

CALIFORNIA STATE UNIVERSITY, NORTHRIDGE

One Big Park: Teaching Science Through Experience, Wonder, and Imagination

A thesis submitted in partial fulfillment of the requirements for the degree of

Master of Arts in Secondary Science Education

By

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December 2021

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## Abstract

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In attempting to engage student interest in environmental issues immediately relevant to their lives, I wrote and directed a film called *One Big Park* about the largest urban oil field in America located in the middle of Los Angeles. The film highlights the biodiversity of the region and the idea of converting the field to park land. The viewing of the film and the accompanying curriculum are designed to inspire a passion for outdoor adventure, critical thinking, and imaginative social action.

## Chapter I: Introduction

Exciting science lessons always engage the feelings and attitudes of students. Just as a storyteller hopes to inspire an emotional response in their audience, a science teacher aims to hook the interest of their students. When student curiosity is aroused, the job of teaching is easier and far more pleasant. It is unfortunate then, that science is often prejudiced as a sterile and unfeeling business, a collection of evidence-based laws and theories unconcerned with anyone's personal feelings or immediate social circumstances.

There may be some truth to the characterization. After all, scientists are counseled to practice a disinterested review of the data lest they fall prey to confirmation bias. One's personal feelings are considered irrelevant. As Neil deGrasse Tyson is famously quoted, "The good thing about science is that it is true whether or not you believe in it."

From the point of view of an educator, engaging the feelings of students is critical. Emotionally invested students are more apt to engage in the rigorous thinking required in a challenging science course. The perennial questions are: how can we motivate students, and how can we inspire a love of the natural world and instill an appetite for wonder?

One answer is to draw from students' experience of being in nature. The idea is to harness the thrill that children feel when spending time outdoors toward focused learning of core content of the science curriculum. Students who have a solid and joyful foundation in science will be better equipped to problem solve and take meaningful actions on behalf of the environment.

The problem is that many students in Los Angeles don't have ready access to experiences of natural settings. For this reason, many of the concepts in the biology curriculum may seem abstract. What does carrying capacity and species radiation mean to an urban kid with little

experience of natural settings? Fortunately, wildlife and natural settings do exist within 25 minutes of every student in Los Angeles, and it should be the goal of educators to make them aware of it.

*One Big Park*, the film I completed in spring of 2021, was conceived with the goal of promoting access to nature. The film is inspired by the idea of creating a 1,500-acre wildlife park in the middle of Los Angeles at the current site of the Inglewood Oil Field. The film addresses the history of the area from Indigenous villages to the discovery of oil in the 1920's, the persistence of wildlife and the dangers of oil drilling and human dependency on fossil fuels. Inevitably certain political issues are raised: environmental racism, climate change, and civic access to nature. The film closes with a challenge. The viewer is asked to imagine a park two times the size of New York Central Park.

My hope is that teachers can use this film to make connections with existing curriculum in social studies and sciences. The film's subject matter relates to biology, geology, ecology, history, civil rights, and social policy. Discussion questions are recommended to help teachers draw these connections. Suggested assignments serve as entry points to learn about Los Angeles history, environmental racism, and climate change. Students are asked to consider where society might go from here, and what can be done to realize positive visions for the future?

Certain assumptions were made in crafting the curriculum. One is that a love of nature is universal, that students need only be properly exposed to the wonders of the natural settings to become passionate naturalists. Second, educational time spent outdoors serves a net positive for learning and student health. Third, there is a link between the human well-being and the health of the natural environment.

The activities and assignments are organized into three related categories: 1) experiential, 2) core content, and 3) envisioning. It should be noted that the activities can be completed by students working alone or in groups. If possible, teachers are encouraged to take a group of students to Kenneth Hahn Park (the region covered in the film) or some other park lands. Kenneth Hahn Park is open daily and does not require a permit to bring students. Given logistical and Covid-related limitations the assignments proposed in this paper can be done individually. The curriculum should follow a natural path from student experience of nature to intellectual investigations to envisioning future possibilities for conservation.

## Chapter II: Literature Review

### Overview

This thesis project was composed of two parts. First, the making of the film, *One Big Park*, and second, the crafting of curriculum to accompany the viewing. As such, there were different research needs. For the film I researched the history of oil drilling and the land around the Baldwin Hills. Scientific research included ecology and energy use. For the curriculum I referred to literature on nature-centered pedagogy. The thesis explores the question: How can students be inspired to love the natural world and be self-motivated to learn about it?

### History of Los Angeles

How Los Angeles came to have the largest urban oil field in the country is an interesting story. In the writing of the film, I relied on historical resources to learn about it. The long-form essay *Crude City* by Frank Ruchala offers a brief history of oil drilling in the Los Angeles area from the first wells dug in 1892 to the present day. It is featured in a collection of essays called *The Infrastructural City*. To immerse myself in the zeitgeist of the oil boom in Los Angeles, I read the book *Oil!* by Upton Sinclair. It is a work of fiction but paints a rich picture of early Los Angeles during the 1910's and 1920's. The nonfiction book, *A Bright and Guilty Place*, by Richard Rayner is about the economy of early Los Angeles, specifically the outsized role of petroleum production. It includes the astonishing fact that in the 1920's Southern California was producing 30% of the world's crude oil. The article "Sacrificed on the Altar of Oil" by Nancy Quam-Wickham is a marvelous essay that tells the story of Los Angeles' uneasy relationship with cheap oil and the environmental degradation and social strife associated with the industry.

