

Riparian Polygon Dominant Species Cover Estimation Santa Monica Mountains National Recreation Area Winter 1997

Introduction

The riparian areas of the Santa Monica Mountains are a source of diverse flora usually unseen throughout the range. The availability of annual or perennial waters that flow through these locations supports the higher water needs of the species that reside within these specific habitats. Qualitative analysis has been conducted on these riparian areas over the last three years, in an effort to assess the dominant riparian (tree) species canopy cover. Coverage focused on the composition of 12 riparian types (tree species), based on a visually assessed percentage. Project assistants worked with binoculars, topographic maps, and quadrangle maps of riparian vegetation polygons. Assistants spent extensive time in the field on foot and in vehicles visiting the sites within the mountains. Data collected from 1995 through 1997 has been entered into the park's GIS computerized databases.

Project Objectives

To qualitatively determine dominant riparian (tree) species canopy cover occurring within each mapped riparian polygon (or polygon subsets) from the Santa Monica Mountains National Recreation Area 1984 vegetation map. The project data allowed the updating of the database on two levels: 1.) determining the types of riparian communities and the dominant species cover for each polygon based on the 1984 vegetation map 2.) determine mapping errors or riparian community changes.

Field Methods

Absolute cover was estimated for each riparian polygon using a pre-determined set of potential cover types as choices (Table 1). Cover types represent species-specific riparian cover types, and cover dominance was based on an estimate of canopy cover, including both overstory and understory species of interest. For each polygon, cover types were recorded and classified into four dominance categories based on relative ground cover within the polygon. Dominance categories were coded and divided as follows: 1 = 50% or greater cover, 2 = 25% to 50% cover, 3 = 5% to 25% cover, and 4 = less than 5% cover. Estimation of the percent cover for each cover type in the field was assessed through the use of a cover guide diagram (Figure 1), and determined, when possible, from within the riparian zone (to estimate understory canopy cover).

When this level of reconnaissance was not possible, the riparian zone canopy cover was estimated through the use of binoculars. This method enabled field researchers to determine zone cover types and dominance coverage based on best judgements.

Accuracy was based on sampling completeness for each polygon was determined by recording qualitative information. Two assessments were made for the riparian polygons: 1.) percent of polygon sampled 2.) a qualitatively determined distribution of observation points. Both measures were evaluated for each polygon, and provided confidence of a fairly complete assessment.

The 1984 riparian database- provided the mapping base for the fieldwork; aerial photography was also used to determine exact locations of the polygons. Modification of the polygons on the maps indicated any of four observation 1.) enlargement of the riparian area 2.) reduction of the area 3.) an area should be deleted and 4.) a new polygon should be added to the coverage. Areas marked for deletion were revealed as not being true riparian areas (i.e. eucalyptus groves or pines) others were determined as not occurring due to mapping errors or the riparian area was removed as a result of development. Indication for deletion was registered by crossing out the polygon on the map and noting such removal on the field sheets. Reductions and enlargements were also noted on the field sheets and their extents were sketched onto the field maps.

GIS Coverages & Databases

The coverage dominance data from the field sheets was placed into an Access spreadsheet file currently located on Samo 1 drive at the following path: G:\home\resource\riparian. the Access document is DB1.MDB and within that database are two files named Riparian and Ripar95. These two files contain a collection of field data from 1995-1997, a compilation of field work over three summers.

The Access files were imported into ArcInfo using the DBASEINFQ command, which enables the program to form relationships between the GIS riparian coverage and the cover dominance data. The riparian coverage with all (present) corrections (i.e. polygon changes, deletions, additions) is in the following directory on Bobcat: \home\tracy\riparian. A relate file named riparian.rel was created to link the cover dominance information with the ArcInfo coverage. There are three files within this relate file, rip.dat is the one to use for selecting polygons in ArcPlot or ArcView. The data file created from the Access file is named riparian.dat; this file is easily viewed and used for reference through the use of Tables in ArcInfo.

All hardcopies of field sheets, maps, and other information is located in the black file drawers next to the HP650 plotter in the Natural Resource Management office. The drawer is clearly marked with the label Riparian Mapping.

