The Adventures
Of
Pebble Short-Bottom
Book One
The Journey to Broken Hills
Wes Olson ©
2020

Introduction

As I drove to my new job in southern Saskatchewan, the wind-scoured plains flowed past my car window in an endless series of barren valleys, interspersed with bleak and desolate hilltops. The snow-covered landscape seemed incredibly inhospitable to me; a stranger to this prairie landscape. I felt slightly lost in this vast, treeless land and, despite my career as a Canadian National Park Warden I felt a little intimidated: small perhaps.

The region in and around Grasslands National Park is one of the last remaining mixed-grass prairies on the continent. This ecosystem is vanishing at an astonishing rate; faster than that of the Amazon or the Antarctic ice shelf. It only remains intact because the harsh climate and its remoteness make it a difficult place for even the hardiest of ranchers and farmers to make a living. There are few new ranchers here; only those who have survived the harsh realities of living on the prairie for many generations.

So it was with some trepidation that I arrived, began my new position as the manager of the Park's recently re-introduced bison population; and gradually, ever-so-slowly became first accustomed to, then enamored with the stunning beauty and haunting loneliness of the northern mixed grass prairie.

As I became more knowledgeable about the prairie environment, and as I began to understand how incredibly fragile the prairie is, I found myself wanting to pass along this new appreciation to those who may not have been here; or to those who had and felt like I did when I first arrived.

I knew that a captivating tale, with a unique suite of characters would be the best way to capture a new audience. I also knew that trying to find a publisher for a book on the science of prairie ecology was going to be difficult, especially for the audience I was writing for. I wanted the information in the book to be as scientifically credible as possible, yet written in a style that would be entertaining and hard to put down.

I wanted to produce a book that would captivate young minds, and entice old ones to visit the area for the first time; to place into some clarity the incredibly complex and vibrant web of life that exists here; thriving, yet unseen, unknown.

And so I wrote "*The Adventures of Pebble Short-Bottom*". This is the story of Pebble, a Richardson Ground Squirrel (more commonly referred to as *a gopher*), and his life and adventures with a small band of Black-tailed Prairie Dogs. I use these fascinating animals as a vehicle to transport the reader into the lives of the wildlife species that struggle to survive on the Plains. By telling their stories in this way the reader is subtlety, almost accidentally educated about prairie ecosystems, their diversity, complexity and fragility.

Pebble has always been an outsider; an orphaned ground squirrel living in a city of prairie dogs. Harassed by many of the larger dogs around him, he stayed near his home burrow and with

the few friends he had made. Pebble's simple life was changed forever when he *heard* the thoughts and evil intentions of a hawk as it prepared to dive upon an unsuspecting prairie dog. His alarm signal sent everyone in the vicinity waddling to safety in their burrows. It also had all eyes directed at him for what he had done; what had never been done by a gopher before; foretell the approach of danger. Only very rare and venerated dogs had this ability.

His ability to read the thoughts and intentions of others soon brings him to the attention of the city leaders, and they place upon him a task so huge it almost overwhelms little Pebble. He, and a select group of friends, must travel far away from the City of Crocus Butte, in search of the prairie dog's vilest enemy – the black-footed ferret.

His companions on this trek are his best friends, Sandstone Quivertail and Foxglove Brokenclaw, the local herbalist Juniper Clayback, and a huge and forbidding prairie dog named Flint Twitchtail to act as their guard and protector.

The manuscript is broken into three "books". Each begins with a short introductory chapter where Pebble, now an ancient and venerated gopher who seldom leaves his burrow, reflects upon the past and his role in the events that shaped the city around him. I wrote the books with relatively short and discrete chapters. Chapters that can be read to a child at bedtime or by an adult who wants to learn more about the incredible wildlife and vast landscapes of the northern mixed-grass prairie.

If I was successful, the reader would drive a long and lonely road somewhere on the Northern Great Plains, and gaze out the car window at a landscape that is not bleak and barren, cold and inhospitable. Instead they would yearn to walk upon the prairie and feel the soft sponginess of native grasses after a rain, hear the trilling song of a meadowlark on an early spring morning. Smell the pungent sage and feel the prick of a cactus thorn. They would want to stop and go for a walk in the flickering light of a Thorny Buffalo Berry Forest, hear the heart-stopping rattle of a prairie rattle snake; listen to the trickle and gurgle of the Frenchman River as they sit in the shade of ancient willows. Or, if they are very lucky, see and hear and especially smell a herd of plains bison as they graze quietly across the undulating prairie.

I confess that I am not sure to which genre the book belongs. The closest similar book I can find is Richard Adams "Watership Down". They are similar in that both books revolve around a group of animals who leave their homes and travel through dangerous lands in search for something, but "The Adventures of Pebble Short-Bottom" is written primarily as a vehicle by which I transport the reader into the lives and life histories of some rare and truly beautiful creatures. I want to educate and fascinate the reader about the prairie landscape, and to do this through a captivating tale.

I plan to have three editions; 1 – The manuscript without the footnotes for the casual reader: 2 – the manuscript with footnotes for those who want to understand grassland ecosystems, and 3 – an illustrated edition, with examples of the flora and fauna drawn.

BOOK ONE: The Journey to Broken Hills

TABLE OF CONTENTS

Crocus Butte	…….	6
1. Granite and Pebble Have an Adventure	…….	9
2. Juniper the Herbalist	…….	17
3. Pebble Hears a Voice	…….	21
4. The Comitium and Pebble's Interrogation	…….	26
5. Pebble the Foreteller	…….	29
6. Flint Twitchtail Gets a Job	…….	34
7. Pebble Returns Home	…….	37
8. A Rude Awakening	…….	41
9. Sandy and Buffalo Snot	…….	51
10. Sandy Goes to Get Pebble	…….	54
11. The Journey to Sandy's Burrow	…….	58
12. Pebble Discovers a Snake	…….	62
13. A Meeting of Foretellers	…….	68
14. Pebble Talks to the Buffalo	…….	72
15. The Plague	…….	77
16. A Journey is Planned	…….	80
17. Departure Morning	…….	82
18. Into the Licorice Forest and Beyond	…….	87
19. At the Coulee Rim	…….	93
20. Onto the Buffalo Road	…….	100
21. A Long First Day	…….	105
22. The Lone Tree	…….	112
23. The Old Bull	…….	116
24. Cottontails	…….	121
25. Into the Valley	…….	126
26. A Gathering of Sharp-tails	…….	132
27. Flint's Unexpected Battle	…….	137
28. The Silver Sage Flats	…….	143
29. The Thorny Buffalo Berry Forest	…….	148
Glossary	…….	151
References cited	…….	162

Crocus Butte

A soft, warm breeze blew gently across the plains where the city sprawled. Under a sky as wide as the universe, and as blue as a Forget-me-not blossom, the city of Crocus Butte covered the prairie like a huge, polka-dot blanket. The sun moved behind a series of small clouds and dappled the town with shifting shades of shadow and sunlight.

Crocus Butte sprawled across the flat top of a plateau, just above the steep and convoluted walls of Lizard Valley. The city was generally flat but sloped gently from east to west. Far to the north side of the city, the land sloped up to a steep-sided knoll. This then dropped down into a small coulee, which in turn led down into Lizard Valley.

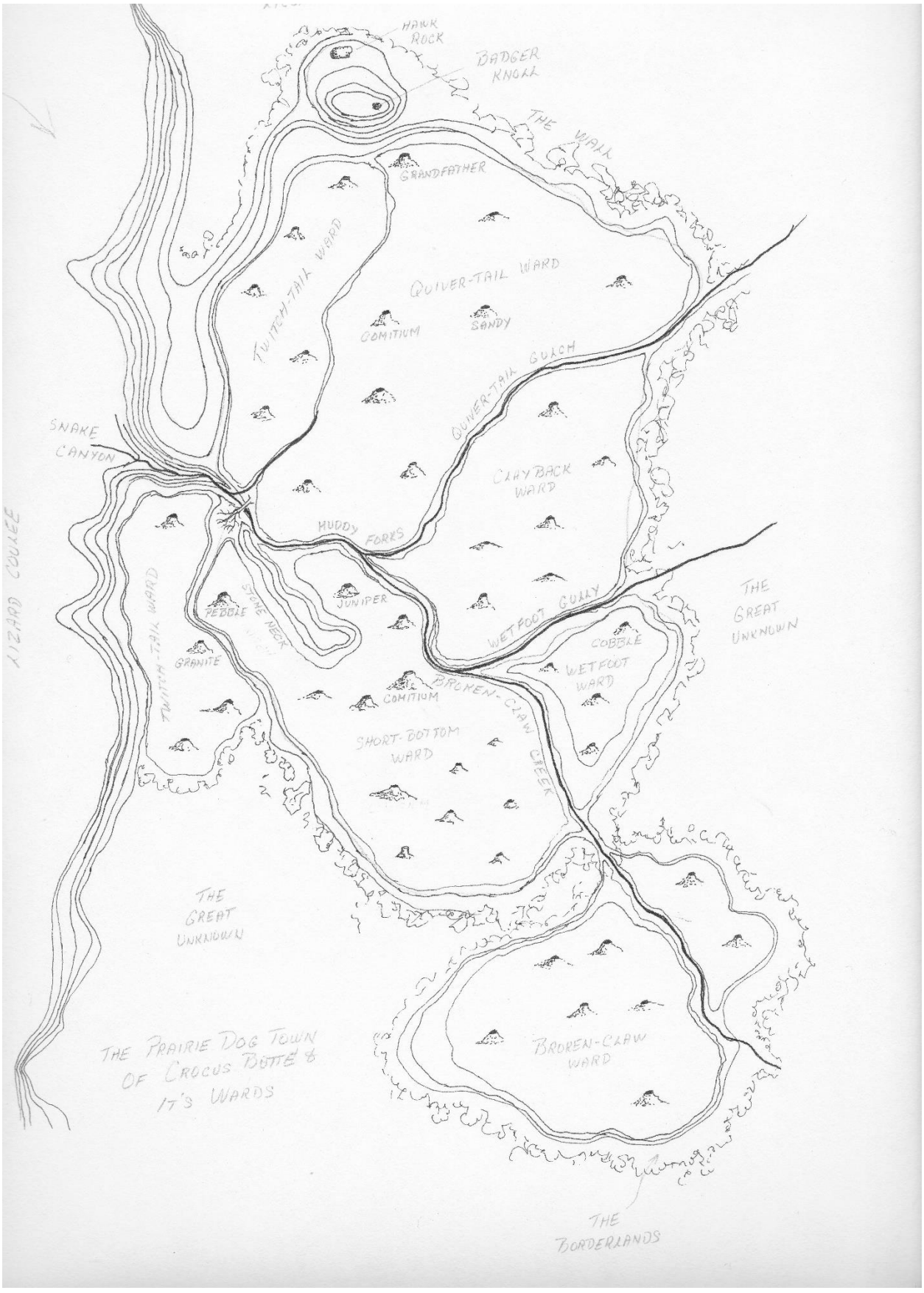
On the surface, the city was an interconnected maze of streets, alleys, sentry mounds, and tunnel entrances. What could be seen of the city was only the surface layer of a vast subterranean network of tunnels that led to a variety of chambers. These contained apothecaries and root cellars, nurseries and maternal chambers, classrooms, nest and storage rooms, and vaulted halls capable of holding hundreds of assembled prairie dogs.

From his vantage point high on a knoll above the city's northern edge, the tiny, wizened old ground squirrel lay on his belly and dozed under the warm afternoon sun. His once-lustrous light brown fur was now gray and threadbare. Patches of hair were missing in places, his spring molt not yet complete. His long tail was wrapped around his hips for the meager warmth it could provide. The breeze ruffled his fur from behind, lifting it gently and laying it back down again, then did the same to a nearby patch of buffalo grass before continuing across the town. He shuffled a little, to find a calmer spot on the south side of his mound, then settled quietly again.

Pebble Short-Bottom lay on his thin belly, front paws tucked neatly under his chest; he struggled to stay awake and to keep his chin from resting on the rim of the tunnel mound. With half-closed eyes, he drifted in and out of sleep. Thoughts as light as thistledown floated through his mind. Sometimes they were clear and razor-sharp, at others faint and dim. On occasion, a random thought would snag on some particularly sharp memory, the way thistledown seed would catch on the sharp barb of a needle-and-thread stem. There it would germinate, and he would remember events that had occurred before the majority of the citizens in the city below were born. It seemed like yesterday, but at the same time, it could have been a million years ago. Time had a funny way of flickering, dappling his mind with shadows like the clouds passing above. Of changing somehow, the older he became. It was becoming difficult to separate the events of yesterday from those of ninety years ago.

More than a century had passed since he first tried to visit this knoll, and what a day that had been. As he thought back to those days, his tiny head became weary and he let it drop softly onto

the dry dust on the burrow mound, closed his clouded old eyes, and drifted off to sleep. And dreamed once more of long ago and far away.


HAWK ROCK
BADGER KNOLL
THE WALL
GRANDFATHER
TWITCH-TAIL WARD
QUIVER-TAIL WARD
COMITIUM
SANDY
QUIVER-TAIL GULCH
SNAKE CANYON
CLAYBACK WARD
MUDDY FORKS
WETFOOT GULLY
THE GREAT UNKNOWN
JUNIPER
PEBBLE
STONE NECK
GRANITE
COBBLE
WETFOOT WARD
BROKEN-CLAW CREEK
COMITIUM
SHORT-BOTTOM WARD
THE GREAT UNKNOWN
BROKEN-CLAW WARD
THE PRAIRIE DOG TOWN OF CROCUS BUTTE & IT'S WARDS
THE BORDERLANDS

Chapter 1

Granite and Pebble Have an Adventure

It was just after their noon meal when Pebble Short-Bottom and Granite Twitchtail, a neighboring black-tailed[1] prairie dog decided to run away together.

The idea came while they were resting on the side of a sentry mound after a particularly tiring game of tag-you're-it, which ended when another pup twisted her paw and had to quit. Granite rolled over on his back, with his head pointed downhill and said: "Hey, Pebble, have you ever been outside of the Ward?"[2] Pebble looked at him like his brain had flowed out through his ears and down the slope. Not able to see any gooey brains in the dust below Granite, he concluded that his friend was merely suffering from heat and exhaustion. "No, of course not," he scoffed. "Why would I leave the Ward?"

Even as he said this, he felt gloriously free at the idea of escaping the confines and claustrophobia of the tunnels. He knew he wasn't supposed to leave the Ward, but the more he thought about it, the more compelling the idea became.

Granite continued to gaze upside-down at the world around him. He burst into a snoring giggle when old Mrs. One-Toe walked by, upside-down. She glared at him, but kept on her way without saying anything other than "Pups!", and shaking her head, adding "tut, tut," under her breath.

They were at the very northern tip of Stone Neck, a narrow rise of land that lay roughly central to the great City, between the Twitchtail Ward to the west, the Quivertail Ward to the north and east, and the Short-bottom Ward to the south. It was one of the oldest parts of the city, with the first settlers digging their burrows near where Pebble now lived. The Neck's

[1] The Black-tailed prairie dog (*Cynomys ludovicianus*) is central to this book, and central to the ecology of the plains. Once numbering in the tens of millions, in colonies that cover more than 1000 square miles, they have been reduced to scattered populations throughout their historic range.

[2] All prairie dog towns are divided into Wards or districts. These are often determined by one or more landscape features, where all residents are genetically related. (Hoogland, 2006). They avoid inbreeding through four principle means; 1. Young males leave before they are ready to breed, but young females remain in the ward, 2. An adult breeding age male may leave the coterie before his daughters are old enough to breed, 3. If her father is in the coterie, a female is less likely to come into estrous, and 4, an estrous female usually avoids mating with a son, brother or father, if they are in her coterie (Hoogland 1982).

slightly raised elevation gave them a good view of the city and the mountains which lay far to the west and south.

Still, upside-down, Granite continued, “Why? Because, Pebble, I’m bored and there must be something to do out there. Let’s have us an adventure and go see that knoll. I bet we could see the entire world from up there!” he exclaimed. He rolled over onto his belly and sat up onto his plump little rump, then almost fell over, slightly dizzy from having spent too much time in an upside-down world.

Pebble lay just inside the sentry mound rim, chin resting on the dusty packed soil, arms splayed out to either side. He didn’t lift his chin as he spoke and little tendrils of dust rose with each breath, floating languidly into the hot still air. “It’s too far and I’m tired. Let’s just stay here and sleep.”

Granite sat with his back to Pebble, still gazing over the top of the city at the distant knoll. “No, really. Let’s go. What harm is there in going for a walk? [3] We can be back before supper time, and no one would know the difference. Come on, Pebble. Please. Let’s go see what’s up there.” Granite looked over his shoulder at Pebble and pleaded in a whiney little bark which quickly got under Pebble’s skin like an annoying beggarticks seed.[4]

Pebble lazily squirmed his way to the edge of the tunnel mound, chin still resting on the ground. He looked down the slope at the back of his friend below him. Granite and Pebble had been born within minutes of each other, but in different nests and of different mothers. Pebble’s nest was on the east side of the boundary between the Short-Bottom Ward, and Granite’s was just across the other side, to the west, in the Twitchtail Ward. Pebble’s parents were ground squirrels while Granite’s were black-tailed prairie dogs. Despite their obvious differences, it hadn’t taken long, once they were permitted out of their nests, for the two pups to discover each other and to become close friends.

Pebble lay there for a moment longer, then sat up and surveyed the world around them. Everywhere he looked, prairie dogs were busy. The entire city seemed to be above ground this afternoon and the laneways seethed with activity. Sentries sat on guard throughout the city,

[3] What’s the harm? Well lots actually. Prairie dogs that intrude upon one another’s territories do so at their own risk, and on occasion may be seriously injured or even killed for doing so. Pregnant or lactating females can be particularly aggressive in defending the area around their nursery burrow. While young males like Pebble and Granite do move around, and some disperse long distances, brief forays out into the world like they are planning are dangerous. (Hoogland 2006).

[4] The beggartick (*Bidens cernua)* is common in low lying; moist areas in the Canadian Prairie Provinces, but it would be rare to find it near a prairie dog town. They have retrorsely barbed awns on their seeds which cause them to stick to the fur of wildlife, and thus be spread (Looman and Best, 1979). Wait a minute, *retrorsely*? A neat word that simply means, “To be turned down or back.”

watching the skies for hawks and eagles. Dogs foraged for food, went from place to place on important business, or just lay and basked in the warmth of a glorious spring day.[5]

He looked around. "What the cocklebur[6]?" he thought. "Why not?" With the decision made, he stood up on all fours and said to Granite, "Well, OK then. If we're to have an adventure, let's get to it!"

Pebble was tiny[7] in comparison to his prairie dog friends. He was not much bigger than a prairie dog pup, even though he was almost a year old. His family had been killed by a badger that had dug into their nest burrow, leaving him an orphan at six months of age. He, too, would have died, had he not been over at Granite's place, playing with him, when he was supposed to be at home having supper.

Even though he was well past weaning,[8] and could fend for himself, Granite's family took him in as one of their own, and now he thought of them as the only family he had. His adoptive parents had given him their name, and to everyone in the area, he was simply known as one of the Short-Bottoms.

They had even helped him dig a new burrow of his own, near where his parent's tunnel had been. The loneliness of being the only ground squirrel in this part of Crocus Butte had troubled him immensely for the longest time, but Granite had become a great friend, and he now felt more like a prairie dog than a ground squirrel. Other than his size and some minor physical characteristics, he had assumed all of the behavioral characteristics of a prairie dog, and could even bark alarm calls as good as or even better than some dogs. The most obvious difference, other than his small size, was his tail, and it often served to embarrass him. He had searched all

---

[5] Prairie dogs love to bask in the sun when the weather is cool. They can often be seen lying on the southern side of the sentry mound to soak up as much heat as possible, especially on cold days. While they employ endothermic body heat regulation, they truly enjoy the added heat from sun-basking. The opposite is also true; when it gets too warm for them, they seek the cooler temperatures inside the burrow, and some may even enter aestivation to avoid long stretches of excessive heat. (Althen 1975).

There are several different ways of maintaining body temperature, depending upon the physiology of the species involved. See the Glossary, under "Body Temperature Regulation" for some of the methods wildlife use to conserve / generate body warmth.

[6] Cocklebur (*Xanthium strumarium*) is not native to the area, but it has a nice name. The spines on the seeds inspired George de Mestral, a Swiss electrical engineer, to invent Velcro, a commercial type of hook and loop fastener. Cocklebur is also known as "hitchhiker" because of its ability to travel large distances attached to the body of animals or socks, shoes and cloth of humans. Miniature spines are even able to penetrate through the upper layer of the humans' skin. It's no wonder then that Pebble used it as a curse word.

[7] The Richardson Ground Squirrel (*Spermophilus richardsonii)* shares the towns and cities of prairie dogs. They often use old dog burrows, and it is not unusual to see them co-existing in the same ward. Prairie dogs can have up to twice the body mass (>1000 grams) than the average Richardson ground squirrel (500 grams).

[8] It can be difficult to determine the age of weaning in many wild populations, since the majority of nursing takes place underground (Hoogland 2006), but an age of about six to eight weeks seems to be accepted. At this time the pup is fully weaned from its mothers' milk, and is foraging just like an adult (Long 2002).

over the ward for something that would stain his tail-tip black, but nothing stayed on. There were times when he seriously thought about chewing the thing off to make him look more like his friends.

Still, the thought of leaving his Ward made him nervous. Here, everyone knew and accepted him. Out there, dogs would point and snicker at his long tail and make fun of his small size. It happened every time he left the safety of his home.

He turned, glanced around one more time, then climbed off the sentry mound to the stand beside Granite. Granite looked at him expectantly and said, "You mean it? You really want to go?" With a casual shrug of his shoulders to hide his worry about being harassed, Pebble nodded and said, "Yes, but it's your idea, so you lead the way."

They set off then, on their very first adventure together; two small round balls of fur, waddling slowly towards the north, through the crowds, the hustle, and bustle. The great city spread out before them and enticed them further and further from home. They often had to stop and sniff noses with dogs they'd not met before, or renew acquaintances with young females from Granite's coterie[9] who had moved into the Quivertail Ward.[10] The trip was going better than he had expected and only a couple of dog pups had made fun of his tail.

"Get down! Everyone under cover!" A loud bark from off to their right. "Hawk!" was the thought flashing instantly through every dog-mind in the vicinity[11]. There was a momentary pause, then dogs everywhere dove into the nearest entrance mound. Granite and Pebble, on a completely unfamiliar street, hesitated for a moment longer, looking around frantically, trying to decide which way to go. Even as his brain frantically tried to decide what to do, part of it was reminding Pebble of how many times he had been told by his adoptive parents that prairie dogs do not leave the vicinity of their coterie! At home, the reaction to an alarm bark would have been instantaneous, but out here, he found the instinct had kicked in, but he couldn't seem to get his feet moving.

---

[9] A coterie is an extended family group, formed by several generations descended from one paternal lineage. Usually the home range of a coterie is occupied by one adult male, his three or four "wives" and their descendent offspring. Males practice polygyny (more than one wife, but consistently the same ones), as opposed to being panmictic, where mating is random and non-selective. Coteries are defended against the approach of prairie dogs from outside (Foltz and Hoogland 1981, Hoogland 2006). This fictionalized account permits the easy movement of dogs from one region of the city to another, but in actuality, to do so would be to invite intense territorial battles.

[10] Dispersal within a colony does occur, but it can be fraught with danger for the emigrating dog. New-comers are often chased away so the residents can protect their coteries, but on occasion a young female will be accepted into a different coterie or ward (Hoogland 2006).

[11] Prairie dogs use only one type of bark as an alarm call, though the rate and intensity of the bark is used to warn others of the type of threat, its rate of approach, etc. The "all-clear" signal is referred to as a "jump-yip". The dog giving the signal stands up on its back legs, back arched, head thrown back and arms out in front. The jump-yip is contagious and often large numbers of dogs perform the all-clear once it is initially given. (Hoogland 2006).

"I said underground, you fools! Now, run before you get eaten," the voice said again, this time angrily. Pebble saw him coming before Granite did. Down off the top of a sentry mound next

to the street they were on, dashed a huge Astiti[12]. He hit them both at a full run, grabbed Pebble right off the ground by the scruff of his neck, and shoved Granite along quickly into an entrance on the other side of the street.

In a tumbling mass of paws, teeth and little round bottoms, they fell into the tunnel entrance and lay there panting.

"Look at what you've done, you little fools. You almost got me killed out there!" The Astiti was twisting to look over his shoulder at a long, thin gouge that sliced from the root of his tail to the base of his shoulders. A single drop of bright red blood welled up and rolled down his fur to plop in the dust of the tunnel floor.

"Great. Now I'm bleeding!" Astiti Cobble Wetfoot said, in disgust. An Astiti can't perform his duties as a sentry if he's wounded, since the smell of blood might attract another predator to the area. He'd be confined to his tunnel until his wound was healed, and he was not happy about it.

Pebble had managed a brief glance over his shoulder just before the Astiti got to him, and in utter terror had seen the flash of hawk talons as the aerial predator pulled out of a dive right above them. The Astiti must have been sliced by a razor-sharp talon as it passed overhead, almost taking the sentry to his death.

The Astiti turned and faced them both. Pebble and Granite were laying shoulder-to-shoulder on their bellies, noses stretched out along the ground in a sign of abject submission, dreading the lecture they knew was coming.

And come it did!

"What the poison ivy do you think you're doing, wandering around a part of the city you don't belong in? Where are your mothers? Why are you out here? Are you trying to get yourselves killed, or worst yet, *get me killed*?" The Astiti yelled at them, assailing them with a relentless string of barked questions to which they had no good answers. He paused to collect his breath and stared angrily at the two miscreants in front of him. "What are your names and where are you from?"

"I'm Pebble Short-Bottom of Stone Neck, in the Short-Bottom Ward."

"I'm Granite Twitchtail from just across the line in the Twitchtail Ward."

[12] The fictional Astiti (Latin for stand on guard) are an elite group of guards tasked with searching for and identifying predators and alerting the population when one is seen. Hoogland (1979) found that the level of alertness of individual dogs within a colony, depended upon the density of the colony. The more dogs above ground, the less alert they were. If only a few dogs are up, then the level of alertness increases.

The Astiti looked at them with a withering eye "You wait right there – do not move so much as a whisker until I get back," he warned them. Then the huge Astiti turned back to the bright light at the opening of the tunnel and cautiously worked his way up until just his nose rose above the sentry rim. His bulk above them darkened the interior where the two pups lay waiting. It seemed to take forever before he shuffled forward a bit farther so that his entire head and shoulders were above the sentry rim. From below, they could see him swiveling his head from side to side.

He was still watching when they heard the all-clear from another sentry further down the street. With the assurance that it was once again safe, the Astiti turned and waddled back down to them.[13]

"OK. It's safe out there now, and it is time for you to go home," he said, sternly, looking each of them in the eye. "I've got to go find an herbalist to get my back fixed up, or I would escort you back to your mother's nest chamber myself. If it was up to me, you two wouldn't be getting any supper tonight!"

Pebble nodded his head in earnest response.

"Good, now get out of here," the Astiti said, and pushed past them, deeper into the dark tunnel.

"Wow, that was close!" exclaimed Granite, once they were back outside, "Did you feel the wind from its wings when it passed over us? Boy was I scared. Were you scared? I'll be a stinkweed if we almost didn't get ourselves killed out there! I wasn't really scared though. Were you scared?"

Granite ran on for a few more minutes, his heart racing, nerves bouncing so much that his entire little body was quivering. His short black tail was flickering so quickly it became a tiny fan that raised a small cloud of dust behind him.

Pebble sat there quietly as Granite rambled on and on. Something about the encounter with the hawk was bothering him, and he could not figure it out. "I *knew* the hawk was going to attack!" he said to himself. "Somehow, even before the sentry barked, I looked up and saw it. I *knew* there was a hawk attacking us … but how did I know?" He gave up after a minute of hard thinking. No use trying to think with a chatter-tail like Granite barking away beside him. "It was probably nothing important," Pebble thought to himself. "Just my imagination playing tricks with me."

"Granite." Pebble said, calmly, with no effect on the constant stream of chatter. "Hey, Granite, clamp those teeth together for a minute and stop your barking! Dogs are going to think you've eaten some locoweed[14], the way you're going on and on." Granite took a huge breath to calm

[13] The term "to waddle" refers to the rocking, or side to side, swaying motion that short-legged animals like prairie dogs do. Why do they waddle? Just watch one sometime as they step forward with their front feet. The heels of their front paws land first, rather than the toes (partially because of their long toes and nails, much like a lady with really long finger nails trying to type) and it gives them a reaching-forward heel first pattern of walking. It's known as being plantigrade. Animals like bison walk on their toenails, and are known as ungulates. The word ungulate comes from unguis which means a nail or claw.

[14] Locoweed (*Oxytropis campestris*), also known as crazyweed, can poison animals that consume it. Livestock poisoned by chronic ingestion of large amounts of locoweed develop a medical condition known as locoism.

himself, then said, “I know, I know, but boy that was close, did you see…” Pebble moved over to Granite and gave him a nudge with both front paws. “I know, I saw, now stop it. We’ve got to get home.”

