

气候变化背景下，华东地区苗木企业聚集区预测研究*

崔颖¹ 张明娟^{*1,2}

(1.南京农业大学 园艺学院 南京 邮编: 210095 2. 农业部景观设计重点实验室 南京 邮编: 210095)

摘 要:【目的】预测未来气候变化背景下华东地区苗木企业聚集区的分布，进而为苗木产业发展提供建议【方法】使用最大熵模型（MaxEnt）分析了未来自然因素和未来社会因素对苗木产业格局的影响，分别预测了 2021-2100 年的四个时间段（分别为 2021-2040、2041-2060、2061-2080、2081-2100），华东苗木企业聚集区在 SSP126、SSP245、SSP370、SSP585 气候模式下的适生区分布。【结果】最湿季降水量、耕地比率、城市用地比率、水域用地比率、降水量季变异系数是影响华东苗木企业聚集区分布的关键因素。当最湿季降水量为 417.1 mm-499.7 mm、耕地比率为 0.58 到 1、城市用地比率为 0.003 到 0.076、水域用地比率为 0 到 0.189、降水量季变异系数为 50.3-55.6 或 74.9-129.3 时，适宜华东苗木企业聚集区分布。未来，在 2021-2080 年，四种排放情景下的苗木企业聚集区适宜区总面积均高于当前水平，但在 2081-2100 年仅在 SSP126 排放情景下，适宜区总面积高于当前。在四种排放情景中，SSP585 排放情景下，适宜区扩张的面积最小，收缩的面积最大，该时期，在该排放情景下，适宜区面积减少率高达 33.65%；山东省、安徽省的适宜区总面积持续增加，而江苏省、上海市和浙江省的适宜区总面积呈减少趋势；在 2021-2040 年，适宜性格局发生巨大变化，影响 2041-2100 年适宜性总体格局；在 2021-2100 年，适宜区的质心点持续北移，各排放情景下的质心点均在山东省；在 SSP126 排放情景下，研究范围内更多的区域在 2021-2100 年持续位于适宜区。各排放情景下，山东省适宜发展苗木企业聚集区县的平均稳定性指标最高。各省份适宜发展苗木企业聚集区县的平均稳定性均以 SSP585 情景下最低。【结论】未来，在重要省份苗木企业聚集区发展规划而言，江苏省南部地区的苗木企业聚集区的适宜性受到较大程度的影响，建议无锡市、常州市、镇江市等地区进行适当的生产压缩，将生产重心转移至南通市，同时，将江苏省徐州市作为连接山东省与江苏省新旧热点区的重要纽带；山东省苗木企业聚集区面临机遇与挑战，其空间格局发生巨变，所有适宜区净增区域中超过七成的区域位于山东省，而全部适宜区不稳定区域中近三成的区域也在山东省。本研究对于制定华东地区苗木企业气候适应性发展规划有重要意义。

关键词: 气候变化；苗木企业；华东地区；最大熵模型；

中图分类号

文献标识码: A

文章编号:

Influence of the Mixed Modes of Larch and Birch on Soil Faunal Community in Mountain Area of Northern Hebei, China

Author¹ Author²

(1. name of organization City postcode; 2. name of organization City postcode;)

Abstract: 【Objective】Predict the distribution of seedling enterprise agglomerations in East China under the background of future climate change and provide suggestions for the development of the seedling industry

*作者 2 为通讯作者。

【Methods】 The impacts of future natural and future social factors on the pattern of the seedling industry were analyzed using the Maximum Entropy Model (MaxEnt), and the distribution of seedling enterprise agglomerations in East China under the background of future climate change was forecasted for the four time periods from 2021 to 2100 (2021-2040, 2041-2060, 2061-2080, and 2081-2100, respectively). 2060, 2061-2080, and 2081-2100), the distribution of suitable zones under SSP126, SSP245, SSP370, and SSP585 scenario in the cluster of East China's seedling enterprises. 【Results】 Precipitation in the wettest season, the ratio of farmland, the ratio of urban land, the ratio of water, and the seasonal coefficient of variation of precipitation are the key factors influencing the distribution of the clustered areas of nursery enterprises in East China. When the precipitation in the wettest season is 417.1 mm-499.7 mm, the ratio of farmland is 0.58 to 1, the ratio of urban land is 0.003 to 0.076, the ratio of water is 0 to 0.189, and the seasonal variation coefficient of precipitation is 50.3-55.6 or 74.9-129.3, the distribution of East China's seedling nursery enterprise cluster area is suitable. In the future, in 2021-2080, the total area of suitable areas in the seedling enterprise agglomeration is higher than the current level in all four emission scenarios, but in 2081-2100, the total area of suitable areas is higher than the current level only in the SSP126 emission scenario. Among in the four emission scenarios, the area of suitable area expansion is the smallest and the area of contraction is the largest in the SSP585 emission scenario, and the area of suitable area decreases by as much as 33.65% in this emission scenario in this period; the total area of suitable area in Shandong Province and Anhui Province continues to increase, and the total area of suitable area in Jiangsu Province, Shanghai Municipality, and Zhejiang Province is on a decreasing trend; and in the period from 2021 to 2040, the The pattern of suitability changes dramatically in 2021-2040, affecting the overall pattern of suitability in 2041-2100; the center-of-mass of the suitability area continues to shift northward in 2021-2100, with the center-of-mass in Shandong Province under all emission scenarios; and more areas within the study area continue to be located in the suitability area in 2021-2100 under the SSP126 emission scenario. Shandong Province has the highest average stability indicators for all emission scenarios for the areas and counties with clusters of suitable seedling development enterprises. The average stability of the PIBAs in each province is lowest under the SSP585 scenario. 【Conclusion】 In the future, in terms of the development planning of seedling enterprise agglomerations, the suitability of seedling enterprise agglomerations in the southern region of Jiangsu Province is mostly affected, and it is recommended that Wuxi City, Changzhou City, Zhenjiang City and other regions carry out appropriate production compression and transfer the center of gravity of production to Nantong City, and, at the same time, Xuzhou City, Jiangsu Province, as an important link connecting old and new hotspot areas in Shandong Province with those in Jiangsu Province; Seedling enterprises in Shandong Province are facing opportunities and challenges in the aggregation area, and its spatial pattern has changed dramatically, with more than 70% of all suitable areas of net increase in the area located in Shandong Province, and nearly 30% of all suitable areas of instability in the area is also in Shandong Province. This study is important for the development of climate-resilient development planning for seedling enterprises in East China.

Key words: Climate change; Seedling enterprise; East China; MaxEnt