

Pollinator Decline at Oakland High School and its Possible Solution

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If you spend a day at Oakland High School you will rarely see a pollinator around campus. Pollinator decline at OHS is due to colonized gardening, and urbanization. Colonized gardening is nothing recent, it is when native plants are replaced with foreign plant life, disrupting the original ecosystem in the process, this was introduced during European colonization. Urbanization is the transition of a rural area into turning urban, meaning that instead of valleys of hills there will now be streets filled with crowded sidewalks and buildings, destroying the natural habitat and growth of both pollinators and plant life. Due to urbanization, the lack of green spaces is on the rise as places that once provided that green space are being torn down and replaced with buildings, apartments and more upscaled housing. As a consequence of colonized gardening many native pollinators and native plants populations have started to decrease rapidly due to habitat loss. At OHS you are more likely to see non- native plants around campus rather than native plants. While studying the school to collect data my partner and I found that for every 10 native plants there are 19 non-native plants (Gutierrez-Ramirez and Williams, see chart on p. 9). The amount of non-native plants out numbers the quantities of native plants by two times at OHS. By having all of these non-native plants it makes it difficult for native pollinators to have a habitable place here at OHS.

In this solutions paper I will be focusing on the lack of native plants and how non-native plants make it inhabitable for native plants and pollinators to thrive at Oakland High School. To help guide me throughout my research, my solution question is: How can we incorporate pollinator-friendly native plants into our unused green spaces here at OHS and keep them thriving even after we graduate for years to come? After thorough research the most effective

way we can implement pollinator- friendly native plants into our unused green spaces at OHS and maintain them healthy even after we graduate is by replenishing the nutrients in the soil or implementing native gardens that are drought resistant.

My solution is implementing native plant gardens at OHS. I believe if we implement native plant gardens at Oakland High then we will see a greater plant variety as well as an increase of pollinators at Oakland High. Creating a native plant garden at OHS will help rebuild the population of native pollinators at OHS because native pollinators will finally have the kind of nectar that isn't as accessible with non native plants. Since places around the Bay Area like Lake Merritt's botanical gardens and UC Davis's arboretum are already spreading awareness about native gardens and are acting upon the issue by planting native species. As a result, these spaces have already started to see an increase of native pollinators. We hope that by creating native gardens at OHS we see similar results as these two significant places.

Implementing pollinator-friendly native gardens at OHS could be promising because many studies have been done and proven that native gardens are ultimately better for native pollinators and the surrounding environment. A study around Berkeley and Santa Cruz was held in 2019 by college students in California . What they wanted to find was the importance of native pollinators and how native and non-native plants affect the population of pollinators in urban areas. "Of the 229 species, 71 were from only native host plants; 52 were from only non-native host plants; and 106 were from both native and non-native hosts. Five of the 106 were non-native bee species" (Frankie Gordon et. al). Since this study was held in areas around the Bay Area such as Berkely and Santa Cruz it shows how implementing native gardens at OHS could be a promising outcome. We wanted to know if having more native plants at OHS

could encourage pollinators to come to our campus, and what this study shows is yes it can work. Not only did planting native species in urban areas increase the population of pollinators, it also started to increase the amount of native pollinators being seen around those gardens.

Another study was analyzed in a book called “Bee Pollination in Agriculture Ecosystems” showing information about pollinators and invasive non-native plant species. This book mentioned “Visitation rates by bees differed significantly for native plants in the presence and absence of the invasive plant in 9 of 14 cases. Seven native plants received fewer bee visits in the presence of the invasive plant than in its absence, indicating competition for pollinators”(Goodell). This study suggests that although non native plants attract pollinators they are also decreasing the amount of pollinators native plants get which ends up harming ecosystems since less pollinators go to native plants the population of those plants could start decreasing leaving the environment without native plants. It is important we keep native plants because with native plants native pollinator populations will grow and we will start to see the increase of pollinator population. This also relates to some data my group members and I collected at OHS. We did something similar to what this study was proving. Here at OHS we saw a greater variety of non-native plants that also showed similar results to the study. More pollinators were going to the non-native plants in the presence of the native plants. This shows that having non-native plants on campus strays the pollinators away from the native plants, and also attracts less pollinators because the pollinators being attracted do not show up in greater quantities because they are not native to California.