TABLE 1

Cover types:

Riparian Cover Types and Codes:

Mule Fat	<i>Baccharis glutinosa</i>	BAGL
Willow species	<i>Salix sp.</i>	SASP
Valley Oak	<i>Quercus lobar</i>	QULO
Coast Live Oak	<i>Quercus agrifolia</i>	QUAG
Western Sycamore	<i>Platanus racemosa</i>	PLRA
California Bay	<i>Umbellularia californica</i>	UMCA
California Walnut	<i>Juglans californica</i>	JUCA
Cottonwood species	<i>Populus sp.</i>	POSP
White Alder	<i>Alnus rhombifolia</i>	ALRH
Big Leaf Maple	<i>Acer macrophyllum</i>	ACMA
Mexican Elderberry	<i>Sambucus mexicana</i>	SAME
Flowering Ash	<i>Fraxinus dipetala</i>	FRDI

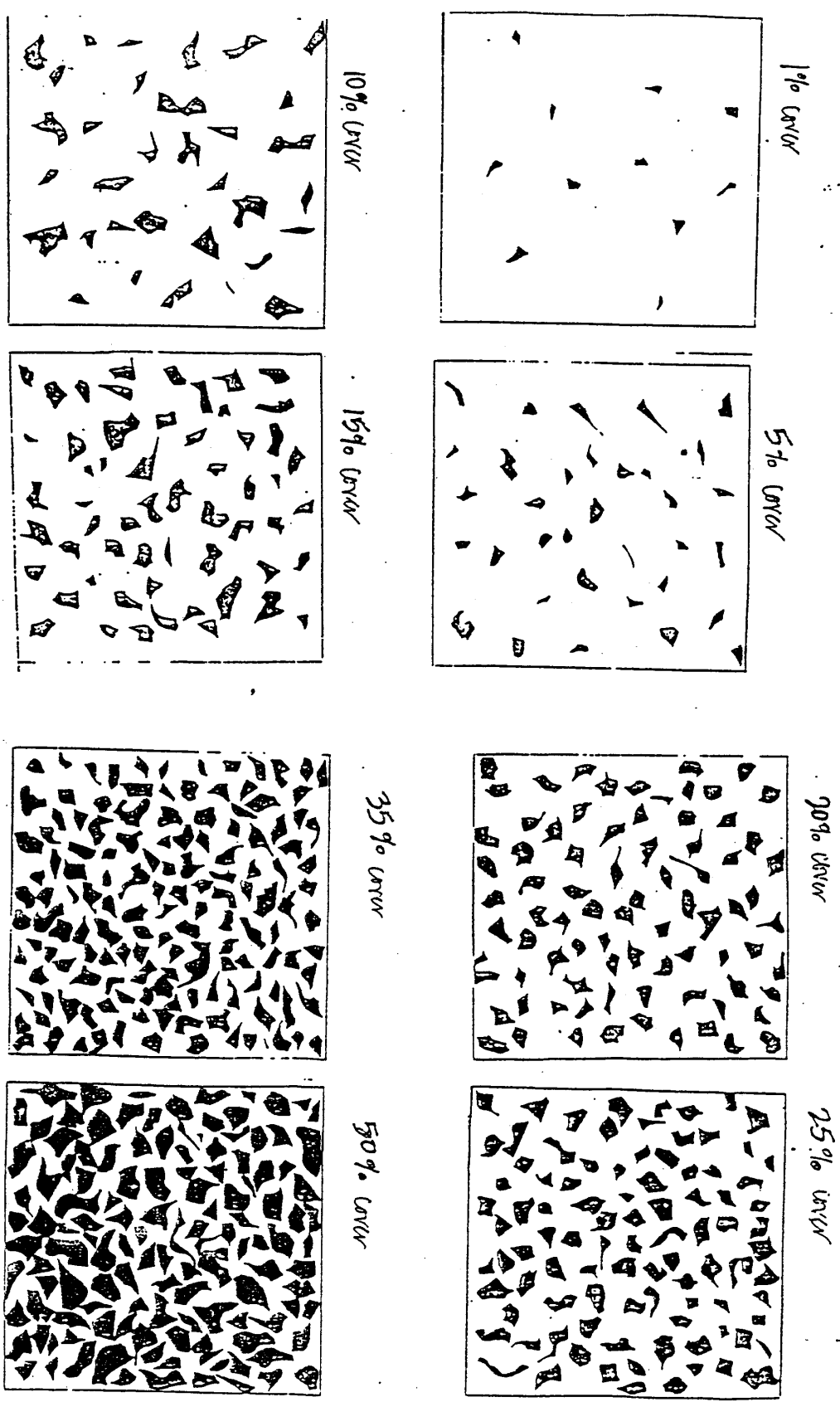
“Non-riparian” Cover Types and Codes:

Shrubland	SHRB
Grassland	GRSS
Rock	ROCK
Bare Ground	BARE

Dominance Categories (see Figure 1 cover diagram):

- 1 = 50% or more cover
- 2 = 25 % to 50 % cover
- 3 = 5 % to 25 % cover
- 4 = less than 5 % cover (species is present in polygon stand)

Figure 1



Riparian Polygon Cover Estimation

Date: _____ Observers: _____

Map Sheet: _____ Polygon Label(s): _____

Subdivision Label (if applicable): _____

Descriptive Location Info:

% of Polygon Observed (increments of 10): _____

Distribution of Observations (circle one): Poor Fair Good Very good Excellent

Cover Type Code	Dominance Code	Notes