Granite finally quieted down enough to look around at the passing dogs. Some were standing there staring at the strange ground squirrel talking to a dog pup, while others completely ignored them. The replacement Astiti, sitting on guard on top of the adjacent sentry mound[15] was watching them intently, obviously aware of what had just happened with his predecessor. His focused, intense stare made Pebble feel conspicuous and uncomfortable. Most of the time it went unnoticed that he was not a prairie dog, and usually, everyone assumed that he was still a pup, due to his small size. He was used to being stared at and mentally shrugged off the intense scrutiny of the sentry.

“OK, you’re right, let’s get going,” he said, suddenly subdued and quiet after his outburst following the attack. “You lead the way though. I don’t want to meet that Astiti head on. I think he might be more dangerous than the hawk!” The afternoon sun had reached a point not far above the western horizon.

They had a long trip back to Stone Neck. A cool breeze was sweeping the dusty streets as the sun slid behind a dark bank of clouds, and a sudden shiver made Granite’s light tan fur quiver.

As the two adventurers walked slowly back in the direction they’d come from, they were watched intently by the guard sitting on his sentry mound. Astiti Flint Twitchtail had also been on duty when the hawk attacked and had seen the entire encounter. His had been the all-clear bark that assured the community that the present danger had passed.

Watching the round little bottoms, one with a long tail and the other short, of the strange pair as they disappeared single file down the long lane in front of him, Flint wondered to himself, “Did I really see what I thought I saw?” He had been scanning the area, searching for danger, and had been casually watching the pups prior to the attack. Just before the alarm bark was sounded, Flint was sure that he had seen the smaller of two pups focus at a point up in the sky, up to where the hawk had dove from. “Now why would he do that? How could he know the hawk was there?” Flint thought to himself.

He had overheard the chastising the two dogs had received from Cobble and had been surprised when he heard the larger one give his name as a Twitchtail. All Twitchtails are related

[15] Prairie dogs construct two principle types of mounds; domed and rimmed (Vogel et al 1973, Long 2002). Domed mounds are simple earthen mounds built from the excavated material of the burrow system, round on top and without much attention to detail. Rimmed mounds are carefully constructed and look like miniature volcanoes, complete with crater and rim. It is these that I refer to as sentry mounds, though sentry dogs actually use any elevated site to watch for predators.

in some distant way or another, and he was curious now to learn just how closely related he was to this pup.

With a shrug of his massive shoulders, the Astiti[16] returned to duty, scanning the area of his patrol district for more hawks that might threaten the busy dogs around him.

[16] In this fictional accounting, only males perform the role of Astiti. Females participate in alarm calling when they see danger, but only the male Astiti actually act as guards due to their larger physical size. In reality, all members participate in guarding the colony.

Chapter 2

Juniper the Herbalist

"There now, that should feel a little better," Juniper said gently as she spread a mild dilution of comfrey[17] root onto the swollen front foot of the little female pup who lay before her on a fragrant bed of Bedstraw. The pup had come to her after having twisted her paw during a particularly rough game of tag-you're-it over in Stone Neck.

"The comfrey potion will take the swelling down in no time at all," she said, as she helped the youngster onto her feet. With a smile for the kindness, and a, "Thank you Mistress Juniper," the injured pup hobbled slowly out of the herbalist's chamber into the main passageway outside.

Turning, Juniper put the comfrey back into its cubicle in the chamber wall behind her. The wall was pockmarked with dozens of neatly organized holes of various sizes. Each hole was filled with a wide selection of the plants she collected to nurse the sick and injured back to health. The wall contained such things as Argueweed[18], a small shrubby plant that when eaten accidentally, caused the dog that ate it to argue uncontrollably. She thought about several dogs she knew who must have been on a permanent diet of the stuff. Poverty weed[19] was an herb that provided enough sustenance to get by on but was usually thought of as something only a beggar would eat. Further down was scarlet mallow. This succulent root provided a nutritious meal when one was caught out on the trail. It would last for weeks if kept dry. Dogbane lay below and to one side. The Astiti who patrolled the Borderlands often wore a twisted vine of dogbane around their shoulders as a means of warding off the attacks of coyotes and foxes. She had a large supply of needle-and-thread grass, ready for use when stitching up wounds, cuts, and deep abrasions. With all of the dogs passing through the chamber, there was always a need to keep the place clean, and in one of the lower

[17] Comfrey (*Symphytum officinale*) was heavily used in World War I for wounds infested with maggots. The healing is due to the constituent, allantoin. It was once widely used in a compress to reduce swelling caused by injuries.

[18] There are two subspecies of Argueweed, (*Gentianella quinquefolia quinquefolia* and *Gentianella quinquefolia occidentalis).* I include it here not for any particular botanical reason, simply because I liked the name.

[19] Poverty weed (*Iva axillaris*) is not a pleasant plant to eat. Chemicals found in both the roots and leaves of the plant inhibit the growth of other plants, while large food reserves in its roots allow plants to survive through drought conditions. It has a strong smell and taste and is unpalatable to stock

holes she had a supply of scouring rush[20]; perfect for cleaning up bloody messes after a dog had been injured by a predator attack.

She was tidying up the fragrant nest, pulling out the stained stalks of bedstraw from the bedding and replenishing them with clean ones, when she heard the arrival of a new patient. The smell of fresh blood caused her to spin around quickly and come dashing across the room to the Astiti who now lay on the floor, just inside the chamber entrance.

Silent and stoic, he lay there simply waiting for her to begin. "What happened to you?" she exclaimed when she saw the long slice down the center of his back.

Astiti Cobble Wetfoot tried to shrug his shoulders but a spasm of pain stopped the movement before it had really begun. "A pair of errant pups from over near Stone Neck almost got their flea-bitten heads torn off by an attacking hawk," he said in disgust. "What they were doing so far from home, I don't know, but they almost got me turned into hawk poo!" He shifted to settle his large weight a bit more comfortably. Juniper stood at his side and examined the wound. "Can you make it over to the bed?" she asked him.

Cobble looked at the short distance separating him from the bedstraw[21], and without a word, rose slowly to his feet and crawled painfully over to the freshly changed bedding. He sank gratefully onto the fragrant mound, and lay belly-down. "Ah, Mistress Juniper. That does smell good. I feel better already."

Juniper meanwhile, was searching her apothecary nooks and crannies for the things she needed. Blood still seeped from the injury, and this indicated to her that the wound was a shallow slice, rather than a deep cut. She hummed softly to herself as she searched, a sort of purr that was intended to make her patients relax and be comfortable in her care.

She returned to his side a few moments later, front paws laden and mouth crammed full with a variety of herbs and medicinal plants. "Let's see now, what shall I begin with?" She sorted her ingredients in a neat semi-circle around her. "Ah, here it is. Why don't you chew on these leaves while I get things ready?" She passed the Astiti a small bundle of willow leaves she'd picked earlier in the spring. She knew that the leaves contained a powerful pain-reliever[22], and it was one of her favorite herbs. Juniper used it for everything from tooth-aches to pup-birth, from simple injuries to major trauma. It never failed to take away some of the pain and suffering.

---

[20] Scouring rush (*Equisetum hyemale*) is common on the prairies and like most members of the horsetail family are high in silica, which makes the plant admirably suited as scrubbing pad. I've used it myself on numerous back country camping trips to clean my frying pan and dishes.

[21] One of half a dozen types of bedstraw found on the northern prairies, the type Juniper used here is *Galium triflorum*, or sweet-scented bedstraw (Looman and Best, 1979).

[22] Acetylsalicylic acid, ASA, the principle ingredient in Aspirin is found in willow leaves and has been used as a pain reliever for centuries (Kindscher 1992). On many occasions, I have watched bison cows browsing on willow leaves immediately pre-calving, perhaps to assist in relieving the pain associated with calving.

Astiti Cobble put three dried leaves into his mouth. As she sorted through her herbs, she watched him as he chewed, the wad of willow leaves getting smaller and smaller as he chewed first on one side and then the other. Within a few minutes, his rate of chewing had slowed from its frantic crunching to a much slower, more thoughtful and relaxed munching.

"Good," she thought, "It's beginning to take effect."

She returned to his side with her medicinal kit. She selected some lemon balm[23] to soothe the injured tissue, some soap weed to wash it clean, and finally several long strands of needle and thread grass to stitch the wound closed.

She carefully poured a little water from a Bladderwort[24] pod suspended from the ceiling by a dangling root, into a fatmucket shell. The fatmucket nicely held just the right amount of water, and in it she mixed the soap weed into a fine lather. Using a wad of wool-grass as a sponge, she carefully wiped the slice free of any debris and dust that collected when he crawled down the tunnel. Once satisfied that it was as clean as she could make it, she gently swabbed on some of the lemon balm to ease the pain a bit more.

Then with careful, tiny stitches, she took a strand of needle-and-thread[25] and began to sew the slice closed. By the time she was finished, a thin line of fine tan-colored stitches sealed the injury and blended into the tawny color of his fur. From a distance, it was difficult to see that he had been injured. On top of the sutures she spread a thin paste made from the leaves of the self-heal[26] plant. This last step was almost guaranteed to make the injury heal as though it had never existed.

"Well, Sir," she said, in a satisfied manner, "I think you should heal up quite nicely. Just be sure to take a couple of days off to make sure the sutures don't open up again. The last thing you need is to start bleeding while on sentry duty!"

The Astiti looked over his shoulder at the long line of stitches, shrugged his shoulders, stood and arched his back, and looked at Juniper with gratitude.

"Mistress Juniper, I owe you a great debt. Thank you for what you've done," he said, humbly. "I will indeed spend some time in my home burrow – it will be good to see the others in my coterie

---

[23] Lemon balm (*Melissa officinale*) is used as a sleep aid in alternative medicine.

[24] The Greater Bladderwort (*Utricularia vulgaris*) is a carnivorous plant, laden with small hollow sacks. The plant uses these pods to capture small insects. The bladders, or traps, are hollow underwater structures with a flexible door or valve that is kept closed. A physiological process moves water from the interior to the exterior of the bladders, generating a state of low pressure within the traps. If a small animal triggers the bristles that project from the surface of the door, the trap suddenly opens, and a quick inflow of water sucks the prey inside. The door closes again within about $^{1}/_{35}$ of a second, and the animal is digested. Within about 15 to 30 minutes the trap again is "set" by passing water to the exterior.

[25] Needle and thread grass (*Stipa comata*) is one of the most common prairie grasses. It is characterized by its sharp needle like seeds and long awns that resemble a needle with its thread (Looman 1983).

[26] Self-heal (*Prunella vulgaris*) can be used topically as a poultice applied to irritated skin, as a disinfecting agent and to pack wounds in the absence of other wound-care material.

again. It means that I have to leave the squad short-pawed; but they're all experienced, and if I must admit it, they can probably do without me for a few days,

"Let's just hope those two stray pups stay away until I get back," he added.

He nodded his thanks, and turned to make his way out of the chamber and into the main tunnel outside. From there it was a short distance up a twisting tunnel to the surface and the now cloudy, cool afternoon. He paused at the entry and quickly checked for danger before fully exiting the mound.

Cobble made his way over to where he had been standing guard. Sitting alertly where he had left him, the huge, gruff Astiti Flint Twitchtail watched Cobble's arrival. Flint nodded to him as the injured Astiti made his way up the side of the sentry mound.

"Thanks for taking over while I was gone. Anything happen? Did the hawk come back?"

Flint shook his head and looked skyward for a moment.

"No, Sir. Nothing of note." He looked around carefully for a moment, then asked in a quiet voice, "Did you notice anything unusual about that little dog, the smaller of the two that were here earlier?"

Cobble winced a little as the sutures pulled at his skin, but shook his head dismissively and said, "Naw, other than his being a ground squirrel, just another wet-behind-the-ears pup with too much sense of adventure and not enough smarts. Herbalist Juniper fixed me up, but told me to take a couple of days off. So can you cover for me here?"

Flint nodded, "You go on. I've got things under control."

Cobble moved slowly off the sentry mound and made his painful way through the alleys to the south, through the Clayback Ward and into the Wetfoot Ward, where his home tunnel was dug.[27]

Flint sat back on his haunches, scanned the skies and city streets, and wondered again about the small dog. "How the burr-ball did that little dog know the hawk was coming?"

[27] They don't actually have their very own tunnels. Burrow systems are shared by all members of a coterie, except perhaps by pregnant or lactating females who can guard their nest burrows very aggressively. Sentries certainly do exist in a colony, but they are not as formal or structured as I've portrayed them. Flint would probably have dropped down into the tunnel he was using as a sentry mound, not gone off to another tunnel somewhere else.

Chapter 3

Pebble Hears a Voice

Pebble thought it was just as well that few dogs lived in Stone Neck now[28]. Though Pebble thrived on having dogs around, his neighbor's pups had made life miserable for him. For the first few months after they were born and had emerged from the birth chamber, the other pups were a lot of fun. The pups were full of energy and playful, and about the same size, so he had fit in well with them. They played and romped together all over the area occupied by his coterie. As the pups grew, however, they became larger than he was, and eventually, like all prairie dogs, they reached their adult size; if not their full mental size! They would relentlessly tease and harass him about his small size and his abnormally long tail, shouting whenever someone else could hear, "Hey Longtail Short-Bottom, aren't you too small to be out of the nursery?" Then they would step on his tail, laugh and scamper off to play elsewhere. They were grown and gone now, thanks in part to a large dose of beggars ticks he'd put in their nest chambers. As a result, the area around his burrow was now sparsely occupied and he liked the solitude and peace that brought.

Despite the bullying of the bigger dogs around him as a pup, his had been a fairly tranquil, peaceful existence until one day in the early summer of his second year. He had been busy expanding his tunnel[29] system, branching off of the original tunnel that had been excavated by a prairie dog. His smaller body felt uncomfortable in such a large space, so he dug into the side, a short distance down to create his own space. He had the sentry mound almost constructed and was just packing in the last few low-lying spots around the entrance. A light rain early in the morning had provided just the right amount of moisture needed to make the clay soft and moist. His arms and chest were thickly covered with wet mud, and often he had to stop and shake his paws to rid them of the sticky stuff. His nose got the worst of it, though, with mud stuffed up both nostrils

[28] In prairie dog colonies that have been in existence for many generations, the central portion is usually occupied by descendants of the original founders, and their successive offspring move towards the periphery or un-occupied areas of the colony to establish their own territories (Garrett *et al* 1981). Occasionally, an offspring will re-occupy a tunnel system abandoned by its predecessors.

[29] Animals that create and live in underground tunnels are known as "fossorial" species. Other species may live in the tunnels excavated by them, but they are not fossorial, i.e. tiger salamanders, most prairie snakes, and burrowing owls. These species benefit from the presence of prairie dog tunnels, but do not provide any benefits back to the prairie dog. This type of relationship is known as Commensalism.

from using it to tamp the new mud on his sentry mound. He had just given a huge sneeze and blown two nostril plugs onto the side of the mound when he heard a voice.

Startled, he stopped and stood, and gave two quick, piercing alarm barks, then bounced up and down on his front feet several times, repeating the alarm bark, and while his barks were more like squeaks, he got the message across.[30] The alarm was quickly picked up and repeated throughout the colony.

He dropped flat on his belly across the tunnel entrance. The area around him had been its usual hubbub of activity, with prairie dogs going this way and that, touching noses in greeting, foraging for food or renovating sentry mounds. The instant he alarm-barked, all activity ceased as every dog within hearing range dashed for cover.

Silence. Where had that voice come from? He lay there and searched the area around the sentry mound. No movement, no sound, even the wind had calmed. Quiet, eerie silence for a place that had been so busy just a second ago. It had been a voice unlike any he had ever heard. And the strangest thing was, it seemed to come from inside his head. The voice had said, very clearly, and very confidently, "There, that one on the edge isn't paying attention, I'll eat that one."

There it was again!

This time the voice rang with hard anger and rage, "Who did that? Who saw me and barked? If I find the one who warned them, I'm going to devour him instead, and tear him limb from limb before I do!" the voice screamed inside his head.

Then Pebble saw it, high, high in the air above Crocus Butte circled a hawk, so high, it was merely a speck and one that should never have been noticed by even the most alert sentry. In an instant, he realized that the voice was coming from this hawk.

"How can this be?" he thought. "How can I hear his voice from so far away?"

Over the past few months, he had begun to hear faint murmurings; almost but-not-quite-heard voices in the background of his thoughts. During this past week a visiting pocket gopher, a stately sage grouse[31], and most recently a mule deer doe with her fawn, had walked past his sentry mound and he remembered thinking he had heard faint voices coming from each of them. But he'd ignored them, put the idea of them and their murmuring away as a result of being too tired, and paid no attention. Recently the murmurings had become louder, There, yet indistinct.

---

[30] Nature has many examples of shared communication between two different species; species who do not speak the same language. Yellow-bellied marmots (*Marmota flaviventris*) and golden-mantled ground squirrels (*Spermophilus lateralis*) for example, often respond to each other's' alarm calls (Shriner 1998).

[31] The Greater Sage grouse (*Centrocercus urophasianus*) are the largest grouse in North America. They are an obligate grassland bird that serves as both an Umbrella species and as a Flagship species on sagebrush steppe grasslands. They are an Endangered species in Canada and are under threat in the US. There are two subspecies of sage grouse; the Greater Sage Grouse Sage Grouse and the Gunnison Sage Grouse (*Centrocercus minimus*) grouse.

This voice, though - this was loud, clear, and completely unnerving. With another alarm bark to ensure that all looked skyward, he spun and dove into the warmth and security of his burrow.

Over the next few months, he continued to hear voices, when no other animals could be seen. He would be busy, not paying attention to the world around him, when suddenly a voice would penetrate his thoughts, and he knew, with absolute certainty, that he had to warn the colony. Often without even looking around to see what or where the threat was, he would squeak the alarm call, then drop out of sight.

It was now late summer, and it had happened again today. He was outside, working on packing the rim of his sentry mound a little firmer when he heard a coyote on the fringe of the colony. He rose quickly, alarm barked and dove into his burrow.

He scurried down to his newly excavated nesting chamber and decided that rather than work outside on his sentry mound, he'd stay here for a while and tidy up his nest. Several hours later, he was still busy shuffling and nudging branches of fragrant pasture sage[32] into a corner, when he heard another voice. Startled, he stopped with the sage branch in his mouth, nose pushed into a corner, and waited. "Did I just hear that, or is my imagination working overtime?" he thought head cocked to one side, listening intently.

"Pebble, are you in there?" came a shout that echoed down and into his nest. Relieved that it was just another prairie dog, he spat out the branch, gave it another thoughtful nudge and, satisfied with its placement, turned to the tunnel. "Yes, hello. I'm here. Do come in, please."

There followed a series of muttered curses and mumblings from the other end of the access tunnel. "Ooomph, aarg, blasted wee beggar tick!" the voice grunted in apparent exasperation. "Pebble, get your scrawny little belly up here, and do it at once." Shocked and horrified, Pebble was stunned into momentary immobility. He knew that voice. That voice belonged to One-Tooth Short-Bottom! He was the Evocator of the Short-Bottom Ward's southern border. He knew from conversations with his adopted family that One-Tooth was distantly related, but had never been able to follow the complicated genealogy. Pebble had had a few very casual conversations with one or two of the Astiti, but never One-Tooth, and never, ever with an Evocator.

He quickly scampered out of the nest chamber, up a short distance in complete darkness, only to bump nose-first into the angry whiskers of the Evocator. "Pebble," said One-Tooth, very calmly and with strained impatience, "I am stuck in your flea-bitten. wee squirrel tunnel and you are going to help me get un-stuck." It suddenly dawned on Pebble that this was the first time that any prairie dog other than Granite had come for a visit. Even Granite had begun to complain about the small size of Pebble's tunnels and had eventually stopped trying to squeeze his way in. He had excavated his tunnel to fit his small body, not that of a fully grown adult prairie dog. Especially not one as large as the Evocator.

[32] Pasture sage (*Artemesia frigida*) is used as an insect repellent and a deodorant for pillows – useful items in a stuffy old burrow.

“Oh yes sir!” he stammered, “How can I be of assistance, sir?”

The gnarled old face and single upper front tooth of the Evocator lay right in front of him, wedged tightly against the tunnel walls. “You are going to put your hands on my cheeks, and when I tell you, you are going to push me backward out of this burr-balling tunnel,” he said, once again with restrained patience. “When I tell you, push.”

Pebble inched forwards and laid his nose alongside that of old One-Tooth, then, lying flat on his belly, put his paws on both cheeks of the old guard’s face. With a nod, the Evocator indicated it was time to push. With his hind toe-nails dug in for all they were worth, Pebble pushed.

He had good leverage and traction and was able to push himself forward quite forcefully. With his paws dug into the hair on both cheeks of the Evocator, the skin began to push backward, stretching and distorting the old dog’s face. One-Tooth’s face began to take on an insane, single-toothed, lip-stretched grin, eyes bulging, ears shoved back. The force of the skin being pushed so hard caused his nose to pull upwards, and Pebble had a far-too-close examination of the interior of the Evocators' mouth.

Then with a plopping sound, the old dog was gone, and Pebble fell forward onto his chin. Slightly dazed, he crawled forward to the junction of his tunnel, where it joined the original, larger prairie dog tunnel. There, in a small cave-like space, he found the Evocator and one of the Astiti waiting for him.

The Evocator was massaging his cheeks with both paws, trying to push and nudge his face back into its former shape. Once satisfied that his lips were back on the front of his face, rather than the sides, he twisted so he could see the Astiti, and asked, “Is this the one?”

The Astiti leaned forward to see past One-Tooth, inspected Pebble closely, examined his tail, then nodded and said, “Yes sir, he is,” and sat back down again in the gloom.

When the Astiti had leaned forward, Pebble had recognized him as the one who had hurried him to shelter when he and Granite had gone for their walk.

“Well, then. I want you to come with me, Pebble Short-Bottom. You have some explaining to do!” The Astiti and the Evocator turned and went up the tunnel to the surface.

Pebble followed in fear and trepidation. “What did I do to attract the attention of not only an Astiti but of an Evocator?” he wondered.

In just a few moments, they were on the surface, and the city seemed to have returned to normal after the scare. A quick glance around confirmed that the coyote he had heard was gone. He noticed a higher than normal number of sentries were standing alert on their mounds, but otherwise, things seemed normal.

They walked slowly through the Ward to a tunnel entrance roughly opposite the place where three wards, Short-Bottom, Clayback, and Wetfoot Wards all came together, and they climbed the

side of a particularly large and imposing sentry mound. Without a glance around, his leaders entered and descended into the darkness of the Comitium.

Now Pebble was quite literally shaking in his furry skin. No average citizen ever entered the Comitium. Never! Like all young prairie dogs and ground squirrels, Pebble was well-versed in the structure and politics of life within Crocus Butte, and he knew that only the Evocators and Cathedrans were permitted here. The thought of entering almost made him sick.

The City of Crocus Butte was ruled by one prairie dog, known as the Comitian. This venerable dog is most often a female and was always of great age and wisdom. The Comitian was elected to the position by the six Cathedrans of Crocus Butte. Each Ward and there were six in Crocus Butte, elected its own Cathedran to represent and act on their behalf when issues of city-wide concern developed.

Each Cathedran supervised four Evocators, one for each of the four Sections of Borderland that lie adjacent to their Ward. Each Evocator had four squads of Astiti who reported to him and one more for internal patrols. Each squad had four Astiti. It was an Astiti from the Internal Squad that now led the way.

Pebble knew how serious this must be – to be summoned by the Comitian but had not a clue as to how he figured into it. Just before they crossed over the rim of the sentry mound, Pebble looked around. He found a hundred, piercing black eyes staring back at him. He was used to dogs looking at him, due to the difference in his size, and in particular his tail, but it seemed as though every prairie dog in the entire city was watching, wondering, accusing.

With a gulp of fear, Pebble looked one last time at the crystal blue sky and descended into the gloom of the Comitium entrance.

Chapter 4

The Comitium and Pebble's Interrogation

It seemed to take forever to reach their destination. As they descended into the tunnel, they passed by numerous chamber entrances where other prairie dogs were at work. What they were doing was a mystery to him, and quite frankly, he had no desire to know.

He was last in line, with the Astiti leading, followed by Evocator One-Tooth, and then himself. He felt someone step on the end of his tail and glanced over his shoulder to see who might be there.

"Oh my, oh my, I'm in for it now," he thought.

Following along behind him was not just one dog, but six. All six Cathedrans of the entire city were following him down the tunnel. "Oh, my, what have I done?" Pebble whimpered to himself as he meekly followed along, trapped among the most powerful dogs in the whole city.

Working up the nerve to speak out loud, he asked the Evocator, "Sir, what have I done? Why am I here?"

But there was nothing to suggest that the Evocator even heard him. He thought about trying again, but given the austere company, decided not to. So Pebble retreated within himself as he had done so many times before when picked upon and harassed by pups larger than him and meekly followed along behind the great, bow-legged, waddling hips of Evocator One-Tooth.

Eventually, the group turned off of the main tunnel, moving through a grand archway and into the largest chamber Pebble had ever seen.

It was massive. A single ray of dust-mote-filled light filtered down from high above. He had heard that once, a youngster had excavated a burrow and had accidentally dug right through the ceiling of the Comitia. Even with the illumination from the lonely beam of grey light, he could barely see the far walls of the chamber. It came in a rush of knowledge, then. "This must be the Comitium itself," he thought. "Oh my, this is a place where I really do not want to be."

Still led by the Astiti, the group fanned out and went directly across the vast flat floor of the Comitium. And there, along the farthest wall, sat the Comitian. Upon their approach, everyone in the small group, even the powerful Cathedrans, knelt.

Comitian Catella Catilina sat in silence upon the Cathedra, a massive mound reserved for her use only, and stared down at the small group before her. Each of the six Cathedrans had moved

behind her and now sat in a semi-circle, facing the massive mound in front of them. Pebble was led forward by the Astiti and placed on a small circle of raised earth, similar to that of a sentry mound. There, he lay on his belly, prostrate with fear before the powerful ones in front of him. The Astiti bowed, turned, and retreated to a position behind Evocator One-Tooth.

In a chamber intended to hold hundreds, the group seemed minuscule and insignificant. They waited in silence for Catella Catilina to speak.

"Evocator One-Tooth, come forward please." The Evocator bowed low before the Comitian.

"I have been provided with scant information as to why this unusual meeting has been convened, but I understand that it was at your insistence. Is this correct?" she asked.

Evocator One-Tooth sat upright, arms draped loosely over the top of his belly, and said, "Yes, Comitian Catalina."

"What prompted such an extraordinary thing? Why would an Evocator call together a group like this? I have been asking these questions since I received the message from my secretary this morning. So tell me, One-Tooth, what is it that's so important?" Her tone of voice throughout remained quiet and calm, but hidden just underneath, everyone in the room could sense her power and authority.

One-Tooth glanced at the six Cathedrans sitting to either side of her, cleared his throat, and said, "Because of the report made to me by Astiti Stoneclaw, concerning the activities of this minuscule pup beside me. Perhaps, if it suits the Comitian, you would prefer to hear the tale from the Astiti himself? His direct observations are better explained by him, then interpreted through me."

Catella Catalina looked impatiently at One-Tooth for a moment, then glanced over at the Astiti, who lay prone behind him. She looked back at One-Tooth. "Yes. Perhaps it's best to hear directly from the dog's mouth. Astiti Stoneclaw, come forward."

The Astiti assumed the same position as One-Tooth had a moment before.

"Now if you please, Astiti Stoneclaw. I grow impatient to know why this meeting was called, and why you bring a gopher into this place. My time is valuable and I have much to do," she said.

Astiti Stoneclaw nodded. "Comitian Catalina, I am the Astiti who leads the Internal Squad, tasked with patrolling the area around the central region of the city, including an area known as Stone Neck. My patrol dogs are all very experienced, and they've been protecting Crocus Butte for many seasons. Yet over the past few months, someone else has been alerting the citizens of danger, before any of my patrols were aware that a risk even existed." He paused and looked at the silent Cathedrans, then continued.

"On numerous occasions now, an alarm bark has been called and everyone would run for cover, leaving my dogs standing around wondering what the fuss was about. In every instance, without

fail, a few moments later a hawk or owl would swoop down and attack. I lost one careless Astiti to a Red-tailed hawk just last week when he did not trust the alarm call."

Catella Catalina interrupted him and said, "I hope there is more to this than your embarrassment that someone has better eyes than your patrol?"

The Astiti was more used to delivering such statements than receiving them, and it took him a moment to begin again.

"Yes, Comitian, there most certainly is. After the death of my squad member, I began to pay more attention, to try to determine who was being so alert. On several of the attacks, the alert was called while the hawk was still out of sight, and this had me very puzzled. So I sat and I watched. First to learn who was alarm-calling, and second to learn how they were able to be so good at detecting the danger when it was so far away."

