

Research at the Fossil Park

Names and Institutional Affiliations of Researchers

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2nd year class, Principles of Ecology Module, University of Cape Town (55 students)

Aims

The aim of this practical is to compare the effectiveness of various rehabilitation treatments that have been used to restore areas of the West Coast Fossil Park, following the cessation of phosphate mining. We will investigate restoration techniques on two different landforms:

- 1) Phosphate beds: these are the areas from which phosphate was extracted using open-cast mining, and are the most heavily disturbed and difficult to rehabilitate.
- 2) Topsoil restoration sites: these reflect "best practice" approaches to restoration and are areas which were previously stripped of their topsoil and underburden to get at the phosphate rich bedrock but where the topsoil has been replaced.

Within each of these land forms, we will compare the effectiveness of restoration techniques like seeding, planting and brushpacking, against a control area where no intervention has taken place.

Data to be collected

All the surveys will be conducted on the trial blocks that were instituted in 1996, enabling repeat collection of data already collected in 2000 and 2004. Effectiveness of restoration treatment will be assessed using % cover and richness of perennial species. Students will first complete a species list in the table "Types of Land Cover", over the page*.

2) Effectiveness of restoration treatment will then be assessed using % cover and richness of perennial species. Two methods will be used to assess % cover:

- a) Estimate the percentage cover of each land cover type (plant species or bare ground, litter, etc), and fill this in on Table 1, column %a.
- b) A point transect estimate. Each treatment plot is c. 25x25 m. The sample design is 4 x 25 metre transects, sampled at 1m intervals (100 points). At each metre along the transects, drop a thin stick or metal rod onto the ground and record what type of cover (bare ground, rock, moss, lichen, perennial plant species, etc) is struck by the rod, in table 2 overleaf. You may need to adapt this sample design as some of the plots are smaller. When you have finished the plot, convert the counts to a percentage and fill this in on Table 2, column %b.

18 groups of 3 students will repeat this on two or three plots, depending on time, each having different restoration treatments or no treatment at all (control). The data sheet and a map showing location of plots is attached.

Desired start and finish dates: 9th - 12th April 2009.

Facilities and Materials: We have data from previous surveys, as well as results of last year's practical

Fees: We will pay 18R per student for a tour of the fossil park. Bookings have been made and we are awaiting the invoice from WCFP.

Source of Financial Support: UCT

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