Pollution Prevention

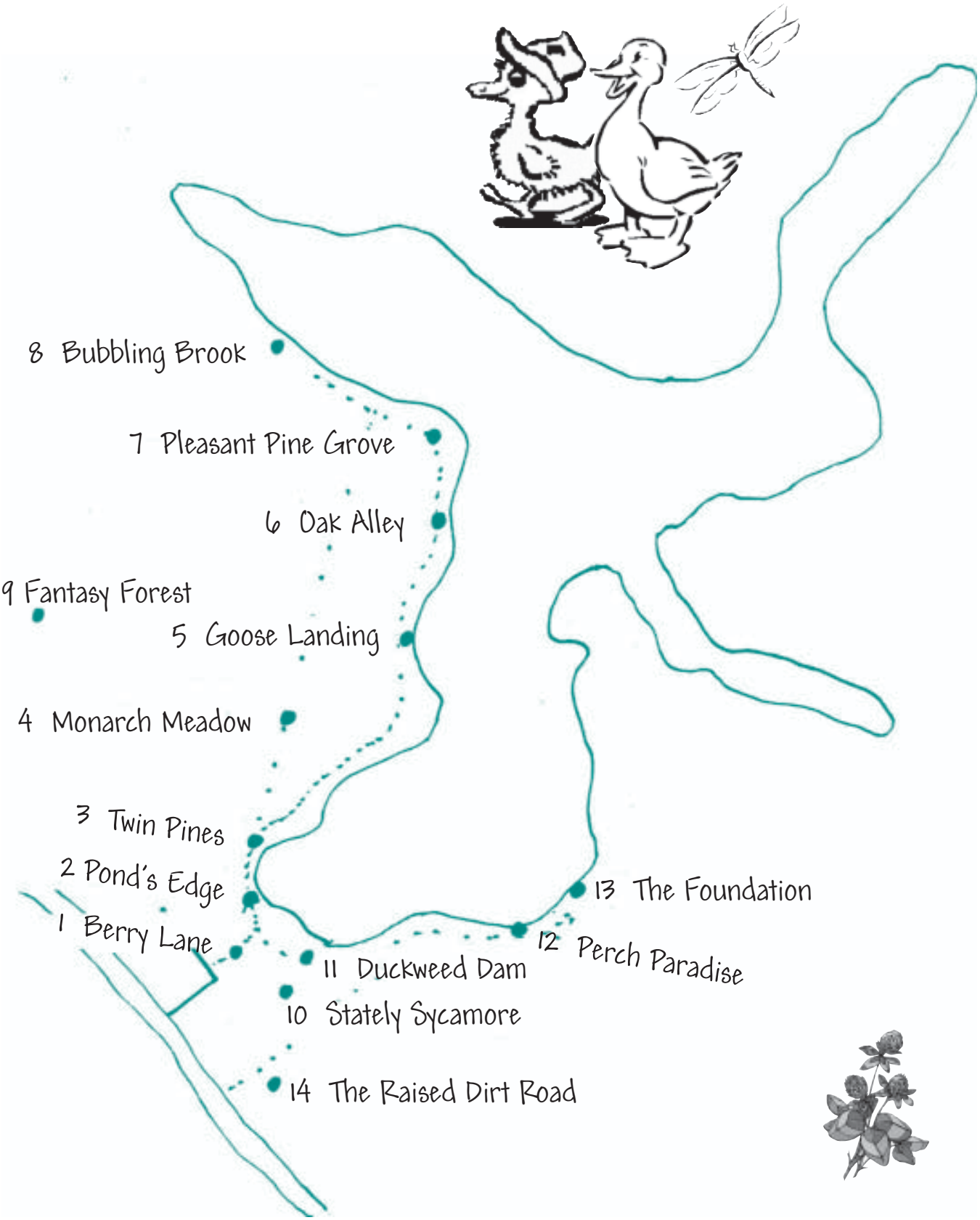
A Story of Carver's Pond Cleanup

By Michelle Lyn Haskins & Rebecca L. Romasco

Illustrated by Billie McGregor

Carver's Pond Ecosystem

Courtesy of Mrs. Paula Cantave • George Mitchell Elementary School, Bridgewater, MA



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This booklet has been printed using recycled materials.

Acknowledgements

We would sincerely like to thank the following people for their contribution to this story:

Raksmey Im for her creative assistance in the writing process.

Fawn Sances for including us in this project and for her efforts in preserving Carver's Pond.

We would also like to credit those who were a source of inspiration during the production of this story:

Paula Cantave is a second grade teacher at the George Mitchell Elementary School in Bridgewater, Massachusetts. For over twenty years, she has included Carver's Pond as an outdoor classroom. Many of the locations mentioned in the story, such as Perch Paradise and Monarch Meadow, are the products of her imaginative mind. We have deep respect for a woman who has enlightened so many young minds and has made a genuine effort to make learning both fun and interactive.

Mardy Murie, who passed away on Sunday, October 19, 2003 at 101 years old, was the inspiration for the character Mardy Duck. She was known to many as the "Mother of Wilderness" and spent most of her life campaigning to preserve nature in its purest form. She was known to welcome people from all over the world to her ranch, which became the center of the American conservation movement. Among her accomplishments are: the designation of the Arctic National Wildlife Refuge in 1960, the Wilderness Act signed in 1964 by President Johnson and the Alaska National Interest Lands Conservation Act signed by President Carter in 1980. She received many honors during her lifetime including: the Audubon Medal in 1980, the John Muir Award in 1983, the Robert Marshall Conservation Award in 1986, the Presidential Medal of Freedom in 1998 and the J.N. Din Darling Conservationist of the Year Award in 2002. Mardy led an exemplary life and will remain an inspiration to future generations.

"Simply put, Marcy Murie is a national treasure. Her life has made a certain kind of life possible for the rest of us. Generations to come will feel her imprint, though they may not know it was how she lived her life that allowed them to witness some of the last places on Earth. They may not know that it is because of her life that their souls and spirits can be fed by what is natural and wild." ..... Robert Redford