"It took about a week before the alarm call was made again," he continued. "I was patrolling Stone Neck at the time, and nearly died of a heart attack when this pup here, leaped up right beside me and alarm-barked that a golden eagle was diving on the city."[33] He paused for a moment, looking at each Cathedran and the Comitian. "I have been doing this job most of my life. I have excellent vision, and it took me many seconds before I could see the eagle stooping on the city." He paused again. "There was no way this miniscule pup could have seen the eagle, before my patrol or me," he declared emphatically. "Yet, the pup did see it, and as a result, no one was lost that day."

"I thanked the pup at the time for his vigilance, told him to keep up the good work and continued on my way. Over the next few days, the eagle returned and on every occasion was thwarted by this pup. Not one citizen was taken, because this wee pup here warned everyone in time. I began to hear rumors however that most of the time he was not even looking up and around before his alarm-barks. That in some cases he even had his head in a tunnel entrance and could not, under any circumstances, have seen the hawk or eagle before he barked his alarm-bark."

The Comitian and all six Cathedrans had tilted forward off their rumps, listening to this last part of the story; so far forward that their front feet were resting lightly on the ground. The tension in the massive chamber was palpable.

"Are you saying what I think you're saying?" the Comitian demanded harshly, any trace of gentleness gone from her voice.

Sitting up as erect and firm as he could, Astiti Stoneclaw said, strongly, "Yes, Comitian, I am. The pup is a Foreteller!"

[33] The golden eagle (*Aquila chrysaetos*) spends a lot of time soaring and searching for a meal of prairie dog. I've seen them sitting for hours on top of a small hill, waiting to be forgotten.

Chapter 5

Pebble the Foreteller

The chamber was no longer silent. All six Cathedrans were whispering loudly between themselves. Catella Catalina however, sat silent, leaning back and to one side, with a very curious, penetrating stare fixed upon little Pebble.

Her voice, when it eventually came, surprised Pebble. Instead of the harsh and demanding inquisition, he was expecting, he was asked in a calm and gentle tone, more representative of his Grandmother than a leader of the entire City, "Would you come forward please and take your place on the mound? Are you all right, Pebble? Would you like a drop of dewberry[34] juice, or perhaps a sprig of winterfat?"[35]

Shocked and a little disorientated by the gentleness in those words, Pebble was unable to speak for a moment. He rose slowly from where he had lain and moved carefully to the top of the mound.

"No, thank you, your Royalness, I mean your Highness, I mean your …"

He stopped in mid-sputter as she raised a paw to silence him. "You may call me Mistress Catalina," she said, "We don't need to be so formal here in such a small gathering." She looked at him steadily, as though trying to see what he was made of. "Please, sit comfortably, little one."

Pebble rolled back on his haunches, tail wrapped out of sight around his hips, trying hard to look and act like a prairie dog. He draped his arms over his little paunch to emulate the stance of the Astiti and looked steadily back at her. "I wish she would get on with it," he thought to himself, "and I wish someone would tell me what I'm doing here." That thought had just passed through his head when the Comitian asked, "Do you know what a Foreteller[36] is, Pebble?"

---

[34] The berries of dewberry (*Rubus pubescens*) plants are purplish red, similar to raspberries, and the seeds are much larger and tougher than those of the blackberry. The trailing habit of growing dewberry plants attains a height of only about 2 feet or so and has slender thorns upon red-haired stems.

[35] Winterfat (*Krascheninnikovia lanata),* received this name from early settlers who found that cattle that grazed on it during the long winter months, actually put on fat, rather than losing it. In some parts of the northern ranges it would be more abundant now, had it not been grazed so selectively (Seipel and Lavin).

[36] Although the concept of a Foreteller in prairie dog ecology is pure fiction, communication between species that are completely unrelated to each other, does occur in nature. Commonly recognized examples are pets and their owners. Horses, dogs, cats, and a variety of birds all share two-way communication with people. In the wild, the alarm call of a prairie dog will be instantly recognized by a nearby Richardson Ground Squirrel. The behavior of the

He thought hard before answering but had no idea what she was talking about. “No Mistress, I don’t,” he said, looking from the intense gaze of the Cathedrans to her, and back again.

She flicked a glance at the others and then asked, “When you warn others of the approach of danger, how do you know the danger is there?” He could sense the tension escalate as every eye focused upon him. Not a breath could be heard from anyone. He began to worry again that he had done something dreadfully wrong.

“Well, Mistress Catalina, I hear them in my head. I hear them when they talk to themselves about what they’re going to do, who they’re going to eat next. Doesn’t everyone, Mistress? I mean, isn’t that what the Astiti do, isn’t that how they know about the danger? When they warn us about a hawk, or an eagle or snake?”[37]

There was a loud collective gasp of confirmation when he uttered those words and the Cathedrans once again burst into a fit of tail-wagging, whispering, rocking back and forth and from side to side, in their agitation and excitement, their front teeth clicking and chattering like a row of old click beetles.

Comitian Catalina gazed down him with a bemused look upon her furry face, lips stretched in just the faintest hint of a smile. “No, little Pebble, others do not do what you do. Everyone else in the colony, with one exception, must see or hear the danger before they know it’s there. You have the rare, rare gift of being a Foreteller, Pebble, and it’s a pleasure for me to meet you.”

Pebble sat there, not sure what to do or say. In a single instant, his life had gone from normal to something abnormal, freakish, and weird.

“Pebble,” she asked, “how old are you now, and when did you first notice your ability to hear the thoughts of The Predators?”

“Well Mistress,” he said, “I just turned two this past spring …” and thinking back to the first time he heard the hawk, “I guess it was late in the summer of my first year when I was about six months old or so. I heard a hawk thinking about eating someone and just reacted with an alarm bark.”

She rose slowly from the large mound upon which she had been sitting and made her way over to Pebble, where he sat on the small mound before her. “Come over here with me,” she said, “and we’ll be a bit more comfortable.” She led the way to a corner where piles of winterfat and nut-

---

ground squirrel is then determined by its ability to understand the language of prairie dogs. Likewise, wood frogs and boreal chorus frogs may share the same pond, and when one species calls an alarm, both species react (see Shriner 1998, Rundus and Hart 2002, or Phelps *et al* 2006, for examples).

[37] It was J. von Uexkull who first posed the concept of the *Umwelt* in 1957. The Umwelt is a concept where an animal lives in its own unique perceptual world, quite unlike anything we as humans may perceive their world to be. Dogs for example, with their exceptional sense of smell, live in a world which we cannot begin to imagine. This is how I perceive Pebble’s gift – he hears things; things that he perceives as perfectly normal. Things that other dogs cannot even conceive or imagine. See Rundus and Hart (2002) for an excellent discussion of this topic.

grass[38] lay in neat rows. “Sit here beside me, and have a snack while I tell you a story about Foretellers.”

She settled herself comfortably, then began.

“The oldest dog in the City of Crocus Butte is Feldspar Quivertail; everyone knows him now simply as Grandfather. No-one is quite certain, but we estimate his age at somewhere around 104 years[39]. Until you came along he was the only Foreteller to be born in Crocus Butte since its colonization, and that was about 90 years before his birth. Grandfather Quivertail has patrolled this city for more than 50 generations and has saved countless hundreds of its citizens from being eaten. He’s done this because he too can hear the thoughts of beings who wish to harm us.” She paused a moment to nibble on a sprig of winterfat.

“But the last few years have been very difficult for him. He can’t get around as easily as he once could; he’s become so frail of late that he can barely move from his nest. For the past few months, it seems that his ability to Foretell has faded somewhat and as a result, we have been suffering much higher losses.” She took a moment to think about those lost, then continued, “In the past nine days alone, we’ve lost more citizens to hawks and eagles than in the last nine months.”

Evocator One-Tooth leaned forward and began to defend his Astiti patrols, but was interrupted by the Comitian with a raised paw. “I know your dogs are doing the best they can and what I say here is no reflection on their dedication or vigilance.” This pronouncement was met with agreement by Astiti Stoneclaw. He knew the cost to his patrols in terms of lost and injured Astiti. Mollified, One-Tooth sat back and continued to listen.

“No one knows how or why dogs acquire the Foretelling gift. We only know that once in a very, very long time one is born with the ability to hear the thoughts of those who wish us harm. You are the first ground squirrel in the history of dogdom to have these abilities, and your arrival now could not be better timed.” She debated whether to share with him some of her doubts concerning his chances of survival, but in the end, decided that he should know and understand the risks he faced.

“Pebble, the gift you carry does not come without a cost to you. I don’t know how well a ground squirrel will cope with it, but the ability to constantly hear the thoughts of The Predators has caused more than one prairie dog Foreteller to lose his mind. The constant vigilance, and the inability to turn off the gift, places great demands upon the bearer of the gift. Some have not been up to the task. The last Foretellers we know of were born several generations ago in the City of Brokenhills.” Brokenhills was a prairie dog city that lay many days’ travel to the south of Crocus Butte.

---

[38] Nut sedge (*Carex atherodes*) is not a grass, but a sedge. Sedges can be distinguished from grasses by their triangular leaf shape; grasses are flat, sedges have edges, rushes are round. C. atherodes is the preferred winter food of bison.

[39] In fact, they are known to live for 8 to 10 years of age (Long 2002). Like the old adage that one human life equals seven dogs lives, I’ve used this here to give him great age.

“The first Foreteller there was born a long, long time ago. Long before Grandfather was born here. He only lived until the end of his second summer. Nobody knows what happened; apparently, he just up and died one day. The only other that we know of was born about 40 years ago. I think I heard his name was Quartz Silverback. They called him that because of a bright silver-colored spot on his shoulders. From what we hear, he went completely mad during his second summer from the pressures of being a Foreteller and simply ran off. Disappeared one day across the Borderlands and into the Great Unknown. He was never seen again, and very likely he died out there from starvation or simply from loneliness.”

As the Comitian was talking, Pebble thought to himself, “Oh, my aching toenails, I just had my second birthday less than a week ago. Does this mean I too am about to lose my mind or up and die like that?”

The Comitian continued, “For generations now we have been hoping that another Foreteller would be born, but this time here in Crocus Butte; and that we could discover him in time. It seems we’ve been granted this good fortune with you.”

Pebble squirmed a little where he sat. To ease himself, he picked up a sprig of nut-grass in his left hand and began to nibble on it distractedly.

“We are also very fortunate that, for the first time, there is another Foreteller to guide and train you, to mentor you during your development. Grandfather Quivertail is going to want to talk with you.”

“In the meantime, you should go back home, and just continue to do everything as you have been,” she said cheerfully, giving him a cheek-to-cheek hug. “There’s no need for you to worry or fret about anything, little one. Things are going to work out just fine. When the time is right, someone will come to take you to Grandfather Quivertail’s burrow for your training.”

Turning back to the group, she said, “Astiti Stoneclaw, please escort our young friend here back to Stone Neck, and make sure he arrives safely.”

There was a clear warning contained within that request, and the Astiti did not doubt what would happen should he fail to protect his new charge. She looked over at the Evocator and the six Cathedrans, and said, “Please come with me.”

Pebble sat there for a moment as the powerful group walked away into the dimness of the chamber, then he stood and faced the Astiti. Stoneclaw was standing on all fours when Pebble turned. His intense appraisal caught Pebble by surprise, and he stumbled back a couple of steps before catching himself.

Stoneclaw gave his entire body a good shake, fluffing up his coat, then stood on his rear legs, arched his back and stretched his arms high in the air, just like he was doing a jump-yip to signal that everything was safe. A groan of relief slipped through his long yellow, clenched teeth. He dropped back onto all fours and then rocked backward onto his bum.

“Well … that was intense, wasn’t it?” he asked, in a jovial voice. Pebble nodded his head slowly. Stoneclaw grinned, exposing his front teeth, and said in a friendly manner, “Well, then, I suggest we get out of here and go find some fresh air and blue sky. What do you say, shall we go?”

Looking back over his shoulder just before they left the chamber, Pebble paused, knowing with absolute certainty that his life was never going to be the same again.

Chapter 6

Flint Twitchtail Gets a Job

Catella Catalina - Comitian to all of Crocus Butte, sat back against the wall of the smaller chamber she used for private meetings. The six Cathedrans lay or sat against the opposite wall in various postures. Some appeared relaxed, others were tense with anticipation.

"Well now, that was interesting, wasn't it?" she said to the group. "I've waited all my life in the hopes that we might find a successor for Grandfather Quivertail to arrive, and here he was, under our whiskers the whole time. Who would have thought that a mere *gopher,* of all creatures, could be a Foreteller?"

"Yes, the timing is fortuitous, given the decline in the old dog's abilities these past few years," said Siltstone Clayback, Cathedran to the Clayback Ward. "We've lost a lot of dogs this past while, no disrespect to old Grandfather, but I agree, as strange as he is, let's not waste any time getting this gopher trained and ready for work."

There was a general nodding of heads and shaking of whiskers in agreement. Sitting slightly apart from the others, Evocator One-Tooth listened to the discussion as it continued between the Comitian and her councilors. The discussion ended when Catella Catalina looked over at him and said, "One-Tooth, I need you to select a trustworthy Astiti and send him with a message to Grandfather Quivertail."

Evocator One-Tooth bowed his head to her in response, "Yes Mistress. I will personally pick the guard myself. What is the message?"

"Have the guard inform Grandfather that we think we've discovered a pup with the ability to Foretell and that I personally request that he mentor the pup and prepare him for the challenges that lie ahead." She waited for the nod that confirmed he understood the message, then said, "It would be a shame, after waiting so many years, for the pup to lose his mind now. I have no idea how well a ground squirrel will deal with it, but with time and training, good luck and hard work, he may just survive these next few months. I do not want the pup to know he is being monitored during his training, so select an Astiti that can move up there and stay with him during the duration of his training. Make the selection well, One-Tooth. Our futures may depend upon him."

The assembled dogs rose from their places and dispersed back to their respective Wards. Evocator One-Tooth of the Short-Bottom Ward went in search of Flint Twitchtail. He was the dog for the job, or at least that was what the Evocator of the Twitchtail Ward had been saying about

him. Flint was well trained, very experienced and huge besides. He might be a little rough around the edges but was fine once you got to know him. The Evocator just had to find him.

Flint Twitchtail was patrolling the western rim of Snake Canyon, searching for snakes or coyotes that might try to use the cover of the gorge to sneak across the Borderlands. He was working his way towards the southeast and was at the top of the canyon near the fallen tree when another Astiti came quick-waddling up to him.

Panting hard from the exertion of his run, the Astiti took a moment to regain his breath, then said, "Whew! Finally! I've been searching all over the Ward for you." He paused. "There's an Evocator from the Short-Bottom Ward looking for you. He's waiting for you at the Ward line, south of Stone Neck."

Flint looked at him as though he had lost his pea-sized brain. "Don't mess with me about something like that, or I'll toss your skinny bones to the snake down there, just to see you eaten." "No, really. Would I run if I could walk? He is there - and so is our Evocator. What did you do, Flint, go foraging with a Cathedrans daughter or something?"

"I have no idea what's going on," said Flint, now more than a little angered. "You tell the boss that I'm busy over here, and he can go tramping off to the picnic by himself."

The young and obviously new Astiti certainly wasn't going to do so, and he followed the huge dog.

"Sir, you don't understand. This was an order, delivered to you by the Evocator himself. You must go!" Flint looked at the Astiti in disgust before deciding that he must be telling the truth.

Leaving the other Astiti to continue his patrol, Flint made his way south along the border between the Twitchtail and Short-Bottom Wards, until he came to the southern end of Stone Neck. There he found Evocator Twitchtail, several high ranking Astiti, and Evocator Short-Bottom, all lined up around the Twitchtail Comitium.

"Hmm, maybe I should have come right away; looks like something is afoot."

When he climbed up the side of the mound that led to the council chambers, he was told to follow the group as they dropped, one by one, into the tunnels below.

"Flint, have a seat. This dog has something to say," said his Evocator.

One-Tooth stepped to the center of the room and said, "Flint Twitchtail, you come with high praise from your fellow Astiti and your Evocator. I require a good dog, and I hear you're the one."

Flint looked at the other dogs, puzzled at the praise and attention. Normally it was "And by the stinkweed, you'll do this or be demoted!"

Curious now, he simply said, "Thank you, Sir. That's nice to hear, but what exactly is it you want from me?"

"I need a dog that's able to be away from his duties. I understand that you don't have a mate yet, or any other family commitments here. So you should be able to leave for a while without messing up a coterie too much. But first I want you to take a message up to the top of Quivertail Ward, to Badger Knoll and give it to Grandfather Quivertail. You are to inform him that we've found a Foreteller in the city and that Catella Catalina herself wants him to mentor and train this pup. You should also let him know that he is not one of us – he's a ground squirrel." He waited for a response from Flint, but the Astiti didn't reply, clearly waiting for more information.

"I also want you to stay with the pup when he gets there, and during his training to make sure he doesn't get killed; or some other foolishness. You are to take your orders from Grandfather Quivertail, and do whatever he commands."

Flint sat quietly for a moment, fuming at the very idea of being a mere messenger, and at the very notion of being a nursemaid to a pup, and a ground squirrel at that.

"You don't expect me to be a baby sitter, do you? My skills lie elsewhere. If you can find someone else better suited to pup-sitting, that would probably be better." Then, as an after-thought. "Sir."

Evocator One-Tooth rose from where he had been sitting and stared down at Flint, anger simmering behind his eyes.

"Perhaps I wasn't perfectly clear. You will do as you are ordered, you will do so willingly, and with courtesy. If you do not, you will be demoted to cleaning the dead out of old burrows[40]. Do I make myself clear, Astiti Twitchtail?"

Flint nodded.

"One more thing, Flint. Even though the pup is a ground squirrel, I want you to treat him exactly as you would a dog. He's got enough on his plate without having to deal with prejudice as well. Is that understood?"

Flint looked at the Evocator as though he had lost his mind. Not only was he to baby-sit a pup, but it wasn't even a prairie dog!

With his feelings hidden, Flint also rose and towered over the Evocator before him.

"Yes, Sir. If those are my orders, I'll be on my way." He turned then, and with a final look of disdain, walked away.

Old One-Tooth gave a huge sigh of relief, thankful that the meeting had gone so well. He had been expecting far worse.

---

[40] Someone actually does clean out the burrows when a dog dies underground. If you walk around a colony in the spring, you will find prairie dog bones lying around the entrance mounds, clearly having been shoved out of the tunnel along with the other refuse. In some cases, I've found three or four skulls and various long bones at one entrance. Why do they die? The most likely common cause is starvation while over-wintering in the den (Hoogland 2006). Dogs that do not gain enough weight in the fall to sustain themselves through prolonged torpor, succumb and die within their nest chamber.

Chapter 7

Pebble Returns Home

Pebble returned home, escorted every waddling step of the way by the Astiti, Stoneclaw. Along the way, every dog that saw them stopped to wonder what was going on. Some had seen him escorted to the Comitium with the Astiti and now saw him leaving, still guarded by the old dog. Teeth would be clicking tonight!

The pair arrived back in Stone Neck with no further adventures, and with a word of friendly warning to do as he had been told and stay home, and out of trouble, the Astiti finally made his way back towards his patrol region and out of sight.

Pebble had little choice in the matter. Mistress Catella had assured him that he had done nothing wrong, that his abilities were a blessing for the colony, and he should be glad and proud of his abilities.

It did not seem real. One morning he had been playing a carefree game of tag-you're-it, and life was fun and uncomplicated. Now, a couple of weeks later, he lay across his tunnel entrance, hot, tired, and more than anything else, worried and confused.

It was late afternoon and the sun was low in the hot western sky, just nudging the tops of the clouds that lined the horizon. Long, low shadows cast by the sentry mounds made black stripes across the Ward, with dogs flickering in and out, from bright sunshine and back to shadow again. The further he looked across Stone Neck, the more difficult it became to distinguish clearly between dogs and sentry mounds, streets, and alleys.

He was unable to stop thinking about his abilities. On the walk across the Ward back to his home, his senses seemed to be working overtime, and he was detecting and hearing voices everywhere. There were numerous old abandoned burrow systems scattered throughout the colony and it seemed as though every one of them was now home to a different species. As they had walked past one old burrow, he could hear the thoughts of Spadefoot toad,[41] slow and ponderous,

[41] The Plains Spadefoot Toad (*Spea bombifroms*) often shares burrow systems with prairie dogs. It gets its name from a small, black, spade-like pad on the back of its hind feet. Using this as a spade to dig through soft soil, it can disappear underground with great speed. They live underground almost exclusively, emerging en masse during rainy spring nights to breed and then lay their eggs in ephemeral wetlands. In arid areas, they depend upon the presence of water-filled buffalo wallows in prairie dog towns as a place to lay their eggs. They develop very quickly to take advantage of the available water, before it dries up. Spadefoot Toads are really not toads at all, but instead are members of the family *Pelobatidae*, while true toads such as the Canadian Toad and the Great Plains Toad are

thinking about coming up to see if it could find a bug or two for supper. A short distance later, a mountain plover [42]darted quickly through an opening before them and vanished at a fast run down a street. Near the edge of Stone Neck, along the periphery of the colony, a small group of partridge hens was busy chatting about something important. It was enough to make his brain go numb.[43]

The hot afternoon sun had created a strong heatwave, and everything from twenty or thirty cubits away had magically morphed from solid structures and beings to vague images that floated and waved back and forth in an unseen, unfelt wind. A small herd of pronghorn antelope[44] was walking past. Their lower legs seemed insubstantial and gave the herd the appearance of being a tan and white millipede, walking on hundreds of legs made of flickering strands of water, dancing to the music of the wind in the grass as they moved ethereally across the city.

A fitful little wind gust came twirling up the street from his left, paused for a moment, then quickly became a tiny dust devil. It approached slowly, moving from one side to another, then forward again. It seemed to be probing nooks and crannies, searching for items to wear. In just a few moments the insubstantial being had collected all manner of debris and it swirled around in a kaleidoscopic circus of local detritus. Everything from twigs and antelope droppings, to old Mrs. One-Ear's flannel leaf shawl, flew past, around and around in crazy, spiraling circles. It gradually made its way to the top of the ridge that formed Stone Neck and seemed, like a curious new visitor to the area, to pause and look out over the city for a moment. Satisfied with what it had seen, the clothing of dust and debris that made it whole, simply fell to the ground and with a final, fretful gust of wind, it was gone.

Pebble rose out of his sentry hole, reluctant to descend into the darkness and solitude of his tunnel, and sat scanning the skies around him. Everything was quiet. He tried to hear anything from a lurking predator; but nothing, not even a whisper. "Ah well," he thought to himself, "It's

---

members of the family *Bufonidae.* True toads have horizontal oval shaped pupils, and a large bean-shaped gland behind the eyes. The Spadefoot Toad has vertical slits for pupils, much like a cat, and they have teeth in the upper jaw – a feature lacking in true toads (Russell and Bauer 1993). Sharing burrow systems is a form of symbiotic relationship known as commensalism.

[42] The Mountain Plover (*Eupoda montana*) requires grassland habitats where the vegetation is cropped very short, such as that found within dog towns. She lays her eggs in a rudimentary nest on the ground. The nest and eggs are well camouflaged using cryptic coloration.

[43] Species such as those described above are indeed co-inhabitants of dog towns. Depending upon the degree of association or dependence, some authors have identified almost 200 species that are dependent in one way or another with dog towns, and the dogs themselves. This makes them a keystone species; one that has a significant, unique effect on its ecosystem that is disproportionately large relative to its abundance (Shipley and Reading 2005).

[44] Pronghorn antelope (*Antilocapra americanus*) are known as facilitative grazers. They graze the plants that prairie dogs don't, and this increases the density of those plants the dogs do like, and facilitates the ability of prairie dogs to survive. Pronghorns are the only ungulate that sheds its horns annually. The fastest land mammal in North America, they can attain speeds in excess of 80 km / hr. They've been known to migrate more than 800 km during their seasonal movements.

been a long day and I am as irritable as if I'd eaten a whole dinner of crabby-grass." Slightly depressed, a little hungry, and more than a little tired, he turned and entered his tunnel.

As tunnels go, his was fairly simple. It couldn't begin to measure up to the elaborate tunnel systems that had been built generations ago, but it was his home and he was happy here. The main tunnel had been started by someone else years before he took it over. It dropped fairly steeply downwards from the sentry mound above, then leveled out just as it turned almost ninety degrees to the left. Right there, at the corner, was a small vaulted entry into a small round chamber. This had been his original nest when he first excavated his tunnel. He used it now as a temporary storage room for food brought home to fill his winter pantry[45]. He glanced inside as he passed and said out loud to himself, "Looks like I am going to have to get busy soon. The larder is almost empty."

His spirits began to rise a little at the security and warmth he felt at being home again. he was safe from Evocators and hawks alike. This was the point where he had begun his own excavations. His tunnel narrowed a little here and traveled level for a short distance before rising sharply upwards. All tunnels had this feature as a way to prevent the flooding of the lower tunnel by heavy rainstorms or sudden spring snow melts. Any water that managed to get in past the upper rim of the mound would then be held back by this upper rise in the tunnel, to prevent it from running down to the nesting chambers below.

He climbed the steep ramp, turned to his right and dropped in a spiral down another ten cubits or so. Here the tunnel traveled straight and level again for a short distance, dodging the occasional immovable rock, then once again rose steeply upwards for another couple of cubits. This low area would trap the heavier air of winter. At the top of the ramp, a series of small caves branched off from his main tunnel and here, finally, he was home.

"OK Pebble, you little buffalo-turd disturber, what's for supper tonight?" he asked himself as he entered his main pantry. He sorted through the storage chambers that pock-marked the pantry walls, looking for something that appealed to him. His nose and whiskers quickly determined the identity of the food stored there and one by one he dismissed them. "Nope, don't want any golden bean tonight, chickweeds too soft, and breadroot[46] too filling." He dismissed a small pile of crabby-grass in a corner, and then he found what he was looking for. "Ah! That's it," he said as he spied a nice mound of Hare's-ear mustard in a corner.

---

[45] Richardson ground squirrels may stock up on provisions, but once winter sets in, they enter true hibernation. It would complicate the story too much if Pebble hibernated, so here I've taken the liberty of having him act like a prairie dog. Prairie dogs also store food for the winter months. They go into a form of torpor where their metabolism slows, but most do not truly hibernate. A consequence of this is that they require occasional sustenance, and utilize their stored provisions during the harsh conditions of winter. In northern colonies such as those in Grasslands National Park, in southern Saskatchewan, they may remain below ground for periods of up to 20 weeks, and there is some suspicion that these northern colonies may actually enter true hibernation (Gummer and Ramsay, 2000).

[46] Breadroot (*Psoralea esculenta*) is hermaphrodite (has both male and female organs) with a large tuberous root that has a sweetish turnip-like taste.

As he turned to leave his eye caught a glimpse of biscuit root[47] tucked under a wad of honeysuckle vines, and pulled it out to take along. He carried his supper of biscuits and mustard into the central living chamber, then returned to the pantry for the sarsaparilla[48] that he had sipped, but had not finished, that morning.

With his food ready, Pebble sat on a pile of couch grass[49] and ate his meal in a pensive, almost sad mood.

His little round tummy was made even more portly by the large meal, and Pebble began to doze and nod off in the main chamber.

"This is silly," he thought, "It's time for me to toddle off to bed." With a quick tidy and the return of surplus food to the pantry, Pebble walked sleepily through the main chamber, under a low doorway, around a sharp corner, and up a couple of steps into his nest chamber. After a few quick nose-pushes of bedstraw here and there, he lay on his side and drew a nice big leaf of flannel leaf fern[50] over himself.

Within seconds, he had slipped into a deep sleep, filled with dreams of adventure and excitement. Little furry paws twitching and quivering in a game of tag-you're-it, Pebble Short-Bottom, Foreteller, drifted off to sleep.

[47] Biscuit root (*Lomatium cous*) is sometimes referred to as "small potato" because of it shape and consistency. It is a rare plant, found only in the southern part of Saskatchewan.

[48] Sarsaparilla (*Aralia nudicaulus*) root was used by the Meskwaki for internal troubles, by the Potawatomi and Ojibwa as a cough remedy, to alleviate sore eyes, and as a poultice. For long journeys, the roots and berries were used to make an invigorating tonic by Saskatchewan First Nations. The roots were mashed into a poultice to heal wounds by the Hocak. The roots and fruits were used in a decoction/tonic form to treat colic, cough, and gripes by the Chocktaw (from www.pullupyourplants.com).

[49] Couch grass (*Agropyron repens*) is a non-native invasive grass that provides excellent forage for grazing animals. It also makes a nice couch for sleepy prairie dogs.

[50] The flannel leafed fern (*Verbascum thapsus*) is a tall-stalked, very wooly mullein, with densely packed yellow flowers. The large leaves, with their flannel-like texture, was the inspiration for its use as bedding for sleepy prairie dogs. Ancient Greeks and Romans dipped the stalks in tallow for use as funeral torches.

Chapter 8

A Rude Awakening

A soft tickling on his stubby white whiskers disturbed his slumber.

