City of San Diego
Multiple Species Conservation Program

Summary of Monitoring Results for *Ambrosia pumila*

July 2000

Introduction

San Diego ambrosia (*Ambrosia pumila*) is a sensitive plant species whose northernmost distribution is in southern Riverside County. This perennial herb species was once more common in northern Baja California, Mexico but its distribution has been significantly reduced by expansion of agricultural land use. Modern land use within San Diego County has also greatly reduced the historic distribution of San Diego ambrosia. This plant species also appears not reproduce from seed but instead it grows off of a rhizome-like root structure below ground. If San Diego ambrosia only reproduces vegetatively and is limited in its ability to sexually reproduce, it may not be able to adapt to changing conditions. This may also be partially responsible for the limited distribution of San Diego ambrosia.

Monitoring for this plant in Mission Trails Regional Park (MTRP) was conducted on July 25, 2000 by Holly Boessow, Keith Greer, Jeanne Krosch, Mel Naidas, and Paul Kilberg. The largest patch of San Diego ambrosia in MTRP, which is located adjacent to the Kumeyaay Lake Campground, was surveyed. The patch surveyed is identified as patch C6 in the City of San Diego Mission Trails Regional Park San Diego Ambrosia Management Plan (Dudek & Associates, 2000). The goal of the effort was to establish baseline data for long-term monitoring of San Diego ambrosia under the Multiple Species Conservation Program (MSCP).

Methodology

Monitoring for this species was conducted in accordance with the Biological Monitoring Plan for the Multiple Species Conservation Program, dated January 25, 1996. Previous surveys in MTRP were conducted by Dudek & Associates in 1998 (Dudek & Associates, 2000).

The largest patch of San Diego ambrosia at MTRP (patch C6) was chosen as a sampling area. An accidental fire burned the sampling area in 1999 and City of San Diego staff wanted to determine if the fire had effected the population in this area. Transects were selected randomly and steel rods were installed to indicate the location of each transect. An attempt was made to sample 5% of the total sampling area. However, the total number of transects (N=5) and total number of quadrats (N=207) only sampled approximately 3% of the total sampling area.

A one meter square (1 m^2) quadrat was used to define the quadrat boundary and estimate population size. The 1 m^2 quadrat was placed along the transect so that the string bisected the quadrat. Each plant located within the 1 m^2 quadrat was counted and the total number for each quadrat was recorded. Quadrats were placed at 1 m intervals along each transect.

Results and Conclusions

Data from the monitoring effort are shown on the attached monitoring data forms. It is estimated from the results of the transects that approximately 121,702 adult individuals of San Diego ambrosia were found in patch C6 in MTRP adjacent to the Kumeyaay Lake Campground. In

comparison, approximately 208,855 individuals in patch C6 in 1998 (Dudek and Associates, 2000). Flowering adults were not counted separately from non-flowering adults because the plant's seeds are not considered viable according to viability testing conducted in 1998 (Dudek & Associates, 2000). No seedlings or juvenile plants were observed. Every effort was made to locate juvenile and seedling plants. The surveyors were visually familiar with all stages of the plants' growth. Nevertheless, it is possible that the less obvious seedlings and juveniles were present but missed during the survey since these growth stages tend to be more cryptic than adults.

Although no conclusions can be definitively made from two years of surveys, there are three possible reasons why the number of San Diego ambrosia plants estimated in 2000 surveys of patch C6 are lower than the numbers given in the 1998 surveys of patch C6. One factor may have been the accidental fire in 1999. It was anticipated that this fire would benefit San Diego ambrosia by removing competing non-native grasses. However, the fire may have temporarily impacted the plant species count. Another factor may be low rainfall in 2000. Comparatively, 1998 had much more rainfall and could have lead to additional plant germination that did not occur in 2000. Finally, the transects from 1998 could not be relocated and the survey effort did not cover 5% of the sampling area as recommended. This may have resulted in lower estimated numbers during the 2000 survey effort.

Recommendations

Additional surveys should be conducted on-site to determine the status of San Diego ambrosia. Survey should be extended to all patches and locations within MTRP. Additional populations of San Diego ambrosia have been documented in Santee and Spring Canyon in Otay Mesa. The City of San Diego should extend survey efforts to Spring Canyon and coordinate with any surveys that the City of Santee has conducted in order to determine the regional status of the species.

As part of the 2001 surveys, locations of all the transects will be surveyed in using a Geographic Positioning System (GPS). This will help future survey efforts relocate the transects each year. Consistently using the same transect locations to sample the population will also allow for a more accurate comparison of the annual changes in this species estimated population size.

References

Dudek & Associates, Inc. May 15, 2000. City of San Diego Mission Trails Regional Park San Diego Ambrosia Management Plan. 34pp. + appendices.

MONITORING DATA FORMS

FINAL SUMMARY FORM
COVERED PLANT SPECIES MONITORING

COVERED SPECIES: Ambrosia pumila (San Diego Ambrosia)
MONITORING LOCATION: Mission Trails Regional Park Burn Area
MONITORING DATE: 7/25/00

I. POPULATION DENSITY

NUMBER OF INDIVIDUALS SAMPLED = 3625
AREA SAMPLED = 207 m^2
NUMBER OF QUADRATS = 207

DENSITY OF AREA SAMPLED = NUMBER OF INDIVIDUALS / AREA SAMPLED = 17.5 individuals/m^2

II. POPULATION SIZE

POPULATION SIZE = TOTAL AREA OF POPULATION X DENSITY
= 6,914 m^2 X 17.5 = 121,702

III. AGE CLASS STRUCTURE

AGE CLASS STRUCTURE = NUMBER OF QUADRATS IN WHICH THE AGE CLASS OCCURS(1) / TOTAL NUMBER 0? QUADRATS SAMPLED

SEEDLINGS — %

JUVENILES — %

FLOWERING ADULTS — %

NONFLOWERING ADULTS — %

Flowering vs. Non-Flowering Adults were not counted seperately because the seeds are not viable per testing conducted in 1998