Introduction

Characters

Noah, the male scientist duck

Mardy, the female scientist duck

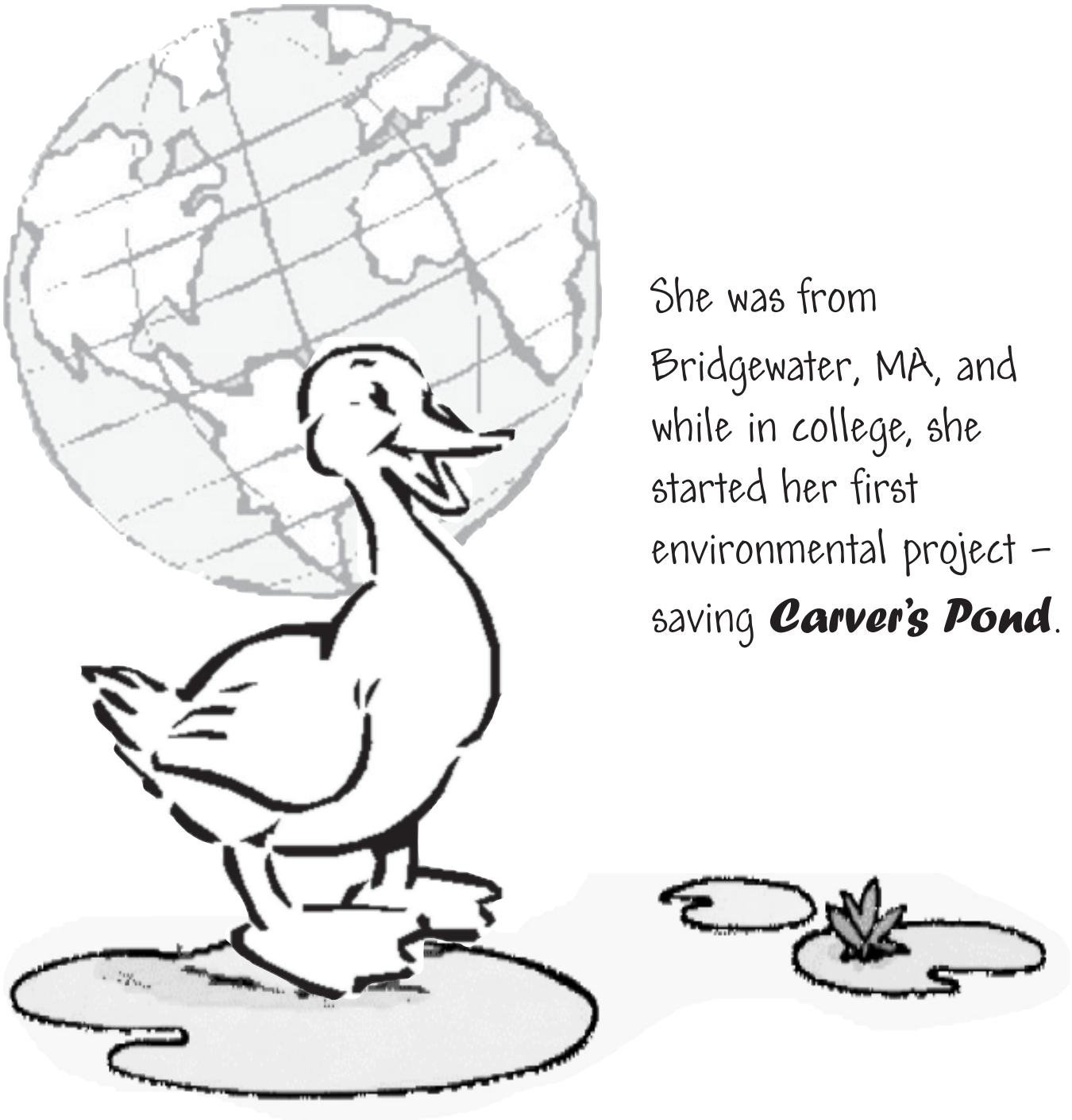
Alexandria, the female damselfly

Time: The future, 2050

Place: ***Carver's Pond***, Bridgewater, MA

Once upon a time, there was a female duck by the name of Mardy Duck.

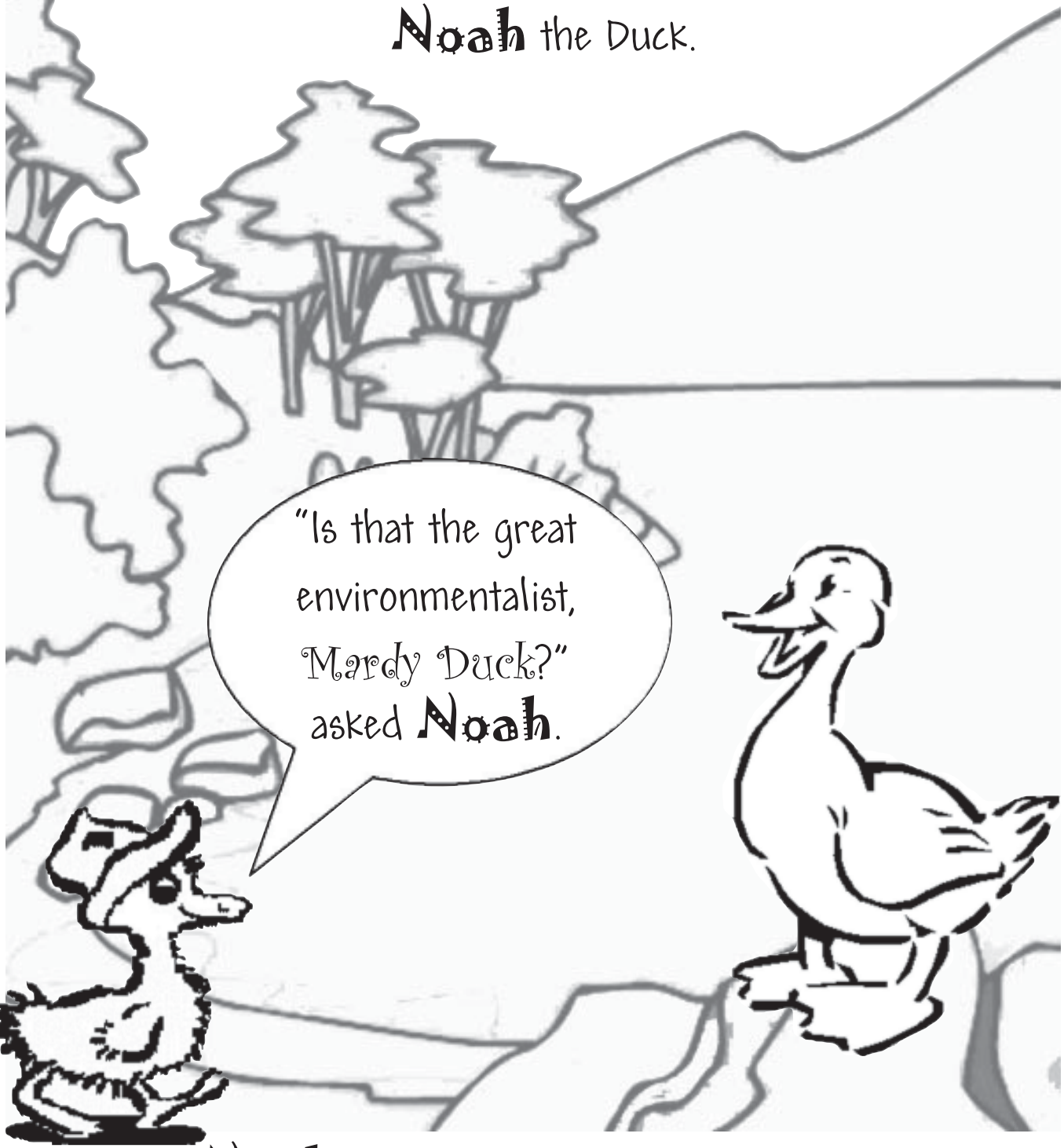
Mardy was a great scientist who traveled many lands to help save the environment.



She was from Bridgewater, MA, and while in college, she started her first environmental project – saving **Carver's Pond**.

