Building Climate Resilience of Urban Waters, Ecosystems, and Communities

Annual Report of Findings from Manzanita Canyon for Local Decision Makers
May 2016 - May 2017

The community cares!

121 dumpsters full of trash & weeds were removed!

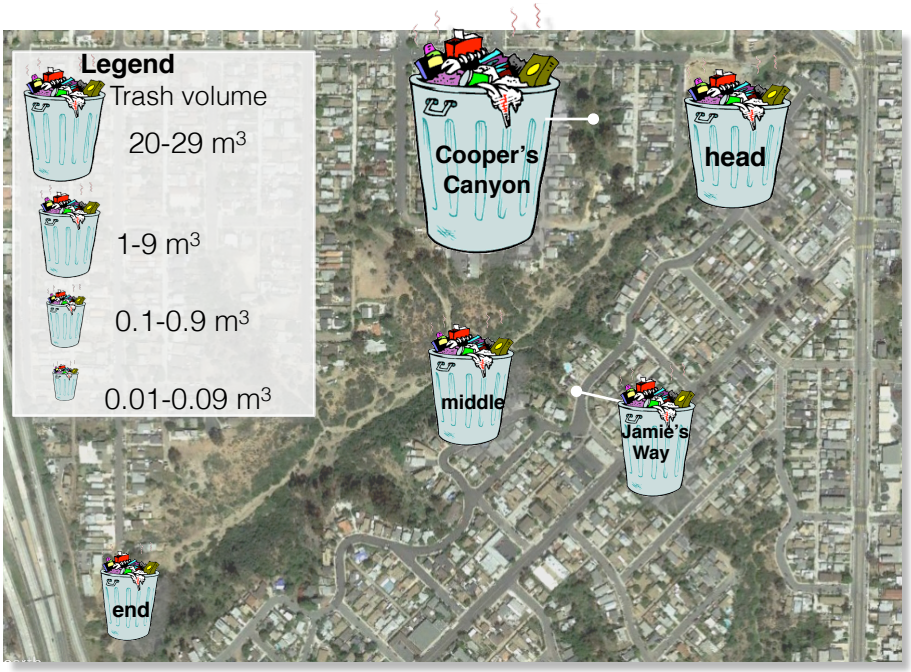
86.7 m³ (8.3 mt) of **trash** & **530.1 m³** (10.9 mt dry weight) of **nonnative plants** were removed from Manzanita Canyon.

- **1813 volunteer** kids & adults cleaned Manzanita Canyon over this year totaling 5,439 hours.
- **73% of volunteers** live in City Heights.
- **23 organizations** hosted volunteers, including school clubs, nonprofits, & faith-based groups.

Trash accumulated most in the upper reaches of Manzanita Canyon

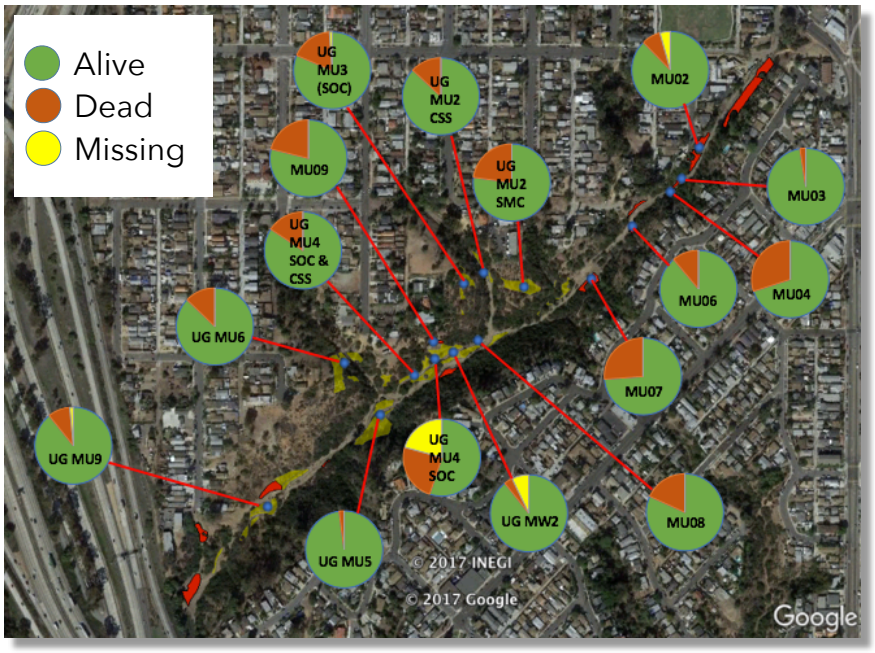
In Spring, Fall 2016, and Spring 2017, cleanup efforts were conducted at the head, middle, and downstream end of the canyon, and at one side canyon (Jamie's way in Spring 2016, Cooper's Canyon in the Fall 2016, Spring 2017). Meso (≤1 m length) and macro (>1 m length) trash were collected, totaled, and averaged (±1SE) across date.

Total trash weights corresponded with volume (shown in figure) and ranged from 5±3 kg at the end to 1,300±832 kg at Cooper's Canyon due to illegally dumped auto parts and furniture. Furniture and mattresses were common macro trash at the head, while debris from homeless camps filled Jaime's Way and spilled down to the middle of the canyon.



- **51% of trash** found in the canyon was **plastic**, and **19% lumber and man-made wood**.
- **68% of plastic** was bags, packaging, wrappers and single use food containers.

Restoration is off to a good start!
85% of plants survived the first few months



715 plants were planted in plots throughout the canyon in winter 2016-17. Growth and mortality of plantings were monitored monthly with the proportion of live, dead, and missing plants shown here.

Mortality was assessed as plants lacking green foliage and stems, missing were those for which no stems could be found after an exhaustive search, likely indicating mortality.

- **Survival per species** ranged from 43% – 100%, with lower survival rates in species for which only a few individuals had been planted (e.g. laurel sumac, Parish's nightshade). **Survival did not significantly differ,** however, with plant species or plot.
- **Proportion of missing plants** was **only related to plot,** not species ($P<0.001$); with the highest proportions of plants per plot missing (4-21%) in plots on slopes or in creek beds that were susceptible to wash outs.

- Since planting, **stem basal diameters grew** on average by **76%,** ranging from -8% for laurel sumac to 409% for western ragweed.
- **Plant volume increased** on average **28-fold,** ranging from a 10-fold reduction in chaparral mallow to a 383-fold increase in western ragweed.
- Contributing to **variable growth rates** was the loss of stems to natural post-transplant die back, damage from washouts, trampling or grazing, and the subsequent resprouting of new, thinner stems.

Compiled by C. Adams, N. Venuti & T.S. Talley, California Sea Grant email: tstalley@ucsd.edu