For a broader history of the Los Angeles area, I referred to the classic, *Southern California: An Island on the Land*, by Carey McWilliams. The book gives a wide scope picture of the area from pre-Colombian times through the Spanish Occupation of the region. For the specific history of the Baldwin Hills area from the Spanish Rancho “La Cienega o Paso de La Tijera” I relied on the work of reporter Luis Parra who published a series of articles on the KCET website. The series also told the story of the purchase of the land by Elias “Lucky” Baldwin.

For information regarding the recent history of the oil field and efforts to revitalize the land I referred to a study submitted in 2020 by graduate students at UCLA on the Culver City portion of the IOF. The city of Culver City oversees about 10% of the oil field, and in 2019 they voted to phase out oil drilling and will implement a plan to turn its portion into park lands. This process serves as precedent for the county to adopt similar plans. The study is part of a thesis project for UCLA Urban Planning Master’s Degree Program, entitled “Tapping Out in Culver City: Re-Envisioning the Inglewood Oil Field” by Lingjing Angel Chen and Erika Pinto.

## **Science**

To familiarize myself with the biodiversity of plants and animals I looked to the work of UCLA Environmental Studies professor Travis Longcore. He led a team of graduate students to catalog existing flora/fauna and other biological factors related to the natural history of the Baldwin Hills.

For the basic science of climate change, I read Kerry Emmanuel’s *What We Know About Climate Change*. It was an excellent primer on the current scientific models and summary of the different views. The book confronts the position that the current changes in climate are nothing out of the ordinary fluctuations of planetary average temperatures and argues for meaningful and substantive actions to divert a climate catastrophe.

The book, *Animate Earth*, by Stephen Harding gives a very clear version of molecular processes involved in the carbon cycle. This work also figured into assignments that I made as part of the accompanying curriculum by emphasizing a sense of wonder when contemplating the complexity of earth systems.

The book, *Healing Gaia*, by James Lovelock explores the analogy of the earth as a living being. Using the discipline of physiology as a running analogy it attempts to diagnose the ills of the biosphere and proposes a procedure for recovery. It highlights the ways that human activity disrupts a natural system of nutrient recycling and endangers the healthy functioning of the biosphere.

### **Pedagogy**

The suggested assignments to accompany viewing the film are intended to draw from students' personal experiences of being in nature. I sought out literature on successful ways to expose kids to the wonders of being in nature.

One of the premises of *Keeping a Nature Journal* by Clare Leslie and Chuck Roth is that drawing is a means of seeing. The act of drawing forces us to be aware of our environment in greater detail. And beyond simply observations, we should form a relationship with what we see. Developing a practice of contemplative reflection is one of the aims of the meditation proposal, and eventually I would like to extend the practice toward studying nature. The book gives instructions for guiding students in creating their own nature journal. It includes ideas for what to focus on, how to teach drawings, arrange a workspace, what to take note of, and how to share with one another.

*Sharing Nature with Children* by Joseph Cornell offers a wealth of ideas for games and activities that can be done with children in nature. *The Spell of the Sensuous* by David Abram is a work of philosophy that deals with the human relationship to the living world. It explores ways that people can connect with nature through the senses. It explores the way that people undergo changes when they experience nature and how the non-human world inserts itself into human spirituality. What I find particularly interesting was the study of how the natural world influences brain development, and the suggestion that human language evolved in response to the sounds of nature.

*Last Child in the Woods* by Richard Louv is about the increasingly widespread lack of access to nature for children. It identifies the condition as nature deficit disorder and explores the consequences of a disconnect with nature and practical ways that children can be exposed to nature. It also reports on the growing movement to reclaim vacant lots in the service of nature discovery. The vision of *One Big Park* is basically the same idea but on a much larger scale than a vacant lot.

## **Summary**

Access to nature is a challenge for many k-12 students in Los Angeles. This makes it difficult for educators to reference the natural world in biology and ecology lessons. In highlighting the biodiversity of Kenneth Hahn Park located in the middle of Los Angeles, a solution is proposed for addressing nature deficit disorder and actively cultivating in students a love of nature. The history of Baldwin Hills and the idea for a future 1,500-acre park offers an inspiring vision of a future thriving ecosystem to be enjoyed by a healthy human population. Knowing the history of Los Angeles' relationship to oil consumption and the current threats of this dependency can allow students to think critically on the viability of possible solutions.

In the next chapter I propose a series of assignments that can accompany viewing of the film. In a methodical way students gain personal experience of being in nature, learn about the critical issues, and exercise imaginative solutions to the social and environmental problems of our time.