Lying on his mattress of fragrant pasture sage leaves, Grandfather Quivertail snorted softly, squirmed, and rolled onto his back. More tickling and a fine dust began to make his nose itch. Used to living in his underground burrow, Grandfather was accustomed to the occasional rain of dust from the ceiling, but it was the almost undetectable vibration in the earth that surrounded his chamber that finally woke him up.

He cocked one small rounded ear towards the ceiling and listened intently. “What the burrball is that,” he swore in a mumble, still dry-mouthed from snoring all night, his tongue sticking to the inside of his long dark-yellow teeth. The vibration increased to a faint rumbling sound and combined, the sensation and sound began to make the grizzled old prairie dog nervous.

He had heard that sound before, but could not quite place it. Discernable now amidst the rumble were individual sounds, voices that reminded him of something; but what was it? The tremors increased in severity and now not just dust, but small clods of clay were falling from the ceiling. Exposed grassroots swayed gently from side to side, as though from a wind that had never blown down here. Rising slowly, his old hips aching, Grandfather took a couple of tottering steps towards the entrance of his sleeping chamber and listened once more, whiskers twitching, nose sniffing and ears straining.

He could hear nothing. “Harrumph!” he muttered, “those pups better not be playing in my study or they will be picking burrballs from their fur for a month”.

He turned back to his bed.

His mind began to wander again, and forgetting all about the commotion, he began to reminisce about his favorite foods. One was the sweet-tasting roots of the wild licorice, and there was a forest of it growing just outside of Crocus Butte.

Two things made the plant his favorite treat; the succulent, mouthwatering, sweetness of the root and the bitter-sweet taste of the adventure involved in getting it, since the grove lay outside the Borderlands. Grandfather Quivertail rolled once again onto his boney back, in his nest of fragrant pasture sage. Forgetting entirely what it was that woke him up, he let his mind and taste buds wander back to his discovery of the Licorice Forest.

He had discovered the grove quite by accident, decades ago when he was just entering service as one of the Astiti. This elite group of Borderland Guards patrolled the barren-lands between the wilderness and the dog town, and his job, as a recruit, had been to widen and maintain the open area between Upper Quivertail and the Great Unknown. He was felling stalks along the edge of the Wall, snipping each stalk off close to the ground, then letting it fall into the open area. There, another Astiti would drag the stem and its leaves across the barrens to the city, where it was torn to pieces by waiting town folk. Some would use the coarser material to line their burrows, others would feed the succulent young leaves to their pups.

They had been working northwards, pushing the boundary back, when they came across a huge column-like boulder that towered far above them. It was bigger than anything he had ever seen and he wondered if indeed he had reached a rock wall they would never get past. He left his fellow Astiti and cautiously worked his way to the left around the base of the massive stone. There was a clear space around the base of the stone, of perhaps one to two cubits' width. It created a sort of open pathway between the stone to his right and the thick wall of sagebrush to his left. He paused once to reassure himself that the others were still at work behind him, then went deeper into the shade cast by the monolith.

He had worked his way along the pathway for perhaps another two or three cubits when he stumbled over something on the ground. Looking down he saw the skull of a prairie dog laying at his feet. Dried and old, it looked as though it had rested here for eons. With a quivering shake of his tail, he shook himself, stepped carefully past the skull and around a sharp corner, only to find another, but much fresher skull and a few more bones laying on the ground. When he looked up and past these horrifying bones, he almost died of fright. The ground, for as far as he could see ahead and into the vegetation around him, was covered with prairie dog bones; some old, some new[51], and one which very much looked like the face of Cruncher.

Cruncher was an older Astiti and had been due for promotion to Evocator. His age and experience had made him an authoritative, yet fair-minded Astiti and with the recent promotion of Karst Clayfoot to Cathedran, everyone had expected Cruncher to move up to the rank of Evocator. Then, one day, he simply disappeared. He was patrolling his area one moment and was gone the next. A search was conducted but no trace of him was ever found. Until now. Now he stared back with an unblinking look, as if to say – "Run, you fool. Can't you see there's danger here?"

He was into a full bow-legged run back to the safety of his fellow Astiti when an errant gust of wind filtered through the grasses beside him. A peculiar aroma wafted past his twitching nostrils and he stopped his panicked run in a skidding slide.

[51] Aerial predators will most often consume their prey close to its capture site, except during the breeding season when they take their prey back to the nest to feed their young. A rock such as this is an ideal place to consume a meal of prairie dog.

"What is that smell?" he thought as his feet dug little furrows into the dank soil at the base of the rock.

It was the most bewildering, bewitching, enticing smell he'd smelled in all his life. It completely dislodged his fear and it drew him deeper into the Wall, away from the base of the huge rock. It compelled him into the impenetrable forest of silver sage[52] that, to him, seemed to go on forever.

After an eternity of pushing, shoving and working his way through the dense stems and branches of the sage forest, he burst into a small clearing, on the far side of which he saw a plant he'd never seen before. While shorter than the sage forest in height it still towered over his squat form as he crouched in the shade of the fragrant silver sage.

All around him and into the clearing, the ground was covered with reddish-brown seed pods.

Emerging from the soil across the clearing was the source of the aroma; a thick, rope-like root poked out of the moist soil, then sinuously curved back under again. He began to walk to it, but in an instant, the spines and hooks of the pods had stuck to the soles of all four feet, to the underside of his belly, right up under the base of his tail in the most tender of places. He crawled to a stop, immobilized by pain and by the mass of sticky pods under his body. His nose and lips were not immobilized though, and they were just touching the root.

"I've only got a minute before they miss me at work," he thought to himself, trying desperately to ignore the thousand little jabs of pain from the pod-barbs. "I'll just have one quick bite, see what it's like, then get back to work".

With his nose twitching, eyes darting and ears straining for danger, he bit into the soft, sweet fullness of the licorice root[53] and was a captive to the flavor for the rest of his life. With a few impatient flicks, kicks, rubs and shakes, he rid himself of the burrs sticking to his fur; and munching along, oblivious to his surroundings, followed the root underground.

He didn't even know he was tunneling until the already dim light of shaded daylight began to darken further as he followed the root under the grove. The sudden realization that he had abandoned his post, was inside the Great Unknown, and that it was getting dark, forced a weak little squeak from his throat (though it had to get past a mouthful of licorice to do so), and with a squirm and twist, he was back on the surface.

Now he had to get back past the barrier of the seed pods. Almost the size of his nose, the pods were covered with hundreds of hooked barbs that stuck to anything and everything that passed by. Once caught, they stuck. Cautiously, and with great care, he moved the pods to the side, creating

---

[52] Silver sage (*Artemesia cana*) was recognized by early settlers soon came to regard its presence as a good omen, since where it grew in abundance the soil was fertile enough to support farming. Vast tracts of the Canadian west were once carpeted in a grayish-blue sea of silver sage, but are now replaced with agricultural crops. The decline in sage is directly responsible for the decline of sage grouse.

[53] Wild licorice (*Glycyrrhiza lepidota*) does indeed grow throughout the region where the story takes place. It's a forb that was utilized by First Nations people (Kindscher 1992).

a trail through the dense layer of old, fresh and prickly pods, then pushing them back to close the trail behind him, leaving no trace of his discovery behind him.

He made his way back out of the Sage Forest to the pathway along the base of the stone, and around it, to the opening he had cut earlier. Just in time to come face-to-face with Splotched-Hair, his Evocator. "Feldspar Quivertail; you lazy pup, what do you think you're doing hiding in there? Having a wee nap, are we?" he barked, tail rigid in anger. Grandfather had cowered before a fury unlike any he had ever experienced, then quickly darted past Splotched-Hair and back to work.

Perhaps a week later, he had returned to the giant stone, now known as the Hawk-Rock. After his discovery of the bones, it was quickly determined that this was a place to be feared and to stay away from, as the massive rock was used as a place for aerial predators of all sorts to sit and wait for a careless prairie dog. Great efforts and sacrifices had been made to push the vegetation back away from the rock, but that effort had halted when they hit the Silver Sage Forest that lay beyond.

Grandfather rolled over and snuffled. He remembered it had been a beautiful late summer day, the next time he went to the Licorice Forest. He had slowly made his way from his home burrow through the streets and alleys of the upper Ward. Every few feet he was forced to stop and visit with a neighbor, touching a nose with this one, waving to that one, sitting shoulder-to-shoulder for a few minutes to chat about the weather with old One-Ear and then slowly on again, pausing, nodding, "Good to see you again, Three-Toe…, Oh hello Mrs. Spot, beautiful day isn't it?" He had to be careful not to show any clear intention of his actions, for while the location of the grove was not a secret, the contents of it were. Few dogs knew of the sensuous delicacy of the licorice root, of the sweet moisture it contained, and of the satisfying fullness, just a small meal of it gave him. He guarded the secret with a great jealousy.

One day he had made it successfully across to the base of the Hawk Rock and was working his way carefully around its base when he bumped, blunt nose into blunt nose, with a patrolling Astiti. They both leaped sideways, backs arched, ready to fight to the death the predator facing them. Then they both started to stammer, "What are you doing here?" to each other. Eventually, they both settled, and Grandfather returned to his burrow after seeing the other fellow do the same. "This is too frustrating," thought Grandfather to himself, "I've got to dig myself a tunnel system over to there."

A short distance down-slope from the Hawk Rock there was an abandoned badger[54] hole, and the large earthen mound from the soil it had excavated. It had been dug by a badger to capture the

[54] The badger, (*Taxidae taxus*) is one of the most fearsome predators of prairie dogs. They weigh up to 10 kgs, and have long powerful claws on their forefeet to allow them to dig very quickly (Lindzey 1982). They tunnel head first into a dog burrow, piling the excavated soil under their bellies. I once watched one dig after a ground squirrel. It quickly vanished underground, then there was a brief pause, followed by six explosive bursts of soil, a pause, then another six, expelling the soil out of the tunnel and onto the ground far behind it. No prairie dog can out-dig a badger, but having a second exit can serve as a means of escape. Stale air that indicates a burrow with only one entrance, and the aroma of dog in a burrow is a dinner bell for the badger. Even several exits are not proof against predation, as they have been known to systematically plug all entrances, except one, then dig in for supper (Long 2002).

prairie dog who had dived into its burrow. Grandfather had heard the badger after its arrival, but unfortunately, not until after it had eaten just about everybody living in the area. Grandfather had moved his quarters upslope and into a now-abandoned dog tunnel, near the badger. Every time the badger emerged from his shallow nest, Grandfather was there to hear the badger's hungry thoughts and give warning to those below. It took a week of no meals for the badger to become frustrated and leave.

The badger hole wasn't very deep, but it was too large in diameter to make a safe dog burrow. Grandfather walked over to the pit and looked inside. At the bottom, the remnants of the old dog tunnel could still be seen, though it was collapsed and in terrible disarray. He looked around, dropped into the hole and began his own tunnel system from inside the badger hole.

He had eventually tunneled under the Borderlands, under the Sage Forest, under the meadow full of barbed pods, and up into the Licorice Forest itself. He could now be into the hidden tunnel entrance, and munching happily on licorice roots, in a matter of moments. No more risks of hawks and eagles, no more risk of being seen by suspicious Astiti, just privacy, security, and as much succulent sweetness as he could eat.

One late spring day, just after his third birthday, he decided that moving into the old badger hole would make his life a lot simpler. For a few days he had been deep in his burrow, sorting through supper supplies, when he heard not one, but two voices in his head. This was disconcerting, to say the least, and it sent him scurrying towards the top of the badger hole expecting to find someone in his burrow. It was only after he realized that no-one was there that he understood the voices were inside his head. He was hearing the thoughts of someone else. Bewildered and scared now, but determined to figure out what was happening, he crept to the opening above.

"How far is it to the colony, did you say?" asked the first voice.

The second replied in a gruff, deep and masculine voice, "Just over this small hill. There's a large rock where we can land and rest. It sometimes takes a while for the feeble-minded dogs to forget we're sitting up there, but eventually, they do - and then we'll have our supper."

His ability to hear the thoughts of The Predators was good, and he was deep in his tunnel when they first penetrated his awareness. It took him just a few minutes to reach the tunnel entrance, but by the time he arrived, the alarm had already been sounded, and there, just across the Borderlands, sat two Ferruginous Hawks[55]. Sitting side by side were two of the largest hawks in the entire prairie skies, and Grandfather dropped back into the tunnel.

---

[55] The Ferruginous hawk (*Buteo regalis*) is one of the largest hawks that hunt the prairies. Males are smaller than females, as is the case with almost all hawks. They hunt either while perched, as they are here, or from the air as they circle above a prairie dog colony. A rock, such as the Hawk rock in the story provides an ideal perch from which they launch themselves upon their unsuspecting prey. They have also been known to stand at the entrance to dog tunnels and snatch the unwary victim from the entrance when it emerges. (Wheeler 2003).

“By the Poison Ivy that was too close!” he thought. “I figured they were still a long way off, but there they were, ready to eat me.” He gulped, his heart pounding from the surprise and the knowledge of how close he’d come to them.

Ferruginous hawks were greedy for dogs such as himself, disdaining the thought of carrion or someone else’s left-overs. These two were massive, and despite his fear of them, he was impressed by their power and regal appearance. The male, slightly smaller than his mate, sat to the right. With his creamy white breast and rusty colored legs, the male blended nicely into the rock upon which they sat. They both, in a synchronized duet of expulsion, leaned forwards slightly, lifted their un-banded tails and deposited a stream of whitish waste on the rock face, adding to an already thickly streaked layer of hawk excrement.

“Oh great,” Grandfather thought to himself, “no licorice for me today. Not with those two sitting there and me having to watch them.” It took most of the day and the western sky was beginning to pale before he heard the disgusted voice of the female say “I thought you said they would forget about us up here, yet every time one of them pokes its head above ground, that one below us yells out, “Hey you, look over at the rock”, and back down they go.” She looked at him, sitting there silent and immobile beside her, then without another word she fell forward gracefully off the rock. She spread her great wings and dropped silently into the air over Grandfather's head and with a long-drawn-out scream of hunger, floated across the city and out of sight. The male waited a moment longer to see if anyone was going to get careless, then he, too, departed with a high, thin whistling scream that trailed off in anger as he soared away. Spiraling in ever higher circles upon a warm evening updraft, he was soon just a winged speck, disappearing after his mate to the south.

Grandfather shook himself from his memories, and his awareness of the present came back to him. His first encounter with the knowledge of being a Foreteller was a very long time ago, and he had gradually come to accept it. He hadn’t said anything to anyone else about his abilities, though, for many years afterward.

“What the blazing burr ball is going on?” he demanded to himself when after a few minutes of relative calm, the entire chamber and the tunnels connecting it to the vast underground system began to shake violently. Ponderous and immensely heavy steps could now be heard, felt even; as though a huge beast strode the ground above him. Boom! Boom! Boom!

The slow rhythmic echoes of massive feet impacting the ground above brought back with instant clarity the knowledge of who was up there, and of what was about to happen.

He paused in shock and dismay, temporarily stunned by the sudden and unexpected return of his abilities, “Oh my”, he whispered, “Oh my!”

With a quick glance around to make sure that no one else was there, he began to run as fast as his skinny old legs would take him, towards the central living area of his home. Only one burrow-story above him, two buffalo bulls slowly drifted in from the prairie that surrounded the Black-tailed prairie dog town of Crocus Butte. It had been many, many summers since they had last been here. So long that most of the prairie dogs in town had never even seen one, believing the beasts

to be mere myths, fantasies of the old that were used to make the young behave themselves. These were no figments of anyone's imagination. The two bulls were wandering, searching for a place to spend the winter after leaving the herd they had spent the summer with[56].

Grandfather knew that the relationship between buffalo and prairie dogs was as ancient as the hills and valleys that surrounded Crocus Butte. He also knew that it was occasionally fraught with danger for the dogs living below the surface. The buffalo provided an opportunity for the town to increase in size, to expand its boundaries into the wilderness and savagery of the Great Unknown that lay beyond the borderlands, outside the Wall. Grandfather had had nightmares for weeks after his first and only attempt to see what lay beyond the Wall of tall waving grasses that surrounded the town. He had tried just that once to walk a short distance into the wilderness and within only a few minutes had almost stumbled into the teeth of a coyote. He escaped only because the coyote was otherwise occupied with swallowing the unfortunate left hind foot of another dog.

With the arrival of the buffalo, his hopes were raised that they would graze down the tall grasses that hemmed in the town, trampling the impenetrable Wall of vegetation, and pushing back the no-dogs-land of the perimeter of town a few more cubits. In doing so they would increase the distance from the Wall to the nearest burrow entrances, increasing the security for the occupants, but they also would create more open space that could be used to provide new living and foraging areas for the colony to expand[57].

Their arrival also meant the destruction of homes, burrows, mounds, and the collapse of many of the interconnected tunnels that lay below the surface. It was this that had Grandfather in a panic. He had to alert the school of the impending threat. He was almost too late.

There was a moment of silence, broken only by his panting breath, the scrabble of worn and tired toenails in the packed earthen floor of the tunnel, and the muttering of Grandfather as he repeated over and over to himself, "I must hurry, oh my, oh my, I must hurry and warn them". With no warning, the very earth that surrounded him seemed to leap upwards, then downwards, upwards, then downwards. A huge boulder suspended for generations in the tunnel ceiling, dropped with a thud behind him, barely missing the end of his stubby graying tail.

"I told Master Digger Short-Bottom that that boulder was going to fall someday, but would he listen to me? Oh my, I must hurry, oh my, oh my," he muttered again, his yellow-stained front teeth clicking together nervously.

Above him, one of the buffalo bulls had stopped for a moment beside one of the earthen mounds that rose above the surrounding plain. He paused, looked around, and without preparation, dropped to his front knees, then let his hips and side fall with an earth-crushing crash to the ground. It was

[56] Bison rut, or breed, during the last two weeks of July and the first two of August. Once the rut is over, mature bulls leave the cow: calf herd to form solitary bands of bulls. These bulls form groups of from one to perhaps a dozen or more, depending upon the habitat they occupy. Almost invariably they seek out smaller patches of lower quality habitat and leave the larger patches for the maternal herds (Olson 2005).

[57] This form of mutualism is known as facilitative grazing.

this that had dislodged the boulder that almost created a prairie dog pancake a cubit below him. The thud that followed his recline, and had reverberated through the tunnels below was nothing to what was about to come.

By this time Grandfather had finally made it to the school chamber where a classroom full of pups were fighting and wrestling in a fur-ball flurry. Their teacher, Foxglove Brokenclaw – everybody called her Fiona - had had just about enough of two of the pups. They were constantly disrupting the class, and she was just about to give them a time out in a tiny cell next door. The younger of the two had forgotten to take the Wonderberry[58] pill that Herbalist Juniper had prescribed, and as a consequence, his behavior was appalling this morning. Fiona was standing angrily at the classroom entrance, fuming in blond fury when he arrived, exhausted and breathless from his dash through the tunnels.

"What's happening? What was that crash, Grandfather?" she demanded in a frustrated voice as he skidded to a stop beside her.

"No time to chat, dear, no time to chat. We must hurry, oh my, oh my, we must hurry. Get the little ones into the fourth level council chamber as quickly as you can. Down you go, down you go. Oh my, we must hurry, oh my, oh my!" he said frantically.

She began once again to question him, but the look in his eye cut her off in mid protest. Without a word, she limped over to the largest of the trouble makers, pinched his ear and said sternly, "Enough!" He continued to bicker. so she picked him up and threw him quickly to the ground, standing over him in a position of authority and dominance. She glared at him.

"When I say stop, you Stop!"

The pup crawled meekly over to the others and sat silent.

It took only a few sharp barks and one quick nip to a furry little bum for her to get the attention of the other four pups in the chamber.

"All right," she said sternly, "line up behind me and follow as quickly as you can. We must do as Grandfather says, and descend to the fourth level."

The pups fell into line behind her as she turned and dashed into the tunnel that led off to her right. Four little furry bottoms with tails quivering bounced along behind as they disappeared out of Grandfather's sight, into the darkness and security of the tunnels below.

He watched them go, and not for the first time, wondered, "I wonder where and how she got that limp?" Fiona's right front foot was twisted and deformed, covered in scars as though from a serious injury. Despite his attempts to get her to talk about it she never would, only saying that it

[58] Wonderberry (*Solanum nigrum*) or garden huckleberry; while present on the prairies, is an introduced species and is not native to the region.

was a souvenir of her journey from Broken Hills. “Strange,” he thought, but then turned away, quickly putting her out of his mind.

Like most prairie dog towns and cities, Crocus Butte was built on several levels, like stories in an apartment building. The city was a vast inter-connected maze of tunnels[59], nest chambers, storage chambers, sleeping rooms, classrooms and meeting halls. Deep in the earth below was the most secure area of Grandfather’s burrow, and it was here that she led her quiet and now-obedient pups.

High above, the bull lay quietly for a moment, front legs neatly bent at the knee and tucked under his massive chest, gazing at the vast city that surrounded him. It had been a long time since his last good dust bath[60], and what better place and time to have one than right here, and right now? With a shove of his legs, he threw himself onto his side, sending up a massive cloud of sun-dried dust that could be seen by residents clear across town. His massive hump prevented him from rolling over, and it crashed into the side of the burrow entrance mound, just a short distance above the tunnel in which Grandfather now found himself … alone.

But alone for only a moment. Within seconds, twitching noses and whiskery faces were poking out of chamber entrances all up and down the tunnel. Heads were turning left and right, a mutter of voices as dogs asked one another what was happening. Grandfather quickly began to move ahead and tell dogs to descend to the lower levels. He worked his way almost to the surface and was standing in the light of the entrance opening when Sandstone Quivertail ran up to Grandfather.

Sandy, as he was known to everyone, had a wonderful way with pups. He loved telling stories, jokes and generally keeping the little ones in fits of giggles. He had been helping Fiona earlier with her class, and as usual, doing exactly as she said. Not necessarily because she was always right, though she thought so, but because he had a bit of a crush on her. He did his best to keep this from her, not wanting to risk their friendship, but he tried to spend as much time with her as possible. Having the pups around was a great excuse to come for a visit, as he had done today. He had had to leave for a few minutes, and it was his departure that precipitated the ruckus that Grandfather had previously interrupted.

---

[59] These burrow systems can be quite extensive, with the typical burrow having two entrances, a depth of from 3 to 10 feet (1 to over 3 meters), a total length of more than 50 feet (16 meters), and numerous chambers. As the tunnel system ages, more connecting tunnels are dug into adjoining systems, and as a result, many individual burrows can be joined together (Hoogland 2006).

[60] Dust baths, or wallows, are circular barren patches created and maintained by bison, principally bulls, though all members of bison society use the wallow. The act of wallowing serves several vital purposes; 1. It pounds the dust deep into the base of the hair coat and this acts as both a water repellent and as an insect barrier, 2. It is an agonistic behavior designed to intimidate rivals, 3. It is a place where bison can go to rub off their shedding hair coat. Wallows in turn are used by a wide variety of other species, such as sage grouse and sharp-tailed grouse for use as leks. A lek is an open patch of soil or short grass used by males of both species to perform their courtship dances and to entice females to breed. A decline in the density of buffalo wallows following the massive extirpation of buffalo, reduced the number of leks available to sharp-tail and sage grouse, and may have contributed to their population declines. This then is another form of commensalism.

Sandy asked in a breathless voice “Sir, sir, what was that? Do you need help? What can I do?”

Chapter 9

Sandy and Buffalo Snot

Grandfather knew now that a large buffalo[61] bull had just wallowed outside the tunnel mound. He also knew that something was wrong. Dreadfully wrong.

"Sandy, good, glad you're here," said Grandfather, gratefully. "I want you to evacuate all of the upper chambers, and get the little ones down to safety." Grandfather paused for a moment, deep in thought, then asked, "Do you know where to find that little dog everyone calls Pebble?"

"Oh yes, sir, I do. Pebble's the little ground squirrel who lives in Short-Bottom Ward. I go over there quite often to visit." Sandy said. He looked at Grandfather and wondered why on earth he would want to know where Pebble was. Grandfather stood quietly for a moment, obviously thinking hard about something.

"Sandy, I've changed my mind. I'll do the evacuation. I want you to scamper out of here and go find your little friend. I need to talk with him about something. Hurry now. No time to waste, no time to waste."

Another massive crash from above filled the chamber with clouds of fine dust, and a rain of small rocks as the bull rolled again.

"Yes Grandfather, I'll go right now. It might be tomorrow morning before I can get back though, is that OK?" Do you want me to bring him here?" he asked.

Grandfather thought for a moment. "Yes, I wish it were sooner, but bring him down to my nest chamber when you return, and I'll meet you there."

Sandy looked at Grandfather in surprise. His nest chamber? This must be serious indeed for the grand old dog never permitted anyone to enter his private nest chamber. With that thought in mind, he turned away from Grandfather and broke into a shambling trot, fat tummy swinging rhythmically from side-to-side, rubbing against the walls of the tunnel, first one side then the other. The light ahead told him that he was just about there and he picked up speed.

[61] The word "buffalo" as a cultural term, while "bison" is a scientific term. Technically there are no true buffalo in North America. The African Cape Buffalo (*Syncerus caffer*) and the Asian Water Buffalo (*Bubalus bubalis*) are distantly related, but they are the only true buffalo. The term is thought to have developed in North America by the evolving use of the French term *le beauf*, to *le buffle*, and finally to *buffalo*.

Sandy was so excited about his mission for Grandfather, he forgot where he was going, and what he was supposed to be doing. As a result, he broke one of the cardinal rules that all prairie dogs have ingrained in them by the time they undergo their first fur coat molt; he did not pause and lay across the entrance for a moment to survey his surroundings and to search for danger.

Instead, he popped straight up out of the tunnel entrance like the top of a jumping cactus.[62] His arrival into fresh air was suddenly ended by a wet, cloying, clinging gush of wetness, mixed with a humid, rank blast of air. The explosion that hit him sent him rolling back a couple of cubits down the side of the sentry mound. It took him a moment to collect his senses, lying flat on his back in a puddle of something sticky, mixed with dust and fine leaves. "What the burr-ball was that," he thought to himself, still slightly dazed from his exit from the tunnel.

Looking back to the entrance, all he saw was brownness. Lots and lots of hairy brownness. Four massive hairy brown-black pillars stood where before there was only a vast open space, and hanging from an impossible height in front of them was the largest nose Sandy had ever seen, or for that matter could even imagine. And it dripped with snot. Huge quantities of dripping, slimy, stretchy snot.

Still on his back and now beginning to dry with a crust of dirt and snot, Sandy began to crawl backward away from the source of his misery. The bull turned ponderously and began to rub his face and nostrils back and forth across the top of Grandfather's mound, scratching an itch and wiping the last bits of goo from his face. In the process, he collapsed the tunnel entrance, scattered the mound in a dozen directions. Then he turned slowly away and began to graze on some nearby winterfat, having completely forgotten the little ball of fur, dirt, and goo that lay in quiet shock behind him.

Sandy sat up. "Yeck, yuck, splethy yuck" he muttered, trying unsuccessfully to spit out the gobs of clinging snot that had hit him square on the tip of his nose and around his eyes. It had begun to dry now and formed a thick yellowy crust that was difficult to get off. Mixed with the dust from his tumble he now wore a mask that made him look like a tiny raccoon. He scratched with his toenails, rubbed on the side of an adjacent sentry mound, wrapped himself around the base of a nearby sage stem, and eventually managed to rid himself of most of the crud. He was leaning back against the bole of the Silver Sage cleaning his front paws, when the sight of Grandfather's sentry mound, utterly destroyed, brought him back to his senses. With them came shock and surprise at his first encounter with a buffalo, and the memory of Grandfather's order.

"Well, burr-ball, if I'm not a little cactus biter. I completely forgot," he said to himself in a panic. "I've got to run now. Oh, I hope, I hope I can get across Snake Canyon before it's dark." Sandy rolled forward and with his black tail straight up, ran as fast as he could to the neighborhood where Pebble lived.

---

[62] The jumping cactus, as it is known locally (*Opuntia fragilis*), is a type of prickly pear cactus. It's small clusters of stem segments are easily broken off, and sometimes, if under a little tension, will bounce or jump upwards, attaching themselves to whoever disturbed it. It's a great way to spread yourself around if you don't have legs.

Back in the tunnel behind him, Grandfather was deep in thought. Grandfather was a rarity within prairie dog society. Only once in many generations was a prairie dog born with the abilities that Grandfather possessed. From an early age, he had thought every dog could hear the thoughts of other species, that it was normal to be able to understand conversations that other animals held between themselves. He did this telepathically. He did not have to say anything to be heard, and neither did the others. By the time he was a yearling, he had had conversations with everyone from the mice and voles who lived nearby, to several kinds of birds, and once, even a rattlesnake. Fortunately for him, the snake had just finished a meal of meadow vole, when Grandfather bumped into it. He was remembering that conversation when another rain of dust brought him back to the current situation. He had sensed something from the thoughts of this bull. Something dreadful, but his weakening ability wouldn't let him see what it was.

