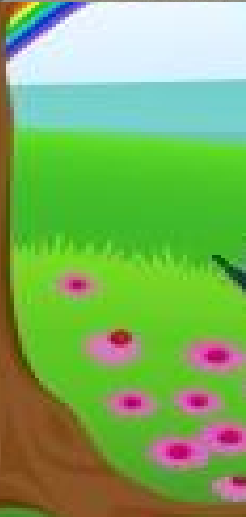

Rainbow Trail



By: Eliza Roesler, Emma Reid, Tara Shotz, and Alex Sheron





Location

We chose the hill next to the old Fireman's Fund building, and decided to turn it into a trail. We placed a few picnic tables for people to stop while they're hiking to eat and/or rest, as well as a bathroom.

Economics

Picnic Tables: \$98.00 per table (\$392 Total)

Bike Rack: \$29.84 per 4 bikes (\$89.52 Total)

Bathroom: \$200 Compost Bathroom

Total: \$700 dollars including cushion money

Picnic Tables and Bike Racks

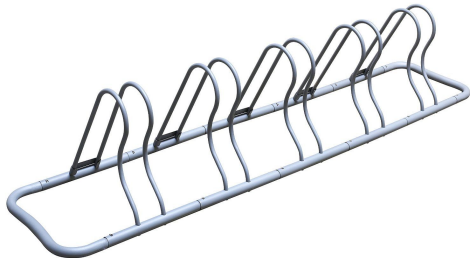
Picnic Tables



- Fairly inexpensive
- Provides nice lunch area
- Aesthetically pleasing

<http://www.lowes.com/pd/72-in-Brown-Southern-Yellow-Pine-Rectangle-Picnic-Table/3620366>

Bike Racks



- Promotes healthy living/helping the environment
- Prevents building unnecessary parking lot
- Takes up little space

https://www.amazon.com/DecoBros-Bicycle-Parking-Adjustable-Storage/dp/B00U87B7VQ/ref=sr_1_3?ie=UTF8&qid=1473440580&sr=8-3&keywords=bike+rack+outdoor