### **Chapter III: Project Development**

The following is a brief synopsis of my film, *One Big Park*. The film begins with images of wild animals, flowers, and countryside. The narrator describes an ecological wonderland before revealing its location in the Baldwin Hills in the middle of Los Angeles. Next, the narrator (me) introduces himself and gives a personal account of discovering the wildlife of the area along the trails. A question is posed: Why has the land remain undeveloped? It is answered by showing drone footage of pumpjacks and narration that conveys the current rates of drilling (500 active oil wells). It continues to explain the multiple ways that modern life is made possible by extracting fossil fuels and how modern Los Angeles was born on a foundation of oil drilling. A history is given, complete with vintage photographs, of how the Baldwin Hills fit within this story of Los Angeles.

The history portion ends with the present situation in which over 80% of the energy American society uses comes from fossil fuels. A report is made on an April 3, 2021, oil spill in the Inglewood Oil Field and the dangers associated with urban oil drilling and carbon emissions as the main contributor to global warming. The first portion of the film ends with a question: Does oil drilling serve the best interests of the residents of Los Angeles?

The second portion features an interview with David McNeill, an executive officer of the Baldwin Hills Conservancy. We discuss the nature of oil drilling, local flora and fauna, environmental racism, and the role of nature in human well-being. The film ends with a meditation on the many social struggles in L.A. history and how finding peace in the loud and energy-use intensive city is an ongoing challenge. It ends with the sharing of a vision for converting the oil fields into one wildlife park of 1,500 acres. The film further makes the claim

that such a vision is possible if a popular movement arises to pressure politicians to make it a reality.

### **Film Screening**

The entire 30 minutes of *One Big Park* can be seen at the following link: <https://vimeo.com/547791085>. Available for free to anyone, the film can be used as a teaching tool for students to explore the links between biology, ecology, history, civil rights, and social policy. Because *One Big Park* is intended to inspire conversation in a group setting it is preferable to screen it in class. However, the internet link above is available so that it can be viewed by students in their own time or on a shared Zoom call. Showing *One Big Park* in a group setting provides an opportunity for students to respond in real time to the ideas and claims made in the film. (The text of *One Big Park* voice-over narration is printed in Appendix A.)

To start conversation the teacher may ask, “What’d you think of the film? What caught your interest? What questions do you have? What claims were made? Do you agree or disagree with the claims made?” It may be necessary to talk about the nature of a claim (subjective, objective, measurable) and encourage skepticism.

List of claims to be offered for debate:

1. The buildup of carbon dioxide in the atmosphere is causing an increase in global temperatures.
2. Kenneth Park is an ecological wonderland.
3. The use of fossil fuels is central to our way of life.
4. The oil industry provided the economic foundation of modern Los Angeles.
5. Poor air quality results in a greater incidence of asthma among residents living near oil fields and refineries.

6. Converting the oil field into one big park is a real possibility if the citizens of Los Angeles choose to make it happen.

Students should be asked if they agree or disagree with the statements. What further information would they need to make a judgement on the truth or falsehood of the statements? What further questions do they have?

Whenever possible students' own questions should lead conversation. However, a list of questions is given below to help facilitate broader discussions. Time considerations may make instructors prioritize some over others. The questions can also serve as prompts for an essay writing assignment. Students would be given a choice as to what question they would like to explore in depth.

1. What are dangers or concerns with civilization's dependence on fossil fuels?
2. For what purposes does our society require energy? How much is enough?
3. What are fossil fuels, and what alternatives exist?
4. What is environmental racism, and do you think it is a problem in Los Angeles?
5. The film suggests there is a link between the well-being of wildlife and human life. Do you agree?
6. What would a thriving wilderness look like in Baldwin Hills?
7. What would a thriving human population look like?
8. What are the most pressing priorities for the city of L.A.: housing, jobs, education, outdoor recreation, nutrition, crime reduction?
9. Should all 1,300 acres of oil field be turned into parkland? What steps would be involved to make such a transformation possible?

## **Post-Viewing Curriculum**

*One Big Park's* post-viewing curriculum consists of 1) experiencing nature, 2) learning core content, and 3) envisioning a future. The categories are open to a range of activities and are not strictly delineated. For example, an experiential nature walk may also become an activity that takes inventory of flora and fauna and tracks the movement of energy in the food web. In such an activity the subjective experience of spending an afternoon outdoors and the objective collection of data are to be valued. Still, in organizing the activities it is useful to place them in one of the three categories.

### ***Experiential***

The first category is concerned with attuning the senses to an outdoor environment. Students should be attentive to the feelings that arise. What emotions come up? What is the psychological experience of being outside and in the elements?

To keep track of outdoor experiences and observations, students keep a nature journal. For this assignment I propose doing a lot of drawings. Because some kids lack confidence in their artistic abilities, it is important to emphasize that the goal is to practice making observations rather than producing masterpieces of realism. As a way of beginning the nature journal the following introductory assignment is given:

#### 1. Nature Journal

For this assignment you will need a special notebook. White, blank pages are preferred, and a certain thickness is ideal if you intend to use water paint or wet permanent markers. You will use this notebook to record observations, thoughts, feelings, and questions. The journal is

personal, and you are not required to share all of it, but you are required to share evidence of your work. Also, this is not an art class, and you will not be judged for your artistic skills. The purpose is to develop a practice of seeing. So, what to draw?

