

There Are Things More Tragic Than Mosquitos

The Banning of DDT: Rachel Carson's Triumph

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Introduction:

Following World War II, a tragic substance called dichlorodiphenyltrichloroethane also known as DDT was harming animals and the environment causing the populations of animals to decrease and slowly die, it was a very dangerous chemical and pesticide, as well as an insecticide. A pesticide is a substance used for destroying insects or other organisms harmful to cultivated plants or to animals an insecticide is a substance used for killing insects. Insecticides are a type of pesticide that is used to specifically target and kill insects. In 1962 a scientist by the name of Rachel Carson published the book *Silent Spring* pointing out the tragic effects of DDT and how unethical it is to continue its use. She was a biologist who wrote the book *Silent Spring* that would change how the environment in the United States of America was cared for. DDT was created because mosquitos were transmitting deadly diseases like malaria and typhus to people at that time. DDT was used in many parts of the world after it was first legalized in 1945. It was ultimately banned from the United States in 1972. Tragically, the number of animals and people that died as direct effect of the use of DDT were quite high. However, Carson ultimately triumphed when DDT was banned and the animal populations and the environment slowly began to recover.

“The most alarming of all man’s assaults upon the environment is the contamination of air, earth, rivers, and sea with dangerous and even lethal materials. This pollution is for the most part irrecoverable; the chain of evil it initiates not only in the world that must support life but in living tissues is for the most part irreversible. In this now universal contamination of the

environment, chemicals are the sinister and little-recognized partners of radiation in changing the very nature of the world—the very nature of its life.”-Rachel Carson¹

The Book Entitled *Silent Spring*:

“If we are going to live so intimately with these chemicals-eating and drinking them. Taking them to the very marrow of our bones-we had better know something about their nature and their power.”- Rachel Carson³

For centuries, mosquitoes have been a nuisance to people. They have been the cause of the spread of deadly disease. Unfortunately, an effective cure to the problems they can cause has never been found that did not do as much or more damage to the environment and humans as the mosquitoes were doing. In 1945 farmers and other agencies in the United States began using a product called dichlorodiphenyltrichloroethane, or DDT for short. The goal of this product was to keep the mosquito population down and as a result, keep people disease free.

DDT came in a spray form, liquid form, or even solid form.⁴ They sprayed it in the pool, on people, food or crops, and many other issues. DDT slowly began to show its results. The problems began when some offspring of some animals were not being born and died either too

¹ “Rachel Carson Quote.” *A-Z Quotes*, www.azquotes.com/quote/1056876?ref=silent-spring.

² “‘Silent Spring’ Rachel Carson!” *It Is What It Is*, 16 Apr. 2014, hrexach.wordpress.com/2014/04/16/silent-spring-rachel-carson/.

³ Carson, Rachel. *Silent Spring*. Penguin Books, in Association with Hamish Hamilton, 2015.

⁴ “Bottle of DDT Pesticide.” *Science Source*, www.sciencesource.com/archive/-SS2421056.html

early and most were not able to get the nutrients they needed to survive. There was other people who agreed with Rachel Carson and supported her, they were one of the few people who knew that DDT and other similar pesticides were not good for the environment around us. After *Silent Spring* got to the public there were debates and investigations about DDT to find out if it should continue being used or be banned. This caused a lot of conflict in the back and forth fight. The decision of DDT getting banned, created controversy. With the people that were not against the use of the dangerous pesticides fought and protested and so did the people that were against the dangerous pesticides.

Carson influenced the environmental movement as no one had since the 19th century's most celebrated hermit, Henry David Thoreau, wrote about Walden Pond.⁵ "Silent Spring" presents a view of nature compromised by synthetic pesticides, especially DDT. Once these pesticides entered the biosphere or surface of the Earth, Carson argued, they not only killed bugs but also made their way up the food chain to threaten bird and fish populations and could eventually sicken children. Much of the data and case studies that Carson drew from weren't new; the scientific community had known of these findings for some time, but Carson was the first to put them all together for the general public and to draw stark and far-reaching conclusions. In doing so, Carson, the citizen-scientist, spawned a revolution.⁶

⁵ Beyl, Caula A. "Rachel Carson, Silent Spring, and the Environmental Movement." *HortTechnology*, 1992, pp. 272–275., doi:10.21273/horttech.2.2.272.