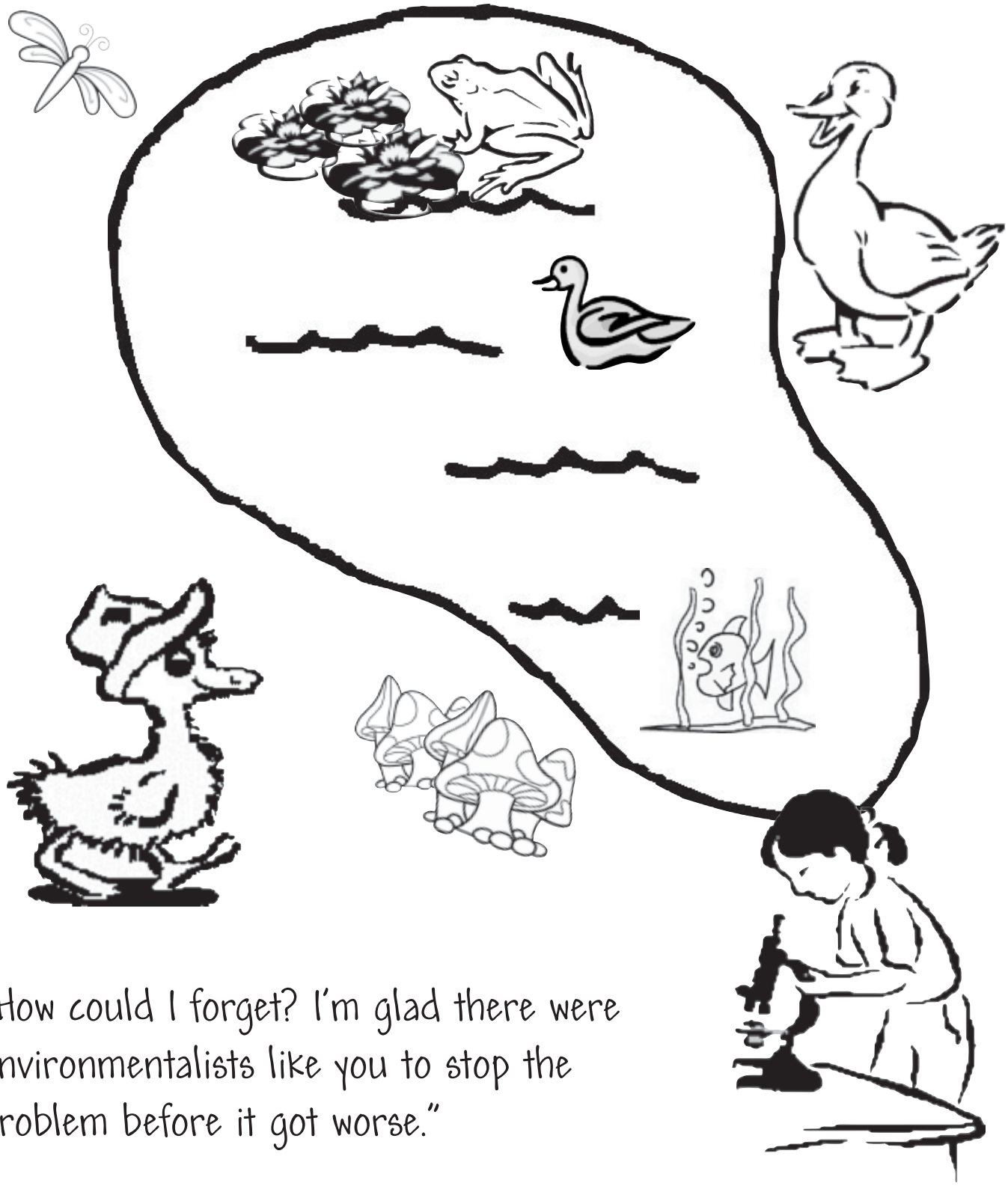
One day, she was sitting in a clearing, known to many as *Perch Paradise*, overlooking the pond that she had helped save, when she was greeted by her dear friend,

Noah the Duck.



"**Noah**! It's so wonderful to see you again. Come watch the sun set with me," replied Mardy.

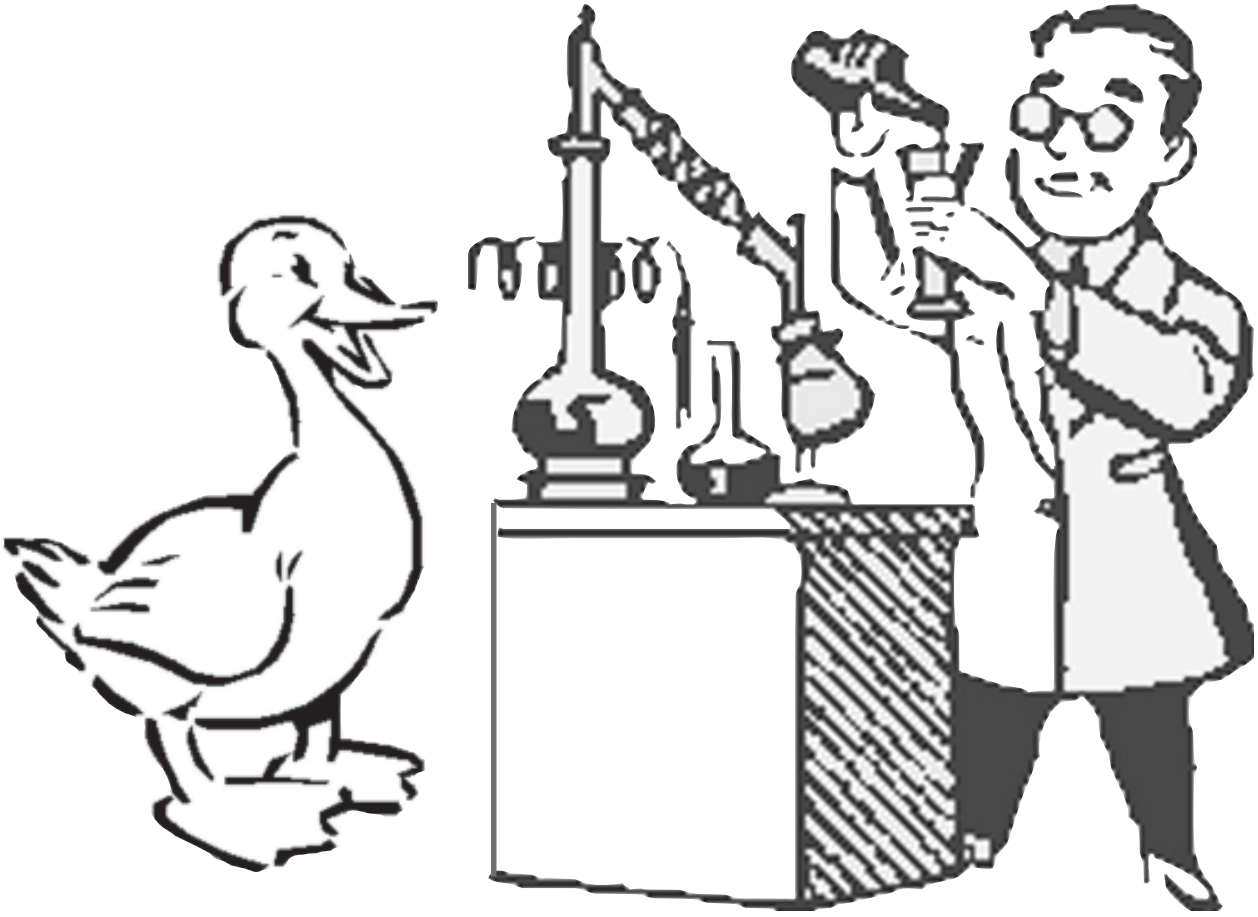
"I was just thinking of the shape this pond was in when we first came to college. Do you remember how bad it was?" asked Mardy.



"How could I forget? I'm glad there were environmentalists like you to stop the problem before it got worse."

"Well, I knew there was a problem when I noticed that the pond became cloudy in appearance.