- A found object from nature, i.e., a shell, rock, pinecone
- Flower
- The face of someone you care about
- Bird
- Insect
- Clouds
- Beloved pet (cat or dog)
- Moon
- Garden
- Your own hand

For each drawing include the following basic information:

- Name
- Date
- Place
- Time

## 2. Nature Walk

For this activity you will find a large park nearby. See attachments for suggestions. You will spend a minimum of 90 minutes exploring the area. In your nature journal you should be recording observations, thoughts, and feelings. There will be two components to submit for full credit.

- A drawing, poem, or haiku
- A description of your outing in a short essay form in which you describe the time, location, and any other relevant detail (companion, transportation, what you were doing, interesting flora and fauna, etc.). Include an observation for each of your senses (sight, smell, touch, hearing, taste). Please devote one paragraph to each of the senses and include a photograph of yourself in the place.

### 3. Personal Outdoor Wellness Plan

There is a link between the well-being of the natural environment and human well-being. The air we breathe, the food we eat, the water we drink all impact our health. Sunlight, temperature, sounds, and fragrance affect our moods. We each can speak to our subjective experience of these environmental components, but how can we measure it? For this assignment you will design a personal wellness plan that combines subjective experience and objective measurements.

First, identify what you would like to accomplish. How might outdoor activities relate to it? Perhaps it is a fitness plan, a diet, or some other practice that relates to the environment. Next, you will develop a plan complete with strategies, tactics, schedules, and routines. Your report should include: 1) the written plan, 2) the reasoning behind the plan (include any research you did), 3) a reflection on the success of the plan and what you learned, and 4) a visual (video, photos, diagrams). All components will be shared with class using Google Slides. Some ideas are healthy diet meal plan, primal flow movement sequence, tree climbing, 10,000 daily steps in park lands, jogging, long-distant biking, dance/martial arts/yoga/pilates.

## **Summary of Experiential**

The point of the assignments is to get the kids outside and engaging with the natural environment. The sense of rejuvenation that comes with vigorous outdoor activities is particularly poignant during the pandemic as many students may be feeling socially isolated and lethargic because of quarantine.

As students reflect on their experiences, an opportunity emerges to articulate scientific questions relevant to their lives. What is the air in my city like? What is a healthy environment? How might our actions protect it?

The personal wellness assignment may inspire questions like: what is my Body Mass Index? Where does the water I drink come from? How much energy do I consume? Where does it come from? Such questions may be addressed scientifically and may make the core content of their science classes even more relevant.

## ***Core Content***

There is a wealth of natural splendor in and around Los Angeles. Unfortunately, easy access is not democratically distributed. Inhibiting factors like lack of transport, lack of time, lack of money, and lack of knowledge make it so that many k-12 students do not have first-hand experience of natural settings.

The vision behind *One Big Park* is inspired by a simple proclamation: If people can't get to nature, then nature must be brought to the people. The next question (specifically for teachers) is how to draw connections between the environmental issues raised in the film and core content they are expected to teach in class.

In this section I provide suggestions for connecting content in the film with academic standards. One subject to be addressed is energy and its various forms. There is the energy that

moves through plants and animals along food chains in the ecosystem, and there is the stored energy of fossil fuels that is extracted daily from under the ground. For the first pathway of energy students should be asked what are the producers (autotrophs) in Kenneth Hahn Park/Inglewood Oil Field, and how do they function as the base of an energy pyramid? What are the various trophic levels within the ecosystem, and what are the relationships between consumers with a food web? To unpack the complexity of the ecosystem a marvelous resource is provided by UCLA Environmental Studies Professor Travis Longcore. The public internet link [baldwinhillsnature.bhc.ca.gov](http://baldwinhillsnature.bhc.ca.gov) provided a wealth of information on the biodiversity of the Baldwin Hills.

The second way to teach about energy focuses on the many ways that modern civilization uses energy resources. Students can take inventory on all the ways they use energy in their daily lives, from the lights to their phones to transportation and heating. They can consider the ways energy usage is measured (joules, calories, kilowatt hours). From the chemistry and environmental studies curriculum there is much to explore on the chemical nature of hydrocarbons that compose fossil fuels. Students should learn about Alkanes, Alkenes, Alkynes and Benzene. How does combustion lead to usable energy? How do released carbon atoms bond with oxygen to create carbon dioxide, a heat-trapping gas? What dangers to human health are inherent in this process?

The subject of hydrocarbons leads into an exploration of the carbon cycle and other biogeochemical cycles. Students can be assigned to research and present on one or each of these cycles. Analysis of biogeochemical cycles can be used to explore the science earth systems, the interrelationships of hydrosphere, biosphere, geosphere, and atmosphere. Students may consider the ways that the planet appears to regulate environmental conditions hospitable to life. The Gaia

Hypothesis, which proposes that the planet functions as a living organism, can be introduced to shed light on the singular process of life on Earth.

