



## Comparing the conditions of different Ecosystem Health components in Iiril watershed, Ardabil Province

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Received: 14/6/2017

Accepted: 17/9/2017

### Abstract

Ecosystems are degraded through human activities and a healthy ecosystem sustains the requirements of human and natural environment, as well as the conservation of economic and social values. Various indicators are required to assess the health of ecosystems. This study evaluates the factors affecting the overall ecosystems health including: vigor, structure, and resilience in the Iiril watershed, Ardabil province. The values of vigor (NDVI, erosion and runoff), structure (continuity, degree of division, patch density and edge density) and resilience (landuse classes, the largest patch index and aggregation index) were quantified and then results were compared at sub-watershed scale. According to the results of vigor component, the S8 and S1 sub-watersheds had the highest scores of 0.89 and 0.13, respectively. The S7, S2 and S3 sub-watersheds had favorable structure conditions, having 0.73, 0.63, and 0.63 scores compared with other sub-watersheds. The resilience index values of S1, S3 and S8 sub-watersheds were in a high health level. In summary, the highest variability is related to resilience component over the study area. The average value of the vigor, structure, and resilience components were calculated to be 0.40, 0.55, and 0.55, respectively, and the S1 sub-watershed had the highest average value of calculation indices.

**Keywords:** Ecosystem resilience, Ecological connectivity, ecosystem structure, Health assessment, Ecosystem Vigor.

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