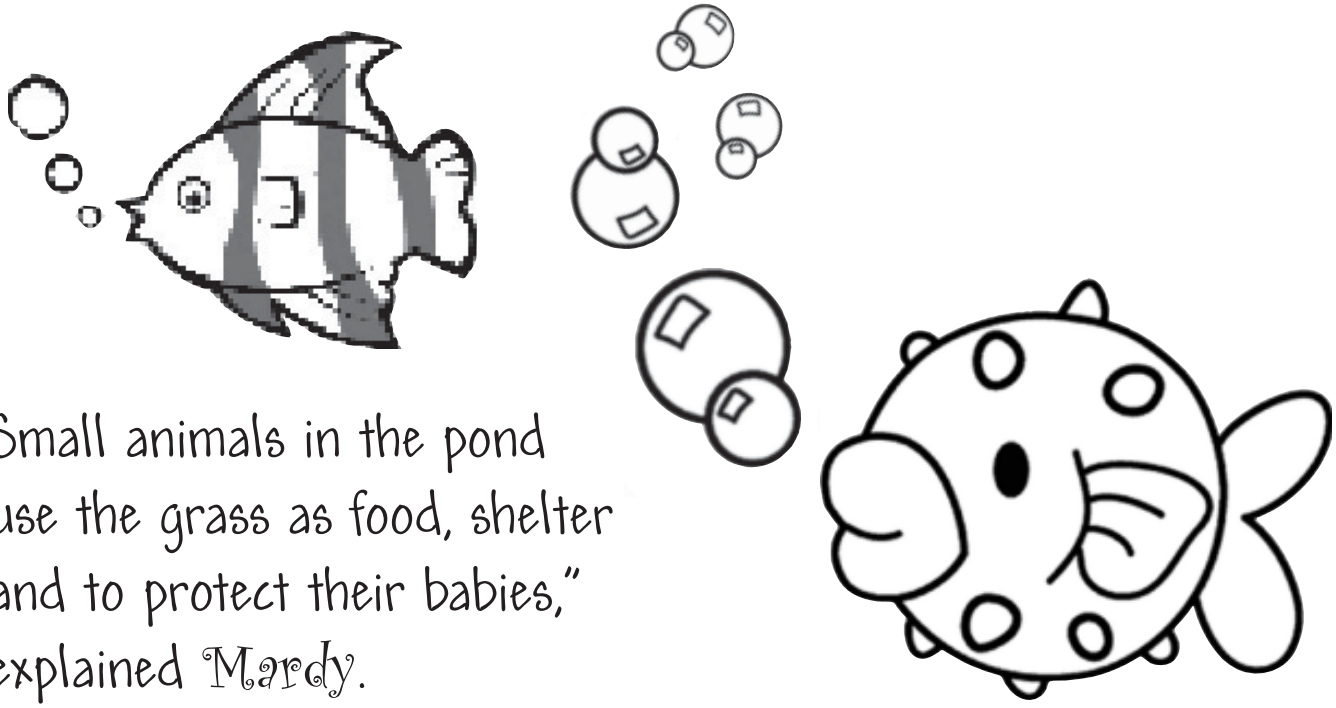
Upon investigation, I learned that this was because of **algal blooms**, which meant that too much algae was growing.



When I tested the water in my lab, I discovered that there were unusually high levels of **phosphorous** and **nitrogen** present," said Mardy.

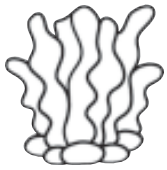
"I thought plants were good. Why is too much algae such a bad thing?" asked **Noah**.

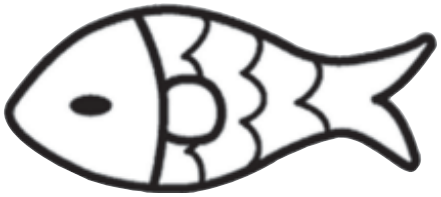
"Well, too much algae clouds the water and blocks the sunlight from helping underwater grass grow. If the underwater grass does not get enough sunlight, it dies.

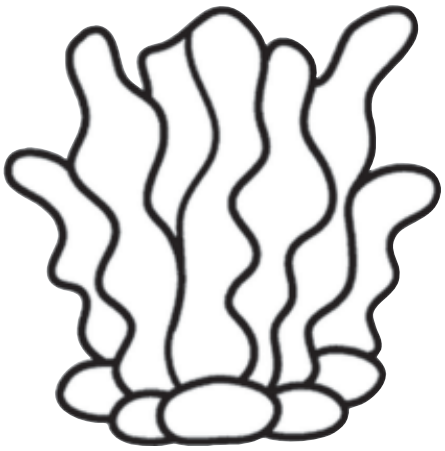


Small animals in the pond use the grass as food, shelter and to protect their babies," explained Mardy.

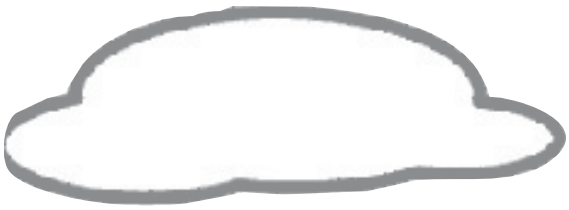
"Oh, so if the grass dies, the small animals are in danger?"

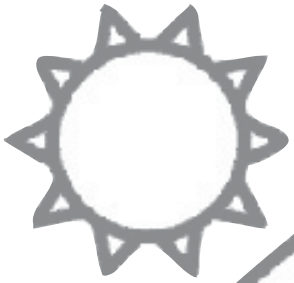




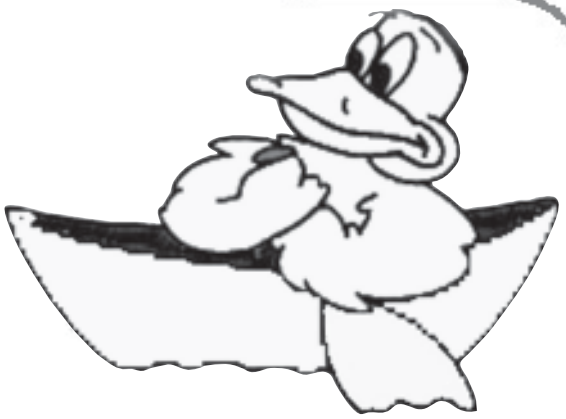


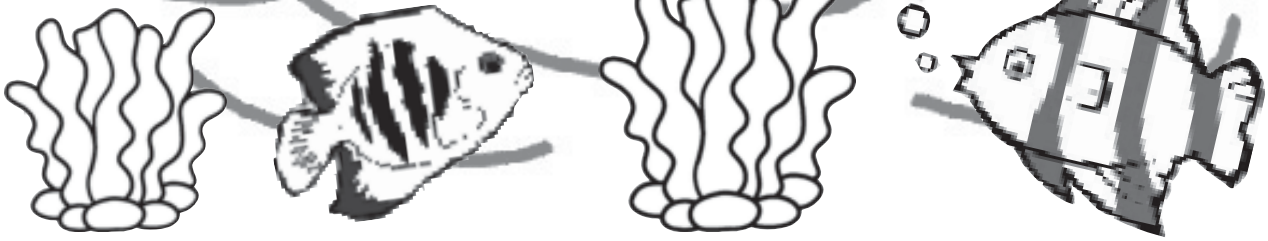
Mardy added, "Yes, but in addition, when the algae dies and **decomposes**, **oxygen** is used up and bigger pond animals, like fish, can't survive."





"Wow, that is really bad for everyone," said **Noah**.