www.igood7.com

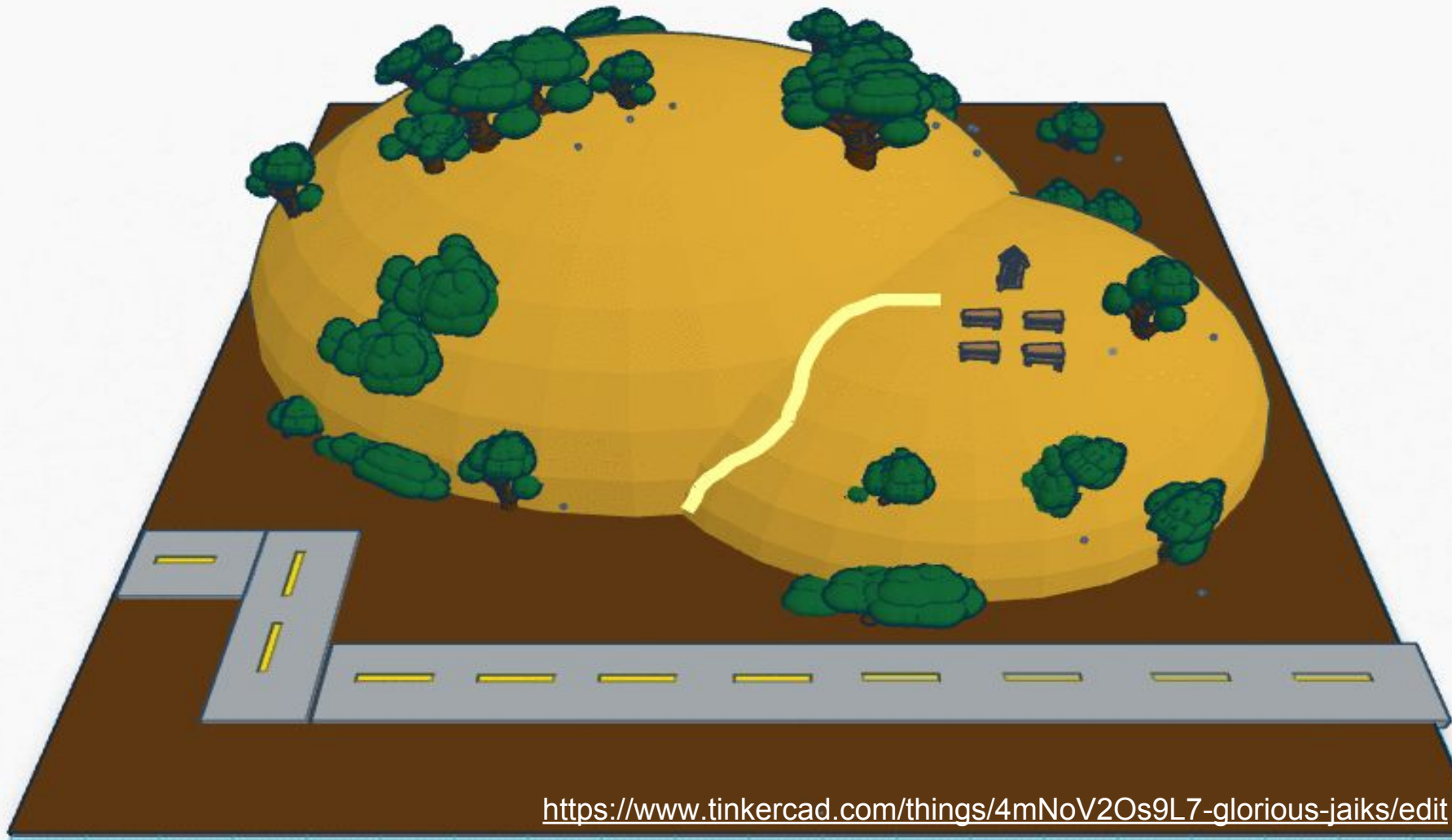


Bathroom

- Compost based outhouse
- Buildable for 200 dollars
- Small and affordable
- Good for environment
- Only downside is having to replace bin when full of waste
- <http://www.tumbleweedhouses.com/blogs/tumbleweed/10553673-compost-toilet-outhouse>

PLAN:





Currently the Hill we Chose is:

- Not maintained
- Weeds
- Shrubs
- No purpose
- High grass



Our Idea Will Make the Hill:

- Aesthetically Pleasing
- Give it Purpose
- Have a Defined Trail
- Become a Nice Lunch Spot



Positive Effects

Provides nice community spot for a easy, quick uphill walk and lunch, without harming the environment or organisms that live there.

Gives purpose to unused hill.



Soil!!!!

“ Novato soils are in tidal marshes and have slopes of 0 to 2 percent. The mean annual precipitation is about 25 inches and the mean annual temperature is about 59 degrees F.” The soil is not in very good condition because it hasn't gotten much water from the drought. Our compost bathroom will loosen up and moisten the soil.

Found from https://soilseries.sc.egov.usda.gov/OSD_Docs/N/NOVATO.html

Durability and Timeline

- Legs on benches prevent rotting and mold
- Compost bathroom can be used for a considerable amount of time
- Bike rack is very durable
- Not very expensive project, so easily replaceable



How will we do it?

Step 1. Receive Approval from city of Novato to make a trail and lunch area

Step 2. Start construction on the hill, and purchase tables, bathrooms, and bike racks.
Will be done by volunteers and community service seekers

Step 3. Open to the public!