He cautiously walked to the entrance, or at least where the entrance used to be. He bumped his head on a tumbled mass of rock-like clay clumps that filled the burrow entrance. As he shoved these aside, streaks of daylight filtered through the dust. Coughing in the cloud of clay particles, he gave another shove and poked his nose and eyes into the light and fresh air around him. He looked left. He looked right. Nothing. He shifted forward so that his body straddled the flattened area that was once his entrance. Still nothing. He turned slowly, surveying the landscape around him, up, down, left, right. There it was.

By this time the buffalo bull had wandered a short distance away and was quietly munching on a succulent stand of winterfat. "Oh fiddlefern," Grandfather said, in disgust." I was saving that for supper tonight."

Finished with his meal, and seeing the other bull bedded a short distance away, the old bull slowly bent down on one front knee, then the other, until he was kneeling on his front end, back end suspended high in the air. Then he rolled his hips and came crashing to the ground. The entire earth shook. Mixed with the shockwave of dust that flowed toward him from the impact, came a tendril of fine dust from the burrow entrance behind Grandfather. The bull shifted a little, to smooth out the sentry mound he had landed on, to make his bed a bit more comfortable. Then he seemed to stop breathing, for just a moment. He stretched upwards with his head and neck, paused, and took a massive gulp, bringing up a wad of partially digested food. Then the bull settled into a placid, monotonously rhythmic chewing of his cud. Eyes half-closed, his tail switched away a few bothersome flies. His steamy breath blew small twin dust devils off the dry ground, as he watched the activities going on around him in Crocus Butte. Eyelids heavy in the afternoon sun, he drifted off to sleep.

Grandfather waited in the late summer air, waiting for the return of Sandy and Pebble. Despite all of his attention and straining to hear with his Foreteller's ability, all he could detect were murmurings and a feeling of urgency from the old bull.

Chapter 10

Sandy Goes to Get Pebble

Sandy crawled out from under the shade of the rabbitbrush and looked around. Grandfather Quivertail's burrow entrance was dug into the side of Badger Knoll near the northern edge of the Quivertail Ward, and from the knoll, he had a wide view of the city below. To get across the Ward to Stone Neck where Pebble Short-Bottom lived, required some planning.

Sandy stood as tall as he could on his hind legs, and surveyed the scene. On the next sentry mound to his right sat an Astiti, guarding the region around Grandfather's tunnel. Sandy walked over to him, sat and asked politely, "Excuse me, Sir. I've got to get across the Ward to Stone Neck. Have you had any reports of Predators between here and there?"

The old Astiti glanced down at Sandy, then scanned the skies and ground in his patrol area.

"No, nothing, other than the ruckus that old bull just caused, and I've been here all day." He paused for a moment, and then said, "You know, before today I always thought that buffalo were simply a myth. But I saw one – can you imagine, I actually saw one!"

He stood tall to get a better look at something below, then squatted back onto his haunches. "Quiet as a mouse wearing pussy-toe slippers," he said. Then after a brief pause added, "If you're going, best get to it."

Sandy rolled forward onto all fours and said, "Thanks for your help, Sir."

To get to Stone Neck was fairly straightforward. He just needed to make his way through the maze of streets and laneways that made up Quivertail Ward. The tricky part came when he got to the other side. Quivertail Ward was bounded on the west by a steep-walled gully known as Snake Canyon, both for the way it twisted back and forth in a southeasterly direction across the upper city, but also because snakes did indeed use it to hunt unsuspecting prairie dogs.

On the east side of the Ward another gully, broader but quite shallow, came down off the plateau above the city. Wetfoot Gully worked its way in a southwesterly direction and met Snake Canyon at Muddy Forks. The two gullies then merged into one and formed Brokenclaw Creek, which in turn flowed down into the vast chasm that was Lizard Valley. Stone Neck lay just across Brokenclaw Creek from Muddy Forks.

Heavy rains had caused flash floods that had come roaring down both gullies a week or so ago, and the bottom of the creek channel was still wet, boggy and impassable as a result. To get across

Brokenclaw Creek to where Pebble lived was only possible at one place. No one knew for sure when a massive tree had fallen across Snake Canyon at the top of Stone Neck but it was there that Sandy was headed.

The tree had grown on the southern side of the canyon and had then fallen towards the north. It had been a massive thing while alive, and in death was no less spectacular. After he passed through the last streets of Quivertail Ward he arrived at the edge of the Borderlands. Here he stopped and lay in the cone of a sentry mound for a few minutes, visiting with the Astiti responsible for this section of the border.

"Have you come far?" the guard asked.

"No, not a long way. Just from up by Badger Knoll at the north end," Sandy replied. The guard looked at him curiously. "Isn't that where that old dog, Grandfather lives? You know - the guy that's supposed to be over a hundred years old? I've heard of him, but never had the chance to meet him."

Sandy scanned the skies.

"Yes, he lives there, and I just left him a few minutes ago," he said. Not many dogs got to speak with Grandfather Quivertail.

"Well I don't understand how he's managed to live this long," the Astiti said as he shifted positions to look back up towards Badger Knoll. "The way I hear it, the badger that used to live there killed most of the colony. They were down to just a few scattered souls when Grandfather Quivertail moved to Badger Knoll. But the weirdest thing is, not long after he arrived, the badger stopped hunting here."

The Astiti paused for a moment. "To top it off, look above the knoll there, off to the left a little." He waited until Sandy had shuffled around to look, and then he pointed with a stubby forearm, "There, just up and to the right, across the Borderland. You can barely see it from here, but that's Hawk Rock and it sits right above his tunnel." He said this in a tone of amazement. Dozens had died across the northern edge of the city over the years, yet Grandfather lived through it all.

"Nope, don't understand it," he said again. "But my job isn't to understand how old dogs get to be old dogs, it's to make sure young dogs like you get to live a little longer." He glanced around one more time, then said, "Well if you're going, best get to it."

Sandy stood on his hind legs, had a thorough look at the far edges of the Borderlands towards Snake Canyon and the Great Unknown that lay beyond, then dropped to all fours and without another word, climbed down the sentry mound and over to the tips of the first branches of the fallen tree.

It was a little like walking into the back end of a porcupine with all of the branch tips poking straight at him. He worked his way gradually inside, and as he did, the branches got both less dense, and bigger around. After a short distance, he no longer had to crawl on his belly and could walk on all fours. He came to the main trunk and worked his way up a broken branch until he was

on top of it. Once there, it was like walking on a broad street in town. He had to carefully work his way around a few big vertical branches that rose from the middle of the trunk, but otherwise, the crossing was easily accomplished. Snake Canyon was not particularly deep at this point, but still deep enough that Sandy felt a mild vertigo when he looked down.

Safely off the massive trunk and on the other side, Sandy began to run in a loping gallop that caused heads to turn. The distance from the tree to the burrow that Pebble lived in was fairly short, and it only took him a couple of minutes to arrive, panting and hot, at the top of Pebble's sentry cone.

Sandy knew better than to try and enter the tunnel system, given how tiny Pebble was, and how narrow his tunnels were, so he waited at the top for a minute to catch his breath, then stuck his head into the entrance and hollered down into the darkness below, "Hey, you scrawny little excuse for a phony prairie dog – you in there?"

His voice boomed and echoed off the tunnel walls and eventually bounced its way into Pebble's nest chamber.

Pebble had returned home from his extraordinary visit to the Comitium expecting to find lots of excitement and hoopla about his newly discovered powers but instead found only boredom. He had been told to stay near his tunnel, do nothing out of the ordinary, and someone would come to take him to see Grandfather. That had been a couple of weeks ago, and he was bored out of his skull. He had heard only one hawk during his enforced confinement and had jump-yipped before the nearest Astiti, but that had been the only excitement.

The sound of Sandy's voice brought him bouncing up the tunnel with a wide grin. He exploded out of the tunnel straight into Sandy's belly where he lay across the opening. A loud "Oomph" was followed by an equally loud thud, as the two collided.

The tumbling mass of furry bodies rolled down the mound together. Locked arm in arm, leg in leg, they rolled and twisted, wrapped together in a wrestling match of pure joy. They eventually gave up on their game of wrestling and rolled away from each other, onto their fat little bottoms. Panting and grinning, Pebble stammered, "I've not seen you in days. Where have you been?"

Sandy sat back against the base of a small boulder, dusty, panting and also grinning. "Oh you know, here and there," he said.

Pebble looked at him, immediately suspecting something. "Where have you been, snake bait?" Pebble asked, glad to have someone to tease after his forced isolation.

"Well, it just so happens that I was visiting some friends up near Badger Knoll the other day, and this morning had a nice little visit with Grandfather Quivertail." He said this nonchalantly, as though it was an everyday occurrence.

"You were where? You spoke to whom?" Pebble asked, stunned that Sandy had returned from visiting the one dog who could help him survive his condition.

Sandy said, “Yep, just me and Grandfather, sitting up there below Hawk Rock, having a nice chat together.” From the look on Pebble’s tiny face, he knew he had better explain, so he launched into the whole story.

“We must go, Sandy, we must go now,” Pebble said, frantically, scurrying this way and that, trying to decide if he should take anything, or to just run away as fast as he could. He had been waiting for such a long time. Such a long, long time.

Chapter 11

The Journey to Sandy's Burrow

It was early evening by the time Pebble finally got his house in order. Long shadows and slanting sunlight made Sandy worry about the long journey ahead in the darkness.

He began tentatively. "Pebble, have you ever been up towards Hawk Rock?"

Pebble paused and looked back at his tunnel entrance, trying to think if he left anything important undone. He turned back to Sandy and said, "Nope. I've been over the tree at Snake Canyon, and to your place, but that's as far as I've been."

Sandy climbed up onto a small boulder and sat for a moment, silhouetted against the evening sky. A whispering little breeze had sprung up and played softly with his fur. The sky had begun to darken just a little, with rose-colored clouds stacked neatly on the far horizon. He looked down at his tiny friend and said, "Well, from here to my place is probably close to an hour, and from there to Badger Knoll another 30 minutes. It's going to be dark just about then, if not sooner. What to stay at my place overnight? We can get a fresh start in the morning, and you won't be so tired and bedraggled when you meet Grandfather."

Pebble's first reaction was to say no, to demand that they press on, but the distant howl of a coyote in the far distance, combined with the evening chill helped to change his mind. Reluctantly he said "Yeah, you're probably right. I do want to look my best when I meet him. Perhaps morning would be better." With the decision made the two friends moved away from Stone Neck to the fallen tree.

They arrived at Sandy's burrow just as the last light was leaching from a sky that had slowly deepened from rose to crimson. A heavy dew had drifted down from the mountains beyond Badger Knoll and Hawk Rock, and their coats were covered with dozens of tiny dew droplets when at last they climbed the side of Sandy's sentry mound.

Giving himself a huge shake, Sandy said, "Welcome home, little one. It's been a while since you were here last time."

Pebble gazed about him in the gloaming and gave a sigh that seemed too big to come from such a small body.

"Ah, Sandy," he said quietly, "what do you suppose the future holds for me?" He stood on all fours and gave a shake, sending the dewdrops splattering onto the dust around him. Tiny little craters formed in the dry dust as the dewdrops landed. Pebble shifted around to the far side of the tunnel entrance to where Sandy waited.

The last fading rays of a long day were disappearing under the western clouds and night was rapidly falling. The coyote howled another mournful cry, and far off to the south, a night hawk beeped. There were a few dogs still out and about, grazing in their gardens, but they were becoming difficult to see in the twilight.

Sandy sat beside his friend, shoulder to shoulder, and gazed out upon the city that now lay in darkness around them. “Who knows, little one? Who knows what will become of any of us?”

He cheek nuzzled Pebble. “It’s late. Let’s get inside before some owl comes swooping down on us, and answers your question for you.”

The two dropped onto their forepaws, and with Sandy in the lead, moved into the safety of Sandy’s tunnel. With several turns, rises and drops, they finally came to the main chamber. “I don’t have a spare nest yet,” Sandy apologized, “but this pile of bedstraw should do nicely.”

Pebble looked around. Nothing had changed much since the last time he was here. Sandy had rearranged his food caches a little, but otherwise, it was just the same.

“This is just fine, Sandy, just fine.” Pebble walked over to the nest and lay down, his back to the chamber wall, facing out into the room. Sandy meanwhile, had pulled some blue grama[63] seeds from a nook and offered them to Pebble, along with a coneflower[64] full of water. “Here, have a snack, while I dig us out some nannyberries[65] for supper.” Pebble gratefully lapped at the water, then munched a few seeds, as Sandy sorted through his meager supply of food. He hadn’t done much of his fall gathering yet, and his pantry nooks were a little on the lean side. He managed though to find enough for the two of them, and a short while later, they lay on their backs on the mound of bedstraw and stared at the ceiling above them.

The rounded earthen walls and ceiling were covered with hundreds of fine little roots from the grasses growing above them. Almost as short and fine as their own fur coats, it gave the chamber a maternal feel, almost as though they were cuddled up against their mothers’ sides. The feeling of warmth and security caused a weariness to creep over them that was difficult to resist.

Sandy gave a huge yawn that threatened to pop his jaw sockets. “Pebble, my friend, it’s been a long day for me, so it’s time I crawled into my nest hole.” There was no answer from Pebble, just a squeaky little snort. Carefully, Sandy slid off the mound of bedstraw to not wake his friend. He

---

[63] Blue grama grass (*Bouteloua gracilis*) is one of my favorite prairie grasses. The seed heads are shaped like eye lashes, and they often wave coyly from with patches of other grasses. It is a warm season grass and is highly nutritious for prairie grazers. Plants use two principle types of photosynthetic pathways to convert carbon dioxide into a useable form; grasses that grow under cool conditions and early in the year are known as C_3 grasses. Warm season grasses prevail under dry, hot conditions and are referred to as C_4 grasses.

[64] Coneflowers (*Ratibida columnifera*) don’t actually have a cone shaped flower, but the name fits with the scene.

[65] In reality, the nannyberry (*Viburnum lentago*), grows in the southern Boreal forest (Looman and Best, 1979) and not in this region of the prairie.

pulled some flannel leaf fern leaves over Pebble, then turned and walked slowly into his nest chamber. Within seconds of burrowing into his own nest, he, too, was sound asleep.

The next morning dawned grey and chilly. It was the kind of morning when you want to curl up in a nice, warm ball and wake up at the crack of noon. Pebble lay there for a few moments, testing the temperature with a delicate pair of nostrils.[66]

Pebble was testing the swirl of air as it passed through the chamber, trying to determine the weather conditions outside by the strength of the air movement in his chamber, the dampness and temperature of it, and the smell of the breeze. What he learned, while still lying snug and warm in his bed, was that it was going to be a soggy day. This surprised him since fall was usually dry, but there was no mistaking the smell. It was raining softly outside and he was going to get wet.

Sandy rose a short time later and paused when he entered the main chamber. He sniffed the air and then went over to the chamber entrance, stuck his head in the tunnel outside and sniffed again.

"Rain," he said to Pebble, with mild disgust. "Just what we needed."

Rain was a mixed blessing for prairie dogs. Most days they would be happy to have a sprinkle or two to wet the clay and make packing sentry mounds easier. The moisture kept their gardens growing and the short, succulent grasses much tastier as a result. But on a day like today, when there was waddling to be done, it meant wet coats and muddy feet.

"Well Pebble, you have two choices for breakfast," Sandy said as he looked at his larder. "I've got some dried nut-grass here, or we can go outside and graze on some fresh butter-and-eggs[67]."

Pebble wandered to the chamber entrance. He looked over his shoulder at Sandy and said, "Ah, what the burr-ball. We're going to be wet soon anyway. Let's go get something fresh to eat."

"Once we're done our breakfast, we can get on our way," Sandy agreed.

Pebble approached the surface with his usual caution; sniffing, smelling, and listening. Once at the top, he looked around. Sandy waited below until Pebble had climbed out, then followed him, and together, they scanned the region around and above them.

It was still early morning. There was no trace of the sun in the sky, other than a pale lemon-yellow glow against the eastern horizon. A heavy grey cloud lay like a wet blanket not far above the ground, and the Whitemud Mountains to the north were completely obscured. It had stopped raining, but as they scanned the world around them, they could see bluish-purple bands of heavy rain falling in patches across the city and beyond.

---

[66] Vogel *et al* (1973) showed that most of the burrows in their study area had a domed mound connected via tunnels to a rimmed mound. The cone shaped mound usually has one side slightly higher than the other, positioned to catch the prevailing winds. As the wind blew across the dog town, it entered the lower domed mound, and exited out of the higher rimmed mound. The more sharply rimmed the mound, the greater the effect.

[67] Butter-and-eggs (*Linaria vulgaris)* has a very tasty sounding name that comes from the yellow and cream colors of the flower. It is an introduced plant from Europe Siberia and China. It can produce up to 30 thousand winged (Anemochory**)** seeds.

They moved down off the mound and onto the flats below. The rain had made the ground soft and muddy, but the growth of fresh grasses and forbs made the struggle through the mud worth it.

Satisfied with their morning repast, Sandy and Pebble, wet now to mid-belly, shook themselves, and by mutual accord, set off in the direction of Badger Knoll and their meeting with Grandfather Quivertail.

Chapter 12

Pebble Discovers a Snake

It rained a steady, cold drizzle for the remainder of their way up the sloping roads towards Grandfather's burrow at the base of Badger Knoll. The chill in the air reminded them that winter was on its way. The entire route was very quiet, with few dogs out foraging or traveling. Even the sentry dogs were huddled low in their mounds, trying to get some shelter from the wet and cold.

A small cluster of rocks of varying sizes and colors lay scattered across their path, not far below their destination. As they approached, Pebble began to get an uneasy feeling that something was not right, that some nameless danger lay hidden within the rock pile.

"Sandy!" Pebble whispered. "Sandy wait. Stop!"

He said it again, urgently. "There's something ahead there in the rocks, but I can't tell what it is."

Sandy looked at him curiously. "How do you know? I didn't see anything move."

He looked around and spotted a sentry dog on a mound not five cubits away, off to their right. The sentry appeared alert and was scanning the area ahead of them, towards the rocks. Sandy looked back to Pebble, to find him crouched and staring intently ahead of them and to their right; his tail raised and flagging, with the hairs on his tail flared out.[68] He was looking at some rocks a couple of cubits from where the sentry sat guard. Pebble's entire body quivered with tension.

Sandy scampered back to Pebble and said, "What is it, what do you see?"

Pebble crouched with his head cocked to one side, ears scanning back and forth, straining forward, and sniffing the air, tail waving back and forth in agitation.

"Snake," he said. "A very hungry snake."

He hadn't been able to figure out what the sound in his head was for the longest time. Normally when he heard the voice of a Predator in his head, the voice didn't need to be interpreted. It was as clear as listening to Sandy prattle on about a culinary dish he wanted to prepare. This, though, was something very different. It was unlike anything he'd heard or sensed before and it took him

[68] Tail flagging is a form of communication used by ground squirrels to alert others of their kind, known as conspecifics, that danger is around (Hoogland 2006). The flaring of the tail hairs is known as pilioerection.

some time to both determine what sort of predator was making the sound that echoed softly in his head.

Without warning Sandy in advance, Pebble suddenly leaped high on his hind legs and gave a piercing two-note alarm bark. Sandy nearly died right there of a heart attack and saved the snake the job of finishing him off. A pleasant experience for the snake perhaps, but not for Sandy. He recovered quickly when Pebble left his side and headed directly for the mound with the sentry. He thought they were dashing for the cover of the tunnel mound, as did the Astiti who was in the process of diving head-first when Pebble yelled out, "No, don't go down the burrow! Run away, run away!"

After barking the warning, he ran as fast as he could, past the mound and the Astiti who now was descending the far side, and with Sandy in tow, scampered further up the hill and away from the rocks below. When they'd gone perhaps 20 cubits, Pebble stopped and looked back.

Nothing moved. Other than the soft splatter of raindrops on rocks and mud, no sound could be heard. Sandy and the Astiti stood on their hind legs, searching with their eyes and ears, questing with their noses for the danger that Pebble told them lay below them in the rocks. Still, nothing moved.

Suddenly, an almost imperceptible flicker caught the Astiti's sharp eyes and Sandy could hear the whistling of sharply indrawn breath. "Snake!" the Astiti said in shocked surprise. He turned suddenly to Pebble and said "Little fellow, you have sharp eyes. I was right there and didn't see it. I owe you a debt."

Pebble didn't seem to hear him as he remained completely focused on the bull snake that was now visible among the rocks below.[69] He could see, by the movement of its questing forked tongue,[70] that the snake lay curled up against the faint heat still emanating from the side of a large rock, seeking the last vestiges of its remnant sun-heated warmth.[71] It had been almost asleep, and

[69] Bull snakes (*Pituophis catenifer sayi*) are constrictors, similar in their hunting strategies to other more well-known constrictors such as the boa. It captures a prey species, such as a mouse, first with its jaws and teeth, then by wrapping the mouse in its coils, slowly suffocates the prey by squeezing tighter and tighter (Russell and Bauer 1993).

[70] A forked tongue provides a snake with the ability to sense both the distance and direction from which a smell is coming. It serves much the same function as binocular vision, but does so through smell and heat detection, rather than by visual clues. A calm, relaxed snake is always searching the air for the molecules of prey or predator, but when agitated or hunting the frequency of flicking and questing increases as a means of making target acquirement more precise. Hummingbirds also have split tongues (Hilton 2007).

[71] The bull snake Pebble sensed was using the rock for thermoregulation. Being cold blooded, snakes must rely upon heat sources from outside their bodies to stay warm, or to stay cool, and to be able to move. Here the snake used 3 kinds of ectothermic heating for thermoregulation; 1. Convection; it climbed to higher ground to take advantage of warm air rising, 2. Conduction; it cuddled up against a warm rock to absorb the heat, and 3. Insulation; it changed its shape to reduce the surface-to-volume ratio of its body by coiling into a tight mass. Taken as a whole, the snake is using behavioral thermoregulation – it is adapting its behavior to take advantage of its environment (Russell and Bauer 1993).

very stiff with cold when Pebble first heard its thoughts; thoughts of hunger that just would not go away. It had tried to sleep but the cold kept it awake, and the longer it lay there, surrounded by the smells of prairie dog drifting down to it from the sentry mound, the hungrier it became.

The forked tip of the snake's tongue allowed it to determine the distance and location of its prey, serving better than its eyes to gain a three-dimensional picture of the world around it.[72] That tongue now flicked in and out, in and out, in rapid, darting, questing-for-information flicks. The intensity and rapidity of tongue flicking was a sure sign of how agitated a snake was, and this was rapid-firing in anger. Cold and stiff from the cold and inactivity, the snake was slowly curling itself back into a mound of rage at the base of the rock where it had lain hidden.

Pebble shook himself to get free of the loathing and disgust he felt at the very idea of a snake. The normal response of dashing into a burrow system could be the wrong one to make with a snake since it too could slither into a tunnel system, and trap an unwary dog in a nest chamber. No, with snakes the best option was sometimes to run as fast and as far as you could. Not always a successful strategy, but better running and trying to escape than trapped with nowhere to go.

Pebble recognized this snake as a bull snake by the large scale on the tip of its nose. Bull snakes are a significant threat to prairie dogs, partially because they can follow the dogs underground, but also because of the large elongated scale on the nose enables them to burrow after small prey. A serious threat indeed, and Pebble still had a hard time relaxing, thinking of the close call they had just had.

Sandy was thinking the same thing, and said to Pebble, "My little friend, I don't know how you saw that thing, but I'll get you a coneflower full of honeysuckle juice for doing so!" Honeysuckle[73] juice was Pebble's all-time favorite drink, and Sandy knew this.

"Thanks, Sandy. I'm going to take you up on that one of these days, but for now, I think it's time we got on our way, don't you?"

Sandy agreed and said to the Astiti who sat watching them and the snake out of the corner of his eye, "Looks like you've got some serious sentry duty ahead of you, but at least now you know the thing is there."

The sentry nodded. "I know. I'll have to sit here on this rock now until some of the other slug-a-beds decide to come and relieve me. Once they do, we'll watch that thing until it's gone. It's not going to get any supper around here, thanks to you, little one. You should consider becoming an Astiti with those eyes of yours." He paused. "If you're going, you'd best get to it."

---

[72] While snakes have eyesight that varies a lot from one species to another, they tend to rely upon their ability to sense another animal by its smell and heat, rather than by sight (Russell and Bauer 1993).

[73] Honeysuckle (*Lonicera tatarica*) leaves are edible and they can be consumed as leafy vegetable. During Victorian era, Englishmen often planted honeysuckle in front of their houses to keep evil spirits and witches on the safe distance. People used to believe that flowers of honeysuckle tucked under the pillow ensure pleasant dreams. This old belief is still popular and flowers of honeysuckle are used today in the manufacture of herbal pillows.

The Astiti sat and stared at the snake, coiled below him. He knew that in a very short while the snake was going to have to leave the area to return to its winter den.[74] Once it did, the risk to his fellow dogs would be gone, and he could spend the winter free of concerns about snakes.

Pebble thanked him for the compliment, and then led the way around the rock pile and further up the hill towards Badger Knoll. Sandy stayed for just a moment longer to make sure the guard was going to be extra vigilant, given the proximity of the snake to Grandfather's burrow, then turned and followed his little friend.

The bull snake had returned to its coiled menace at the base of the rock, and his entire being seethed with hunger and anger. He had thought himself perfectly camouflaged, [75] with his dark brown scales upon a warm golden background; blotches of shadow running down his sides. He blended almost perfectly into the color of the rock behind him and the yellowish-brown patches of lichens that adorned it. He was certain he had not been seen but somehow that little runt of a prairie dog had known he was there. A hissing, seething anger still exuded from him, and woes betide anything that got too close to him today!

Sandy caught up to Pebble a short distance away. "We're almost there, Pebble. That snake! I never saw the danger, and would probably have a new coat of snake scales around me now instead of my fur. Thanks, again!"

Pebble had been worrying about how to tell Sandy about his Foreteller ability for some time now and almost did so now. Something nagged at him and told him to wait though, so instead, he just smiled. "You are most welcome, but I think you would probably have killed the snake instead."

Sandy looked at him in puzzlement, until Pebble explained, "Given how big that fat belly of yours has become, you probably would have choked the thing to death when it tried to swallow you!"

Sandy leaped upon Pebble and two tumbled forward in a vigorous wrestling match, head over tail, in a light tan furry mix of legs, teeth, and mismatched tails. Coming to a stop against the base of a small rabbit-brush, they lay panting for a minute, both from the exercise, but also from the release of pent-up fear at the sight of the snake.

---

[74] Snakes must return each fall to the place where they spend the winter, often traveling many kilometers to do so. Given the lateness of their encounter with this snake, it is likely that the bull snake was encountered on its way to its hibernaculum. In this area of the Great Plains, snakes seek out deep cracks in the earth that allow it to descend below the frost line. Snakes of many species, and often in large numbers, congregate here to share their meager body heat by coiling together as tightly as possible. Snakes enter true hibernation here and will stay dormant until spring, when ambient air temperatures consistently rise above freezing.

[75] The ability to blend into the background is generally referred to as camouflage. Bull snakes use their body color as a concealment or obscurity camouflage. There are four principle types of camouflage; cryptic, disruptive, mimicry or counter-shading. The bull snake described here uses cryptic coloration, a pattern of colored scales which allows the snake to blend into the background, and remain hidden in plain sight from its prey.

“OK, Pebble, no more wasting time. Grandfather must be impatient to see you, so let’s get up there.” He looked back at Pebble. “Are you sure you don’t know why Grandfather wants to see you?’

Pebble shook his head and shrugged. “I don’t know, Sandy.” To Pebble, his response sounded evasive, but Sandy seemed not to notice and said, “It’s not far now,” as he turned to go. Looking up the slope, Pebble could see the earthen base of Badger Knoll just a short distance up the hill from where they sat.

It took only a few minutes more and they crested the top of the knoll, directly into the faces of three huge Astiti, who sat on guard around Grandfather’s burrow entrance.

The largest of the three Astiti rolled backward off of his front feet.

“What the Buffalo-burr do you want here?” he demanded sternly.

Sandy stepped forward and said, “Grandfather Quivertail is expecting us. My name is Sandstone Quivertail, and this is Pebble Short-Bottom of the Stone Neck in the Short-Bottom Ward.” Please inform him that we are here.”

Both Sandy and Pebble moved to the rim of the mound and sat, side-by-side, arms folded, and waited. The sentry glared at them. With a final snort, he turned and disappeared into the burrow.

Sandy turned his head and whispered into Pebble’s ear, “Told that big tub of winter fat who we are, didn’t I?”

Pebble was too excited, too pent up with anticipation to revel with Sandy in his attempt to be assertive with the Astiti. Sandy relaxed and scanned the area around Grandfather’s burrow. There wasn’t one ordinary dog in the entire region. On every sentry mound, for many cubits around him, the only dogs he saw were Astiti. Every single one of them stood on guard, facing towards the Borderlands and the Hawk Rock to the north, and out over the city below them. Sandy had never seen so many Astiti in one place, and it left him feeling slightly awed that he was here among them. It also showed the value the city placed upon Grandfather, that they would assign so many Astiti to protect him.