⁶ Beyl, Caula A. "Rachel Carson, Silent Spring, and the Environmental Movement." *HortTechnology*, 1992, pp. 272–275., doi:10.21273/horttech.2.2.272.

Rachel Carson Herself:

Clyde Haberman said about Rachel Carson: “The author Rachel Carson’s strike against the pesticide DDT turned her into both an environmental hero and a foil for those who believe regulation has gone too far. That fight is more relevant than ever.”⁷

Rachel Louise Carson(1907-1964), writer, scientist, and ecologist, grew up in the rural river town of Springdale, Pennsylvania.⁸ She realized the negative effects that DDT and many more pesticides had created against the environment and its surroundings and studied the effects on eagle eggs⁹ and other species. She was born to Maria Frazier (McLean) and Robert Warden Carson and had two siblings: brother, Robert Jr., and sister, Marian.¹⁰ She attended an all girls college in which she started learning about English, but then discovered her love for nature and biology. In college Carson studied English at the Pennsylvania College for Women in Pittsburgh, Pennsylvania. But she changed her major to biology after rediscovering her love for science. After she discovered the passion, Carson liked to educate kids on nature and explore it herself.¹¹ In 1966 Carson started Wildlife Refuge in Maine to protect migrating birds from DDT and other

⁷ Haberman, Clyde. “Rachel Carson, DDT and the Fight Against Malaria.” *The New York Times*, The New York Times, 22 Jan. 2017, www.nytimes.com/2017/01/22/us/rachel-carson-ddt-malaria-retro-report.html.

⁸“Learn about Rachel Carson.” *Famous Birthdays*, www.famousbirthdays.com/people/rachel-carson.html

⁹“DDT (Dichlorodiphenyltrichloroethane).” *Science Clarified*, www.scienceclarified.com/Co-Di/DDT-dichlorodiphenyltrichloroethane.html.

¹⁰ Gillam, Scott. *Rachel Carson: Pioneer of Environmentalism*. ABDO Pub., 2011.

¹¹ *Gillam*

pesticides.¹² Though she was not alive when this happened, it was one of her goals that she wanted to accomplish and as a result they did. There were also many more things that were made for the environment because she wanted to make the nature more beautiful again.

What Did DDT Do?

DDT in the environment takes about 2-15 years to decrease or vanish half of the way on land. On water it takes at most 150 years to disappear, DDT affects the heart and the brain for marine animals.¹³ DDT is highly toxic to fish, (which have very low skills to detect pesticides) frogs, toads, and salamanders.¹⁴ In 1962, *Silent Spring* became a natural best seller, it described what Rachel Carson had found in her research. If one animal consumed something with a pesticide then it would pass along all the way through the food chain.¹⁵ People who consumed amounts of DDT or other chemicals became sick and had a high possibility of having tremors, tumors, seizures, experienced sweating, headache, nausea, vomiting, dizziness¹⁶. When it got to the eagle the egg shells, they would become thin and break when the parent sat on them.¹⁷ If the birds ate the disease carrying mosquitoes, they would die and fall to the ground.¹⁸ and so on.¹⁹

DDT affected the nervous system by interfering with the normal human nerve impulses²⁰,

¹² Gillam

¹³ www.epa.gov/ingredients-used-pesticide-products/ddt-brief-history-and-status

¹⁴ www.epa.gov/ingredients-used-pesticide-products/ddt-brief-history-and-status

¹⁵ "DDT Accumulation in the Food Chain." *Annenberg Learner*, www.learner.org/courses/envsci/visual/visual.php?shortname=ddt.

¹⁶ www.epa.gov/ingredients-used-pesticide-products/ddt-brief-history-and-status

¹⁷ "DDT (Dichlorodiphenyltrichloroethane)." *Science Clarified*, www.scienceclarified.com/Co-Di/DDT-dichlorodiphenyltrichloroethane.html.

