

## **A proposed recipe for mitigation-restoration of maritime chaparral**

(Where the community has not existed in prior times or where it has been obliterated through tilling or other methods that has completely destroyed the seed bank)

1) Collect baseline data on the site that is slated for destruction. You can't provide a 'replacement or substitute resource' unless you know what is being destroyed. This should include:

- a) Soil seedbank - species diversity, seed numbers, spatial distribution data
- b) Vegetation community data - what does the community look like right now: species cover and distribution/density data
- c) Animal data - what animals are using the habitat in what numbers
- d) Soil microbial data - what diversity of fungi, etc., are using the site.

2) Identify a reference ecosystem. Using the baseline data above, identify a similar protected area maritime chaparral ecosystem for comparing the restoration site. Reference ecosystems are increasingly the norm for any biological monitoring program and are invaluable for restoration.

3) Recreate 1) a) - d) above. Specifically important is the reestablishment of the soil seedbank as this will ensure the viability of the restoration site through time and disturbances. Without a similar soil seed bank, the restored maritime chaparral site will succumb to the first fire, reverting to its former habitat type or worse.

4) Control exotic, invasive species in perpetuity. Disturbed sites such as restoration areas are inherently more readily invaded by exotic species than intact sites, so a mechanism needs to be in place to assure long-term control of these species.

5) Maintain natural disturbance regimes. Restoration usually takes place "on site," close to human habitation, where necessary natural disturbance regimes (such as fire) will be altered. Therefore, these disturbance regimes must be maintained in a managed way. Prescribed fire or some other, substitute, disturbance should be used at appropriate intervals to maintain the long-term health and diversity of the community.

The simplest thing to do might be to say that a successful restoration project will have, over the long term, restored the above and below ground plant and animal communities to within 10% of the species diversity and density of the site that was destroyed. If at any time the restoration site appears to be failing due to matters beyond the control of the restoration practitioners, reason for failure should include a comparison of the restoration site with the reference site identified at the outset of the permit.