Pebble sat silently on the sentry mound rim, staring at the tunnel entrance, waiting with bated breath for the nose of the sentry to reappear. And so he did - just a moment later.

Flint had entered the tunnel and traveled only a few steps before the significance of the identity of the visitors hit home. “Pebble Short-Bottom,” he remembered. “That’s the little pup I’m supposed to babysit.” Still disgusted at the thought of having been selected for this duty, but resigned to it, at last, he found Grandfather and let him know that his visitors had arrived, and then returned to the entrance where they waited.

Without fully leaving the entrance, Flint said, “Come with me.”

No “*if you please*?” thought Sandy. He whispered to Pebble, “This dog is really something”.

When he saw them roll forward onto all fours, Flint turned and led them into the darkness of the legendary burrow of Grandfather Quivertail.

Chapter 13

A Meeting of Foretellers

It had taken a lot of work by the assembled Astiti to repair the damage inflicted by the bison on the sentry mound of Grandfather Quivertail's burrow, known as Badger Knoll. But fix it they had, including clearing the debris from inside the massive tunnel.

Pebble was amazed at the size of the tunnel. It dropped at a steep angle for a considerable distance before stopping bluntly. "This must be where the badger finally caught up with the dog that lived here," he thought as they arrived at the floor. It took him back to his own family and the death they had suffered at the jaws of a badger. He shuddered a little at the horrible memory.

A series of smaller, dog-sized tunnels branched off in different directions from the main tunnel.

"Odd that Grandfather wants us to take him to his private quarters," thought Flint, "but then again, the old dog is getting pretty frail and hasn't been leaving his nest much these days."

As they moved in line past the entrance to the school classroom, Sandy poked his head inside to see if Fiona and the pups had returned from the lower chamber where they had gone when the buffalo bull had begun shaking things up. She was there, and he grinned when the entire class went berserk at the sight of his whiskery face poking into the room. "Just thought I'd say hi," he said, then withdrew quickly from the doorway. It was a little mean, but he enjoyed stirring up the pups and then leaving Fiona to deal with the chaos he left behind.

The nest chamber was small and simple; not at all what Pebble was expecting. A small mound of fragrant sage leaves in one corner made up Grandfather's bed. To one side were some flannel leaves for his blankets and a stack of winterfat was piled next to his bed to munch on. In one wall was a small series of pantry holes, filled with a variety of foodstuffs. A large Chalice flower full of honeysuckle juice made up the sum of his belongings. On the far side of the room, next to a large rock, was a tunnel that led out of the nest chamber.

Grandfather Quivertail was just finishing a conversation with Digger Short-Bottom about the repairs to the burrow system when Astiti Flint announced the arrival of Pebble and Sandy. They waited a moment for Grandfather and Digger to finish, and as the master excavator left the chamber, the three visitors crowded into the small chamber. They sat quietly and waited patiently for the old dog to turn his attention to them.

When Grandfather Quivertail looked up from his work, he focused on Pebble with a stare that denied any evidence of senility or frailty. The penetrating, all-knowing look on the old grizzled face made Pebble feel about as small as one of the dust motes that floated lazily around the room.

Grandfather broke off his scrutiny and said to the group, “Come in! Come in! No need for formalities here!” He said this in a tone and manner that made everyone in the little party immediately relax. They sat and waited again while Grandfather moved slowly over to his nest. He climbed on, circled a couple of times to make his bed just right, then settled down with a long-drawn-out sigh.

Pebble looked at Grandfather’s mattress and realized he had never seen anything like it, nor for that matter had he even heard of such a thing. It appeared to be made out of a dense mat of yellowish hair. It took a few minutes of thinking, but then Pebble remembered a story his classroom teacher had told him about buffalo and the hair they shed in the spring[76]. Pebble, like every other dog in town, shed his winter coat in the spring.

But this, this was different. He shed his hairs individually, one by one, not in the massive clumps his teacher had described. “This must be a mat of buffalo hair! It must be incredibly rare,” he thought, since no one else had even seen a buffalo in living memory, let alone collected its hair for a bed. Fascinated, he lay down and waited for Grandfather to begin.

Grandfather pulled a couple of flannel leaves over his thin old bones. With a soft groan and a final shift of his bones, he said, “Pebble Short-Bottom, of Stone Neck in the Short-Bottom Ward, welcome to my home. It is indeed a pleasure to meet you.” He gave a little nod of respect and directed his gaze around the room to the other two. “Thanks, my friends, for bringing Pebble safely to me. There is food and drink: help yourselves to anything you would like. And Sandy, while you’re up, could you fix me something nice to eat? I find I’m famished.”

Sandy rose and began to putter in the background, humming softly as he searched through Grandfather's pantry.

Grandfather looked over at the Astiti and asked, “Flint, good Sir, would you be so kind as to fetch Pebble and I each a small coneflower full of honeysuckle juice?”

Once Flint had brought over the drinks, Grandfather said, “Now Flint, I need to chat with little Pebble here, undisturbed for a few minutes. Would you please sit at the door and ask any visitors to wait a bit, while Pebble and I have a little conversation? And take a glass of juice with you. You must be thirsty too.”

[76] Bison undergo two hair coat molts each year; in the spring when they shed their winter coat, and again in the fall when they replace their summer coat with another winter coat. The winter coat comes off in large pads or “felts” that fall to the ground as intact mats of under wool and guard hairs. A wide variety of birds and small mammals use this resource for nesting material, and while no documentation exists, there is no reason to assume that prairie dogs did not. First Nations peoples used these mats for everything from moccasin liners to sanitary napkins and diaper liners.

During his time with Grandfather, Flint had developed a huge amount of respect for the old dog and quietly did whatever was asked of him. He picked up a drink and went to wait at the entrance door. He would make sure they were not disturbed.

Suddenly Pebble found himself alone with the most famous prairie dog the city had ever known. Pebble lay in the most private place in the entire burrow. He was both intimidated, and strangely relaxed at the same time. He had been expecting a domineering and perhaps even arrogant old dog. Instead, he found a gentle, quiet and caring old dog, whose every mannerism defined the essence of "Grandfatherliness."

Fully at ease now, Pebble stopped looking around at the room and returned his gaze to Grandfather.

Grandfather was looking at him a little quizzically, intrigued by the sight of him. "I had heard you were under-sized," he said, diplomatically, "but you are indeed one tiny dog, even for a ground squirrel."

Pebble grinned and said "Yes, everyone tells me I'm small, but so far it hasn't been a hindrance to me. I can pretty much do everything everyone else can."

Grandfather had been stunned by the news that another Foreteller existed. Not so much by the fact of his existence, but because Grandfather had never detected him; never felt the probing mind of another Foreteller. He had always assumed he would be the one to discover a new Foreteller. He had lost sleep in anticipation of meeting Pebble and spending time with him.

One of his most difficult decisions had been on how to broach the subject of Foretelling. If he was correct, he knew that Pebble had spent his entire life to this point trying to hide his gift, and speaking openly about it might be difficult. But, he finally decided, starting a conversation was just like starting a journey, one foot at a time.

"And things that nobody else can do," said Grandfather. "I understand you have the ability to Foretell?"

Finally, there it was - out in the open.

"Yes, Sir," Pebble answered, "I do sometimes seem to be able to hear the thoughts of other beings, especially those who wish to do us harm. Not always, and certainly not always clearly, but yes, Sir, I do."

Grandfather looked at him for a moment. "It can be hard, can't it? Hearing thoughts of anger, of rage? Of intense hunger? Of having those thoughts directed at you, and those around you?"

Pebble nodded, feeling strangely relieved that someone else understood the burden of being a Foreteller. It was like a huge boulder was lifted from his shoulders. He could breathe a little easier, knowing that someone else had experienced the horror of hearing those thoughts, and the feeling of joy when a predator was thwarted.

Grandfather shifted his thin bones on his bed. “Well, little one, Catella Catalina herself has asked me to help prepare you for the life ahead. To provide you with the assistance of a few friends who will make sure that your life is long and safe. You already have the advantage of being “*different*” from everyone else. It may not seem like a positive thing to you now, but growing up as a ground squirrel in a city of prairie dogs has probably helped you cope with being different from the others around you.” Grandfather paused to collect his thoughts.

“Winter is arriving soon. There is not much to do top-side, so you and I are going to get to know one another better. Along the way, I hope to pass along a few things that will help to prepare you for the challenges ahead.”

Pebble lay there thinking back to a conversation he had had with Sandy before they left Stone Neck. Now he had the answer to his question about what the future held for him. He was to be a Foreteller!

Sandy brought over a meal of prickly pear seeds, dried thorny buffalo berry[77] fruit and chunks of breadroot. He also brought some willow leaves for Grandfather to chew on, to help relieve the aches and pains in his stiff old muscles. Once everyone was settled and munching happily, Sandy said, “So, what’s going on?”

There was a long pause, and Pebble began to think that Grandfather had fallen asleep. The old dog sat there quietly, eyes half-closed, not paying attention to the two friends who sat waiting and munching quietly on their suppers.

Finally, with a shake of his head, Grandfather looked up at them. “Oh, my. I am sorry. I sometimes tend to drift off. Now, where were we?” He looked around, alert once more, and Sandy repeated his question. “We were just wondering what you want us to do next.”

“Ah yes, what to do? Well, first thing in the morning, I want you to find the old buffalo bull that made a stop here the other day. He had something to say to me but I just could not figure out what it was. Once you’ve found him, I want Pebble to ask him to come back here so we can have a nice chat together? Can you both do that for me?”

[77] The thorny buffalo berry shrub (*Shepherida argentea*) is one of my favorite prairie shrubs. The stems and branches are covered with wicked thorns that will rip you to shreds if you blunder carelessly into grove of these shrubs. Thorns evolved as an anti-predator strategy – as a simple yet effective means of stopping herbivores from eating the plant. Halpern et al (2007) found that in addition to the pain caused to tender lips, the thorns are covered with pathogenic bacteria that can cause fun things like gangrene. To enhance their defenses against being eaten, thorny plants also use aposematic coloration to help train the eye of herbivores to recognize and stay away from the plants tender bits. Thorny buffalo berry groves are excellent hiding places for small mammals.

Chapter 14

Pebble Talks to the Buffalo

Sandy and Pebble looked at each other.

Sandy knew of the existence of the buffalo, having met the old bull at Badger Mound, but Pebble had never seen such a creature. He had a mental image of what a buffalo might look like but had no idea where to find one. Sandy looked back at Grandfather and said, "Do you know where he's gone? Have they been wrecking any more sentry mounds since I left?"

Grandfather shook his head, "Sorry, Sandy, but I've not been on top since you left. Talk to the Astiti on guard. They should be able to tell you where to look."

It was late in the day, so after saying goodnight to Grandfather they were escorted by Flint to the chamber that had been assigned to them. Once in the room, Sandy turned suspiciously to Pebble. "OK, out with it!"

Pebble started to pretend he didn't know what Sandy was talking about, but then accepted that Sandy was going to have to know eventually.

"Come sit here beside me; I've got a story to tell you."

It took them into the wee hours of the morning for Pebble to explain everything to Sandy – having to stop every few minutes to answer one or more of Sandy's incessantly penetrating questions, and then to wait again while he found some more gourmet food to munch on. In some ways, it was a huge relief to be finally open and honest about his abilities, and Sandy, to Pebble's surprise, seemed to accept the idea.

"Pebble," Sandy said quietly, almost asleep now, "You are one strange little dog, but I think the mantle of Fortellerness sits well on your shoulders." Pebble looked over, about to respond when he saw Sandy's chin settle gently onto the dusty floor. He curled up next to him, and within seconds both were sound asleep.

Early the next morning, Sandy and Pebble, with the assistance of Flint, went in search of the buffalo bull that caused such a fuss a couple of days prior. They found him, just a short distance to the east, grazing on a thick stand of rough fescue[78] along the outer edges of the Borderlands.

[78] Rough fescue (*Festuca scabrella*) grows in dense clumps and is a favorite food of bison. As they graze the coarse and fibrous tops down, they leave behind a succulent mound of green grasses that prairie dogs love. The dogs in turn

Pebble was in complete shock. He sat back on his haunches and looked up, and up, and up. Never in his wildest dreams could he have imagined a creature so massive. And under no circumstances was he going to walk anywhere near those toes, each of which was bigger than he was.

Sandy said, "Pretty big, huh? Whatever you do, never put yourself in a place where they can sneeze on you."

Pebble looked at him in puzzlement Then, summoning all of his courage, he focused on the buffalo.

"Sir, I say, Sir, hello, can you hear me?"

This was the first time in his short life that he had consciously tried to communicate with another species, and he wasn't even sure how to go about doing it. There was no response or change from the bull, just that steady, monotonously rhythmic back and forth swing of its great head. The bull was either unable to hear the question or perhaps he hadn't spoken loud enough.

Pebble telepathically projected as loud as he could, "Hello there, can you hear me?"

Startled, the bull paused with a clump of grass sticking out of the side of his massive lips and mumbled "Huh? What? Who's there? Who's talking to me?" He lifted his huge head and scanned the area, looking perhaps for something, or someone, slightly more significant than the miniscule prairie dogs crouched at his feet.

"Down here, Sir, down by your toenails," Pebble hollered as loud inside his head as he could. The bull slowly swung his head down and around to look at the ground near his feet and found them gazing back up at him.

He lowered his head until the massive beard and snot-dripping nose were less than a cubit away from Pebble. He tried to look at him with both eyes, but couldn't focus that close and so he squinted with only his left eye[79]. Sandy backed carefully away to where Flint sat, out of snot projection range, then settled back to watch and listen.

---

keep the clump short, and the bison return to graze upon the fresh shoots. It's a mutualistic relationship. This is a form of inter-species dependency known as a symbiotic relationship, where both species benefit from the presence of the other. In addition, the grazing of plants by bison is known as facilitative grazing. As long as the grazing on plant parts is not severe, and the plant is permitted time to produce seeds, it too benefits from grazing through the removal of dead material, increased sunlight, and nutrient recycling by the grazers. It responds by producing more new shoots, and these are a preferred forage of prairie dogs.

The grass benefits as well. Some species of prairie grasses produce seeds that are encased within a very hard shell, designed to prevent desiccation. This shell must be shattered by the grinding teeth of an animal such as a bison, then pass through its digestive system, before it can germinate. Another neat form of mutualism.

[79] Bison, like all prey species, have eyes that are placed on the sides of their heads, rather than on the front as predators do (including humans). Forward-facing eyes allow for binocular vision, and the ability to determine depth and distance. Monocular eyes, like those of a bison or prairie dog permit almost 360-degree vision, allowing a prey species the ability to see a predator coming from almost any angle. This means that they must have the ability to see

"Good day to you, Sir," said Pebble. He hadn't been squashed yet, so there was some hope of surviving the conversation.

"Sir," he began again. "Grandfather Quivertail asked that I convey an invitation to you to come for a visit and have a chat with him. He has some questions he thinks you might be able to help him with. Would you be able to come with us, Sir?"

The old bull took a few moments to process the question, and the fact that it was coming from a little dog, then replied, "I've known old Grandfather for a very long time, so sure, if he wants some company, I'd be happy to come and have a chat with the skinny old dog."

Sandy and Flint, watching the exchange, could not hear what was being said, and from their point of view, saw only a diminutive dog and a massive buffalo staring intently at each other. They were startled when the bull lifted a front foot and took a 6-cubit stride that had them scurrying out of the way.

"Well," said Sandy, "I gather he agreed to come?"

Pebble nodded, then turned and ran to keep up with the buffalo bull as he headed off towards Badger Knoll.

It took more than a little effort, but Flint managed to catch and pass the bull,[80] in order to have the time to alert Grandfather of the bull's approach.

They were waiting on the sentry mound when the buffalo, Sandy, and Pebble arrived a few minutes later.

Knowing in advance how much work had been required to repair the damage caused by the bull wallowing, Pebble had already asked him to refrain from doing so again, and the bull had agreed. He chose the open Borderland between Hawk Rock and Badger Knoll for a bed and being careful not to flatten any careless dogs, lay down with a thud and cloud of dust.

Grandfather Quivertail waited until the dust storm had settled, then stiffly went over to the bull. He sat beside the head of his old friend, with his arms crossed over his old belly, and said nothing for a few minutes, content just to share space and time with someone as venerable as the old bull.

Clearing his throat, at last, Grandfather said, "Thanks for coming by. It's been a long while since you last passed this way. When you stopped here a couple of days ago, I sensed you were greatly troubled by something, but could not quite hear what it was. My hearing has been fading of late, you know."

---

out of both eyes at the same time, but to process the information separately. As a result, the bull can focus on Pebble with his left eye, but at the same time, be scanning the region to his right and process that information separately.

[80] Bison have relatively short legs compared to their body mass, yet a bull like this will have a stride equal to about a meter in length. When walking in a determined manner, with somewhere to go like this bull, they can travel at an average pace of 5 km per hour for many miles - hence their ability to travel great distances during their seasonal movements.

The old bull, his massive head lifting with each huge indrawn breath, and falling again with each hot fermented exhalation, nodded. “Yes, I have migrated many thousands of your cubits since last time I and my clan grazed this way.” He looked out over the city spread below and continued, “Some time ago, we happened to pass by one of your cities, to the north and east of here, and found the entire city deserted.” He paused for a moment, lifted his huge chest slightly off the ground, swallowed the cud he had been chewing, then settled back again, satisfied with the effort. A dark bluish-grey tongue, bigger than a prairie dog, curled out of the side of his mouth and licked clean his left nostril.

“One or two dogs were remaining,” he continued, “but they were near death and could not have survived much longer. Everywhere we looked we saw the bodies of your kin as they lay upon their sentry mounds or in the streets. They looked as though they had died quite suddenly.” He lay still, remembering the horrible sight, then he resumed his side-to-side mastication of a new bolus[81], and his thread of thought, “The sickly ones that remained seemed to be trying to tell me something about what had caused so many deaths, but with no Foretellers among them, I couldn’t understand fully.”

Pebble meanwhile was busy translating this to his friends, and as he did, he could see the consternation building on Grandfather’s face. Grandfather shook himself as though to rid himself of an unseen pestilence[82], then turned to Flint and said, “Astiti Flint, I need you to go over to Mistress Juniper as fast as you can and bring her back here. Please, go now and hurry back.” Grandfather paused, then said to Sandy, “Please go find Fiona, and bring her down here.”

Flint left without hesitation or question, and a short while later, returned with the herbalist. He knew she was over by the Quivertail Comitium, treating the injuries of an Astiti who had been attacked by a hawk, so it wasn’t long before he and Juniper were back at Badger Knoll, and the group assembled there.

Fiona and Sandy had also returned and Grandfather looked at them and said, “Ah, my dears, so good to see you both again,” said Grandfather Quivertail to Juniper and Fiona as they climbed onto the flat area beside him. Fiona gazed up at the massive beast lying before her but did not say anything for a moment, just taking in the spectacle that sprawled recumbent on the dust of the Borderland. Juniper also did not betray her shock at seeing a real live buffalo, and said, “Grandfather, so nice to see you as well. How can I be of assistance? I don’t see anyone injured or sick here?”

---

[81] Bison, like cattle and other bovids, are ruminants. They have a four-chambered stomach designed to process high fiber diets. The grasses the bull ate prior to his encounter with Pebble and the others were first chewed coarsely, mixed with salvia and enzymes, then swallowed. The partially digested food waits here in the first stomach, the rumen. When the bull has time to rest, he regurgitates a bolus (cud) of grass and then methodically masticates it into a finer mash, which then is processed by the reticulum, then the omasum, and abomasum. This process is known as “chewing the cud.”

[82] He had a sensation known as crispation – that feeling of having your skin crawl.

“No, no, my dear, not to worry about us. It’s the message this old bull is delivering that I wanted your opinion on,” he said. “He brings news of an abandoned city and of dogs’ sick and dying by the hundreds. I want you to ask him some questions to see if you can determine what might be the problem and for Fiona to listen and see if she knows the colony.”

Fiona and Juniper looked at him like Grandfather had lost his mind. Juniper, in an attempt to be diplomatic, asked, “But, Grandfather, I don’t know how to talk with a buffalo?”

Grandfather answered that concern easily. “As you know, Pebble and I are Foretellers. This gives us the ability to communicate clearly with other animals. You simply need to ask the right questions, and Pebble will pose them for you.

Fiona, Sandy, Flint, and Juniper all took a few moments to absorb this news. However, now that Juniper understood, she stepped confidently forward and asked Pebble to come with her. After just a few minutes into the conversation with the buffalo bull, interpreted through Pebble, she began to feel sick to her stomach at what she was learning.

Chapter 15

The Plague

Fiona had not been born in Crocus Butte. She had emigrated here from the city of Broken Hills, across the Great Sage Flats, beyond the river to the south and west[83]. With a feeling of mounting dread, she asked Pebble, "Please, Pebble, ask him where the city was?"

Everyone waited as the old bull thought, and thought, and thought some more. Quick thinking was never his strength, but a long and infallible memory was. He swallowed his cud and said, "Yes, I remember. One has to walk about three days south from here, down the valley below us, then west across a wide valley covered in sagebrush to a river. The city I speak of lies on the far side of the river at the base of a high range of hills."

Pebble could see Fiona take a moment to pull herself together, clearly hit hard by the information. Grandfather saw this as well, and asked her, "Mistress Fiona, what do you know of this city?" She sat up tall and brave and said, "That city was my home. Sir, it's where I came from, and those dogs were my family, my coterie."

Grandfather moved over to her and gave her a warm cheek-to-cheek to console her, then sat by her side, and said, "I know this is very difficult for you, my dear, but could you ask him some more questions please?" She nodded and he continued, "We need to understand exactly what happened. If this is what I suspect, then we too are at risk."

Over the next few minutes, Pebble translated the questions presented by Juniper and Fiona. The bull ponderously answered, and Pebble translated back again. Grandfather was able to pick up bits and pieces as the conversation continued but relied more and more upon Pebble for clarity.

After perhaps an hour, they had gleaned as much information as possible from the buffalo and he set off, back to his brother. The group of dogs watched him go, both amazed that they had finally seen a buffalo, and dismayed at the news he had brought.

"Sylvatic plague,"[84] Juniper said, with no emotion.

---

[83] Prairie dogs do indeed leave their home colonies and seek out new territories, especially if the home colony is old and forage resources in poor condition (Garrett *et al* 1981, Knowles 1985). Doing so allows them to establish new, young and vibrant colonies. A byproduct of emigration is that should a disease arrive, not all dogs are in one basket.

[84] Sylvatic plague (*Yersinia pestis*) is an infectious disease of rodents and over 70 wildlife species are known to the carry it. It is transmitted from one animal to another by fleas (the vector), and while most prairie dogs have fleas,

The others looked at her.

"What's that, Mistress?" Pebble asked.

She gathered herself back together. "Sylvatic plague is a disease that's very deadly to us." She knew that in the past, entire towns and cities had been exterminated by the disease, and she feared that this is what had happened to the city of Broken Hills. "No one knows how or why it arrives, or where it comes from. One day everyone is fine as frogs' hair, the next they become weak and tired, and in a couple of days are gone."

"And now," Fiona thought, "I've probably lost everyone in my entire family."

Grandfather Quivertail listened intently as Juniper discussed the ramifications of the disease, and of the threat that it posed to Crocus Butte. Should one of the infected prairie dogs of Broken Hills come into contact with the citizens of Crocus Butte, or any of the other towns and cities in the valley, the risk would be dire.

"But what to do about it?" thought Grandfather.

"Let's all retire to my nest chamber where we can sit and discuss this in more comfort," he said, a few minutes later, when the conversation seemed to have run itself out. With a general nodding of agreement, the small group of prairie dogs, dismayed and alarmed by what they had discovered, went slowly back to Badger Knoll and the security of Grandfather's subterranean home.

The old bull resumed his feeding; methodically sweeping his great head left to right, left to right, broad incisors[85] clipping the grass close to the ground. His traveling mate had gone on ahead and he could not see where he had gone. Alone now in the vastness of the northern Great Plains, he gave a huge sigh and thought to himself, "Peace and quiet; finally, some alone time." Some time ago he had grazed his way through a stand of grass with very sharp seeds and one had become impaled in the soft tissue of his gum, deep along a tooth root. It quickly began to swell and within a few days, eating was very painful. The abscess[86] had now grown to the point where he was faced with a choice, eat and be in pain, or stop for a while and feel a little better.

---

usually few fleas carry the disease. This is a complex set of relationships, with the disease needing the flea (Commensalism, since the flea is not affected by the disease), yet the flea is a parasite to the prairie dog (Parasitism). The disease was introduced from Asia around 1899 from fleas which likely infected ship board rats. The rats likely passed the fleas to native North American mammals. Since the disease is not native to North America, prairie dogs do not carry an immune response or antibody protection to the disease. As a result, 100% mortalities in dog towns are not uncommon. A disease like this is known an epizootic disease (Hoogland 2006). A colony in GNP became completely vacant in 2010 and while no carcasses were found to confirm it, plague may have been responsible.

[85] Bison have a broad incisor arcade (about 8 to 10 cm across) that is designed to collect the greatest amount of forage, non-selectively, as possible with one bite. Ungulates have no front upper front teeth, using a dental pad instead. Deer have a narrow incisor arcade (about 4 cm) and this provides them with the ability to be very selective on what they eat.

[86] Teeth problems like this are occasionally fatal for many herbivores. The abscess creates a deformity known as lumpy jaw, and the reduced caloric intake does predispose the animal to winter mortality, or if wolves are around, to predation.

As a result of a long summer rutting, followed by a fall of reduced eating, the bull was emaciated and facing a long and arduous winter, with little in the way of fat reserves. Deep in his soul, he knew he was in trouble, but what was a bull to do? He resumed his search for a patch of winterfat, and once again, his bell-like beard swept the grass, left to right, left to right, as he grazed and ignored the pain, trying to regain some weight.

Chapter 16

A Journey is Planned

Comitian Catella Catalina sat on her throne mound in the central great hall of the City of Crocus Butte. Lying or sitting around in various attitudes of repose were all six Cathedrans, one from each of the six Wards. Grandfather Quivertail, Pebble Short-Bottom, Juniper Twitchtail, Sandy Quivertail, Foxglove Brokenclaw, and Flint Twitchtail were also arrayed before her.

Having been apprised of the situation at the City of Broken Hills by Grandfather and the others, she now sat in thought, scarcely seeing the dogs around her. "We must know more. We and all of our families are at risk until we do," she said to the group. "I've listened to the advice of one and all, and have decided what's to be done."

"Two things are of utmost importance. The first is to find the town of Broken Hills, and the second is to guard our borders vigilantly to ensure that no dogs from outside the city are permitted entry. As Juniper has told us, we don't know how the disease spreads, but to be safe, we have to assume that dogs from a sick city may be able to bring it here. As of this moment, the city is in quarantine!"

She looked at each of the Cathedrans in turn and said, "I want you to speak with your Evocators and have them inform all the squads that not one dog is allowed into this city. If they come, tell them to set up a tunnel system well outside our borders, but do not permit them entry."

She looked down at the group sitting with Grandfather. "I have selected each of you for very specific reasons." She paused to collect her thoughts, and then continued, "I am now tasking you with the responsibility of seeking out and finding the town of Broken Hills. Once there, you are to locate and speak with Athena Cunicularia[87]. She is the resident burrowing owl, and as everyone here knows, possibly the wisest being there is. Ask her what she knows about the Broken Hills clan and what we can do to protect ourselves - and if there is anything that can be done at Broken Hills. As soon as you know the answers to these questions, return here just as fast as you can. We cannot know how to protect ourselves until we understand the threat."

"Pebble Short-Bottom, I task you with using your abilities as a Foreteller; with searching out and exposing those beings who pose a risk to you, and those you travel with. You are to interpret the conversations held between your group and any other prairie beings you encounter on your

[87] The burrowing owl (Athena cunicularia) is an obligate grassland species. One of the smallest owls, it lays the largest clutch of any owl (up to 12 eggs, commonly 7-10). They live in burrows created by fossorial mammals and have a particular relationship with prairie dogs.

journey. Listen well, little one, and help to protect this group from predators, so one and all can return in safety to Crocus Butte." She looked past him to Juniper.

"Juniper Clayback, of the Clayback Ward, I task you with keeping your group in good health. Your knowledge of edible and poisonous plants, of medicine and wound care, has no match anywhere in our realm. You have traveled beyond our Walls, in search of plants and herbs, and know them well. You are to ensure that your group returns to us in good health."

"Sandstone Quivertail, of the Quivertail Ward, I want you to lead the journey, and given your culinary skills, to ensure that the forages Juniper finds are prepared to the best of your abilities. In addition, you are the keeper of morale. Do not let any member of your party fall victim to despair, no matter how grim the circumstances may appear, and bring them all back to us safe and sound of body and spirit."