This is an excellent context to consider our present atmospheric conditions. What is the significance of an atmosphere that contains 415 ppm of carbon dioxide? Should we be alarmed? What is the consensus opinion of climate scientists, world leaders, and the public? What is proposed, and what is being done to address climate change?

The issues raised in *One Big Park* are serious, and students should have a sense of gravitas. The April 7<sup>th</sup> oil spill that took place in Baldwin Hills during the making of the film is sadly common. Where have recent oil spills occurred? How do they impact local ecosystems and beaches? Who are the elected leaders who can take action to protect and conserve these ecosystems? Finally, what can ordinary citizens do to protect and care for the environment?

### ***Envisioning***

My hope is that anyone who sees *One Big Park* will become an advocate for the vision of a rewilded Baldwin Hills. I want students to be educated on the serious issues regarding their health and the environment. However, it is not my job to sermonize on what I think must be done to make city life tolerable in the 21<sup>st</sup> century. The needle to be thread here is to teach the facts relating to environmental health while providing space for students to arrive at their own opinions and visions for the future.

Envisioning is about making predictions, imagining possible futures, and taking action. The subtitle, *Engineering the Future*, references a solutions-oriented approach to environmental and social problems. Students can decide which problems are worthy of focus. Social ills like poverty, drug addiction or violence can be understood as environmental issues. Humans are part of the environment.

In my own classes I used the post-viewing discussion question listed above to survey students on the issues they found most pressing. Students were then encouraged to entertain solutions, consider subtleties and nuance, analyze risk versus reward, and weigh possible opportunities against trade-offs.

The following recommended assignments emphasize planning for the future. The first assignment is directly related to *One Big Park*. Students assumed the role of a local politician and consider the viability of the vision of a 1,500-acre nature reserve. The role-playing format can be done with any number of stakeholder roles: oil executives, developers, neighboring residents, workers, naturalists. Students can even play the role of non-human stakeholders: coyotes, foxes, cotton-tail rabbits.

#### 1. Stake-Holder Assignment

*One Big Park* is a film with an opinion. The narrator states that a 1,500-acre park is both possible and desirable. Many people might take exception to the idea that a giant park is a realistic possibility since the land is private property. What position might oil drillers, real estate developers, and landowners take. Consider that there are multiple perspectives on whether the land should become parkland, including oil companies, real estate developers, environmentalists, homeowners, and everyday Angelenos who might use the park. Politicians would have to contend with these differing agendas. For each of these groups consider what perspectives each would have. Now imagine that you are the County Supervisor of District 2, which includes the Inglewood Oil Field. You are in a position to take action in favor of one or more of the competing agendas. Where do you take a stand? How might you go about taking action to accomplish your goals?

A second assignment asks the students to research a local (and fairly recent) environmental issue. Sadly, there are many, such as the oil spill off Huntington Beach, water quality in the Compton area, air pollution, and toxic waste. Students should go through a similar process considering the various stakeholders in the community, opposing viewpoints, and possible solutions. The instructions could be as follows:

## 2. Local Controversy

When it comes to the environment there are many controversies. Clean drinking water, offshore oil drilling, air quality, and plastic pollution are just some that have been in the news recently. For this project you will take a controversy (in the news or otherwise) and report on the various arguments on either side of the controversy. Finally take your own position on the matter and describe some solutions to the problem discussed.

*One Big Park* makes the argument that access to nature is a civil rights issue because people are better off when they spend more time outdoors in natural settings. For this assignment project students make a wellness plan that incorporates being outside on a regular basis. They make an argument for how this wellness plan will serve their health and well-being. They will also consider how the well-being of nature relates to their own personal well-being.

## 3. Outdoor Fantasy Project

For this exercise you will use your powers of imagination. Now that you have learned something about the environmental issues we face and the elements of human thriving, you will imagine what the future could bring. In the case of your fantasy city project, imagine what could be done with an area of 1,500 acres: a lake, running trails, wildlife park, baseball/soccer fields, museums, amphitheatre. What would you like to see? Now is your chance to make a proposal. Make a Google Slides presentation for your vision. Describe what you would like to see. Make

use of images that you find on the internet to illustrate your vision. Finally, draw out a birds-eye view of what you imagine for the park. You may take on just one part of the park, perhaps a meadow, a recreational area, or a pond. Let your imagination run wild.

## Chapter IV: Results and Impacts

Showing *One Big Park* to students and hearing their feedback was immensely gratifying. Students seemed to appreciate their teacher's passion for expanded park lands, enough to make a film about it. Simply showing the film, however, does not meet the aim of a transformative learning experience. The goal is not simply to envision a park or alert students to environmental concerns but to dig deeper into the science behind the narrative. To accomplish this, students must engage critically with the claims made in the film, determine their own positions on the matters, and search for nuance and ask probing questions.

