This diploma thesis is focused on methodology of landscape ecological planning LANDEP, which was developed by leading Slovak landscape ecologists. The methodology is conceptually different from the Czech methodology ÚSES, which is legislatively supported in practice. The aim of this work is the application of this methodology on selected territory of the municipality of Svatý Jan pod Skalou and the comparison of results of both methodologies. Along with the application of LANDEP, ArcGIS Desktop 9.3 was used, enabling the evaluation of the environmental problems on given area. In practice, both methods can be used and although they are different, they can complement each other. The main difference in the usage of these methodologies is in the scale of territory being researched. By implementing the LANDEP methodology, ecological resilience of current landscape usage and the need for conservation of protecte elements have been identified.