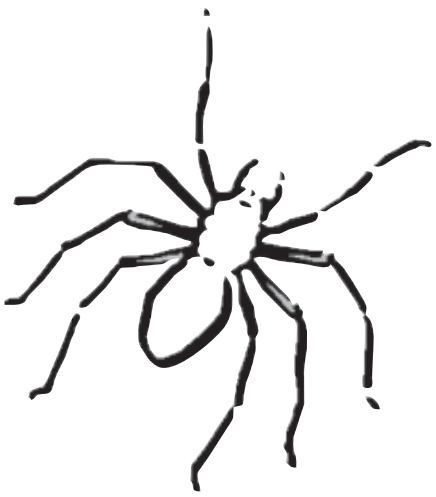


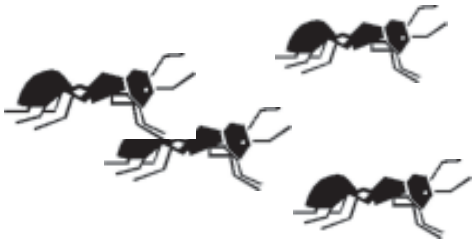


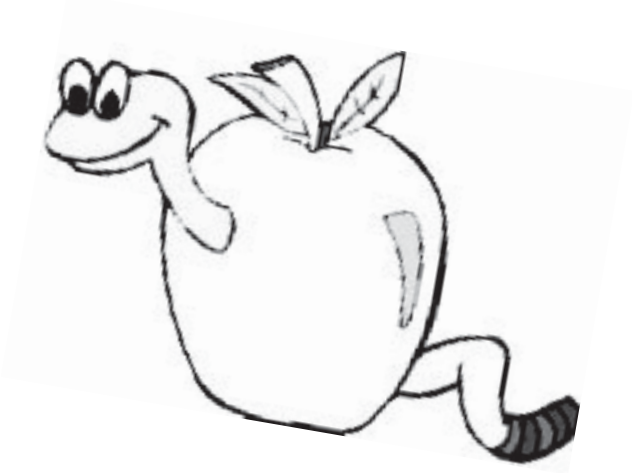
"Did you ever meet the **conservation ecologist** I worked with?" asked Mardy.

"Do you mean **Alexandria**, the **damselfly**?"

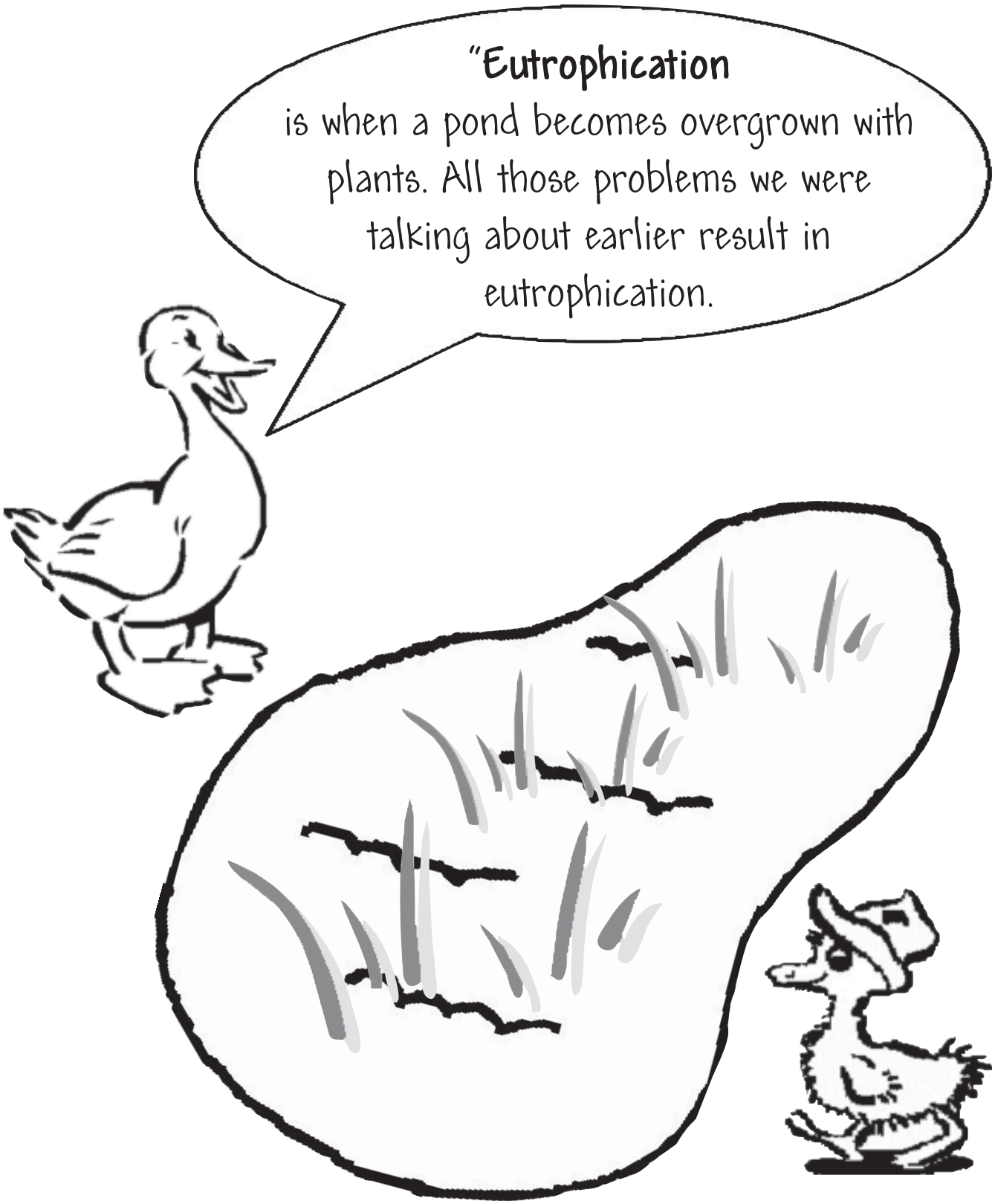
"Yes, she was very important to the project. She convinced many of the animals that live around the pond to help our cause. A lot of animals didn't know the meaning of eutrophication."








"Eu-tro-phi-
what?" asked Noah.



Don't get me wrong, **Noah**, it is a natural process. The problem is when this process, which is supposed to take thousands of years, happens much faster."

