Appendix S1. Study design and a priori power analysis

We performed a priori power analysis to determine the optimal sample size (number of macro-areas and number of linear transects within each macro-area) to detect a specified statistically minimum detectable change (MDC) of rooting values among the macro-areas (Cohen 1988).

To perform the a priori power analysis it was necessary to assume the probability of Type I error (α) and the desired statistical power of the following analysis ($1-\beta$): we set these values respectively at 0.05 and 0.95. Furthermore we set MDC = 0.4, a standard value to detect differences of medium and high magnitude (Cohen 1988), because we were not able to find any information based on field researches about a significative effect size of rooting impact on the parameters we investigated. Since we decide to perform an analysis of the variance on rooting values to detect statistically significant differences among the macro-areas, we had to define *a priori* also the number of macro-areas in order to determine the number of linear transects to carried out in each macro-area. We decided to carried out four power analysis with number of macro-areas ranging from 12 to 15 as a compromise between logistical constrains and the need to sample a minimum of the 10% of the study area. Power analysis were carried out with G*Power 3 software (Faul et al. 2007).

The four power analysis gave similar results. The mean number of linear transect is 13.5 ± 2.89 for macro-area. We decided to distribute 14 macro-areas randomly in the study area; the power analysis for 14 macro-areas gave an optimal number of linear transects equal to 13. Since we assumed to systematically distribute the linear transect within each macro-area, we decided to perform 12 linear transect for macro-areas (for a total of 168 linear transects). The statistical power for this sampling design is 0.935.