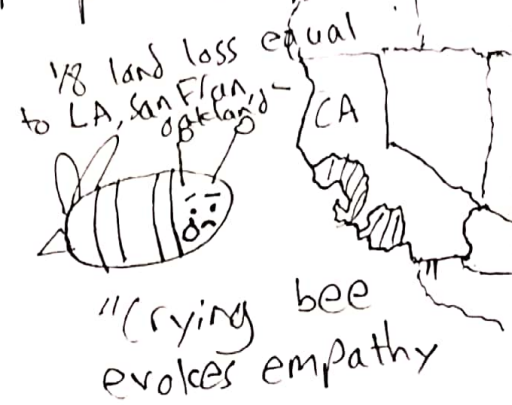


California Bee-Ware: A Cry from Pollinators

From 2001-2011, California lost 784 mi² of pollinator habitats. Urbanization and pesticide use are accelerating at an unprecedented rate while destroying habitats. By 2040, the total loss of habitat in California will total 1/8 of the entire state's area!



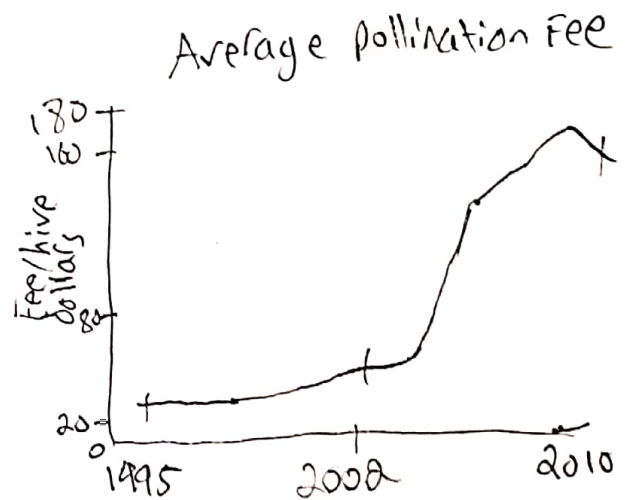
California is the most productive agricultural state in America. It produces over 1/3 of American vegetables and 2/3 American fruit and nuts.



Image showing massive setup of beekeeper pollinator services -NYT

In order to sustain their place as the #1 agricultural state, California relies on unnatural beekeeping

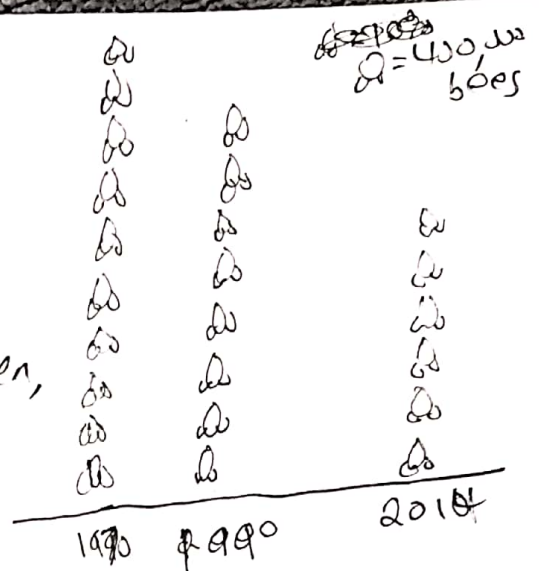
Particularly, almond farming demands the most beekeeping services compared to all crops combined. One of the largest costs of California farmers comes from the purchasing of artificial bees.



But why are unnatural bees needed?
Why can't native bees do the job?

Native

Bee population has declined 40% in the past decades. Colony Collapse Disorder (CCD) explains this drop. CCD is when worker bees abandon healthy hives which leaves the queen, nurse bees, and baby bees helpless to die without nectar and pollen.

