

Changes in the floristic composition during early succession after hydroseeding on uranium-mining wastes

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Abstract

Eight dump slope sites differing two by two in revegetation treatment (hydroseeding or not) and aspect (north/south) were monitored annually during three years. The HJ-Biplot multivariate technique [1] was used to investigate the way and order in which treatment and aspect contributed to determining changes in the community composition, and to identify the taxa associated with them.

Palabras Clave: aspect, semi-arid conditions, spontaneous colonisation.

AMS: 62Hxx; 62P12

1. Introduction

Under semi-arid Mediterranean conditions in Spain, soil stabilization on roadsides and mining wastes is often achieved by using commercial mixtures of non-native seeds [2, 3, 4]. However, the behaviour of these species in providing rapid vegetation cover of exposed substrate in a regime of scarce and markedly seasonal rainfall, and their performance when interacting with colonising species invading from nearby are still poorly understood [2]. Also the capacity of species characteristic of later successional stages to displace the initial ground cover should be better understood [5, 6]. We hypothesize that the dynamics of early revegetation in such semi-arid Mediterranean conditions will be affected by both the hydroseeding of non-native species and site aspect. To understand these factors, we compared natural and man-induced community development on uranium waste dumps of differing aspect in the Salamanca province [7].

2. Results and Conclusion

There was a combined effect of treatment and aspect on the floristic composition during early succession. Particularly, hydroseeding increased differences in floristic composition between aspects (Fig. 1), being the contribution of sown species to these differences small and short [7]. The species mixture was not suitable and the use of local seeds should be tested in future revegetation projects at this zone. The importance of improving natural colonisation for ecological restoration is emphasised.

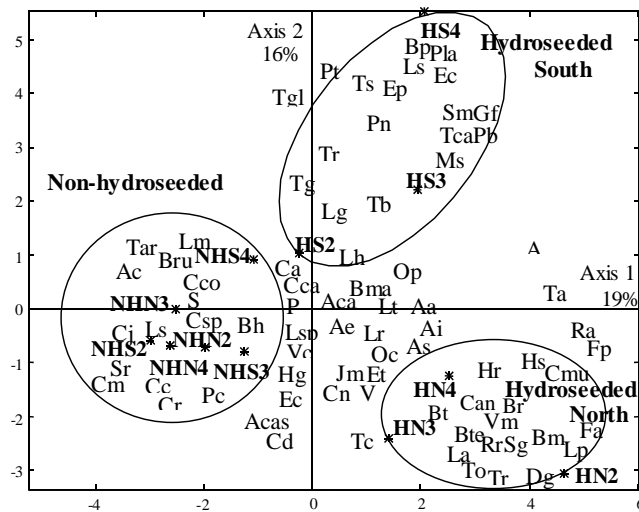


Figure 1: Ordination plot of sites and species in the first two dimensions obtained by HJ-Biplot analysis. Sites identified by treatment (NH = non-hydro, H = hydro), aspect (N = north, S = south) and age (years after revegetation). Species listed by first letter of genus and first or two first letters of species name (see [7] for species identification).

3. References

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