At the outset I encouraged the students to consider what claims were made and where they disagreed. It is important not to lead the witness, and dissenting views are encouraged. One student, M., took exception to the claim that the Kenneth Hahn Park was particularly magnificent. She wrote, "I disagree with that statement because to be an 'ecological wonderland' you have to have many ecological systems, which this park does not have."

Excellent feedback: In future projects I may go further to show the biodiversity of the area and perhaps I can win her over.

It was interesting to hear different takes on fossil fuel dependence. One student, L., asked, "If drilling stopped in the Baldwin Hills where would we get oil from and how would we drive our cars?" Another agreed, saying that civilization was simply too dependent on fossil fuels that it was unrealistic to ask oil companies to stop drilling.

The debate warmed up as another student countered, "We have alternative fuels like hydro energy from dams, tides and waves. It is like wind energy but underwater. There is also wind energy, solar energy, nuclear energy, and geothermal energy. These alternatives could be

applied to a larger magnitude in the energy web so we can combat global warming and could avoid future natural disasters.”

This is the type of dialogue that I love to hear from students, particularly because it leads to other questions, such as the pros and cons of various energy sources. A follow-up assignment would be to have students research various types of energy sources and report back to class.

Toward the end of our discussion, I asked students to imagine what a wildlife park would look like in the Baldwin Hills. I even tried exciting the imagination by sharing the work of a team at Harvard University which is attempting to fertilize the egg of an Asian Elephant with DNA from extinct Mammoths. Given that mammoths once roamed freely in the Los Angeles basin, is it feasible that they could once more? Should they be resuscitated and allowed to roam the Baldwin Hills Wildlife Park?

The proposal sparked a lively discussion. Most students were in favor of bringing back mammoths, but others articulated interesting concerns. One student shared, “I don’t agree that we should revive these animals because we simply do not know how these animals will react around civilization especially with the way we take care of animals and sanctuaries. I do not think the animals’ best interest will be served because people will try exploit them for profit. I agree we should revive them but there would have to be heavy security and not open to the public. The animals need to be given the most space and less restriction to see how these animals interact and hope they survive in the wild.”

This type of response is what I’m interested in. I want to hear them weigh the pros and cons and imagine potential outcomes. It shows that they are thinking but also that they are interested, and that represents an opportunity to go deeper into content.

Measuring enthusiasm in precise quantities is difficult. And yet if we maintain that a passion for the natural world is necessary for profound learning and inspired problem solving it is valuable to locate concrete evidence of student enthusiasm. The results of the experiential component of the curriculum were interesting. Students reported feeling a sense of calm and relaxation during their sojourns into natural settings.

Around the time I assigned the nature walk activity there was a tragic shooting nearby in which a high school senior lost her life. One of my students had known the victim and was distraught over the incident. In her grief she asked her mother to join her on the nature walk. She shared that stepping into a natural setting had been an invaluable way for the both of them to process the shock and horror of the event. She needed to reflect and found solace being in a natural setting.

I do not wish to present nature walks as a panacea for all social ills, but it does strike me that so much of the trauma suffered by victims of violent urban environments may be addressed by active connection with nature. There is a well-documented sense of spiritual healing one feels when they step away from the city. For this reason, I was pleased to see that students opted to make spending more time outdoors a personal wellness goal. These were articulated in their plans. As one student wrote:

Over the month of November I will be going for peaceful walks for one hour each day. I intend to de-stress and recenter on each walk. I feel it is a great way to clear your mind and organize your thoughts. I've already established a route to go on that'll take about an hour. I plan to go at my own steady pace and manage my breathing by taking clear deep breaths. My goals for this outdoor wellness plan are to maintain a healthy mindset and a healthy weight. I will not be on my phone or any other device, it'll just be me and my

thoughts on the walk. I feel it's essential to spend time with yourself outside and enjoy your surroundings. Sometimes the world can feel like too much so it's important to take mental breaks and just take in all the beauty around you. I plan to walk by myself, maintain my 1-hour limit, but I won't have a specific time that I'll be going on the walk. It'll just be while the sun is out because my days often get busy, but it won't be difficult to set aside 1 hour for something I am prioritizing. I was already walking but not every day. It was only two to three times a week so this will be a little challenge for me but I'm up for it, especially since it is very beneficial. I'll set daily reminders to keep me on track, and I'll make sure not to miss any days. Walking will affect my whole body. Recently, when I walk long distances, I need to take breaks and make sure to control my breathing. I am excited to start this journey and experience all the great benefits of consistent walking!

Personal experience is critical for developing a passion for environmental issues as well being informed on the issues. The final component, envisioning, challenged students to go a step further by considering social and environmental problems.

Some students opted to take up subjects that soundly fall into the category environmental, and other students chose homeless and education. These latter subjects are not unrelated to the topics raised in *One Big Park*. During the interview with David McNeill of the Baldwin Hills Conservancy, McNeill explains that developers have a hungry eye on the remaining 1,300 acres of undeveloped land in the Baldwin Hills once oil runs dry. They would cite the housing crisis as a reason they must build. It is a fair question for students to ask if the land could be used to provide housing.

Another student was interested in reporting on education as a local controversial topic.

