USING QGIS AND ANALYTIC HIERACHY PROCESS TO CLASSIFY FOREST FIRE RISKS IN MUONG CHA DISTRICT, DIEN BIEN PROVINCE

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SUMMARY

Forest firer has been a considering issue. Forest fires have caused great damages to people and properties for many mountainous districts, including Muong Cha district. By inheriting and investigating data on socio-economic conditions and available maps in Muong Cha district, the study has built 9 map layers corresponding to 9 factors influencing forest fire risks: slope, aspect, altitude, distance to rivers and streams, distance to roads, residential areas, upland fields, forest types, and soil types. After that, layers are classified according to 5 forest fire risk levels: from 1 to 5. In which, 1 is the low-risk area and 5 is the area with the highest risk of the forest fire. Analytic hierarchy process is used to find and rank weighted parameters for 9 influencing factors. In which, the most important factors affecting the forest fire risk are forest types, distance to upland fields, distance to residential areas and elevation. The parameters of these most influencing factors ranged from 0.16 to 0.12. QGIS was used in combination with the founding weighted parameters, map layers were overlapped and the final product is a map of forest fire risk classification in Muong Cha district. The area of the district is divided into 5 levels of the forest fire risk. In particular, the total area of Low and Extremely dangerous levels is about 17 and 19 thousand hectares respectively. Medium, High and Dangerous levels have larger areas, ranging from 41 to 50 thousand hectares. The accuracy of the forest fire risk map is relatively high, over 80%, based on interview data in the last 3 years.

Keywords: Analytic hierarchy process, forest fire, Muong Cha, QGIS.

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