Maintaining Our Trail

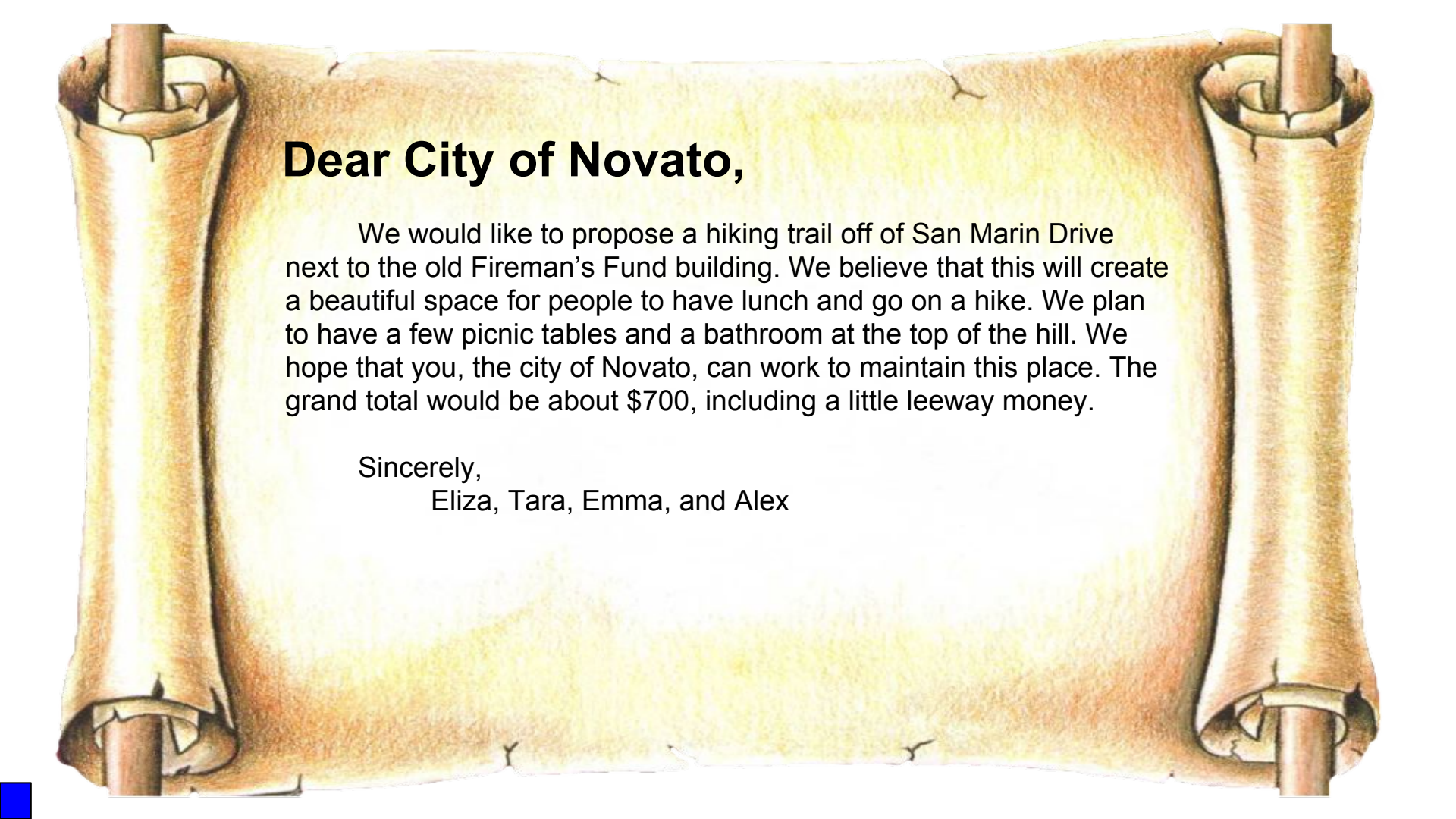
Things that need to be maintained:

- Outhouse : waste disposal
- Trail: keeping a defined and walkable trail
- Needs maintaining twice a year
- Weeding and shrub maintenance

Who will maintain it:

- Volunteers and gardening groups can help maintain it or citizens looking for community service