¹⁸ "Top Stories." *ENN*, 16 Nov. 2010, www.enn.com/articles/42009.

¹⁹ "Toxic Substances Portal - DDT, DDE, DDD." *Centers for Disease Control and Prevention*, Centers for Disease Control and Prevention, 21 Jan. 2015, www.atsdr.cdc.gov/phs/phs.asp?id=79 &tid=20.

²⁰ "DDT - A Brief History and Status." *EPA*, Environmental Protection Agency, 11 Aug. 2017, www.epa.gov/ingredients-used-pesticide-products/ddt-brief-history-and-status.

but with no pesticides, many people died because of the mosquitos. Many people ended up in the hospital because of the diseases and Rachel Carson went into action and was wondering into nature and writing *Silent Spring* that soon became a New York Times Best Sellers. To humans and animals, if DDT or other pesticides are eaten, they are toxic and affect the reproductive system. They put up danger signs around crops to inform people that there were chemicals being sprayed. Carson enjoyed discovering new creatures in the woods behind her house in Maine²¹, which lead to her finding out about the critical condition that wild life was in. People who consumed amounts of DDT or other chemicals became sick and had tremors, tumors, seizures, experienced sweating, headache, nausea, vomiting, dizziness and so on.²² Towns were fogged with the pesticide DDT to kill the mosquitos and polluted the air and water to at least try to help the soldiers.

While people did occasionally die from diseases that mosquitoes carried, many more were becoming sick and even dying from the effects of DDT. Because Rachel Carson was a woman, many people believed she was unqualified, a bad person, and that many of her studies were incorrect. When her book was banned, Rachel Carson began speaking to newspapers across the country about her book. While some people supported her, there were many scientists and others that went on television to discredit her, some even going so far as to call her a murderer. Even with all the obstacles she faced she still continued to fight for what she believed in and for what she believed was the right thing to do. Rachel Carson summed up her beliefs on this whole issue when she said, “The more clearly we can focus our attention on the wonders and realities of

²¹ Gillam

²² “Toxic Substances Portal - DDT, DDE, DDD.” *Centers for Disease Control and Prevention*, Centers for Disease Control and Prevention, 21 Jan. 2015, www.atsdr.cdc.gov/phs/phs.asp?id=79 &tid=20.

the universe about us, the less taste we will have for destruction.”²³

She Spoke Up:

In June of 1963, Rachel Carson testified to the Senate Government Operations Subcommittee about the fact that having dangerous chemicals sprayed in the air was affecting the environment in dangerous ways.²⁴ She appeared on television and she talked about *Silent Spring* and what she saw in her studies.²⁵ Once Rachel Carson went to a meeting with the Science Advisory Committee and they were talking about the threats that DDT and other pesticides were doing not just in the United States but to the world in general.²⁶ The EPA held seven months of hearings in 1971–1972, with scientists giving evidence for and against DDT. These hearings ultimately resulted in the ban of DDT.

A Partial Triumph for Carson:

“At the time of the DDT ban in 1972, 1 billion people were almost malaria-free. Within a few years, malaria cases had risen 10–100-fold. Over 40 years, estimates suggest that there have been 60 million to 80 million premature and unnecessary deaths, mainly children, as a result of misguided fears based on poorly understood evidence.” was in the *Nature* magazine by

²³ “Rachel Carson Quotes.” *QuotesGram*. *Get Motivated in the Pursuit of Happiness*, quotesgram.com/rachel-carson-quotes/.

²⁴ *Gillam*

²⁵ *Gillam*

²⁶ *Gillam*

scientists at universities in Great Britain and America.²⁷ However, during the middle of the 1950's people, farmers, hunters, and biologists were stating that there was chronic poisoning on livestock because of DDT.²⁸ They were also claiming that there was less animals that were being seen around which made the Department of Agriculture say that they would be more careful and as they said, "the least possible damage to wildlife..."²⁹ DDT was slowly being reduced, but there was still damage.

