Brutian pine (Pinus brutia Ten.) is one of the most common and precious coniferous tree species in Turkey. Except for its main distribution areas such as the Mediterranean and Aegean regions, brutian pine can be found in isolated areas due to its different forest site factors. Therefore, our aim was to obtain a model and map of this species in the Aydınca District, which is one of these isolated areas. For these purposes, the presence or absence of data of target species was collected from 453 sample plots. Environmental variables – including elevation, slope, heat index, topographic position index, slope position, bedrock types, BIO1, and BIO12 – were selected for generating a model and map of brutian pine via the generalized additive model. The model and map show that BIO1, BIO12, elevation, heat index, and bedrock were the most important explanatory variables. As a result of the obtained model, potential distribution of brutian pine was determined to range from 400 to 806 m elevation. In addition to this result, climate conditions for brutian pine were areas where the annual mean temperature was 11-12.5°C and annual mean precipitation was 428-439 mm. Besides, more suitable areas for brutian pine occurred where the heat index values are higher. Finally, brutian pine preferred limestone, schist, and other bedrock types in the district. In this study especially, climatic features that depend on elevation showed significant influence on potential distribution of brutian pine in Aydınca.