邓 欧,李亦秋,冯仲科,张冬有.基于空间Logistic的黑龙江省林火风险模型与火险区划[J].农业工程学报,2012,28(8):200-205

基于空间**Logistic**的黑龙江省林火风险模型与火险区划

Model and zoning of forest fire risk in Heilongjiang province based on spatial Logistic

投稿时间： 2011-09-30 最后修改时间： 2012-03-20

中文关键词：逻辑回归,区划,风险,林火,黑龙江省

英文关键词:Logistics zoning risks forest fire Heilongjiang province

基金项目:国家自然科学基金资助项目（30872038）；北京市自然科学基金资助项目（4091002）；绵阳师范学院博士启动基金.

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中文摘要:

林火风险分析和森林火险区划是林火管理的重要组成部分。该文利用黑龙江省2000－2010年MODIS火烧迹地遥感数据集MCD45A1，在RS和GIS技术支持下构建林火空间分布与林火影响因子间的空间Logistic林火风险模型，在较大时间尺度和省域空间尺度上进行了森林火险区划研究，结果表明：通过空间采样构建的Logistic林火风险模型拟合效果很好，在显著性水平为0.05的情况下，通过模型系数的混合检验和Wald检验；相对运行特征（relative operating characteristic，ROC）值为0.753；经图层运算得到森林火险概率分布图，并将黑龙江省分为无火险区、低火险区、中火险区、高火险区和极高火险区。大兴安岭山地集中了极高火险区和高火险区；小兴安岭基本上属于高火险区和中火险区；东部山地小部分地区属于中火险区；其它地区属于低火险区和无火险区。黑龙江省森林火险的定量定位评价可为林火的预防、扑救以及防火指挥员进行防火规划和部署扑火力量、指导森林防火工作提供科学依据。

英文摘要:

Forest fire risk analysis and forest fire risk zoning are important parts of the forest fire management. MODIS burn scars of remote sensing data sets MCD45A1 of Heilongjiang Province in 2000-2010 was used to build the spatial logistic forest fire risk model based on the spatial distribution of forest fire and forest fire impact factor by using geographic information system technology. Forest fire risk zoning study was conducted in a larger temporal scale and provincial spatial scale. Logistic model of forest fire risk built by spatial sampling between the distribution of forest fires and forest fire impact factor fit well ($p<0.05$). The relative operating characteristic value was 0.753 and the probability distribution map of forest fire was gotten by layer computing. Forest fire area of Heilongjiang province was divided into none, low, moderate, high, and extremely high fire risk zones. Extremely high and high fire risk zone were located at Great Xing’an Mountain, while high or moderate fire risk area at Xiaoxing’an Mountain basically. Small parts of the eastern mountain were in moderate fire risk, and other areas in low or none fire risk. Quantitative and positioning evaluation of the forest fire in Heilongjiang province provides scientific basis for the prevention of forest fire fighting and rescue work.

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