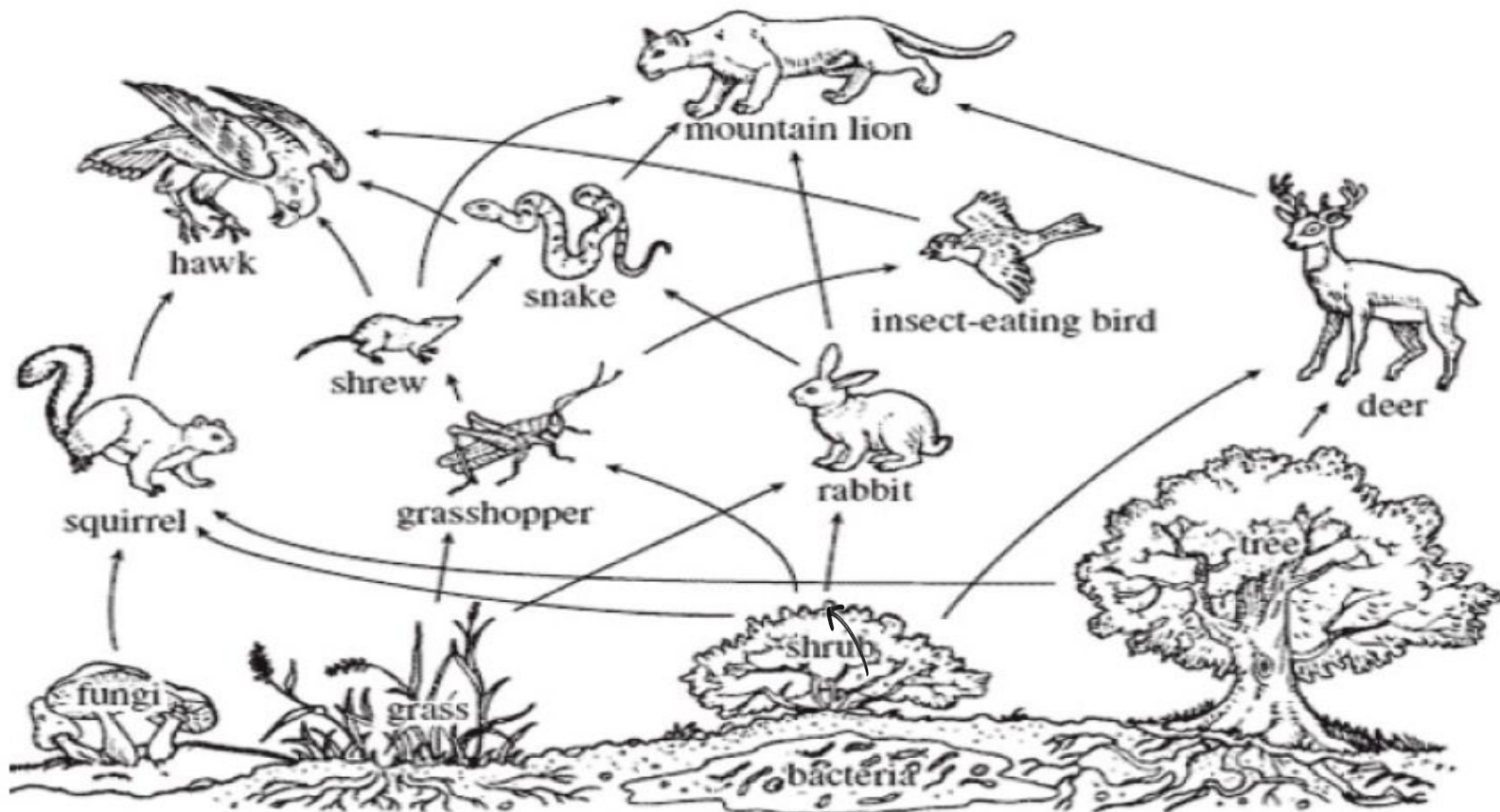
A scroll of parchment with text on it. The scroll is unrolled and held by wooden rods on the left and right sides. The parchment is yellowed and has some creases and small holes. The text is written in a simple, black, sans-serif font.