Planting pollinator-friendly native gardens at OHS could be promising because many organizations around the Bay Area have already started making these gardens and are starting to

see an increase of pollinators. An organization led by indigenous women in San Francisco are currently working to transform the land from colonization and genocide back into its native form (Ohlone Land) by implementing native gardens around the Bay Area. Corrina Gould, a Co founder of Sogorea Te', states "We can begin bringing back some of our traditional foods, like acorns. With that comes ways of taking care of the land such as prescribed burning. Burning also helps to bring back some of the native plants that were here before, so that we can bring back the basket weaving, we can bring back the medicines that were always here, we can begin to teach ourselves how it is that we are supposed to live on this land again" ("Cultural Revitalization"). Sogorea Te' is not only benefiting their culture but also replenishing the land from its past colonization. By doing this they are not only improving their culture but they are also improving the ecosystem by implementing more of the native plants that native pollinators are so fond of. As for the usefulness at OHS Sogorea Te' can help by introducing our campus with things from their heritage/culture as well giving the school a chance to experience more of a natural space when it comes to having green spaces.

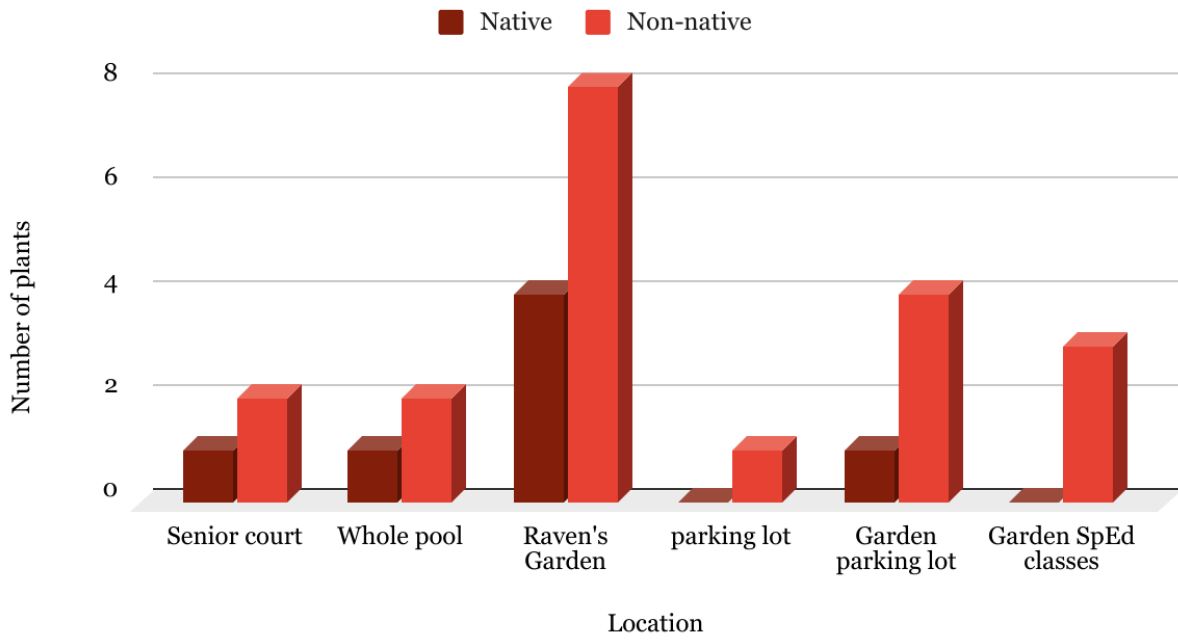
If pollinator-friendly native gardens were to be implemented across the campus of Oakland High, it is possible that we will start to see an increase in pollinator populations across the campus ensuring that the native gardens were a positive and effective approach to the decline of pollinators at OHS.

In conclusion, if we embrace the approach to add native gardens at Oakland High School we may create a more positive environment for pollinators throughout the campus. Oakland High school is constantly seeing a decrease of pollinators and a decrease in native plants due to how inhabitable it is for native pollinators. At OHS there are more non-native

plants than there is native plants. If we implement native gardens at Oakland High School it is possible to see an increase of *native* pollinators resulting in an increase of pollinators at OHS.

The loss of pollinators is a big issue for everyone. Not only is it giving newer generations less of an exposure to nature but it's also taking away things such as plant reproduction, plant variety, and loss native plant/pollinator life. It is so important that we act now, by implementing native plant life OHS. If we start with this solution it is possible that we see an increase in native pollinators helping with the rapid decline of pollinators here at Oakland High School.

Native and Non-native plants at OHS



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