

Beaver's Day Out



By Riddhika Parmar

Acknowledgments

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Chapter 1: Beaver Meets Mouse

It was a warm, summer evening, and Beaver was on his way to his **annual** summer job: fixing a **drought**. He was swimming down the Sacramento river, looking for a snack, when he passed an old friend.



“Hi Beaver!” exclaimed Mouse.

Mouse lived in her little burrow in the roots of a large **willow** tree by the river.

“Oh hello, Mouse. How is Sparrow doing today?” asked Beaver.

The elderly Sparrow lived in the branches above Mouse’s burrow. Recently, Sparrow had been suffering from the hot summer temperatures, and mostly chose to rest in the shade of the willow branches.

Mouse made sure to stop by Sparrow's house every morning to say hello.



Mouse sighed. “Sparrow was doing okay yesterday, but she woke up with a terrible headache this morning. Must be due to the heat today. You know it’s been getting hotter and hotter these days. Would you like to come in for a cup of tea?”

“Oh that is very kind of you, but I am trying to find a nice small area downstream with enough nearby trees to make a **dam**. The water level has been quite low, you know. See you later, Mouse.”

“Yup, you too! Good luck!” Mouse waved as Beaver again started down the Sacramento River.

Chapter 2: Traveling Down the River

As Beaver was making his way down the river, he happened upon Mole, who was doing what Mole did best — dig holes.



“Hi Mole! How is everything going?”

Mole peeped his head out of the new hole he was working on, and gave a friendly wave.

“Hi Beaver! I’m just clearing out some old **debris**. I’m having a birthday party in a few days, do you want to come?”

“Happy early Birthday Mole! I would love to come, but I’m very busy. I’m actually heading downstream right now to build a dam. I’ll see if I can make it

though!” And Beaver continued down the Sacramento River.

Soon, he realized that he was quite hungry, so he slowed his pace and **scoured** the river bank for his favorite meal.



He saw a willow tree, but it was definitely too big to eat. So he kept swimming. He then saw some **alder** trees, but he didn't feel like eating alder today. So he kept swimming.

Suddenly, he picked up a delicious smell, and Beaver followed his nose out of the river and into a nice shady grove of **aspen** trees, his favorite! He gnawed off the bark of one small aspen with his strong, orange teeth. His teeth were so strong and so orange because of the iron in his **enamel**. He munched on the **cambium**, or soft inside layer of the aspen bark, and then finished his meal with some **pondweed**. Once he had finished, he headed back to the riverbank, determined to find the perfect place for his new dam.

Chapter 3: Finding the Perfect Place

Beaver had a few requirements for his habitat.

First, he needed plenty of **deciduous** trees to be growing alongside the riverbank. These trees lose their leaves every winter, and grow new leaves in the spring. Beaver loved building — and eating — these sturdy trees.

Second, he needed a part of the river that would not be too deep, and would flow slowly.

Third, he wanted to find an area with relatively less **predators**. Since he was an **herbivore**, he didn't need to worry about picking an area with enough **prey**.

With these in mind, Beaver started surveying the river with renewed enthusiasm. He noticed a promising patch of slow-moving river, but there were not enough trees within easy reach.

A little farther down, he found a nice group of trees by the riverbank, but he noticed some scary footprints and decided to keep swimming.

Finally, Beaver noticed a small little creek that branched off from the river. As he swam through it, he realized it was the perfect place. It had lots of trees, a comfortable, steady water flow, and no signs of big animals.



The sun was starting to rise, and since he was getting tired (as all **nocturnal** creatures do when the sun begins to come up), he found a little hollow in the side of the bank and went to sleep.

Chapter 4: Building the Dam

Beaver woke up the next evening energized and ready to work. He **instinctively** knew what he had to do, so he started gnawing down a tree, and had it fall into the creek, creating the beginnings of his dam. He swam over to the other side and did the same, gnawing a tree down so that it would fall into the creek from the opposite end.

He then started chewing down medium sized trees near the creek and dragging the branches toward his dam.



Beaver took a quick break to eat some soft bark from one of his trees, leaving the rest of the tree perfect for construction. Then he got back to work, **felling** trees.

He was glad that the trees he cut down would grow back within the next ten years — his cutting technique included leaving cuts in trees that would eventually **coppice**.



After collecting plenty of materials, Beaver knew he was too tired to finish the whole dam, so he roughly placed some of his materials in place, and went to sleep.

The next evening, it was time to complete the dam. Beaver collected pawfuls of mud and packed it between branches, patting down his structure regularly to make sure it was secure.



Alternating branches with mud, he slowly built the dam up, adding rocks, grass, sticks, and anything else that would fill holes. He wanted to make sure that his dam would not leak, because he did not like the sound of running water. Finally, Beaver was done with his dam! He proudly gazed at his hard work, and decided to turn in for the day, as the sun was starting to rise.



Chapter 5: Creating the Lodge

Although Beaver had finished his dam, there was still plenty of work to do. The dam would help control the water level in his new pond, but Beaver could not live in his dam, so he needed to build a **lodge**.

Beaver woke up and started collecting more materials for his lodge, similar to what he used to make his dam.



He gnawed down some trees and built his home in a **conical** shape. To insulate his lodge, he patted on lots of mud, grasses, sticks, and stones.