Carson had proven that DDT was determined to cause serious damage to the the environment and serious health problems as it piled up the fatty tissues in the human body, it caused various health problems in wildlife, and some of the insects were becoming resistant to DDT.³⁰ Some mammals exposed to DDT were at a higher risk of developing liver tumors.³¹ People on the other hand, most of the studies have shown that there is no signs of any cancer by using DDT, but still caused other problems. There are many different breakdowns in the human body including DDE, DDD, and DDA³² which still do harm to the environment very similar to the negative effects of DDT but not to humans. DDT does not create much of the damage to humans, but to the environment and the diseases that the mosquitoes carry harmed the people who happened to be unfortunate and get ill.

²⁷Ludwig, Hayden. "A Darker Shade of Green: The Great Apple Scare of 1989." *Capital Research Center*, Capital Research Center, capitalresearch.org/article/a-darker-shade-of-green-the-great-apple-scare-of-1989/

²⁸ *American Pests: the Losing War on Insects from Colonial Times to DDT*. Columbia University Press, 2012.

²⁹ *American Pests: the Losing War on Insects from Colonial Times to DDT*. Columbia University Press, 2012.

³⁰ www.epa.gov/ingredients-used-pesticide-products/ddt-brief-history-and-status

³¹ www.epa.gov/ingredients-used-pesticide-products/ddt-brief-history-and-status

³² www.epa.gov/ingredients-used-pesticide-products/ddt-brief-history-and-status

The Thoughts on and Opinions on the Book and Carson:

A senior editor, Edwin Diamond, wrote that Carson's book was scientifically incorrect and stated, "her arguments were more emotional than accurate."³³ Rachel Carson received threats and very sexist assumptions toward her while very few people actually trusted or knew Carson and her research. Diamond stated "What, finally, is *Silent Spring*'s game? If we were to believe Miss Carson's own description of our times — an era where the right to make an irresponsible dollar is seldom challenged — then the answer would be an easy one. But I believe this description, like so much else in *Silent Spring*, is an extravagant one."³⁴

There was a poem from John Keats called "**La Belle Dame sans Merci: A Ballad**" it talks about plants and nature slowly withers away and die:

"The sedge has withered from the lake,

And no birds sing.

O what can ail thee, knight-at-arms,
So haggard and so woe-begone?
The squirrel's granary is full,
And the harvest's done.

I see a lily on thy brow,
With anguish moist and fever-dew,
And on thy cheeks a fading rose
Fast withereth too..."³⁵

³³ Gilmore, Nicholas, and Diane Selkirk. "The Deafening Criticism Against Silent Spring | The Saturday Evening Post." *The Saturday Evening Post*, 27 Sept. 2017, www.saturdayeveningpost.com/2017/09/deafening-criticism-silent-spring/.

³⁴ Gilmore, Nicholas, and Diane Selkirk. "The Deafening Criticism Against Silent Spring | The Saturday Evening Post." *The Saturday Evening Post*, 27 Sept. 2017, www.saturdayeveningpost.com/2017/09/deafening-criticism-silent-spring/.

³⁵ Keats, John. "La Belle Dame sans Merci: A Ballad by John Keats." *Poetry Foundation*, Poetry Foundation, www.poetryfoundation.org/poems/44475/la-belle-dame-sans-merci-a-ballad.

Reaching the End of Her Life and the Beginning For *Silent Spring*:

DDT is still around in some places around the world, but its use was greatly decreased with the help of Rachel L. Carson. She was an early activist. She saved animals and the environment for the future that lies ahead. Since 1996, the EPA has helped other places control the use of DDT and other pesticides and pollutants to try to make a change our one Earth³⁶.