NOTES:

(1) Refer to field data collecdon form for number of quadrats in which each age class occurs and the total number of quadrats sampled

DATA REDUCTION FORM
COVERED PLANT SPECIES MONITORING

COVERED SPECIES: Ambrosia Pumila
MONITORING LOCATION: Mission Trails Regional Park - Campground Built Area
TOTAL AREA SAMPLED: 4140 m²
NUMBER OF TRANSECTS: 5
TOTAL TRANSECT LENGTH: 414 m
NUMBER OF QUADRATS: 207
TOTAL QUADRAT SIZE: 207 m²

TRANSECT NUMBER	NUMBER OF PLANTS	AGE CLASSES[1]			
		SEEDLING	JUVENILE	ADULT FL	ADULT NFL
1	463	—	—		—
2	215	—		—	
3	1925	—	—	—	—
4	fe^l		—	—	—
5	332	—	—	—	—
6		—	—		
7					
8					
9					
10					
11					
12					
13					
14					
15					
N	207				
SUM	3625				
MEAN	725				
STANDARD DEVIATION	693.4883				
VARIANCE	480926				

[1] ADULT FL = ADULT FLOWERING; ADULT NFL = ADULT NONFLOWERING.

NOTES: Sampled 207m² TOTAL AREA Sampled ≈ 6954.4 m² 2.98%

V.

SURVEY LOCATION FIGURES

Mission Trails Park

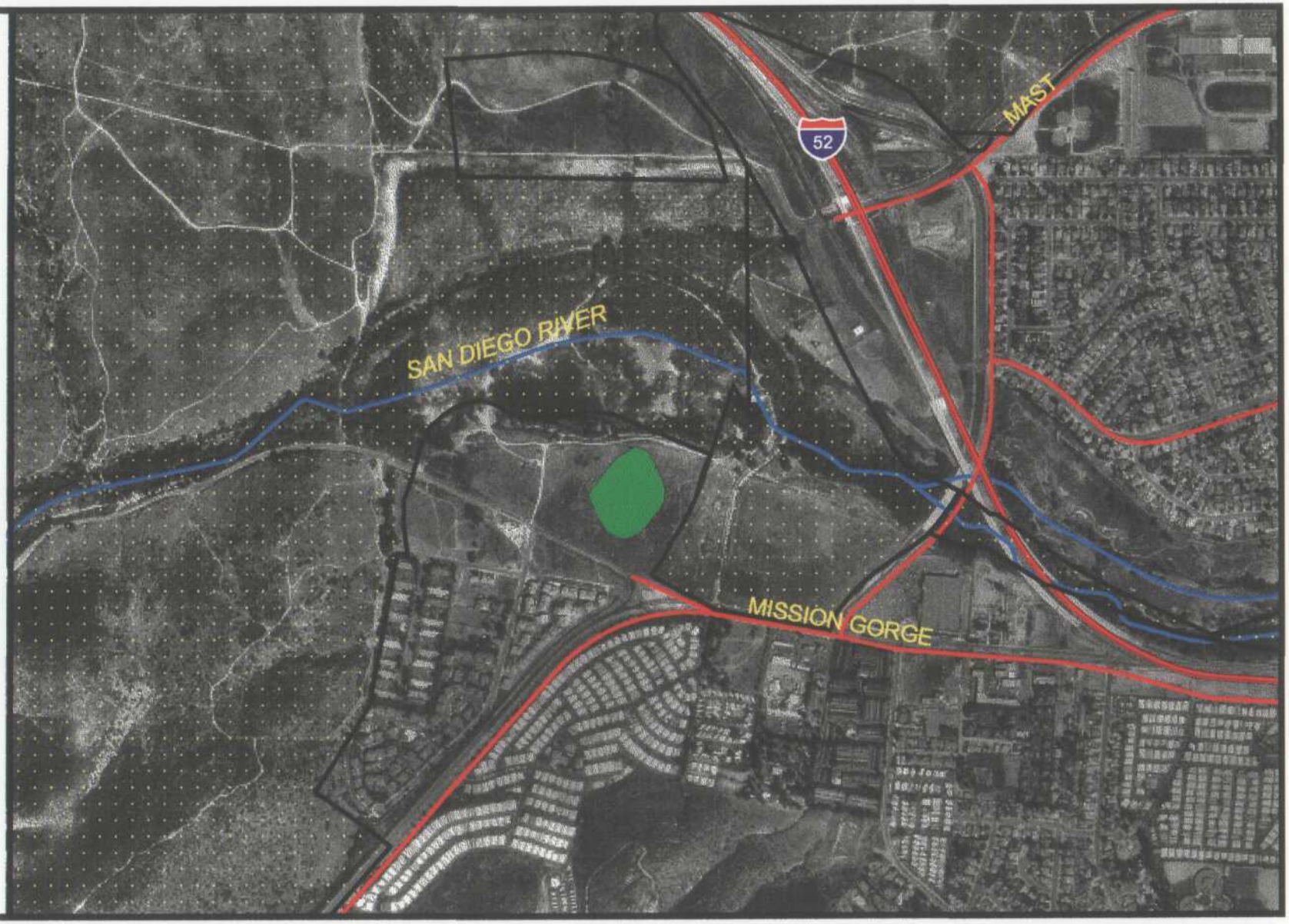
Ambrosia pumila

Survey Date: **7-25-00**

Sample Area

MHPA

N



Source: K. Greer, J. Krosch, H. Boessow, M. Naidas, P. Kllberg