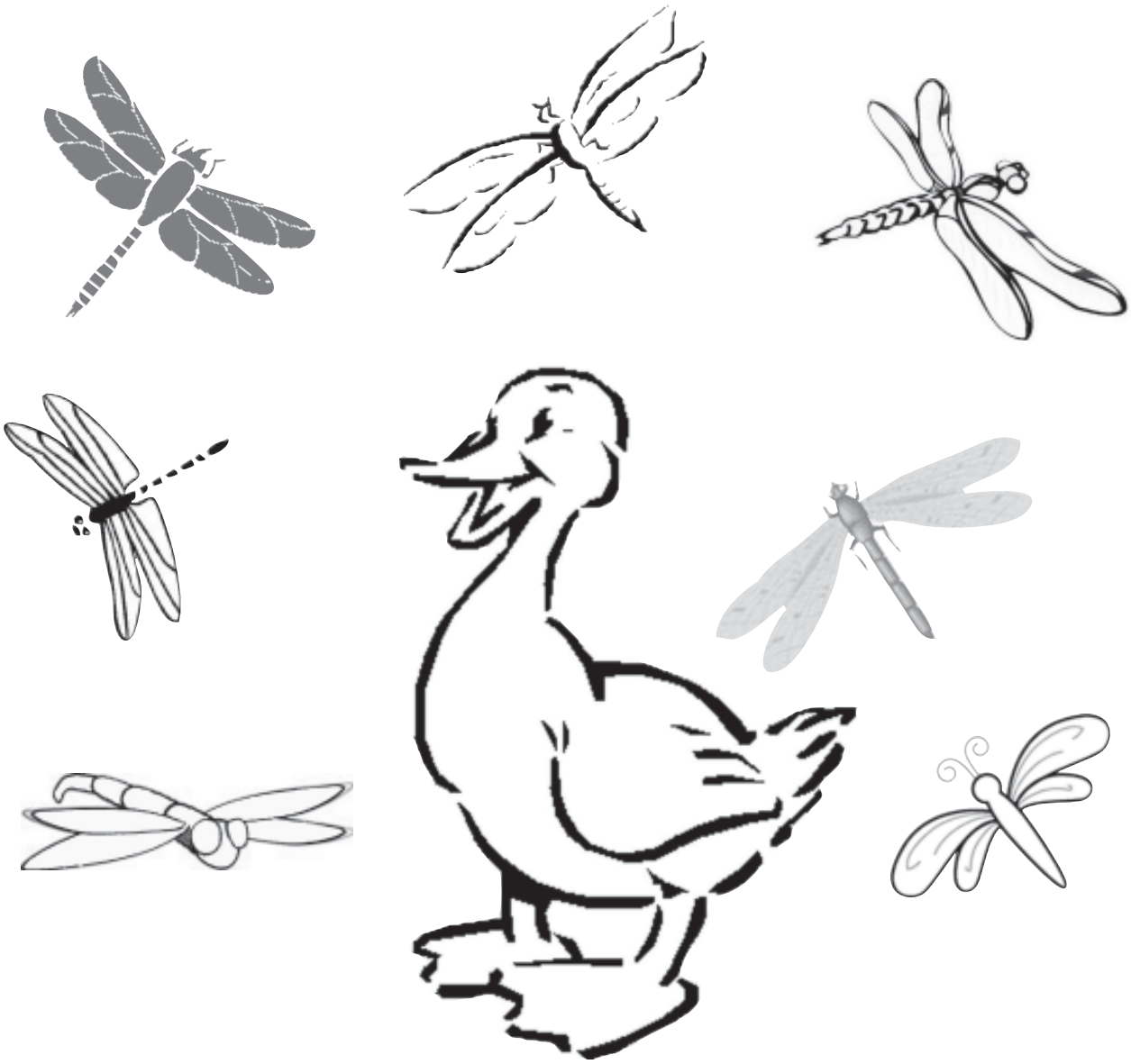
"If it is a natural process, then how does it speed up?"

"Things like lawn fertilizers, leaky septic systems, sewage runoff, animal waste and other types of pollution, all add high levels of phosphorous and nitrogen to the **watershed**.

Alexandria's family, which had lived in ***Carver's Pond*** for many generations, were driven out by the pollution."

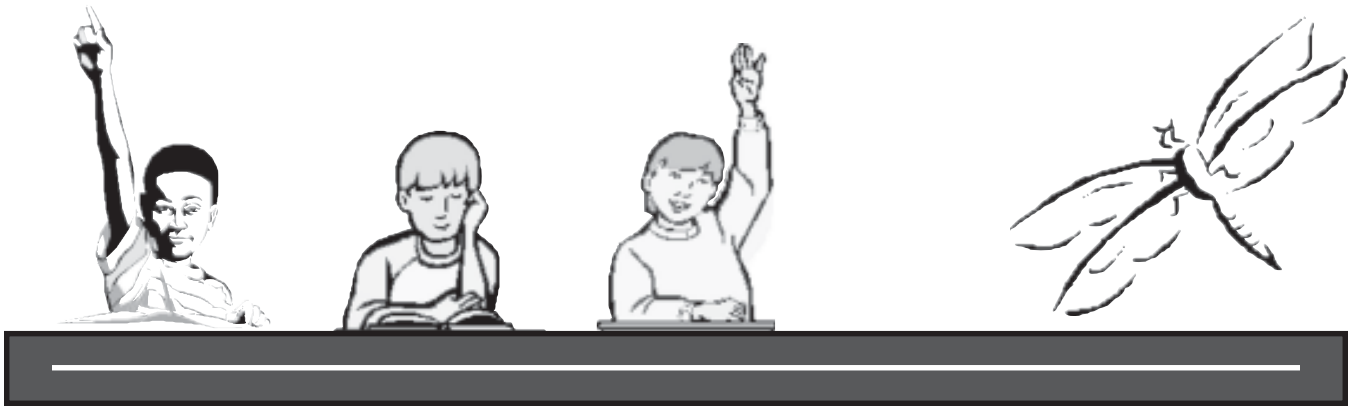
"But Mardy, I remember there were oodles of dragonflies living here when I was in college."

"There were dragonflies, but they were not the same species of dragonfly as **Alexandria's** family."



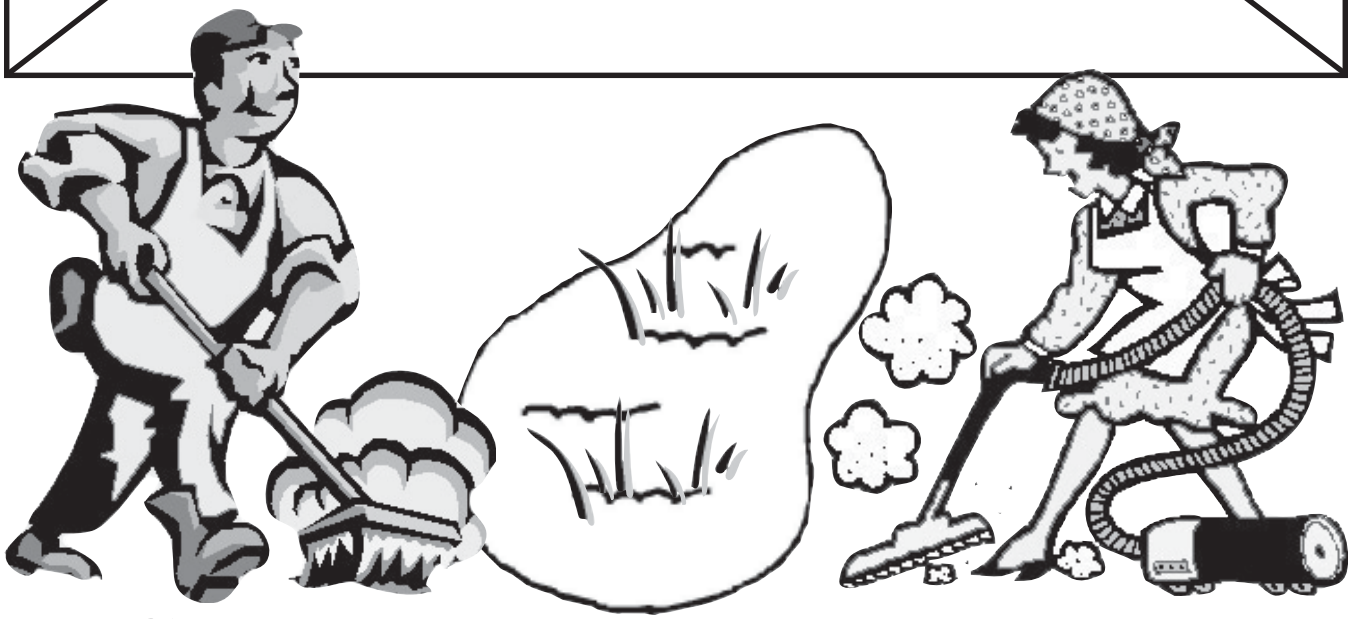
"What difference does that make? All species should be able to live together, Mardy."

"Well yes, they can coexist but when the environment changes so drastically, some families can't **thrive**."