Such a topic would not normally be categorized as environmental but certainly issues of conservation depend on an educated populace to make wise decisions.

The feedback students gave taught me about the kinds of concerns students have. It informs my priorities as an educator-activist. It makes me consider new ways of advancing the argument that a large wildlife park in the middle of the city is desirable and achievable.

## Chapter V: Conclusion

*One Big Park* is about the possibility of creating an enormous park in the middle of Los Angeles, designed for the thriving human and wildlife. It is envisioned as a great antidote to the epidemic of nature deficit disorder which burdens so many residents in the city.

That so many urban children are deprived access to nature is a public health catastrophe. The depression and stress so common among young people are linked to less time spent outdoors in the presence of wildlife. The consequences are physical; obesity, respiratory illnesses, and low metabolism can all be related to the decrease in time spent outdoors.

*One Big Park* was conceived to address both the boredom that haunts schoolwork and the plague of nature deficit disorder. The accompanying curriculum attempts to address yet another problem: how to get kids to care about environmental issues.

The assumption is that when students spend time in nature, the sensual pleasure to the experience cultivates a love and hunger for knowledge of the natural world. Finally, I hope that this passion serves as a foundation for taking meaningful action in defense of nature. The assignments and curricular structure proposed follow the same logic: experiential, core content, and envisioning.

The film, *One Big Park*, offers a positive vision of what is possible if an educated populace values easy access to nature and asserts its power. If a critical mass of Los Angeles residents demands an end to oil drilling in the Baldwin Hills and subsequent conversion to parkland, the dream could be reality. It starts with education.

I am confident that this is not a mere pipe dream because of the transformative effects nature has on students. When the natural world and its mysteries are elucidated, a flame is lit within the hearts and minds of the young. Nature becomes something not just out there but

inside, too. When students see themselves as part of nature, they realize that their own well-being reflects the well-being of the natural environment. Such experience ignites a passion to understand one's place in natural processes and an urgency to care for the environment.

This project reveals the power of interdisciplinary curriculum at the secondary level. The more students see the relationships between the disciplines, the more meaning they will place on their education. Students expressed to me how important they felt education was because of the work they were doing in class.

Future research should focus on the advantages that students gain by spending time outdoors. It would be beneficial to draft objective measures to show how the type of assignments I gave helped student learning. Does it directly translate to better grades or test scores? How did students' perspectives change through their time spent in nature? It would also be useful to come up with a good working definition for nature. How can we rate just how natural an area is, and can nature be guided by human planning?

The assignments and curricular structure I propose should be tried with different groups and criticized constructively. Both the film and the accompanying assignments are experiments to find new and exciting ways to inspire students to creatively engineer a beautiful future.

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## Appendix A

### One Big Park Voice-Over Narration

It is an ecological wonderland in the middle of California's largest metropolis. Home to hundreds of species of birds, native plants, reptiles, amphibians, and 20 different species of mammals. Yet many of the 10 million people who live within miles of this diverse ecosystem don't even know it exists. Welcome to the Baldwin Hills.

My name is Dov Rudnick. I was born and raised nearby. Yet only recently I became aware of the ecological richness of the Baldwin Hills. A few years back I moved to a neighboring community. As I walked the open trails I often found myself wondering how is it that in a city as celebrated and photographed as Los Angeles an area of roughly 3 square miles would remain undeveloped and largely unmentioned. The answer may be found in what lies beneath these hills.

You see, there is something underfoot that is precious; Oil, and lots of it.

There are some 500 active oil wells in the Baldwin hills covering 1300 acres making it the largest urban oil field in the country. Every day these wells extract 8000 barrels of oil. At about 40 bucks a barrel, that is 300 hundred thousand dollars' worth of black gold being pulled daily from underground. What's more, geologists speculate that even after a century of continuous drilling more than half of the oil reserves remain buried deep below. Energy companies are well aware of what lies beneath the Baldwin Hills and being business-minded, they hope to bring the oil to market. But is continued oil drilling in the best interest of the city and its residents?

You see, Los Angeles, and the whole world for that matter, is at a crossroads. The choices we make today will affect not only the future of our city, but the planet itself. This year 2021, marks the two hundredth anniversary of “Alta California” the northern most province of Mexico. Previously, the land had been part of the Spanish Empire. If you had stood on this hill back then, standing in Spanish territory, you would have overlooked the Los Angeles River. At the time the course of the river ran through the LA basin along what is now Ballona Creek. The waters spread across the open plane making miles of wetlands, giving the region it’s name La Cienega, the Spanish word for “Marshland”. The spot I stand on now was part of a 5000 acre of a land grant known as “Rancho La Cienega o Paso de la Tijera.

The ranch was originally deeded to a former mayor of Mexican Los Angeles, one Vicente Sanchez. After his passing in 1846 the land fell into the hands of his grandson, Don Tomas Sanchez. Tomas would become a legendary figure in the city’s folklore, serving as LA county supervisor and Sheriff, noted for his skills as a gunslinger and fathering 19 sons and 2 daughters. In 1875 he sold the land to a local banker who promptly went bust in the economic crisis of that year and before taking his own life he signed the land over to one of his creditors, Elias “Lucky” Baldwin.