Beaver wanted to make his lodge as durable as possible, so that he could protect himself from any predators. And, he included an underwater entrance, so that no one could enter his home from above ground.

He also built in a little gap in the top of his lodge, to cool his home through the hot summer days.

After completing his lodge, Beaver took a moment to reflect on his last few days. He was glad that over time, his environment would naturally fight drought and become a **firebreak**, thanks to his dam.



Chapter 6: Mole's Birthday Party

Beaver then realized that Mole's birthday party was the next day. Beaver went to bed in his new lodge, preparing for the swim ahead.

Beaver woke up a little earlier and started out for Mole's house. Beaver was so excited that he would be able to make it to the party, and he thought of a birthday gift that he could get for Mole while he was swimming.



Beaver remembered that earthworms were Mole's favorite, so he swam to the river bank and searched for some.

He tried digging since he knew he was very good at digging, but he just couldn't find any. So he tried looking near tree roots, but he didn't find any there either.



Finally, he tried lifting up a big log, and beamed as he started collecting all the earthworms there. He **hollowed** out the end of a tree branch and put the earthworms inside, then continued swimming until he reached Mole's place.

“Hi Mole, Happy Birthday!” exclaimed Beaver. “This present is for you! There’s a surprise in the branch.”

Beaver handed the very excited Mole the branch.

“Thanks Beaver! Come inside.” Mole motioned Beaver to come into the burrow, which was decorated with pretty leaves and fireflies.



Inside, Beaver saw Mouse and Sparrow chatting, and he joined them at the earthen table.

“Hi Beaver, nice to see you again!” said Mouse. “How has your new dam been going?”

As Mole sat down to join everyone, Beaver told the whole story, from finding the perfect place, to building his dam, to making his lodge.

“That’s amazing Beaver, how did you get all that done in just a few days?” asked Sparrow.

“I don’t know, it’s just **instinct**,” replied Beaver, who really knew how to build what he needed without ever having seen it done before.

After talking and laughing with his friends for a while, the sun began to rise again, and Beaver knew it was time to go home. He said goodbye to his friends, wished

Mole a Happy Birthday once more, and set out to go rest in his very own new home.

Glossary:

alder - a type of tree from the birch family that has toothed leaves

annual - every year

aspens - a type of tree from the poplar family with leaves that shake in the wind

cambium - a soft layer between the bark and the wood of a tree

conical - in the shape of a cone, where the bottom is a circle and the top is a point

coppice - to cut a tree to ground level so that it can grow again

dam - stops water from flowing to increase water level

debris - pieces of dirt, rock, and other trash

deciduous - when a tree loses its leaves every year

drought - when an area does not have rain for a long time, so there is less water

enamel - the outer layer of teeth

felling - cutting down trees

firebreak - an area that can stop fires, like open space or land with a lot of water

herbivore - an animal that only eats plants

hollowed - to dig or clear out a hole

instinct - a natural reaction or behavior that occurs without thinking or learning

lodge - for beavers, a structure that they build to live in and raise their kids (kits)

nocturnal - becoming active at night

pondweed - a plant that grows in water

predators - an animal that eats other animals to survive

prey - an animal that is eaten by other animals

scoured - searched very carefully

willow - a tree with long, thin leaves and bendy branches that grows near water

About the Author

Currently a student in Mechanical Engineering at the University of Illinois Urbana-Champaign, I grew up in Fremont, California and studying beavers has long been my passion that developed into a personal project. I became fascinated by beavers (nature's engineers) in first grade when I read a book and started watching beaver documentaries. I was amazed by beaver dams and lodges but shocked that some humans tear down dams and consider beavers as rodent pests.

Nevertheless, research demonstrates the positive impact of beaver ponds and dams. Beaver dams are massive structures woven with bark and twigs from trees that beavers fell themselves. The longest beaver dam (over two thousand feet) shows how hardworking beavers are. I love the beaver's engineering aptitude and industriousness.

Beaver ponds represent new ecosystems containing marvelous biodiversity, with algae and aquatic plants, that form the foundation for an enormous, interconnected food web. Although beaver ponds were believed to be detrimental to salmon populations, since dams impact salmon migration, recent research proves that beaver ponds increase salmon population. Since the water flows slower and temperatures are cooler, beaver dams protect juvenile salmon, and their survival rate further increases with the food that is available to them in beaver habitats.

Beavers can mitigate the effects of climate change. Beaver dams increase the water level within beaver ponds, storing water during droughts and reducing fire destruction by creating natural fire barriers. Their dams also stabilize the water flow in streams and reduce flood destruction. In fact, California, Oregon, and Washington legislators are pursuing laws to help restore beavers, due to the many benefits that beavers offer to the environment.

After observing beaver habitats and talking with naturalists, I knew I wanted to help everyone (especially young children) realize how beavers benefit our environment. Through Girl Scouts, I focused my sustainable Gold Award project on beaver awareness and restoration.

I hope you learned something interesting about beavers from this book! If you did, please take a moment to fill out this google form:

<https://forms.gle/bMu2yP4d1pbxMVSG6>

If you have any further questions, feel free to reach out at chopstochomp@gmail.com. Thank you!

- Riddhika Parmar