POLLUTION PREVENTION

#1 - Clean up Neighborhoods around Carver's Pond

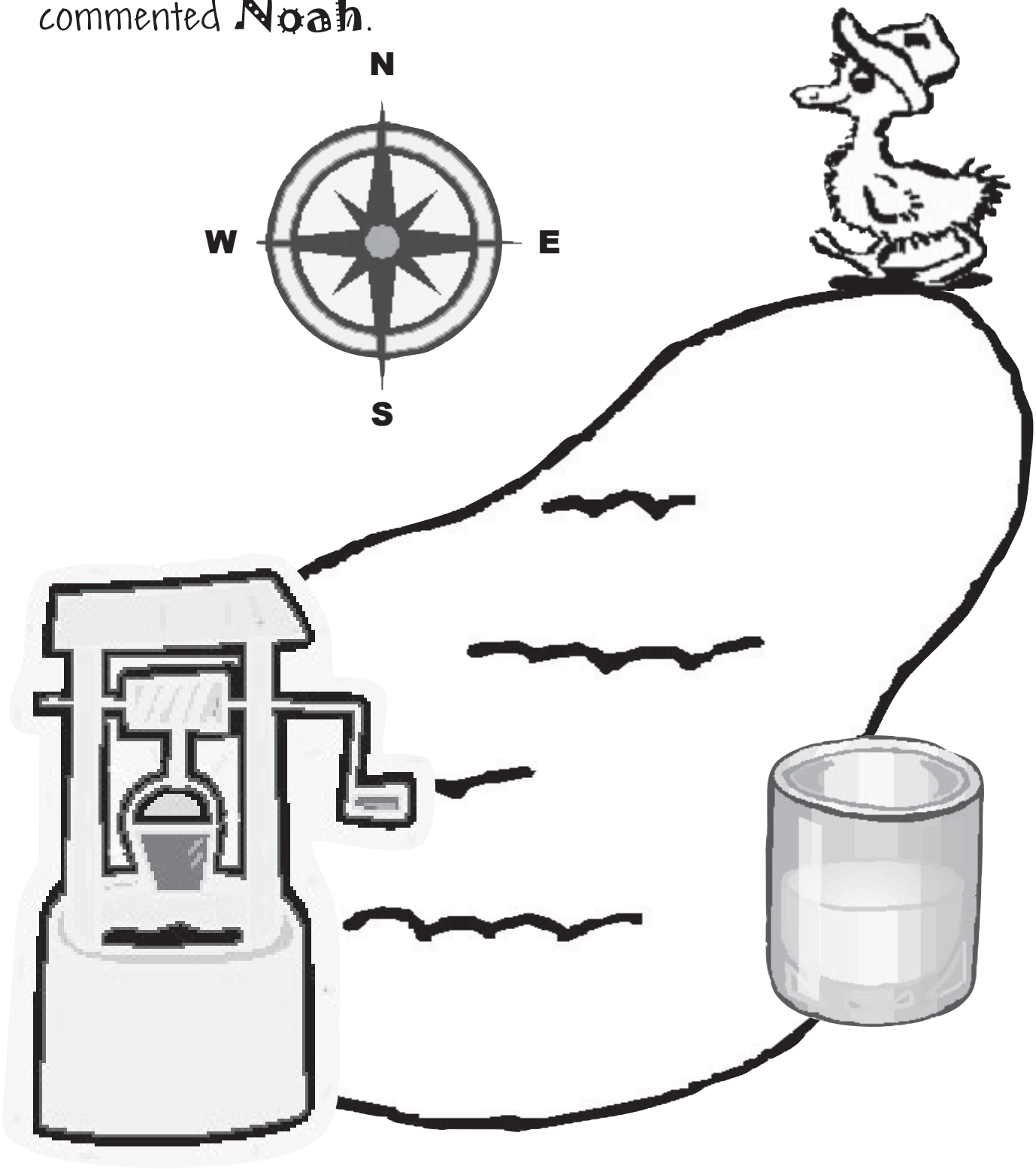


Alexandria was a great teacher and leader in the environmental campaign. She cleaned up neighborhoods around the pond so families could move back.

"Just cleaning the pond is not enough. **Pollution prevention** has to become a part of everyday life for *every* creature," explained Mardy.

"Yes, I know what you mean. I was involved in the cleanup of the watershed near my home. We focused on all of the areas that drain water into Boston Harbor," said **Noah**.

"I noticed a well on the southern end of the pond. Doesn't some of our community drinking water come from the water in the ground under **Carver's Pond,** called the **aquifer**? That means the watershed in this location must be really clean," commented **Noah**.



"Actually, Alexandria and I explored **Carver's Pond** and beyond. The Carver's Pond Watershed is part of the larger **Taunton River Watershed.** This adventure took us to 43 different towns around **Carver's Pond**.

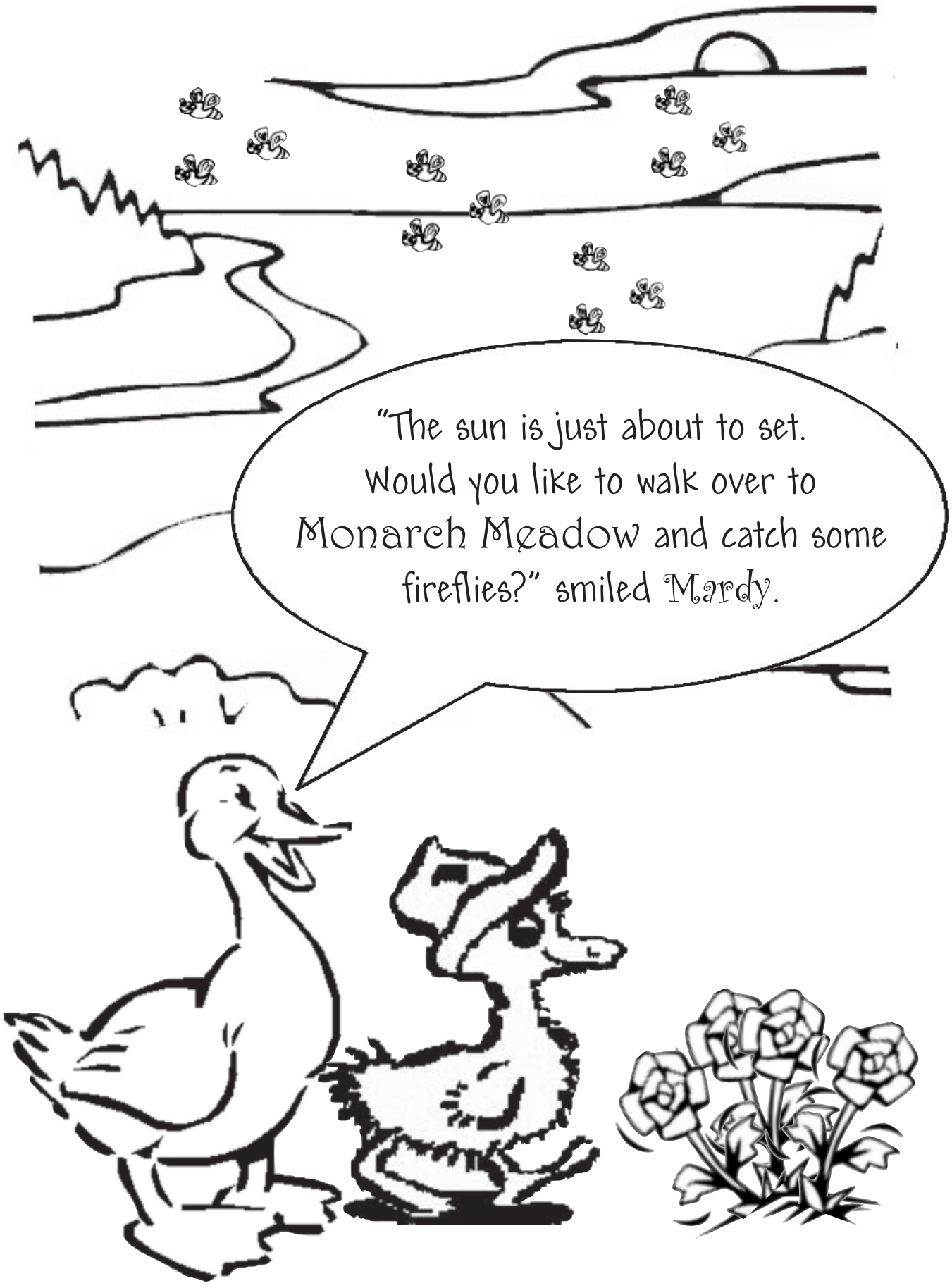
We went to Brockton, Taunton, Fall River, Attleboro and New Bedford.

