶胡杨种群结构与空间格局研究[J]. 塔里木大学学报, 2008, 20(3): 67-71. [18] 韩路, 王海珍, 周正立, 等. 塔里木河上、中游胡杨种群结构与统计分析[J]. 生态学报, 2007, 27(4): 1315-1322. [19] 李军, 张秋良, 高润宏, 等. 额济纳绿洲胡杨种群结构与分布格局研究[J]. 干旱区资源与环境, 2008, 22(2): 187-190. [20] 丘明新, 杨祖成. 甘肃疏勒河中、下游地区地下水位下降和土壤盐渍化对草甸植被的影响及其解决的途径[J]. 生态学杂志, 1986, 5(4): 46-49. [21] 黄培佑. 胡杨林的衰退及林地更新复壮的探讨——塔里木盆地荒漠化的一个对策[J]. 新疆大学学报: 自然科学版, 1984(2): 97-104. [22] 殷密英, 靳盛海, 刘少玉, 等. 疏勒河流域绿洲盐渍土类型及盐渍化程度分析[J]. 南水北调与水利科技, 2007, 5(5): 72-76.

本刊中的类似文章

文章评论 (请注意:本站实行文责自负, 请不要发表与学术无关的内容!评论内容不代表本站观点.)

反馈人		邮箱地址	
反馈标题		验证码	5503