What made *Silent Spring* extremely important to us today and before is that it helped with people's knowledge about the serious dangers of DDT and other insecticides with what it was actually doing to our world and health. One woman, who wrote one book was one of the many important people to help with the environmental movement which changed the life of many people. Without her triumph, we would still be harming the environment and slowly killing ourselves with the process as well. As Rachel Carson, wrote in *Silent Spring*:

As crude a weapon as the caveman's club, the chemical barrage has been hurled against the fabric of life - a fabric on the one hand delicate and destructible, on the other miraculously tough and resilient, and capable of striking back in unexpected ways. These extraordinary capacities of life have been ignored by the practitioners of chemical control who have brought to their task no "high-minded orientation," no humility before the vast forces with which they tamper.³⁷

Unfortunately Rachel Carson had been battling cancer for some years while

³⁶ www.epa.gov/ingredients-used-pesticide-products/ddt-brief-history-and-status

³⁷ "A Quote from Silent Spring." *Goodreads*, Goodreads, www.goodreads.com/quotes/466160-as-crude-a-weapon-as-the-cave-man-s-club-the.

writing her book. She did not tell other people, other than her close family and friends about her illness even though she herself had known about this³⁸, she continued to fight. She had fear that if they found out they would have thought she was going mad. She still wanted to be involved in changing the environment so she hid it from everyone else. She most likely developed cancer because of all of the chemicals she was surrounded by during her studies. She died of breast cancer at the age of 56 on April 14, 1964. Though she did not live long enough to see the enormous changes she helped create, we can all thank her for her help. Carson's book and her loud, persistent voice proved that one woman could change history if you continue to fight for what you believe in is right and you don't let anybody bring you down.

³⁸ *Gillam*



The great expectations held for DDT have been realized. During 1946, exhaustive scientific tests have shown that, when properly used, DDT kills a host of destructive insect pests, and is a benefactor of all humanity. Pennsalt produces DDT and its products in all standard forms and is now

one of the country's largest producers of this amazing insecticide. Today, everyone can enjoy added comfort, health and safety through the insect-killing powers of Pennsalt DDT products . . . and DDT is only one of Pennsalt's many chemical products which benefit industry, farm and home.



GOOD FOR STEERS—Beef grows meatier nowadays . . . for it's a scientific fact that—compared to untreated cattle—beef-steers gain up to 50 pounds extra when protected from horn flies and many other pests with DDT insecticides.



KNOX FOR THE HOME—helps to make healthier, more comfortable homes . . . protects your family from dangerous insect pests. Use Knox-Out DDT Powders and Sprays as directed . . . then watch the bugs "bite the dust"!



KNOX FOR DAIRIES—Up to 20% more milk . . . more butter . . . more cheese . . . tests prove greater milk production when dairy cows are protected from the annoyance of many insects with DDT insecticides like Knox-Out Stock and Barn Spray.



GOOD FOR FRUITS—Bigger apples, juicier fruits that are free from unsightly worms . . . all benefits resulting from DDT dusts and sprays.



GOOD FOR ROW CROPS—25 more barrels of potatoes per acre . . . actual DDT tests have shown crop increases like this! DDT dusts and sprays help truck farmers pass these gains along to you.



KNOX FOR INDUSTRY—Food processing plants, laundries, dry cleaning plants, hotels . . . dozens of industries gain effective bug control, more pleasant work conditions with Pennsalt DDT products.



97 Years' Service to Industry • Farm • Home
PENNSYLVANIA SALT MANUFACTURING COMPANY
 WIDENER BUILDING, PHILADELPHIA 7, PA.