Dear City of Novato,

We would like to propose a hiking trail off of San Marin Drive next to the old Fireman's Fund building. We believe that this will create a beautiful space for people to have lunch and go on a hike. We plan to have a few picnic tables and a bathroom at the top of the hill. We hope that you, the city of Novato, can work to maintain this place. The grand total would be about \$700, including a little leeway money.

Sincerely,
Eliza, Tara, Emma, and Alex

Food Web



Our Prediction Plan:

50 years:

- intact and still beautiful
- maybe only one swap of tables or bathrooms
- soil will most likely still be as it was, and the food chain undisturbed. Unlike the Novato shopping center which destroyed approximately 15 acres of oak woodland and 8 acres of brackish, our proposal will improve the quality of life and not disturb nature, but increase its appeal by creating the metaphorical bridge that connects us to nature.
- The climate might be slightly warmer because of global warming
- By 2050 the population is expected to increase to **9.6 billion**
- The main species in this area are deer, squirrels, various insects and rodents, as well as other small mammals. T
- might cause a few problems from the food they would be exposed to when people eat lunches. This can be prevented with the use of efficient garbage cans.

50 Years From Now Without Trail

Novato would have an unused hill that no one would miss or use. Precipitation would begin to decrease, and there would still be an increase in temperature (global warming).

The soil will be drier and less moist because there would be no compost bathroom. Animals would not be affected, as well as plants. Everything else will remain unchanged, as 50 years is not long.

100 Years

Climate

- Will not be affected specifically by the site

Soil/Ground Condition

- Studies show that by 100 years, topsoil will either decrease or be completely gone
- Waste from the compost bathroom will moisten and loosen soil and create healthy ground condition

Abiotic Factors

- A few replacements of the benches and bathroom are necessary
- Trail needs to be weeded and maintained

Main Species

- Coyotes, deer, snakes, insects, birds, & small mammals may be present on hill, but will not be affected by trail and typically come out at night

Food Web

- Will not be affected

Carrying Capacity

- May increase, because of the possible leaving of food at the site and having it maintained keeps resources intact, so there's no competition of resources

Biodiversity

- Biodiversity likely will not change, same species

Populations

- Populations will most likely not change

Flow of Energy

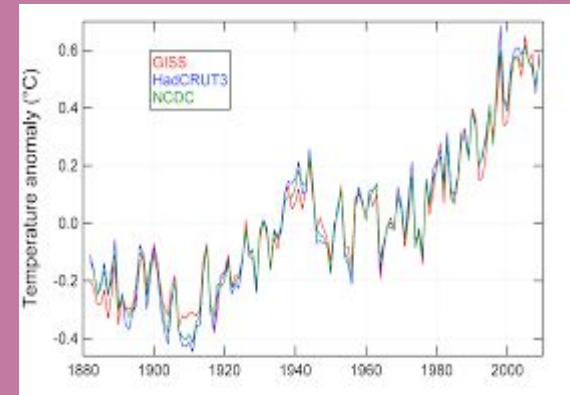
- Compost toilet will cycle waste matter from people into soil

Matter Cycling

- Will not be affected

Species Behavior

- Species could become more familiar with humans, but otherwise unaffected



100 YEARS IF THE TRAIL WASN'T IN PLACE

Climate

- There will most likely be a decrease in precipitation, about 20%
- Increase in temperature due to global warming, likely an average of 0.314 degrees per decade, or around 3 degrees in 100 years
- According to graph, steady increase in temperature is expected

Soil/Ground Condition

- Studies show that by 100 years, topsoil will either decrease or be completely gone
- Tighter and dryer soil since there would be no compost bathroom

Abiotic Factors

- Hill would still be unmaintained

Main Species

- Coyotes, deer, snakes, insects, birds, & small mammals may be present on hill, but will not be affected by trail and typically come out at night

Food Web

- Will not be affected

Carrying Capacity

- Would probably decrease because without maintainment, resources may die and cause Competition for the remaining

Biodiversity

- Biodiversity likely will not change, same species
- Possible that species that mightve come to trail will not be there