Lucky Baldwin was so named because it seemed that in every business venture he undertook he made a fortune. Apparently, this made him a hot commodity with the ladies. He married 4 times and two of his wives were just 16 years of age. His love life was the stuff of tabloids. He escaped with his life being shot not once but twice by two seperate jilted ladies. Perhaps, another reason for being called “Lucky.” As the holder of the deed, Mr. Baldwin, used

the land for pasture, first for sheep and later for cattle in what would become the largest dairies in the young city.

In 1909, the year he died, oil was discovered on his properties. In just 15 years the Baldwin Hills would become one of world's most productive oil fields yielding 50,000 barrels of crude every day by 1925. It was called the Inglewood Oil Field, not because it was located near the city of Inglewood, although that is true, but because of the Newport-Inglewood fault line that runs from Culver City all the way to Huntington Beach. It was this geological feature that was largely responsible for the oil boom in early Los Angeles.

When people think of the rise of the modern city of Los Angeles they typically think of Hollywood and all that jazz. While there is some truth to this story the real driver of LA's extraordinary growth at the turn of the 20<sup>th</sup> century was oil. In just over 30 years since the first oil wells were dug in 1892 the city's population went from a mere 50 thousand souls to well over a million. By the 1920's Los Angeles was producing one fifth of the world's oil, a veritable Saudi Arabia. The city's burgeoning car culture, its train system, its power supply was all generated by locally sourced oil. Visitors to the city were amazed to find gas prices a third of the price as the rest of the nation. Major industries, aerospace and petrochemical companies were lured to the city with the promise of cheap energy. All this economic activity meant jobs, new homes and large-scale construction of roads, dams, and bridges. In short, the infrastructure of the city we know today.

The truth is without oil, LA as we know it, would not exist. Not only that, when the oil companies point out that petroleum is central to our way of life, they are absolutely right. Fossil Fuels make up over 80 percent of the energy that we use; our cars, our lights, our devices, how we cook our food and warm our homes. How we entertain ourselves and communicate with one

another. This moment, here and now, as we film and you watch is made possible because of hydrocarbons stored in fossils fuels like those beneath our feet.

Of course, there is a price to be paid . . . and serious issues that representatives of the oil industry don't enjoy talking about. For one thing extracting oil from the ground is a dangerous business. The drilling and refinement processes release carcinogenic toxins into the air. And while the operators claim that they hold to the highest safety standards neighboring residents have their doubts. In August of 2019 an environmental impact report showed unhealthy levels of pollutants in the air around the Inglewood oil field. (Show the maps). The prevailing offshore winds blow these toxic vapors eastward into the communities of Baldwin Hills, Crenshaw and Leimert Park, traditionally black and brown communities. For this reason some activists regard urban drilling as environmental racism.

Secondly, there is the matter of global climate change. Fossil fuels are composed of hydrocarbons, molecules of hydrogen and carbon. When heated to a certain temperature a sudden combustion separates the hydrogen from the carbon and releases them into the atmosphere. The newly freed carbon atoms form bonds with oxygen in the atmosphere to form a very special molecule called carbon dioxide.

Because carbon dioxide is a heat trapping gas it creates the Green House effect that keeps our planet from freezing over when the sun goes down. The problem is that because modern civilization has been so busy burning fossil fuels in the last few generations there is presently more CO<sub>2</sub> in the atmosphere than there has been in 3 million years! What that means for the long-term habitability of our planet, we just don't know. What we do know is that temperatures

around the globe are rising and we need to prepare for this reality, to mitigate the damages and for goodness sake STOP putting so much CO2 in the atmosphere!

Finally, there is the question of the land? Who should have a say in how the Baldwin Hills are used and maintained? That depends, of course, on who you ask, and I'd also suggest it depends on you.

For one thing, most of the Inglewood Oil Field is private property. Despite being situated in the middle of LA it is not technically part of city. It's what's called "unincorporated land." The oil operators and landowners pay their taxes to the county of Los Angeles rather than the city and they have their own ideas about how the land should be used.

But what about county's 10 million residents? Should they have a say? Do they have a right to imagine a different use for the hills? Who should decide the future of these hills?

Some folks have been thinking about these questions for a long time. I wanted to learn more and so I reached out to David McNeil of the Baldwin Hills Conservancy, an organization dedicated to the responsible stewardship of these hills.

### **Post-Interview**

Los Angeles has the opportunity to create the largest, and daresay, most beautiful urban park in the country. It can be a reality, if we the people, choose to make it so. That means taking action to conserve and protect the wildlife of these hills. It means informing ourselves of the dangers and possibilities of life on changing planet. It means having the courage to take on entrenched financial interests, to put butterflies and wildflowers, coyotes and cotton-tailed rabbits, coastal live oak and sycamore trees above short-term profits. After all, in the final analysis, all profits are short-term and our descendants will only care about the world we left to them and whether or not we had the courage to take care of it.