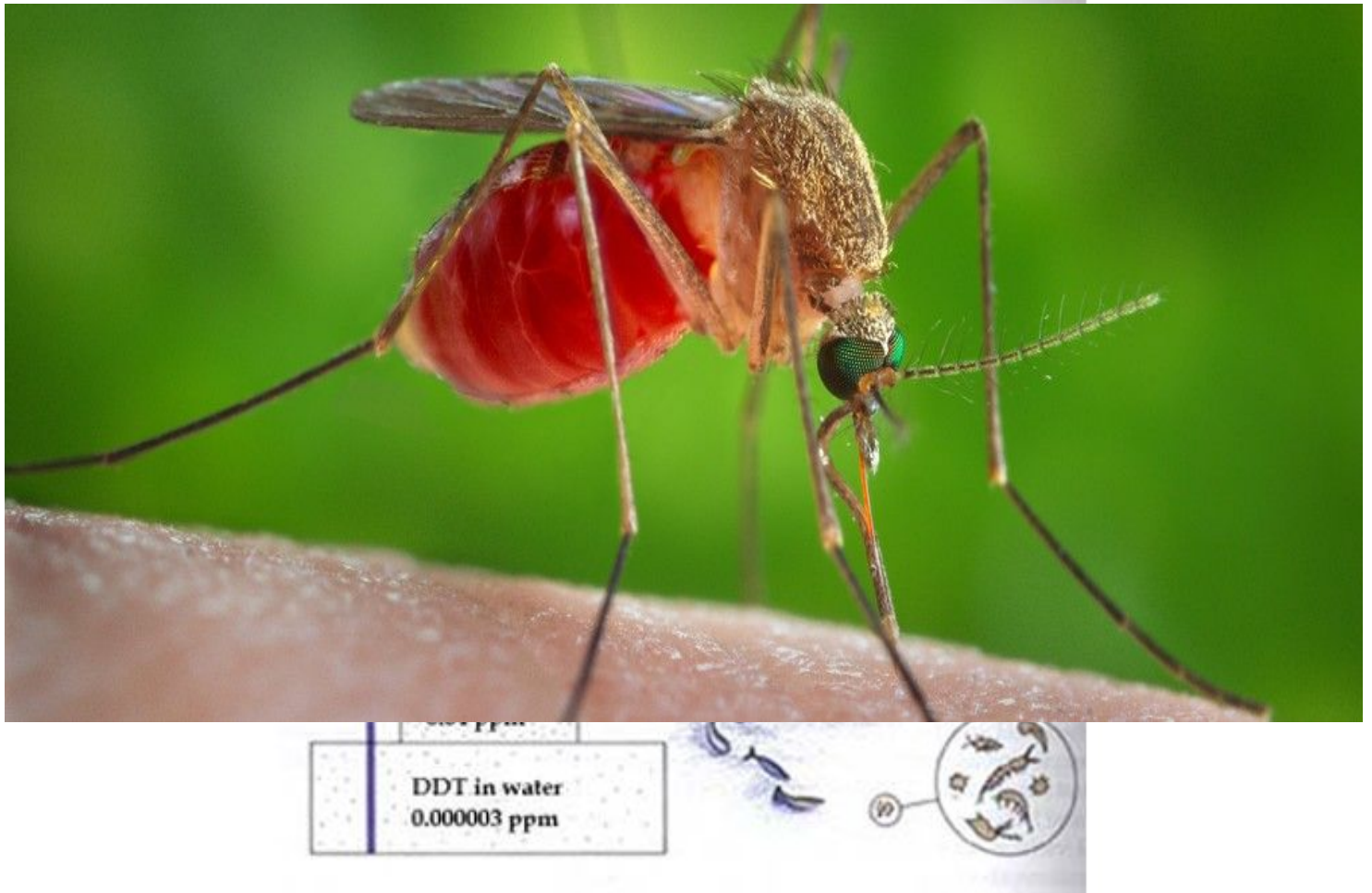
Spacemaker. "DDT Is Good for Me-e-e!" *Earthly Mission*, 22 Jan. 1917,

earthlymission.com/ddt-is-good-for-me/



Gallagher, James. "DDT: Pesticide Linked to Alzheimer's." *BBC News*, BBC, 28 Jan. 2014,
www.bbc.com/news/health-25913568.

"DDT Accumulation in the Food Chain." *Annenberg Learner*,
www.learner.org/courses/envsci/visual/visual.php?shortname=ddt.



“Figure 2f from: Irimia R, Gottschling M (2016) Taxonomic Revision of *Rochefortia* Sw.

(Ehretiaceae, Boraginales). Biodiversity Data Journal 4: e7720.

<https://doi.org/10.3897/BDJ.4.e7720>” doi:10.3897/bdj.4.e7720.figure2f.



“Before Writing 'Silent Spring,' Rachel Carson Was a Biologist.” *THE WILDLIFE SOCIETY*,
wildlife.org/before-writing-silent-spring-rachel-carson-was-a-biologist/.

