**Supplementary information**

**Title**

Something for nothing: active restoration trumps passive in drylands

**Authors**

M. Florencia Miguel1\*, H. Scott Butterfield2, Christopher J. Lortie3

\*Correspondence to: fmiguel@mendoza-conicet.gob.ar

**Supplementary Fig. 1.** Disturbances reported in dryland ecosystems globally and the restoration strategy implemented, active or passive.The *y*- axis represents the frequency of studies that reported each disturbance. Red represents the frequency of studies that applied active restoration practices while blue represents the frequency of those studies using passive recovery practices.

Imagen que contiene captura de pantalla

Descripción generada automáticamente

**Supplementary Fig. 2.** PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) report of a meta-analysis comparing active versus passive restoration strategies, and individual practices for restoration in dryland ecosystems globally.

Imagen que contiene captura de pantalla

Descripción generada automáticamente

**Supplementary Table 1.** List of restoration practices, outcomes and original response variables included in a meta-analysis comparing active versus passive restoration strategies in dryland ecosystems globally. Different practices were grouped into general categories based on their primary focus, for example those related with plant interventions such as planting or seeding, were included within the vegetation category. The outcomes listed describe target goals from each restoration practice; the habitat classification includes studies that reported measures of both soil and vegetation recovery or of vegetation community structure. Sample size indicates the number of observations and data entries obtained for each restoration practice from the studies included in the meta-analysis (n = 40).

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Restoration strategy** | **Category of Practices** | **Practices** | **Outcomes** | **Response variables** | **Sample size** |
| Active | soil | carbon addition, topsoil removal, seeding | habitat | microbial abundance; plant biomass | 45 |
| carbon amendment | habitat | moss cover; soil nutrient content | 27 |
| fertilization, bio stimulants, seeding | soil | nutrient content | 48 |
| mycorrhizal inoculation | vegetation | plant biomass; nutrient | 128 |
| vegetation | burning, mowing | habitat | Soil nutrient content and soil properties; plant biomass | 24 |
| mechanical disturbance, seeding | vegetation | plant cover and density | 4 |
| mowing | habitat | soil nutrient content and plant richness | 3 |
| planting | habitat | plant biomass, density, cover, diversity and richness; soil nutrient | 369 |
| planting | vegetation | plant height and cover; invertebrate and lizard abundance, diversity, dominance, evenness and richness | 26 |
| planting | soil | soil nutrient content and soil properties | 84 |
| planting | animals | invertebrate abundance, diversity and richness; soil properties; plant cover, density, height and richness | 24 |
| seeding | vegetation | plant cover and density; seedling emergence and establishment | 44 |
| seeding | soil | soil nutrient content and soil properties | 117 |
| seeding and ripping | vegetation | plant cover and abundance | 12 |
| seeding, cutting, grazing treatments | habitat | plant cover and richness | 2 |
| seeding, gypsum and organic mulch | habitat | soil properties; seedling emergence and surviving plants | 9 |
| seeding, irrigation | vegetation | seedling emergence | 7 |
| seeding, mowing and herbicide, mulching | habitat | plant cover and richness; soil nutrient content and soil properties | 18 |
| seeding, mulching, weeding | vegetation | plant cover | 6 |
| seeding, planting | habitat | plant evenness, diversity and richness; floristic quality index, coefficient of conservatism | 15 |
| seeding, safe sites for seeds, fencing | vegetation | plant cover and biomass | 8 |
| seeding, soil tilling, fertilization | vegetation | plant biomass | 7 |
| water supplementation | irrigation, seeding | vegetation | plant cover, abundance, biomass, density and survival | 63 |
| water supply | habitat | plant biomass, density, cover, evenness, productivity and richness; soil nutrient content | 12 |
| Passive | grazing exclusion | fencing | vegetation | plant height, cover and diversity | 21 |
| grazing exclusion | vegetation | plant height, cover, diversity, biomass and richness | 8 |
| soil | mycorrhizal recovery | soil | microbial richness and density | 6 |
| natural recovery | soil | soil nutrient content and soil properties | 198 |
| vegetation | facilitation | habitat | soil nutrient content and soil properties; plant survival, biomass, height, width, abundance, and richness | 59 |
| natural recovery | habitat | soil nutrient content and soil properties; plant richness | 30 |
| natural recovery | vegetation | plant openness, frequency and richness | 4 |
| fencing | habitat | plant biomass, evenness, cover, density, diversity, height and richness; soil nutrient content and soil properties | 15 |
| grazing exclusion | vegetation | plant cover, density, height, biomass and richness | 17 |