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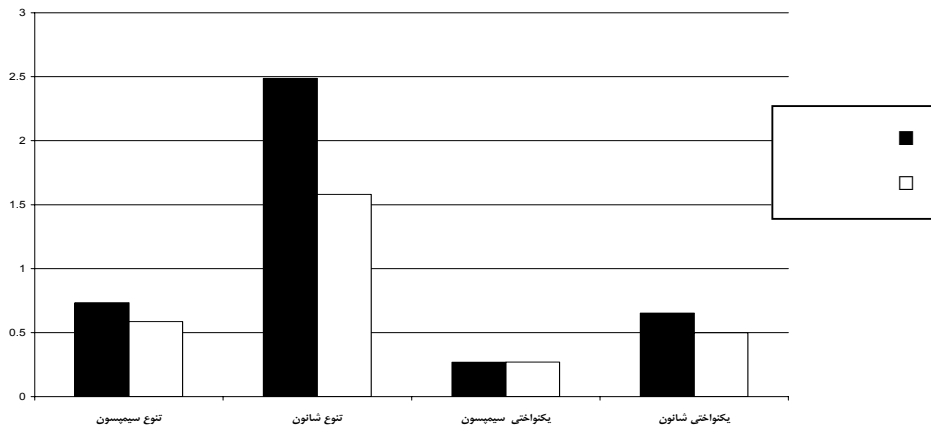
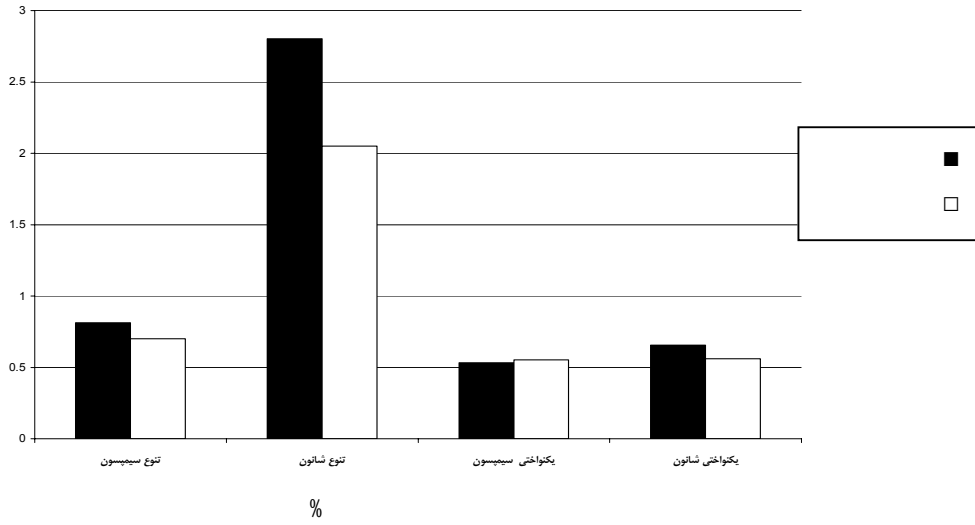
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Investigation on the sustainability of tree species diversity using common sample plots in forest management planning (Case study: Gorazbon district, Kheyroud Forest)

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Abstract

There is increasing pressure worldwide for maintenance of forest sustainability. Concerns about environmental and social issues associated with forest sustainability - such as effects on biodiversity changes, area, vitality, health, wood and non-wood production of forests - have led to international agreements and programs for improving forest management practices. One of the problems that forest experts are facing in Iran is the existence of cow-pens and the effects of livestock grazing on forest trees. This research aims to study the effects of grazing resulting from cow-pens on tree species diversity. For this purpose, two compartments in which cow-pens exist and two ones out of reach of livestock were selected in Gorazbon District belonging to the experimental Forest of Kheyroud. In both regions the forest types are *Fageto-Carpinetum*. Using 100% inventory and sampling methods, heterogeneity and evenness indices of Shannon and Simpson were calculated. Heterogeneity indices of Simpson and Shannon-Wiener and evenness index of Shannon were greater in grazed region, but evenness index of Simpson were approximately the same in both regions. Using *t* test for Shannon index, there is a significant difference between 100% inventory and sampling method in grazed region with 13 sample plots, but in ungrazed region, the difference is not significant with 23 sample plots.

Keywords: Tree species diversity, Forest management, Livestock grazing, Cow-pens, Biodiversity indices, Sampling