Annotated Bibliography

Primary Sources

“A Quote from Silent Spring.” *Goodreads*, Goodreads,
www.goodreads.com/quotes/466160-as-crude-a-weapon-as-the-cave-man-s-club-the.

This is a quote from Rachel L. Carson. It talks about how DDT is as dangerous as a “caveman’s club” and it is very destructive. It also talks about how it is extremely dangerous and it will strike back when we least expect it.

“Before Writing 'Silent Spring,' Rachel Carson Was a Biologist.” *THE WILDLIFE SOCIETY*,
wildlife.org/before-writing-silent-spring-rachel-carson-was-a-biologist/

This image is a primary source. This is an image of Rachel Carson looking for animals. When she was a biologist she went out and looked for birds and other animals to record how many she saw.

“Bottle of DDT Pesticide.” *Science Source*, www.sciencesource.com/archive/-SS2421056.html.

This is a primary source. It shows how a bottle of DDT looked like back in the 1900’s. It was also really helpful because it also shows the things it killed and how they advertised it.

Carson, Rachel. *Silent Spring*. Penguin Books, in Association with Hamish Hamilton, 2015.

This source helped me because it showed me the research that Rachel Carson did about pesticides. She writes about what she saw and she studied the harm that DDT and other pesticides made towards the environment. This is the key to the triumph that Rachel Carson had with her environmental movement.

“DDT - A Brief History and Status.” *EPA*, Environmental Protection Agency, 11 Aug. 2017,
www.epa.gov/ingredients-used-pesticide-products/ddt-brief-history-and-status.

This resource was a primary resource. It was made by the EPA (which banned DDT). It showed general facts about DDT and the side effects. This also showed a short history about DDT and how it became to be.

“DDT (Dichlorodiphenyltrichloroethane).” *Science Clarified*,
www.scienceclarified.com/Co-Di/DDT-dichlorodiphenyltrichloroethane.html.

In this website, there was an image of Bald Eagle eggs that were broken and squished. This showed what DDT did to them when it was consumed by animals. The egg shells would become brittle and break when there was pressure put on them.

“Figure 2f from: Irimia R, Gottschling M (2016) Taxonomic Revision of Rochefortia Sw. (Ehretiaceae, Boraginales). Biodiversity Data Journal 4: e7720. <https://doi.org/10.3897/BDJ.4.e7720>.” doi:10.3897/bdj.4.e7720.figure2f.

This source was originally a secondary source, but there was an image that was primary. The image of the bug was a malaria carrying mosquito. This helped me because it showed me how the bugs looked like up close.

Gallagher, James. “DDT: Pesticide Linked to Alzheimer's.” *BBC News*, BBC, 28 Jan. 2014, www.bbc.com/news/health-25913568.

This was originally a secondary source, but the image was primary. It showed the planes that were spraying DDT. They sprayed it because they did not want pests to be on their food and crops.

“How Rachel Carson Transformed Our Relationship With The Natural World.” *Wisconsin Public Radio*, 24 Jan. 2017, www.wpr.org/how-rachel-carson-transformed-our-relationship-natural-world.

This source was a primary source. This showed Rachel Carson in a newspaper. She was on the newspaper because when she published *Silent Spring*, it was mostly all that it was talking about.

Keats, John. “La Belle Dame sans Merci: A Ballad by John Keats.” *Poetry Foundation*, Poetry Foundation, www.poetryfoundation.org/poems/44475/la-belle-dame-sans-merci-a-ballad.

This source was a primary source and it helped me with one of my sections. It was poetry and it made me visualize what was going on. It showed me how the United States was at that time.

Ludwig, Hayden. “A Darker Shade of Green: The Great Apple Scare of 1989.” *Capital Research Center*, Capital Research Center, capitalresearch.org/article/a-darker-shade-of-green-the-great-apple-scare-of-1989/

This source was a quote and was primary. The quote was talking about the number of people dying after DDT was banned. It also talked about who malaria was infecting many people for a while.

“Rachel Carson Quote.” *A-Z Quotes*, www.azquotes.com/quote/1056876?ref=silent-spring.