"Foxglove Brokenclaw, of the city of Broken Hills, I task you with teaching everyone in your party the things they need to know to survive the wilderness into which you venture. Fiona, you are the only dog in the city that has spent much time in the Great Unknown and you are the only dog who knows of the strange and wonderful beings that inhabit those lands. Your knowledge of the land and your ability to travel through it will help bring success on your journey. You also know of Athena and where she lives, so you are to find her, and through Pebble, explain the situation and seek her advice."

"Flint Twitchtail, I task you as an Astiti; to protect and guard the dogs under your care against all foes, no matter how large or fearsome. Guard them well and bring them all home safe."

Having made these pronouncements to the assembled dogs, she said "I have the utmost confidence in each one of you. I know, with all my heart and soul, that you will strive to do your best during your journey, and that all of you will return to us safe and in good health." She looked around again. "I know that winter will soon be upon us, and you have much to do to prepare for the journey. Go home now; sleep long and deep, rest yourselves, and as early as possible in the spring, depart on your journey."

There was considerable noise and cheek-to-cheeking; wishes of good health and pleas to come back safely, then the party broke up and all went their separate ways. As they said goodnight to each other, Pebble looked at the unlikely little band and wondered how many of them would return.

Flint was the last to leave, and as he did he thought to himself, "What's she doing putting a happy-go-lucky food-addict in charge of the patrol when she's got one of the best Astiti in the entire city here to do that job?" He hid his resentment but began planning, thinking about how he was going to assume control once they were away from the city.

Chapter 17

Departure Morning

The morning sun crested the eastern horizon that morning, and shed its pale, almost-white light across a landscape transformed.

After the decision to go on the quest was made, Pebble had gone in search of Granite to say goodbye. He found him at home, curled up in a tight ball, trying hard not to wake up at Pebble's insistent shoving and poking. "What, what do you want? Leave me alone, I'm trying to hibernate here!" Muttered curses followed as Pebble persisted in harassing Granite enough for him to finally uncurl and look at him through blood-shot eyes. In a grumpy, mumbly voice Granite said, "This had better be really, really important snake-bait, or you are in some serious trouble."

Pebble sat back now that his friend was at least a little awake and could understand what he was about to say. But how to say it?

"Granite, my friend," he began, "I have to go away for a while, and wanted you to know so you wouldn't worry about me."

There, He had said it.

"By the bur-ball, you little idiot, you had better leave. What's the matter with you? Waking me up just to tell me you have to go. Go then, and let me get back to sleep. I'll see you tomorrow."

Granite was not getting the message. "No, Granite, that's not what I mean. Granite? Wake up, Granite," he said in frustration, nudging him hard in the ribs with the blunt tip of his nose.

"Hmmph. Huh? What? Oh, are you still here, I thought you said you were leaving?"

"Granite, I am leaving, and I may never come back! I'm leaving the Ward; Granite -I'm leaving Crocus Butte. I'm being sent on a quest by the Comitian herself, far, far off into the Great Unknown."

"Granite," he repeated. "I'm going way past the Borderlands into the Great Unknown!"

Finally, a look of dawning comprehension replaced the foggy look of a sleep-deprived dog shifted across Granite's face. "What? Why? Why would you possibly want to do that?" he asked in confusion and alarm.

Settling himself down comfortably beside Granite on the bed, Pebble told the story of how he been selected as part of a group of dogs to go and search for the City of Broken Hills, and to learn

as much about life in the Great Unknown as possible. Granite listened more and more attentively as Pebble finished relating the story to him.

"But, Pebble," Granite exclaimed, "this is wonderful! When do we go? How much am I allowed to bring with me? Who else is going? Do I know them all? Where are you leaving from? When do we go?" He was practically coming out of his skin at the idea of the adventure, jumping up and down so high he kept hitting his head on the low ceiling of the burrow.

Pebble had slumped back onto Granite's bed by this time, dejected and dispirited at the thought of the pain he was about to inflict upon his best friend in the entire world.

"Granite … stop!" Granite was madly going through his food supplies, tossing something this way and something else that way, searching for one particular item. In mere moments, his home was a disaster.

"Granite! Stop!" he yelled.

Granite stopped and turned to look at Pebble, and instantly knew from the look on Pebble's face that he was not going on the adventure.

"Why not, Pebble? Why can't I come with you? You're my very best friend. I can't let you go out there without me." Great tears were welling up in the corners of his eyes. The first tear rolled off his eyelid and landed with a sploosh at his feet, followed closely by the second.

Pebble sighed and sadly told his friend that the Comitian had picked the dogs to go and that he had no choice or say in the matter. After another half hour of idle chatter, the time to leave had finally arrived.

"You better not come back here dead, or I'll kill you myself, you scrawny little runt!" Granite said.

Pebble walked over to the chamber exit, turned and cheek-to-cheeked Granite, for what was probably the very last time. "Please stay here when I leave, Granite. I don't think I could go if you were up there watching, so please, stay down here?"

Granite nodded and said, "You are barely big enough to carry around a pack of fleas. Just take care of yourself, and come back safe and sound, alright?"

Pebble nodded. Then without another word, he turned and vanished up the tunnel.

They had decided to begin their journey when the morning sun rose above the far eastern edge of the plateau. The sun had reached its position the day before, and one by one, the adventurers were told that tomorrow was the day of departure.

For the past week, all of the signs of spring had returned. The snow was melting. The air had that warm, moist feel to it that was so refreshing after the long months of winter's dryness. Everyone felt optimistic that winter was finally over, despite the strong winds that continued to pound the city.

This morning brought a frozen, awful, cold, and the incessant wind continued. Sometime during the night, winter had returned with a vengeance. The entire world was transformed, and everything familiar was removed. The dun-colored hills of yesterday that had shown such promise of new growth, merged now into a grey, leaden sky. As Sandy's small nose poked upwards through a dense mass of hard-packed snow that choked the burrow entrance[88], he almost turned and went back down to the dark warmth and security of his nest chamber, deep in the city's central burrow.

All around him, the familiar hills were obscured by a ground-drift of wind-driven snow. Like a horizontal curtain slowly moving across the doorway of his world, the drifting snow seemed to bring to a close one chapter of his life, while opening a door to another. What yesterday was a bustling city was this morning, simply gone. Gone, wiped from the face of the planet, buried under a wasteland of snow and ice. Only the very tops of the black rims of the city's burrow entrance tunnels could be seen; now visible, now not, as a wraith of drifting snow once again obscured the view.

The wind seemed to be a physical entity. It was armed with ten thousand tiny lances, each tipped with a sliver of razor-sharp ice, each piercing the skin and instantly freezing its point of impact. The attack seemed to have lasted an eternity, yet his nose had only been exposed for a few moments.

As it hammered and pounded, little flickers of motion above the top of the snow caught his eye. The remnant leaves and tiny branch tips of the shrubs and sagebrush scattered throughout the town, trembling and quivering, as the wind-battered, becalmed, and then battered them again.

And the sound! The sheer force of the wind swirled around his ears like a stampeding herd of buffalo, inter-mixed with the shrieks and howls of a thousand hawks, coyotes and badgers screaming together in a mad symphony of sound, stunning his senses.

He was breathing hard from the exertions of tunneling through the snow plug and as his tiny nose burst unexpectedly through the last curtain of white that shielded him from the tempest, he inhaled sharply. That was a mistake. The unexpected cold simply took his breath away, leaving him temporarily stunned and motionless.

He was shaken from his momentary shock by the jolting impact of a hard, furry shoulder on his tail. Flint, running up the tunnel and in the darkness imposed by Sandy plugging the entrance, ran head-first into Sandy's tail, provoking a muttered curse from below.

"What the devil's claw are you doing up there? Having a nice nap before we leave?" Flint asked sarcastically.

---

[88] The entrances to dog tunnels are often pulled closed by the occupants, sealing out the cold. Others, caught out late in the fall and with the ground frozen may find themselves unable to move enough earth to plug the burrow, and it drifts full of hard-packed snow and ice. This ice plug is not an effective deterrent to predators such as badgers and black-footed ferrets. Both of these species simply excavate a trench or new tunnel alongside the ice plug and then into the dog burrow. The ice or earthen plugs likely make it more difficult for a predator to determine if someone is home, but once past it, the resident is easily trapped and a meal made for the hungry predator.

The force of the collision had driven Sandy forward and out of the tunnel entrance, onto the wind-swept plain. Turning his back to the wind, he poked his nose back down the tunnel, and with a grin, said "Well, you wanted an adventure. Come and get it!"

Flint's angry nose cautiously emerged from the tunnel entrance, and then quickly disappeared when it was assailed by the wind. Emerging once more, the nose was quickly followed by the rest of his body. Flint turned and huddled close to Sandy on the leeward side of the mound.

"What in the name of Buffalobur[89] are we doing?" he shouted against Sandy's ear. The wind blew another nasty blast, almost lifting Sandy off the ground. Only his firmly-anchored back toenails kept him from joining a tumbleweed as it careened past them. In most winds, they would face into the breeze to keep their fur from being uncomfortably rumpled.

Not in this wind. Facing into it immediately caused tears to form, and to freeze them into icicles on their cheeks.

"I know it's bad, but we've got to go. You know we do!" Sandy hollered to make himself heard. As he said this, another whiskery nose appeared, followed by Juniper as she, too, made her reluctant entrance into this frozen wasteland. She simply looked around quickly, and then huddled in the shelter of the two larger males, as did Fiona who had followed her out.

A few seconds later, Pebble popped to the surface, with no exploratory sniffing to detect possible danger. Popped to the surface and then disappeared, but not back into the tunnel! Pebble had fallen behind and in running to catch up, and in his hurry, had popped up and out of the tunnel directly into the face of the strongest gust of wind yet. The four waiting friends heard a startled squeak, then, like a miniature tumbleweed, Pebble was gone, into the drifting snow.

The four adventurers looked at each other, at the tunnel and then to where their friend had vanished, and as one, took off in a lumbering gallop to find him.

A few minutes later, they discovered him spread-eagled against the side of a boulder. The wind had picked him and rolled him only a few cubits before he landed, belly first against a lichen-encrusted rock. He hung there, all four legs out to the sides, like a piece of rock art from some long-forgotten alien culture.

Flint reached up to drag Pebble back to the ground. Together they all moved around the boulder to the shelter of its lee side.

Pebble sat panting, and with barely a spare breath, said, "Gee that was fun, I wanna do that again!"

Flint once again wondered how he got assigned as a baby sitter, but just shook his head and did not comment.

---

[89] Buffalobur (*Solanum rostratum*) is the ancestral host plant of the Colorado potato beetle, (*Leptinotarsa decemlineata)*, but this pest adopted the potato, (*Solanum tuberosum)* as a new (and more succulent) host, a fact first reported in eastern Nebraska in 1859. Like Bluebur, it seemed an appropriate curse word.

Juniper looked at Sandy, and with disgust, led them away from the boulder and into the abandoned city. They crept along, nose to tail, moving from the shelter of one entrance mound to another, gradually making their way through the Quivertail Ward, to Badger Mound, at the edge of the Borderlands. At this point, she stopped and waited for the others to bunch up around her.

Everyone paused, not wanting to venture into the danger that lay ahead. Fiona turned and with a look of longing, gazed back at the home that Crocus Butte had become. She knew what lay beyond the borderlands, having traveled here from Broken Hills. Her life here had been so good.

She thought, “I am a teacher, not an adventurer or an Astiti. I don’t belong out there.” But she had been asked to go by the Comitian herself. She had accumulated knowledge of the Great Unknown through her journey across it. She had given her word to do the best she could. She turned her back then on the safety and security of her world to face her future.

Flint moved forward into the burrow of Grandfather Quivertail and a welcome respite from the howling winds. The others followed and made their way quietly down to the tunnel that would lead them away from Crocus Butte and on to the city of Broken Hills.

They hoped to pass through Grandfather’s burrow system without disturbing the old dog. Given his vast age and recent frailty, they did not want him anxious or disturbed by their departure.

Sandy said, “If I remember correctly what Grandfather said, his secret tunnel entrance should be in a corner of his nest chamber, along its left side. It’s supposed to be beside a small boulder and difficult to see.”

Chapter 18

Into the Licorice Forest and Beyond

After they dropped out of the glacial blizzard that raged outside and into the calm and stillness of Badger Mound, the relief was intense. The huge old burrow descended steeply, to a flat area at the bottom. Here, Grandfather Quivertail had begun his tunnel system. Juniper had searched her apothecary shelves until she had found five sets of pussytoe slippers, and each of them now wore a set to make their travel quieter. [90]

There were numerous passages, chambers and side tunnels. On several occasions, Flint had to back-track to find the correct route. Pebble walked past an opening on his right and as he did so, he heard in his head the old dog saying, "Hey, Toenail, you pop-eyed fool, get out of there!" Toenail was Grandfather's closest childhood friend and fellow pup. "You're going to get yourself in trouble again, wanting to play with that snake."

The impression left on Pebble's mind from his telepathic eavesdropping was of Grandfather Quivertail as a young pup and that he was dreaming of a time over one hundred years ago. The vast distance between that time and now made Pebble almost dizzy with vertigo and he shook his head to block out any more of Grandfather's memories.

"Hey, pssst, you guys, wait," Flint whispered, "This is Grandfather's nest, so we must be close." The others stopped and came back to where he waited. "The tunnel is supposed to begin inside his chamber, near a rock in the wall. Pebble, you go first and find it, then come and get us."

Pebble tip-toed across the chamber. As he moved, quietly past he saw that Grandfather had curled up into a ball on his bed of buffalo hair, and was piled under a mound of flannel fern leaves. Pebble was still able to hear the murmuring of thoughts from a century ago but shielded his mind as he searched the walls for the rock. "There it is," he said to himself. "I've found it."

He returned to the others, and in a single file led them past the old dog, around the boulder embedded in the wall, and into Grandfather Quivertail's secret tunnels.

It was ancient, and, in many places, not well maintained. The pungent aroma of damp earth permeated the burrow, mixed with dried clay dust, dead insects, left-over meals, scattered strands of ancient molted hair and the detritus of a hundred years of life. The tunnel undulated up and down several times but led in a fairly direct route to the west. The roots of a variety of plants began

[90] Pussytoes, plants of the genus *Antennaria*.

to appear as they ascended towards the surface, grass roots, first[91], then those of silver sagebrush. The tunnel continued to slope upwards and they began to pass side tunnels that intersected the main burrow. Soon, tunnels were taking off in all directions, and any semblance of a main tunnel was lost in the maze that confronted them.

Flint stopped.

"Well, I am completely confused by this mess," he said to no one in particular as he sat at a junction of several tunnels that led up one way, down the other and straight ahead. The meeting point of these tunnels created a small antechamber, big enough for all of them to huddle together. Sandy squeezed his way to the front and sniffed the air searchingly.

Grandfather had told the group about the tunnel system and suggested it as a way to pass under the Borderlands, getting a good distance away from the city, before they were forced to travel above ground. Unfortunately, he had not provided many details of the system, only saying that they were going to discover an unexpected treat once they were at the edge of Crocus Butte.

"I remember visiting Grandfather once years ago," said Sandy, "and he tried to hide a piece of root he had been snacking on when I came into his chamber. He hid it from me and refused to tell me what it was, but the smell was unlike anything I'd smelled before. And you know, I smell it again, here."

His nose was quivering, his nostrils flaring and he drew deep breaths, questing for the direction that the sweet aroma was coming from. There! He had it at last.

"Follow me, I think I know where to go."

In a second he was off, into a tunnel that seemed to be much newer than the others. It rose and then ended abruptly, just a short distance ahead. At that point, there was a circular wall of a root of some sort. It almost filled the entire tunnel-end, and it was clear that Grandfather had been chewing his way up the root, as it was covered in a series of vertical slashes from the teeth of the old dog.

Sandy, always keen to experiment with new foods, moved to the root and took a nibble.

Then another.

And another, and finally with a mouthful of licorice root, he turned back to the others with a grin.

"You have to taste this! It's the best root I have ever eaten." The others pushed forward, one at a time and took their turn tunneling forward along the path of the root as it rose before them. So

[91] In healthy prairie grassland systems, the roots of some grasses have been known to penetrate a couple of meters deep. Doing so helps them find moisture and to survive extended periods of drought, during which many shallow-rooted plants die from lack of moisture. This is particularly so under piles of buffalo manure, where the deposited fertilizer penetrates deep underground, followed by the plant roots.

engrossed were they in their foraging that Sandy did not realize that at some point the root had branched off in several directions, each followed by its own prairie dog.

Fiona was the first to stop her munching. She paused with a mouth full of succulent licorice and listened intently. Faintly she could hear the sound of tunneling and munching from all around her through the earth and the interconnecting roots that surrounded her. Realizing that they were wasting valuable time, she turned in the tight little tunnel she had dug and returned to the last point where they had all been together. Four other tunnels led off in four different directions, each culminating in a prairie dog, with cheeks packed full of licorice root.

She had to wait until her mouth was finally emptied, and then she shouted up each tunnel in turn for the others to come back. It took some time, but eventually, all were once again together at the intersection of the tunnels. Sandy's lips were smeared with black stains and everyone's teeth had big gobs of the sticky root clinging to them.

"Well", said Pebble, "that was very nice. Can we stay here for a couple of days and fatten up some more before we begin?"

Sandy was nodding his head vigorously in agreement, when Flint said, "No, we have to be going soon and besides …" He stopped in mid-sentence as the most horrific stench floated through the chamber. Everyone's eyes bugged out and started to water. They could barely breathe in the miasma that flooded the room.

An almost imperceptible little hissing, popping sound was coming from the area where Pebble lay. He got up and looked behind himself, but the sound continued to follow.

Juniper gasped in gagging disgust, "Oh my burr-ball that's horrible, where's that coming from?"

Sandy was about to say something, just as Pebble's bottom passed by his nose, and Pebble let loose another tiny fart. The blast hit Sandy directly in his right nostril and dropped him to his knees.

"Pebble!" he screamed, in a choking, gagging whisper. "You little cactus biter, what have you done?"

Pebble, horrified to be the center of attention and dismayed to know that he was creating the stench, simply shrugged and said "I don't know, one minute I was fine, the next …." and another great ripping fart echoed through the tunnels. Little roots hanging from the ceiling swayed in the breeze and the whiskers on Fiona nose wilted from the cloying stench.

Flint didn't wait for more, but turned and ran as fast as his legs could go. He was soon followed by Sandy, Fiona, and Juniper with poor little Pebble stumbling along behind.

Three steps, fart, three more and another fart; each one becoming successively longer, louder and smellier than the one before. A tiger salamander[92], living quietly in an adjoining tunnel, watched them go by. Pebble released another blast as he passed and the salamander faded off to sleep, stunned into unconsciousness by the stench.

Flint detected a faint tendril of fresh air wafting towards him from a tunnel to his right, and he veered into it at full speed, with the others right behind. Pebble almost missed the turn, so far behind the group was he, but he just caught the sight of Juniper as she vanished around a corner. He followed as fast as he could, with the explosions of nasty fumes gradually decreasing in severity and frequency.

It seemed to take forever, but Flint finally saw light and slowing, he approached the circular dot of brightness carefully. A steady stream of cool fresh air drifted down the tunnel towards them, washing them free of the last remnants of Pebble's noxious gas. Flint crept up to the opening and quickly scanned the area around him. Nothing. He raised his head a little higher and all he could see were the stems of a strange plant that created a forest all around them. The forest was fairly dense, and the sunlight that penetrated to the forest floor dappled and flickered across the leaves and strange reddish pods that lay everywhere. He emerged fully onto the frozen ground and was followed shortly by the others.

Pebble, a few moments later, popped to the surface and ran over to Sandy. Sandy, in horror, backed off. "Get away, you little stink bomb."

Dismayed, embarrassed and feeling all alone, Pebble slunk away to the far side of the burrow entrance with his long tail clamped tight against his bum. He sat there, hunched over and miserable, and looked back at the others. Another faint tendril of gas escaped his bum and filtered slowly away through the forest of licorice stems that surrounded the group. A deer mouse[93], surprised at their sudden arrival in its home territory, was hiding behind the trunk of a licorice tree behind him. The mouse gave one startled gasp and dropped to the ground. Pebble could hear its thoughts just before it passed out: "What - what was that …?" It lay there, legs twitching, and gasping for breath.

The others had backed further away from him when this happened and were sitting, arms folded over their bellies, staring at him with a mixture of awe, shock, and disgust.

Finally, Juniper, the healer in her more curious than the fear of another blast, walked over to him.

"What happened Pebble? Did you eat something we didn't?"

Pebble said, in a tiny voice, "No, Mistress Juniper. Only the root everyone else was eating."

---

[92] A host of species, including the Blotched Tiger Salamanders (*Ambystoma tigrinum melanosticum)*, live in prairie dog burrows and benefit directly from the existence of abandoned tunnels.

[93] Deer mice (*Peromyscus maniculatus*) are very common throughout the prairies and serve as a significant food source for mammalian and avian predators. They are also known to carry hanta virus.

Juniper searched her memory but could only conclude that Pebble had had an immediate and severe allergic reaction to the licorice root. She turned to the group and described her diagnosis, concluding that the only thing they could do was continue, and hope that exercise would flush out the remaining gases.

Flint stood and said, “Fine, but the little turd-kicker is going to stay last in line. I’m not having that little butt of his ahead of my whiskers.”

There was a general nodding as Juniper turned back to Pebble. “ If I can find some dried golden bean seeds[94],” she said, “they should help to stop the gas and fix you up. In the meantime, stay back, but in sight, OK?”

The licorice forest lay in a shallow depression and it appeared that Grandfather’s tunnel had emerged somewhere near the center of it. Early morning sunlight was slanting down through the dried branches above them and provided a sense of direction for Flint and the others. With the sun at their back, Flint began to move away from the tunnel exit. He hadn’t gone three steps before he came to a halt, cursing under his breath.

“Now, what the Povertyweed is this?”

His underbelly was covered with sharp, sticky barbs from the seed pods of the licorice plants that lay everywhere, for as far as they could see.

Standing on all fours to get as high off the ground as possible and away from the pods, Flint looked back and said to Pebble, “Pebble, get your skinny butt up here and clear a pathway through this stuff.”

Pebble’s size now was an advantage, as he was small enough to get between most of the sticky pods. With a small stick in his paws, he was able to push aside the pods, and in doing so, create a pathway for the others to follow behind him. Only twice more during their escape from the licorice forest did a tiny bubble of noxious gas escape and blister the noses of those behind him, and all were thankful to finally break free of the pods and into the open prairie where the winds of daylight could carry away the smell.

This was the first time that any of them, except for Fiona, had ever been outside of the Borderlands and into the Great Unknown.

Flint looked over at Fiona who was sitting cuddled next to Sandy.

“Fiona,” he said, “how did you know which way to travel when you left Broken Hills?”

---

[94] The golden bean (*Thermopsis rhombifolia*) is also known as buffalo bean. *Thermopsis* is from the Greek ‘thermos’ (lupine) and ‘opsis’ (resemblance) because the flowers are similar in shape to those of lupines. *Rhombifolia* means “with rhombic (diamond-shaped) leaves.” First Nations people used its flowering time to indicate that buffalo bulls were ready for the spring hunt.

She gazed around her at the Great Plains [95]and said, “I simply followed the sun. I got up in the morning and walked with it to my right and went to bed at night with it to my left. I don’t know why I did, but it seemed the right thing to do at the time.”

Flint turned and faced in the direction of their proposed travel. It was past noon now, and the sun was beginning to descend towards the west. After examining the landscape, he looked over his shoulder at the sun.

“Well, all we have to do is reverse your method and it should take us back the way you came. Now that we have some fresh air, let’s make the best of it. We have a long way to go before dark.”

[95] This region of the northern Great Plains is part of a biome known as a mixed grass prairie; a landscape dominated by a mixture of short and taller grasses, interspersed forbs and shrubs. A biome is a major regional ecological community characterized by distinctive life forms and principle plant or animal species.

Chapter 19

At the Coulee Rim

Just after their noon meal, they came to a place of utter devastation.

The terrain they'd been crossing since leaving the Licorice Forest was of gentle, undulating hills sparsely covered with tall grasses and the occasional sagebrush shrub. The long, blond strands of Needle-and-thread grass waved fitfully in the sporadic wind, buried to half their depth in the drifted blanket of snow, with most now missing their needles. The wind had scoured the surface free of any imperfections, packing snow grains into every little depression, and creating a crystalline crust[96]. That crust held, most of the time, as long as they did not bunch up. When someone stopped paying attention to their spacing and came up behind another, their combined weight was often enough to send them both crashing through the top layer and into the softer snow beneath, to land with a soft muffled thump.

Most of the time the snow here was shallow enough that, standing upright on their hind legs, they were just able to dig their front claws in and scrabble back to the surface. In some places, the wind had scoured the surface free of snow and they traveled on dry ground, then back onto the snow surface again. Sometimes it was several cubits deep and getting out much more difficult.

There was a whiskery tickle on his behind that warned Flint someone was too close. Turning quickly, he said, "Sandy, back off, you're too …" From the moment Sandy's nose and whiskers gently bumped into the furry nubbin of Flint's tail, their plunge through the snow crust was preordained.

Deep in thought about what to have for supper, Sandy had not been paying attention and he gave a startled "Yikes!" as he began his descent.

Coming to a stop, half-buried, and with a mouthful of snow, Flint said "Hthumpth!" Spitting out the wad of snow, he tried again.

"How many times have I told you? Did I not just tell you to stay back at least two lengths?"

---

[96] Icy, windblown crusts are a common feature of the prairie winter landscape. Strong winds pick the snow off ridges and slopes and pack it into massive drifts along the top of the lee wall of coulees. When it forms a thick crust across the open prairie, all wildlife suffers, especially those who have to forage through it. The ice crust can be responsible for the deaths of hundreds of ungulates during severe winters. Other species, such as mice and voles, benefit from the crust as it makes it more difficult for the predators to detect and attack them.

Pebble had crawled to the edge of the hole and was peeking over the crater rim, looking down at the two below when he felt the loose snow under his belly begin the shift and slid. He scrabbled backward with his claws, but he began to slide nose-first towards the opening. He barked down to Sandy and Flint that he was falling. They looked up and tried to move to the side, and a low hissing sound preceded a small avalanche of loose snow and prairie dog.

Pebble landed with a soft thump between them. Enough snow followed him down that all three were instantly buried in crystalline whiteness and silence.

"You cactus biting little burr ball!" exclaimed Flint, as he tried to stand and get his head above the snow. Every time he managed to get his feet under him the snow shifted and down he went again, each time digging himself deeper until at last, his hind feet were touching grass and soil on the ground. "Hey, Sandy, where are you?" Flint barked upwards.

"I'm right here – beside you. Did you know there's some really good winterfat down here?"

Flint jumped at the unexpected closeness of Sandy. They couldn't see each other, but they were probably separated by less than two cubits in the faintly illuminated snow.

"Pebble, you little trouble maker, where are you?"

In response to Flint's call, Pebble said, "I'm over here. I think to your left. There is a tunnel system under the snow here, and I think it's big enough for you to get into. Come and see."

Sandy worked his way through the loose snow to where Flint sat in glum silence.

"Well, we might as well go and see what the little guy has found," Sandy said. "I don't see how we're going to claw our way up through this snow."

Following the occasional barks from Pebble, they tunneled through the soft snow, and with Flint leading with his massive body and Sandy following in the tunnel left behind, they came to where Pebble was.

He was lying in an undisturbed area. They could feel the weight of the snow above them, but here, at least, it was much more solid.

"Look, here, there's a tunnel that leads uphill. Where we were walking before was snow-free, and then we got out onto a level place, just before we broke through. I think we are in a depression that drifted full, and if we go uphill, we should be able to get out. What do you think?"

Sandy had crawled up next to Flint's shoulder. "It makes sense to me."

He squinted down the tunnel that Pebble had found. "Who made this? Who else is down here?"

Pebble moved into the tunnel a short distance, and sniffed, both physically and mentally. "I smell a mouse, I think. There was definitely someone here just a few moments ago. The air is still a little warm, but I don't sense any danger."

Pebble began to move carefully up the slope. Flint and Sandy looked at each other, shrugged and followed him into the tight confines of the tunnel. Flint had to push hard and dig, occasionally,

to get his massive shoulders through the burrow, but the snow was yielding enough to allow him reluctant passage.

They had traveled perhaps ten or twelve cubits when Pebble stopped suddenly. They could just see his whiskers and they were twitching as he scented the air. He shuffled ahead and entered a small chamber, the floor of which was covered by mouse droppings. "Obviously," he thought, "I've found their toilet." He was just about to move on when a light grey nose and stubby set of whiskers appeared in the chamber entrance.

"Oh hello," said Pebble. "Sorry to disturb you. We are travelers and mean you no harm."

Facing Pebble was a sagebrush vole, and given his perfect fit in the snow tunnel, clearly its resident. [97]

"Would you know what is the best way for us to leave your tunnels? We need to return to the surface as soon as we can."

"Why?" asked the vole.

"What do you mean – why? We are traveling and have to get on our way, and we obviously can't do it under here."

"Well, actually you could if you weren't so big," it replied smugly, "but if you are foolish enough to go top-side, stay in this tunnel and it will lead you to an area where the snow is thin. You can tell when you're there because the sunlight gets very bright."