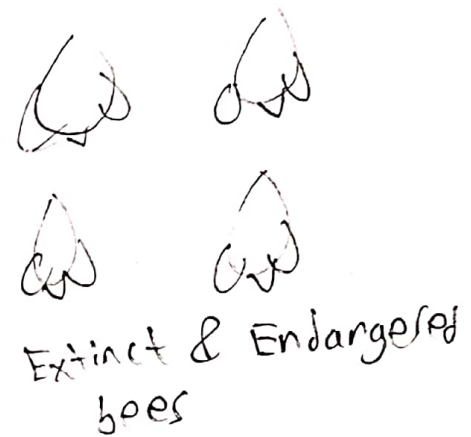


As a result, more than 2/3 of

America's ^{honey} bees are human managed and come from out of the state operations.

As honey bees from managed keepers flock the fields, competition between native and non-native bees increases.

Three species of native bees have went extinct with another being endangered.



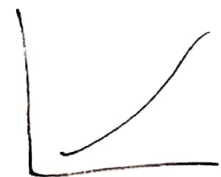
Colony collapse disorder is a result of excessive insecticide use and habitat loss.

The use of insecticides has skyrocketed in the past 20 years as well as the

conversion of natural land to urban areas or monocultures. Monocultures, agriculture

consisting of a single crop in an area, is rampant throughout California. Monocultures and urbanization replace lush ecosystems with low biodiversity, unsustainable land

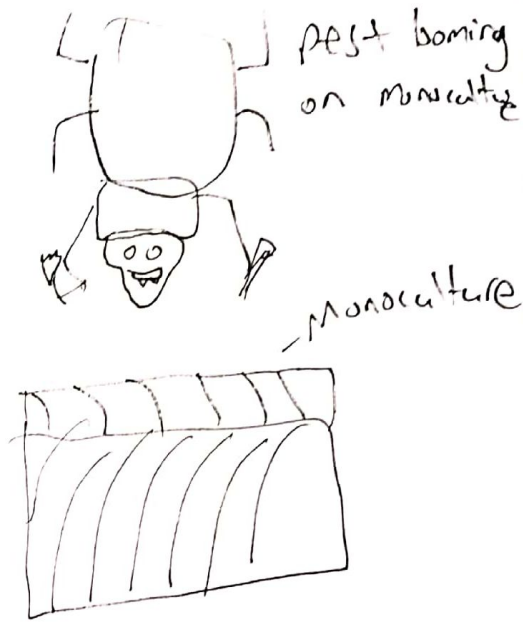
Pesticide use



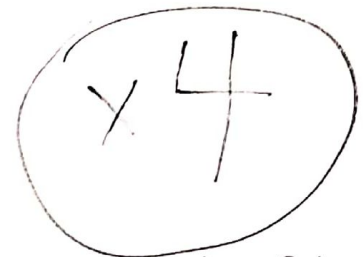
Ecosystem services

- water regulation
- pollution control
- climate resilience
- pest control

Despite the ~~these~~ alarming drop in bees, huge agribusiness companies have attempted to thwart movements against pesticides. The European Union banned chemicals associated with CCD, yet the EPA ~~fails to act~~ ^{decided to act}. Moreover, the USDA has ~~suspended~~ ^{drastically cut} back on bee resource ~~station~~ ^{donation}. Meanwhile, urbanization and agriculture continue to convert natural land into developed land. Agribusinesses' use of monoculture continues to rise with crop diversity falling. However, monocultures exacerbate the use of pesticides.



"A monoculture is like a buffet for plant-eating insects." - UC DAVIS



Instead of monocultures, crop variation should be promoted. Above all, natural strips of land should be implemented. These patches act as a natural pest control which simultaneously improves the native bee population's health.

- Amount of biodiversity patches support compared to areas without



Bivariate choropleth by HUC subwatershed

- Acres of pollinated crops without habitat
- Percent of small patches of natural area excluding agriculture

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Although this ~~study~~ ^{focuses} on California and bees, the role of other pollinators cannot be understated. As the USDA cut back in 2014 on bee funding, what may happen...?