

"Arana Gulch Area-A native grass Coastal Prairie cover transects, west-east every 25 feet starting parallel to the southernmost fence, and the transect starting from the western fence line and going 200 feet eastward--compared with locations of the Endangered Santa Cruz Tarplant in one of its Critical Habitat Units" Copyright © 2021 by Craig Carlton Dremann. The Reveg Edge, P.O. Box 361, Redwood City, CA 94064 - Office (650) 325-7333 - craig@ecoseeds.com

Survey noted what plant was growing every two feet, using the Evans and Love (1957) Toe-Point method, and the beginning of each transect was marked with orange and green survey flagging, and aimed at the flagging on the opposite eastern fence. High percentage of native grass Coastal Prairie is where the wild Santa Cruz tarplants (*Holocarpha macradenia*) have been found in Area-A since 1995.



Area A tarplant locations, with transects laid over. Image from the 2019 Arana Gulch Habitat Management Plan City of Santa Cruz Annual Report Year 5 (2018), written for complying with the three Coastal Commission permits. Area A transects were done June 2021 when cows had been removed since summer 2020, which allowed the Coastal Prairie native grasses to grow back unmolested, and about an acre of poppies sprouted and bloomed, that had not been seen for years.

Transect Number One starts closest to the southernmost fence, and runs parallel with that fence. Each transect starting-point moves about 50 feet northward. The 1/2 transects are half way between two transect points. For example, transect #0.5 is 1/2 way from the southernmost fence to transect #1 which is 50 feet north. There appears to be a direct connection between the percentage cover of native grass Coastal Prairie (with the exception of the *Elymus triticoides* area) and the thriving tarplant populations, with a minimum threshold percentage of prairie-cover required. Transects done June, 2021.

Of the entire 70 acres of Arana Gulch Coastal Prairie, 99% is gone, with only 0.7 acre left.

West to East - % Native grass cover										
Number feet from west fence>	0-20 feet	21-40	41-60	61-80	81-100	101-120	121-140	141-160	161-180	181-200
Transect number - 0.5	90	100	20	20	70	50	0	0	0	30
1	30	10	10	40	0	0	0	0	0	0
1.5	100	40	10	20	20	0	30	10	10	0
2	100	100	50	60	0	20	0	0	10	70
2.5	50	100	100	80	70	40	0	0	40	0
3	100	90	70	*Gone	50	0	0	0	0	0
3.5	90	90	80	100	30	0	0	0	0	0
4	100	90	70	100	100	60	0	0	0	0
4.5	50	100	80	10	0	70	0	0	0	40
5	80	20	80	80	50	100	40	10	0	0
5.5	100	60	50	60	80	90	100	30	0	0
6	0	30	40	80	50	0	0	0	0	0
7	0	0	0	10	10	0	10	0	0	0
8	0	0	0	0	0	0	0	0	0	0
9	0	4	0	0	10	0	0	0	0	0
10	10	0	0	0	0	0	0	0	0	0

Best Coastal prairie, that is >50% cover -- only 120 x 250 feet remains, or 0.7 acre. That is only 1% of Arana Gulch's entire grassland area. The overall transect area covers about three acres.

*Gone = a planted test plot of tarplant seedlings destroyed the Coastal Prairie in that spot.

Transects done in October, 2020 Comparing Area-A with the other three areas:

AREAS	A	B	C	D
Weed grasses	72	44	72	97
Native grasses	3	41	3	3
Wildflowers	4	0	0	0
Broad weeds	1	3	0	0
Bare soil	7	0	25	0
Gopher dirt	12	12	0	0
Rushes	1	0	0	0

Since Area-B was excluded from grazing, the native grasses of the Coastal Prairie have been saved and protected, whereas, the grazing has eradicated 90% of the native grass cover in the other areas. Grazing was so severe in Area C that the vegetation was eaten down to the bare soil.

The lack of gophers in Areas C and D show that the Coastal Prairie ecosystem is so degraded, that the grazing has essentially sterilized those Critical Habitat Unit Areas. The tarplants will not be able to grow there--until the cows are permanently removed, and the organic matter and soil nutrients removed by the cows are replaced, and monthly mowing at one foot high starts.



Area-A field of poppies blooming June 2021, were able to sprout when cows had been removed.



Left: The Arana Gulch California poppy ecotype, very low growing and yellow flowers with orange centers. Right: Very old Coastal Prairie native grass, *Danthonia californica*, maybe a few hundred years old. Photos by Craig Dremann.

CONCLUSION: The original Coastal Prairie in Area-A , was probably 60% *Danthonia*-30% *Stipa* and 10% *Bromus*, with isolated islands of pure *Elymus triticoides* and islands of *Juncus* in places. However, whenever the soil nutrients and organic matter in Area-A are improved and brought back to normal, the amount of *Bromus*-cover, could change the *Stipa*-cover percentages.