Populations

- Populations will most likely not change

Flow of Energy

- Will not change

Matter Cycling

- Will not be affected

Species Behavior

- unaffected

**HILL WOULD LIKELY
STAY UNMAINTAINED
AND WOULD SERVE NO
PURPOSE, WOULD
POSSIBLY DRY OUT
AND HAVE POOR SOIL**

300 Years

- Some studies say that in 300 years half the Earth will uninhabitable
- On the low end studies say that there will be only 2.3 billion people
- high end studies say that there will be 36 billion people on Earth
- With this many people, more area for food needed or won't have enough to survive
- The food web would definitely be affected with change in the food web and different animals will rule. With the change in population for humans population for animals will definitely change. There will most likely be the same species except there will be less of them
- Climate will be significantly warmer, unless there is a major shift in the increase of temperature. The hill will have been repeatedly maintained and the carrying capacity could change due to amount of resources in the area, but it is hard to say if it will increase or decrease

300 YEARS WITH OUT THE TRAIL

- With no trail there would be no one there to take care of the hill. Which will cause plants to overgrow.
- Along with this, the soil condition would be awful, tighter and dryer, if there was any topsoil left on the hill, since topsoil seems to be running out over time.
- Climate change would remain unchanged from our previous prediction if the trail was in place.
- The main species that dominate the area would change, because the hill may be inhabitable to certain species that live in short grass, loose soil and healthy shrubs, and more fit for other creatures that enjoy tall grass, overgrown shrubbery, and dryer soil. Species would likely have to compete over resources, so the carrying capacity would decrease as the species changed.

1000 Years:

- In 1,000 years, our site will probably have been maintained a lot, with several bathroom and picnic table swaps.
- The biodiversity by then will have changed a lot, as in just 500 years 900 species have gone extinct.
- So we predict that this number will more than double at our population growth rate of 1.18%, which is about 80 million people per year.
- The current extinction rate is 100 per 100 million species per year, but this could increase up to 10,000 time more in the future, leaving our site with few, if any, animals.
- The soil would remain pretty much the same unless it is developed like above, and nothing would really change unless the above developments are made.

1000 years without the site

- In 1000 years, the population will reach 119,000,000,000 if there are no big diseases or mass killings. This means that our food demands will drastically increase, causing humans to plow more farmland. Our site should remain unaffected, but possibly, by then, it could be turned into a new building, housing development, or even farm plot.
- The soil would probably be completely dried out. Our trail would help moisten and preserve the soil, so without it, the soil would be in awful condition.
- The hill would have no use and might be used for something else, or completely gone.
- The species, population, and carrying capacity, will not change on our site, but could be changed by outside factors, such as global warming, pollution, mass extinctions, etc.

CITES

Research:

- 1) <http://novato.org/government/parks-recreation-community-services#ad-image-0>
- 2) <http://www.worldometers.info/world-population/>
- 3) <http://www.iflscience.com/plants-and-animals/current-extinction-rate-10-times-worse-previous-thought/>
- 4) <https://www.populationmatters.org/wp-content/uploads/D11Humanpopulationhistory.pdf>
- 5) https://en.wikipedia.org/wiki/World_population_estimates
- 6) <http://world.time.com/2012/12/14/what-if-the-worlds-soil-runs-out/>
- 7) http://www.biologicaldiversity.org/programs/biodiversity/elements_of_biodiversity/extinction_crisis/
- 8) <https://www3.epa.gov/climatechange/science/future.html>

Materials:

- [pictures- png.com](http://pictures-png.com)
- <http://www.lowes.com/pd/72-in-Brown-Southern-Yellow-Pine-Rectangle-Picnic-Table/3620366>
- https://www.amazon.com/DecoBros-Bicycle-Parking-Adjustable-Storage/dp/B00U87B7VQ/ref=sr_1_3?ie=UTF8&qid=1473440580&sr=8-3&keywords=bike+rack+outdoor
- <http://www.tumbleweedhouses.com/blogs/tumbleweed/10553673-compost-toilet-outhouse>



Harambe

R.I.P

MAY 28, 2016