This is another quote from Carson. It talks about how DDT and other chemicals were polluting the world. The quote also said that we were slowly killing nature and it was irreversible.

“Rachel Carson Quotes.” *QuotesGram. Get Motivated in the Pursuit of Happiness*,
quotesgram.com/rachel-carson-quotes/.

This resource was a quote and a primary resource. This quote basically means that if we focus on nature and realize it is hurt, then we would not destroy it more. For me this is a really inspiring quote about nature.

Spacemaker. “DDT Is Good for Me-e-e!” *Earthly Mission*, 22 Jan. 2017,
earthlymission.com/ddt-is-good-for-me/.

This source helped me because it showed me an image of a newspaper that advertised DDT. It was used to tell people that DDT was good for people and the environment. There were many more, but this one specifically helped me see what people actually saw when DDT was being advertised.

“‘Silent Spring’ Rachel Carson!” *It Is What It Is*, 16 Apr.
2014, hrexach.wordpress.com/2014/04/16/silent-spring-rachel-carson/.

This resource was a quote that Rachel Carson wrote. It means that the people were consuming DDT and getting it inside of them. DDT can kill people and back then they were technically living with it.

“Top Stories.” *ENN*, 16 Nov. 2010, www.enn.com/articles/42009.

This source along with others was originally supposed to be a secondary source, but the image was primary. The image showed what happened to birds when they consumed DDT or other pesticides. The birds would just fall to the ground and die.

Secondary Sources

American Pests: the Losing War on Insects from Colonial Times to DDT. Columbia University Press, 2012.

This book is a secondary source. It talks about people claiming that there was things going wrong on their land. Some farmers claimed that there was less animals that were being produced and there was some poisoning on their crops.

Beyl, Caula A. "Rachel Carson, Silent Spring, and the Environmental Movement." *HortTechnology*, 1992, pp. 272–275., doi:10.21273/horttech.2.2.272.

This source was a good secondary source. It talked about how Carson influenced the environmental movement. It was a powerful case that changed us and the Nation that we are today.

"DDT Accumulation in the Food Chain." *Annenberg Learner*,
www.learner.org/courses/envsci/visual/visual.php?shortname=ddt.

This source was a primary source. It showed me how much DDT was in each animal in the food chain. This source also helped me know which animals are eaten by the other animals.

Gilmore, Nicholas, and Diane Selkirk. "The Deafening Criticism Against Silent Spring | The Saturday Evening Post." *The Saturday Evening Post*, 27 Sept. 2017,
www.saturdayeveningpost.com/2017/09/deafening-criticism-silent-spring/.

This was a secondary source that showed me proof about some things. The website was about a man named Edward Diamond and he was against Rachel Carson. He wrote things that made Rachel Carson seem wrong about her studies.

Gillam, Scott. *Rachel Carson: Pioneer of Environmentalism*. ABDO Pub., 2011.

This book is a secondary source, it talked about Rachel Carson's life. This source showed me facts and things that Carson did in her life. This source also helped me learn about Carson's life and how she became who we now know her as a person who helped in the environmental movement.

Haberman, Clyde. "Rachel Carson, DDT and the Fight Against Malaria." *The New York Times*, The New York Times, 22 Jan. 2017,
www.nytimes.com/2017/01/22/us/rachel-carson-ddt-malaria-retro-report.html.

This source was a secondary source. It helped me because it showed me the things that Carson did with her book *Silent Spring*. This also showed me the research that scientists

are doing today with the mosquitos.

“Learn about Rachel Carson.” *Famous Birthdays*,
www.famousbirthdays.com/people/rachel-carson.html

This source was a helpful secondary source. It showed me what Rachel Carson did before she was famous and her parents. It also gave me facts about her.

“Toxic Substances Portal - DDT, DDE, DDD.” *Centers for Disease Control and Prevention*,
Centers for Disease Control and Prevention, 21 Jan. 2015,
www.atsdr.cdc.gov/phs/phs.asp?id=79&tid=20.

This source was a very helpful secondary source. This source showed me the effects that DDT had on the human body. It also shows facts about DDT and other pesticides and how they came to be.