I tested the water and soil for pollution, while **Alexandria** pushed for better protection laws."


"Did all this really make a difference?" asked Noah.
"Yes, all the towns now have pollution prevention committees whose sole purpose is to protect the watershed," responded Mardy.


"Mardy,
I was thinking. Are we going to get in trouble for sitting here on the bank of Perch Paradise?"
"No, Noah,
one of our goals was to make sure everyone could still enjoy Carver's Pond. We just have to follow rules while we are here."


"Well, that's good because I really enjoy it here," said Noah with relief.


"The sun is just about to set. Would you like to walk over to Monarch Meadow and catch some fireflies?" smiled Mardy.

The End

Glossary

Carver's Pond - A pond in Bridgewater, Massachusetts, that is the setting for this story.

Environmentalist - Someone who believes in a cause, such as the growth, development, and survival of organisms in a community.

Algal blooms - Algae or single-celled plants that grow very fast and cloud the surface of the water.

Phosphorous - An element found in nature, specifically in organisms, water, and rocks.

Nitrogen - An element found in nature as a liquid or gas and is important to organisms.

Decompose - When substances become broken down and decay.

Oxygen - An element that is found in nature in the air organisms breathe.

Conservation ecologist - Someone whose job involves working with communities to protect and preserve the natural environment,

Damselfly - The name for a female dragonfly.

Eutrophication - The process by which lakes or ponds get too many nutrients. As a result of eutrophication, small plants and algae grow too quickly and the water becomes clogged with vegetation.

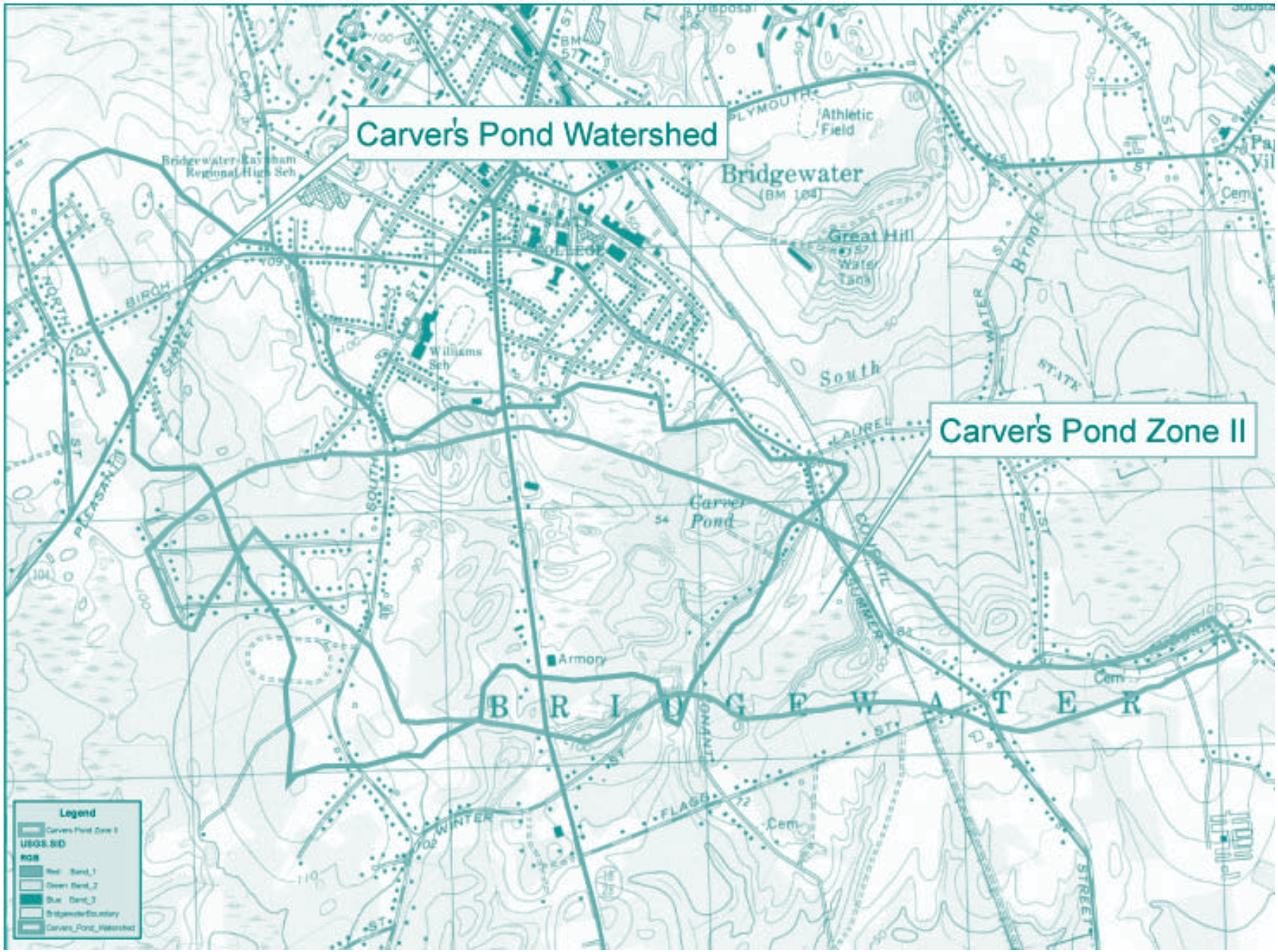
Watershed - The entire area of land that drains into a river or other body of water.

Thrive - To increase, flourish or succeed.

Pollution Prevention - Involves recycling, reducing, or eliminating wastes and also protecting natural resources by conservation.

Taunton River Watershed - Massachusetts' second largest watershed involving 38 cities and towns. This area includes: 221 lakes and ponds, 173 canoe-able river miles, 27 different habitat types, and the 16,800-acre Hockomock Swamp, which is the largest remaining wetland in Massachusetts.

This project has been financed partially with Federal Funds from the Environmental Protection Agency (EPA) to the Massachusetts Department of Environmental Protection (DEP) under a Source Water Protection Technical Assistance/Land Management Grant Competitive grant. The contents do not necessarily reflect the views and policies of EPA or of DEP, nor does the mention of trade names or commercial products constitute endorsement or recommendation for use.


Carver's Pond Watershed
Carver's Pond Zone II
Bridgewater
Athletic Field
Great Hill
Williams Sch
Carver Pond
Armory
B R I D G E W A T E R
Legend