EVALUATION OF THE ECOLOGICAL SUCCESSION IN GYPSUM QUARRY REHABILITATION PROCESSES THROUGH THE BERGER-PARKER INDEX

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ABSTRACT

The present study was carried out in the south-eastern part of Spain (Sorbas, Almería), which is considered the most depauperated locality in Europe. The altitude is between 300-500 m, the mean annual temperature is 17°C and the mean annual precipitation is approximately 300 mm. It is one of the most representative gypsum karst areas in the world.

The present rehabilitation program consists of regrading the surface by heavy machinery (geotechnical techniques) and seeding, spreading sub-surfacefully with mix fabric and covering the surface with topsoil. The spontaneous (natural) succession is then reasonably checked (with an additional intervention) with the aim to reach a target community (Lus-Kercher 1997, Prach et al. 2001, Hoekstra and Prach 2007). According to this, it could be named as assisted – primary succession.

RESULTS

In R1 (both gypsum and steen material) and R2 (stein material), the pioneer stage lasted for only 1 year (Haplocalcare tenuis), the fall weed stage 2 years (Hernandrea andriae), the native perennial grass stage lasted for the first year (Brachypodium distachyon), although in R1 – steen material became dominant (Haplocalcare tenuis). In the vegetation in R1 and R2 could be divided into two stages, namely, monocotyledonous, subdominant and subdominant species communities (Wang et al. 2004).

CONCLUSIONS

The data on plant succession are base-line information when planning post-quarry rehabilitation in arid zones. It was studied the role of the Berger-Parker Index, values, the vegetation in R1 and R2 could be divided into two stages, namely, shrubland, subdominant and subdominant species communities (Wang et al. 2004).

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REFERENCES

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SITE DESCRIPTION

The gypsum quarry in the site ("Los Revés") is located in the south-eastern part of Spain (Sorbas, Almería), which is considered the most depauperated locality in Europe. The altitude is between 300-500 m, the mean annual temperature is 17°C and the mean annual precipitation is approximately 300 mm. It is one of the most representative gypsum karst areas in the world.

The present rehabilitation program consists of regrading the surface by heavy machinery (geotechnical techniques) and seeding, spreading sub-surfacefully with mix fabric and covering the surface with topsoil. The spontaneous (natural) succession is then reasonably checked (with an additional intervention) with the aim to reach a target community (Lus-Kercher 1997, Prach et al. 2001, Hoekstra and Prach 2007). According to this, it could be named as assisted – primary succession.

METHODS

The present study was carried out in the south-eastern part of Spain (Sorbas, Almería), which is considered the most depauperated locality in Europe. The altitude is between 300-500 m, the mean annual temperature is 17°C and the mean annual precipitation is approximately 300 mm. It is one of the most representative gypsum karst areas in the world.

The present rehabilitation program consists of regrading the surface by heavy machinery (geotechnical techniques) and seeding, spreading sub-surfacefully with mix fabric and covering the surface with topsoil. The spontaneous (natural) succession is then reasonably checked (with an additional intervention) with the aim to reach a target community (Lus-Kercher 1997, Prach et al. 2001, Hoekstra and Prach 2007). According to this, it could be named as assisted – primary succession.

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In R1 (both gypsum and steen material) and R2 (stein material), the pioneer stage lasted for only 1 year (Haplocalcare tenuis), the fall weed stage 2 years (Hernandrea andriae), the native perennial grass stage lasted for the first year (Brachypodium distachyon), although in R1 – steen material became dominant (Haplocalcare tenuis). In the vegetation in R1 and R2 could be divided into two stages, namely, monocotyledonous, subdominant and subdominant species communities (Wang et al. 2004). In the future, the results in R1 and R2 (both steen material) are converging and not clear, which has been related to the less restored area size.

CONCLUSIONS

The data on plant succession are base-line information when planning post-quarry rehabilitation in arid zones. It was studied the role of the Berger-Parker Index, values, the vegetation in R1 and R2 could be divided into two stages, namely, shrubland, subdominant and subdominant species communities (Wang et al. 2004).

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