Pebble thanked the vole. It dashed back a short distance and then turned off into a side tunnel. No word of farewell or good luck, just gone. "The vole says that if we go just a short distance we can get out this way." Pebble proceeded down the tunnel. It fit him quite well, but Flint had to push to shove his way along. Sandy, waddling along behind him, had lots of room, and on occasion, time for a snack of winterfat.

They crawled for a few minutes until they could see the light filtering down from above. Flint stopped, looked, and then, with a massive heave of his hind legs, drove his head and shoulders

[97] The Sagebrush Vole (*Lemmiscus curtatus*) is, as its Latin name implies, more closely related to lemmings than to other voles. It makes up a large portion of the diet of birds of prey in this part of the plains, and vole-bits can often be found in their castings. They spend the winter in a subnivian realm, creating tunnels at the snow-ground interface and continuing their daily routine much as though winter had not arrived. They are quite neat in their pooping and create little mounds along their trails. They do this during both summer and winter, returning to do their business in the same place, over and over. You can find their trails leading in radiating lines, through the grasses around an abandoned ground squirrel's burrow. If you see periodic neat mounds of tiny droppings, you will know you've found a sagebrush vole home.

The soft granular snow that they fell into is referred to as depth hoar, snow that has been transformed from its original state. After deposition, the heat from the earth rising upwards through it changes the structure of the individual snow crystals. They become a uniform, cohesion less mass with little or no stability - a major cause of avalanches in the mountains.

straight up. His head burst from the snow surface and he quickly scanned around him for potential danger. No sense in surviving this far only to pop up into the mouth of a passing coyote or fox.

Nothing.

Nothing but the butts of Fiona and Juniper as they lay near the crater barking and barking for their friends to reply.

Flint dropped back down and said to Sandy, "Now give me a push up to the top," as he gave a heave, and climbed on top of Sandy's shoulders and reached for the opening above them.

"Get your foot out of my ear!" Sandy yelled as Flint's toenails dug in for a grip. Flint's massive weight pushed them both a little deeper as he stood poised on top of Sandy's head and shoulders, but with a final grunt and a muttered: "I hate this snow, I hate it!" Flint gave a leap and lunged onto the surface.

Juniper and Fiona had dug little nests in the snow around the entrance to the pit into which Pebble, Sandy, and Flint had fallen, and made themselves quite comfortable, while they anxiously yelled, waited and watched for any sign of movement from below. When Sandy saw Fiona's bum pointed at him, he foolishly could not resist the impulse to have a little fun. In a few tip-toeing strides, he came up behind her, reached out and poked her with a sharp claw.

The reaction he got exceeded his expectations and Juniper was required to apply her ministrations to the scratches on Sandy's face from the attack that Fiona launched on him. It was over in a second, and once past the anger at them disappearing, and of sneaking up on them, Fiona spent the next few minutes cheek-cheeking with Sandy.

Flint said, "Enough time wasted. If you two are finished, I think we should be on our way."

The ridge crest before them was windblown and almost snow-free. Boulders ranging in size from a small mouse to as big as a badger lay as they had for millennia. Covered in brilliant swatches of multi-colored lichen, each rock had a wind-drifted ramp on its lee side where the force of the wind had lessened during a recent storm.

"I'll bet I can see better from up there," thought Flint as he eyed the top of one stone. Digging his toenails in, he climbed up. There he found a mushroom-shaped platform, just big enough for five or six prairie dogs to snuggle together comfortably. The scene before him was unlike anything he'd seen before.

As far as he could see, a huge swath of landscape was no longer covered with its pristine blanket of snow.

"What the Buffalobur happened here?" asked Juniper as she climbed up to join Flint on the quartz-flecked boulder. Struggling a bit, Pebble came to a stop beside her, gasping for breath, not just from the exertion, but also from the shock of the view. Scampering quickly up to the rock, Sandy and Fiona came last. Nudging his way between Pebble and Juniper, Sandy poked his

whiskery nose inquisitively forward. Huddled together, the five adventurers sat shoulder-to-shoulder and surveyed the scene before them.

Stretched north to south lay the vast chasm that was Lizard Valley. The far western side rose in pale blueish-white waves and the bottom was a sea of brilliant white. They were only a short distance from the sharp edge of the valley, and between them and the rim was a small area of flat grassland.

All of the grasses and shrubs had been pulverized. In a strip several hundred cubits wide, nothing remained upright. Trampled and matted, the mess of churned up snow and soil, dislodged rocks and small trees covered the region as far north and south as they could see. The buffalo herd had lingered here and foraged through the deep winter snows. Craters had been dug to gain access to the food below, huge piles of excavated snow lay in complete disarray. The herd had consolidated near the eastern rim of the valley, and the buffalo had then formed a single file as they descended over the rim. In doing so, they had created a trail through the snow that was wide, steep-walled, and from their vantage point on the rock, it appeared to be smooth floored. It began to their left and then disappeared over the crest of the ridge to the valley below.

Almost as over-powering as the sight was the smell that still lingered. It made their eyes water. Thousands of large brown mounds, each equal to two or three times their body size, were scattered throughout the ruin, and each still-warm heap produced a tendril of nostril-clogging steam that wafted gently up the slope towards them. Huge piles of reeking buffalo manure from the herd that had recently passed this way lay scattered throughout the broad area before them.

“You been eating Licorice again?”, Juniper asked Pebble, innocently, as the stench hit her sensitive nostrils. Pebble began to indignantly deny doing so when he realized she was teasing him. Instead of a retort he simply asked in a soft voice to no-one in particular “What did this?”

Sandy knew what had done this.

“Buffalo”, he said confidently. “Lots and lots of buffalo”. What they were witnessing was the evidence left behind by a migrating herd of the massive beasts that must have numbered in the thousands. Eating, trampling, churning, defecating, urinating, and stomping, the herd had traveled from the east to the west across their line of travel. All was not completely devastated though. As they sat in stunned silence they began to see motion where before all was stationary.

“Snow buntings!” [98] exclaimed Juniper, with an infectious giggle, as her sharp eyesight caught the flicker of tiny white wing patches amidst the devastation.

[98] The snow bunting (*Plectrophenax nivalis*) migrates south from its tundra home to winter on the Great Plains. Large flocks move across the landscape as described above and do take advantage of disturbances such as that created by a passing bison herd, picking up the exposed seeds. As winter starts to reluctantly give way to spring, they begin their annual northward migration.

Flint just stared, shocked into immobility while the others sat and watched in complete and silent disbelief. Snow buntings were thought to be a myth, a story to tell little pups on dark winter nights to cheer them up.

But here they were.

Perhaps a hundred tiny little flitting and darting, feather-clad darts of joy and happiness dotted the snow before them. Everything about them gave off a warm soft glow that even the un-gifted in the group felt. The flock settled on the ground disturbed by the passing buffalo herd, pecking and hopping from one morsel to another.

Then, as though it was one giant being, rather than a hundred tiny ones, they lifted from the ground in a spiraling ascent that left the watchers breathless. The flock danced on the wind. It soared, it twisted, spiraled and swirled high up and like a wave crashing on a beach descended to the coulee wall and washed back up the other side. And then, like a warm blanket on a cold winter night, the flock circled the little band of adventurers and settled softly around them, singing gently and pecking at little bits of food scattered across the prairie.

Pebble thought he had never felt so good. His ability to hear the thoughts and emotions of others was mostly a curse. It was always there; he could not turn it off. It plagued him while awake, and laid hiding but always there while he slept. This was the first time in his life he could feel the joy and happiness of another, with no tinge or hidden feelings of resentment, anger, selfishness, pride, or any of a hundred other emotions and thoughts.

“They’re truly happy,” he said aloud, without thinking.

The others looked at him.

“What do you mean Pebble?” Juniper asked.

He looked back at her and then to the others. “They are truly happy. There is no discontent, no one chastising another, no one wanting something another has, just wonderful pure happiness!”

As he said this, the entire flocked stopped in mid-action and turned to face Pebble. A hundred little pairs of feet hopping and dancing, a hundred pairs of little feathery wings shuffling and rubbing to get their feathers neatly settled, and a hundred pairs of bright black eyes focused intently upon his.

From the center of the flock a small voice rose gently on the wind, so soft and faint he almost missed it.

“Pebble Short-Bottom, of the Crocus Butte Short-Bottoms, Foreteller, and brave adventurer, we sing you warmth and safety on your journey. We passed by your home on our way here and spoke with the one you call Grandfather. He told us of your journey, so we know of the path you follow and of the risks you take in your quest. It is a worthy quest. We have searched the valleys and hills along the path to your destination, and great danger awaits you further down this valley.

Stay on the buffalo road only a short distance, then go west and you will be fine. Do not follow the buffalo trail past the lone tree."

Having given this enigmatic warning, the entire flock rose as one, swung away to the valley below and within moments, was simply a memory.

Giving his tail a shake, Sandy Quivertail stood and stretched his aching back, extending his toes as wide apart as he could, to relax the tension that had built up throughout his body. The others also began to shift and move about, stiff after their immobility on the cold surface of their boulder, unaware of the message that Pebble had just been given.

He briefly described the warning the birds had given about the vicinity of the tree but was not able to provide any details about the risks associated with it.

Flint stood up next to Sandy and said, "Time to go. Let's get our butts in gear and make some cubits before the sun goes down".

"Yes, but go where?" asked Juniper in a frustrated tone, "If we try to cross that mess we won't get the stink out of our fur for a month!"

"Doesn't matter," said Sandy, firmly. "Look at the trail they left behind. [99] From here it looks like it's fairly smooth and if we follow the buffalo trail, it's going to be a lot easier walking than it is up here on top of the snow."

The trail did seem to lead in the direction they wanted to go.

"You can't be serious" she exclaimed, "you can smell that stench from up here and you want to walk in it?"

"Think of it as being behind Pebble after he's had a good meal of Licorice!" Sandy said, "If you survived that, you can survive this!" This brought a chuckle from everyone in the party, including the Pebble.

They turned, and in single file with Flint leading, descended from their perch and began the trip to the devastation below.

---

[99] Buffalo trails had a huge impact upon everything that traveled across the Great Plains. They crisscrossed the continent throughout the entire historical range of the bison and had done so for more than 10,000 years. So well used were some of these trails that they were worn more than a meter deep in many places, (Roe 1970) and these deep trenches posed a significant barrier to Europeans moving on the Great Plains with their wheeled contraptions. They also provided an easy road for other migrating species such as the pronghorn antelope, and led all wildlife to the closest source of drinking water. In many places where the land has not been plowed, these old trails can still be seen, and many have continued to be in use by cattle and wildlife since the extirpation of the great herds of bison.

Knowles (1985) found that dispersing prairie dogs used roads and cattle trails as a way to join other colonies or to establish new ones.

Chapter 20

Onto the Buffalo Road

There had been considerable discussion about their next course of action. Flint, as ever, wanted to continue due south, as that was the shortest route and would, in theory, get them to their destination the soonest.

"If you want to get from one burrow to another, you go to it! The straight line always leads directly between two burrows" he argued, "not wandering around all over every street and alley of the Ward".

Sandy looked at the distant wall of the valley, at the meandering buffalo road before them, and thought back to the difficulties they'd had all day with the deep snow and drifts. Juniper sat back and quietly listened, knowing her voice would not be heard above the argument, but it was Pebble who finally broke the stalemate.

"Look, we all know our path lies to the south-west, but for the sake of a grubby toenail -look at it!"

After they had descended, they had crept closer to the rim of the coulee that lay just before them. The edge of the coulee was mostly snow-free, the wind having ravaged the last remnants, leaving winterfat and grama grass exposed. Sandy was pensively munching on a stalk of winterfat and gazing at the view laid out before them. It was like a huge, rumpled bedspread, that lay in twists and folds to the distant footboard of the horizon.

Seventy Cubit Butte lay there, distant and uncaring; just a faint smudge on the western horizon. Between them and the Butte lay a wilderness of steep-sided coulees, vertical butte walls, flat-topped mesas, rivers, and snowdrifts. The direct route along the valley bottom was visible from their vantage point on the coulee rim, but traversing it safely seemed an impossible task.

With a note of authority, Sandy stood up on his hind toenails, and said, "Enough. Enough discussion! Time is wasting while we sit here and dither." The others looked at him, surprised since he had been so quiet of late. "I know the buffalo road leads generally to the west and we need to go to the south, but look at it here."

The buffalo road passed over the crest of the coulee rim, and into the valley below, where it snaked across in a westerly direction disappearing from view.

"We can travel the buffalo road to those hills and then find another route from that point on," he explained. "You know what it's been like struggling with the snow this past while. It may smell like Pebble's butt, but at least its firm footing and it's leading in our general direction for now."

Pebble gave him an indignant glance, and shifted off to the edge of the coulee rim, while Flint stood tall; tail laid out on the ground behind him as a brace and examined the scene before them one more time. He seemed about to say something when Pebble interrupted him.

"Everybody, listen to me please," he said. The others were busy chatting with each other, or having a quick snack of winterfat, and did not initially hear his little voice.

"Everybody! Listen!" he shouted, then immediately felt conspicuous and the center of attention, as the other four stopped and turned to face him.

Startled, Flint sat back on his haunches; arms draped over the top of his belly.

"Yes, Pebble, we are listening now."

The others, too, sat up and waited.

"The snow buntings passed a message to me while they were singing," he said softly. The others sat forward alertly now, paying close attention to what Pebble had to say.

"They said that they had searched the valley and hills along our path and that we must not go west beyond the lone tree, for great danger lies in waiting there. We are to leave the buffalo trail there, and go south from the lone tree." He said this with the authority of a Foreteller, rather than the meekness and shyness more typical of the Pebble everyone knew and as a result, no discussion or dissent followed.

Flint looked at the others, then said "Well, Ok then. Let's get going. The road looks easy and we should be across the valley in no time."

He would look back on those words very soon with more than a little chagrin. Led by Sandy now, the party set off once more, this time walking on a surface that stayed firmly under them, rather than constantly shifting and moving as the loose snow had. The trail entered a slight depression, then quickly dropped out of sight over the rim.

They crawled to the edge of the trench that was the buffalo trail, then one at a time dropped over the edge and into the steep-walled trail. While the floor of the trail was hard and smooth, it was anything but flat. The passing buffalo herd had formed a single file before entering the coulee, and like all species that travel in this manner through snow, each successive buffalo had stepped into the footprints of the one before it. With countless hooves treading the same spots, an undulating trail developed, with a deep rectangular depression followed by a ridge of less disturbed snow, then the next footfall and another depression in the snow. They were not falling through, but they were getting a little nauseated from the constant flowing up and down nature of the trail. Fiona had passed by a river on her trek from Broken Hills to Crocus Butte and watched a stick float down the river through the waves, bobbing to the top then sinking again to the trough, and this was how she felt.

Yet the going was fairly easy, and they followed the trail through several twists and turns to the top of the coulee rim.

Sandy was the first to arrive at the precipice and he tip-toed forward until just the tip of his nose and whiskers passed the rim. The land seemed to have dropped away into nothingness. From the ridge crest behind them, it had appeared that the coulee wall was going to be a fairly easy walk, but now, it was clear that it was more cliff than wall.

Composed of normally loose and crumbly greyish-black shale into which they could easily sink their toes, the west-facing slope of the coulee wall was now a frozen sheet of slick black ice. The buffalo herd in their passing had scraped off all surface texture, leaving behind a giant's slide that plunged to the bottom of the coulee in front of them. Sandy could easily see where many of the last buffalo in the herd had slipped and rolled down the incline left impassable by those before them.

Pebble came scampering past Sandy, ready to run down the slope in front, and before Sandy could say or do anything, other than try to grab Pebble's tiny tail, he watched as Pebble scrabbled and clawed backward, trying desperately to stop his forward, and downward momentum. They both failed.

"Pebble, stop!" Sandy shouted, just as he missed Pebble's tightly clenched tail. Pebble seemed to hang motionless for the longest time, legs and feet wind-milling, pausing in mid-air before slowly becoming a tumbling, bouncing, rolling little ball of fur that quickly gained speed and distance from the coulee rim. Those he'd left behind, mouths hanging open in shock and dismay, hung over the edge, watching helplessly.

The trail dropped perhaps twenty to thirty cubits before leveling out again on the valley floor. The buffalo had re-grouped and collected themselves after their steep descent and had spent a fair amount of time milling about at the toe of the slope. While the slope above him was clear of any form of obstruction, the toe of the slope was not, and as Pebble tumbled and rolled, his world flashed in a circular kaleidoscope, around and around, upside-down, right-side-up, over and over again. Each time he bounced and left the ground he peeked through squinty eyelashes to see what lay before him, and each time doing so led to a tiny squeak of terror before the ground reappeared, and he closed his eyes once again. The tumbling journey seemed to take forever, and as the valley bottom and all of its rocks and boulders came closer, so, too, did death seem imminent.

The end did not come as a hard splat against a boulder face, as a series of thudding, bone-breaking crashes, or even from death by a thousand needles - were he to dive into a prickly pear cactus.

No, the end came softly, almost quietly.

There was a soft, sucking, squishy sort of sound, and total, silent darkness. He was also completely immobilized and was unable to move his upper body.

Strangely, he felt quite free from the hips back and was able to wave his tail, wiggle his bottom and kick out with his back legs. By now though, he was having problems breathing. His face had

hit this soft material so hard that even his nostrils were plugged solid. He began to panic and kick ferociously, struggling to free himself from whatever had captured him.

Watching their friend careen out-of-control down the icy hill left the others horrified and speechless. The slope was not long though and was relatively free of obstructions after the passage of the buffalo herd. This meant that there were no objects in his path to help slow him down, but it also meant that nothing could hurt him; on the way down.

"Oh, my sweet gale,[100] will you look at that," Fiona said, as Pebble finally came to a sudden stop at the bottom of the slope. "That's it, I don't care what you say, he is not traveling with us one stride further. I've done my best to teach him to be responsible, but no, he just gets more reckless."

Both Flint and Sandy began to laugh in uncontrollable, belly-wobbling wails of glee. Fiona gave them both a withering glare at being ignored, glanced downslope to see Pebble's fat little bottom twisting and bouncing up and down as he tried desperately to extricate himself, then she, too, exploded into laughter.

The buffalo herd had been grazing while they traveled and by the time they negotiated the slope and paused at the bottom for some time, they had left behind a veritable wall of fresh, steaming, moist piles of manure[101]. It was into this brown, wet, yet firm, and unyielding wall of buffalo patties that Pebble had been thrown head-first. Like an arrow shot from a powerful bow, he had flown the last several cubits and the pointy end of his nose had drilled into the side of a particularly large and fresh patty. His little bottom hung there, his long tail dangling like a rope.

His tail was not twitching much, though, and his efforts to extricate himself were slowing. The dawning realization that something might indeed be wrong stopped the laughter above, and with a mad dash, the four launched themselves down the slope.

"If the little bug dies in there it serves him right" muttered Flint as he skidded to a stop just under Pebble's bum. "He's caused us nothing but problems on this trip!"

With a further muttered curse, he stood on his hind feet and with both front paws grabbed hold of Pebble's tail and began to pull.

"Hold on!" yelled Sandy to Pebble, as he too skidded to a stop.

---

[100] Sweet gale (*Myrica gale)* or bog myrtle, is an aromatic plant that has multiple beneficial uses. Beer, infused with Sweet gale increases your libido, unlike alcohol which is depressive to your system. This is one of the reasons the Church banned it in the eleventh century and said only hops could be used as a bitter in beers, which has sedative qualities.

[101] Bison poo is interesting stuff. On average, a bison will defecate about thirteen times per 24-hour period. Each patty can cover an area equal to a large dinner plate and stand as tall as a prairie dog on its hind legs. Stress and excitement causes a release of abdominal liquids into the colon and the nature of the bison stool changes from a firm mound to a semi-liquid paste.

“I can’t get him to budge,” said Flint with a grunt, as he heaved backward with all of his considerable strength.

Pebble’s tail was stretched out even longer now. Flint climbed up the slope and dug in with his hind toenails, braced with his hind feet against the wall, front claws dug into Pebble’s tail, when his feet slipped out from under him, and he fell, swinging back and forth across the face of the wall. After a moment and his whiskers gooey, Flint managed to get a grip again and once more pulled with all his might.

No luck.

Sandy dug his toenails into the mound and climbed up the side until he reached the intersection of the manure and Pebble’s belly. With his mouth against Pebble’s ribcage, Sandy yelled “Can you hear me in there?” to the helpless captive. A muffled faint little “gnff” served both as an acknowledgment that Pebble was still alive, and that he was able to hear. Sandy twisted and looked down at Flint, “He’s alive but he must not be able to breathe in there. We’ve got to get him out or he’ll suffocate!”

Flint finally let go and dropped to the ground, and was standing and watching from below. Pebble’s lower half hung there like a limp curtain, and Flint pondered the situation for a moment.

“OK, you’re already up there. How about digging along his side while I continue to pull from down here?” he suggested.

Sandy began to excavate the cloying material from around the side of Pebble’s squirming torso, while Flint climbed back up to tug and pull from below.

“I think I felt him slip a little!” Flint yelled as he gave a particularly hard tug. With a loud popping sound, like a seed being removed from a Golden Bean pod that had lain in the hot sun too long, Pebble exploded out of the hole.

T Pebble flew backward, away from the tunnel entrance. Tumbling backward he flew past Fiona and landed with a wet, sticky thwamp, onto Juniper, who had just stood up on her hind legs to get a better view. She instinctively wrapped her arms around him in a hug as he hit her, and together they fell over and rolled a couple of times before coming to a stop under the canopy, against the side of a sagebrush stem.

Stunned, they lay there together in warmth and wetness, before a loud scream erupted from the grass at the base of the stem.

“You filthy little cactus biter!” she screamed. “How could you do this to me… you little turd-smelling mutt!”

She rolled him off, then crawled out from under the sagebrush, glaring at Pebble.

“If you come near me, I swear I’ll throw you into a Beggars’tick plant and you’ll scratch for a week.”

She turned with a glare to Fiona, Sandy, and Flint who stood with their backs to the wall of buffalo poo, the small round tunnel hole left by Pebble duplicating in perfect symmetry the round expressions of their mouths hanging open as they looked at the mess that was Juniper. So uncharacteristic was Juniper's language that the others stood there stunned. They turned simultaneously towards each other, looked back at Juniper and collapsed - simply melted into little puddles of prairie dog laughter at the base of the buffalo patty.

Shocked both by what had just happened to her glorious, tan-colored hair, but also by the lack of sympathy, Juniper stomped off past the edge of the buffalo road and began to give herself a refreshing snow-bath, ignoring the peals of laughter that still came from Flint and Sandy, while she cooled off.

Pebble meanwhile had ended up sitting with his back to the trunk of the sagebrush shrub. Under the speckled shade of the overhead canopy, he gave a huge sneeze and out shot two little plugs of buffalo poo. Finally, able to breathe freely again, he inhaled the sweet, aromatic scent of the sage deep into his lungs, trying to displace the stench that overwhelmed his senses.

Chapter 21

A Long First Day

It took Juniper some time to clean herself off. She lay on her belly with her front legs tight by her sides. With her paws pointing backward and her nose pointing straight ahead, she raised her bum in the air and pushed herself across the snow with her back legs. As she pushed forward she left behind a brownish, grooved trail that gradually became fainter and fainter as the goo from Pebble's hug began to wash away. With a few more corkscrewing twists, summersaults and rolls she was finally back to her glorious tan-colored self and began to return to the group.

She stopped and stared, unable to move.

Flint had hauled Pebble from under the shrub, picking him up like a pup, and after tipping him over, had driven him headfirst into the soft snow. Pebble was buried once more up to his waist but this time in fresh clean snow. His hind legs were splayed open in, and Sandy, with Pebble's left foot in hand and Flint with Pebble's right foot, were walking in a circle, around and around, twisting poor Pebble in a spiral that gradually worked him deeper and deeper into the cleansing snow. It took only a few moments for Pebble to be twisted down to the brown line of manure that encircled his little tummy and at this point, Sandy and Flint switched directions and unscrewed the faintly squirming Pebble. As he rose towards the snow surface, Pebble's movements became more animated and by the time he plopped over, smelling of fresh snow and buried sage, he was as pristine as before the unfortunate event occurred. Indignant, embarrassed, but clean.

Sandy and the others sat in a ring around little Pebble and admired their handiwork.

"Finally, you look clean enough to travel with", said Flint. The others could only nod in agreement as Pebble turned from the group and began to walk down the slope. With their sense of camaraderie now even stronger, the adventurers rolled forward off their bottoms and with their front feet landing in unison, began to follow him.

The landscape in front of them was open and they could see across the valley to the flat tops of the distant hills. The pure cerulean blue sky was fading and a scattering of whitish-grey clouds lined the lower sky. They could hear the roar of wind above them but sheltered as they were, near the bottom of the valley, it remained fairly calm. An errant wind occasionally shifted a strand of snow here and there, but otherwise, it seemed fairly tranquil.

They were in a small gully that twisted its way down the side of the main valley wall. As they descended, their view became increasingly more restricted. The once-pristine snow was now covered by a layer of sand and clay that the wind had picked off the valley floor and exposed ridgelines. Sticking up from the dust-covered snow near the rim were withered dead stems of sandblasted rabbitbrush, bleakly silhouetted against the skyline.

The frozen surface of the grime-covered snow, combined with the buffalo trail they were on, was making for fairly easy waddling. Behind them, the hillside rose steeply back to the coulee rim they had just left, while ahead, the trail dropped away and turned into a junction with the main valley that ran perpendicular to their line of travel. A short distance away, another smaller coulee intersected theirs and a gust of wind blew a cloud of snow down and into the coulee, temporarily obscuring their view ahead.

Huge mountains of drifted snow loomed over them where the wind had piled the snow. Like massive glaciers perched and ready to fall, they made the prairie dogs nervous. The towering weight of the drifts seemed to bring a feeling of darkness and oppression. As their descent to the main valley continued, the size of the drifts began to decrease and eventually tapered away to a thin layer of rock-hard snow. This marked the exit of the small valley they'd been in and the entrance to Lizard Valley.

The buffalo road turned to the left when it reached the main valley floor, circling around the toe of a ridge, and then out of sight. The group caught up to Pebble, next to a large rock that rose from the center of a low-growing matt of dark green, pungent, sweetly smelling shrubs.

With a grin that stretched her ears back so far, they touched at the tips, Juniper dove into the soft cushiony embrace of her namesake. The shrub, in reality, a very low growing tree, was known in the old language as *Juniperous horizontalis*. It was her mother's favorite plant, and it was covered with small round purplish berries. It was not the berries, but that smell, that had captivated Juniper's mom, and the memory of her mother describing where her name came from, flooded back to Juniper as she sat there amid the fragrance and softness.

"Come on," Sandy said, "I know you miss her but we've got to get going". He reached up to lend her a helping paw, and she slowly slid off the end of a branch and onto the gravelly soil underneath.

"Thanks, Sandy", she said in a low voice, "it just reminds me so much of my Mom that it's hard to leave". It was several years ago in Crocus Butte, just as twilight was descending upon the town, that a low flying harrier[102] had appeared out of nowhere and ripped Juniper's mom from her life.

[102] The Northern Harrier, (*Circus cyaneus*) hunts while flying close to the ground. The avian equivalent to a cruise missile, it follows the contours of the land, searching constantly for prey. It can be difficult for a mouse or prairie dog to detect a predator in even mildly rugged terrain, or where grasses and shrubs obscure a long view. The hawks' ability to hug the ground and appear at the last possible second, leaving the prey no time to react, makes it a very effective predator. The harrier is a crepuscular species, most active in the early and late periods of the day.

One minute she was grazing quietly along the edge of the Ward, and the next she was gone, with not even a squeak left behind.

Grabbing a berry from the end of a nearby branch, Fiona crushed it into a delicious smelling paste and gently placed the fragrance around Juniper's shoulders and neck.

"There," she said, "now she's with you again, and can keep you company while we walk". Juniper turned, with a huge single tear welling up, and with a nod of thanks, turned down the slope to the others who waited below.

Catching up, Flint said, as though nothing significant had just happened, "OK, boss, where to?"

Sandy glanced around to get himself oriented and nodded down the buffalo road. "Let's go that way," he said. "The trail goes in the direction we need for now, so let's stick to it as long as we can."

Two things were bothering Flint as they left the Juniperous behind. As they left the relative protection of the little coulee they'd descended, the wind began to pick up once more. The further they went into the main valley, the harder the wind became, and the harder the wind blew the more difficult it became to hear the approach of predators.

The other thing that concerned him was the complete lack of cover. They could see in all directions quite clearly, but if they could, so could any lurking badger or coyote, and this had him nervous.

He led the way cautiously, working his way from one boulder to another, from a clump of sage to the edge of a stand of tall shrubs. He was followed closely by Fiona and Juniper as they neared these shrubs, and both, in almost the same breath, whispered to him, "Stop, don't go near that shrub!"

Flint meanwhile had walked under it, brushing its lower branches with his back. Instantly, he was caught in a fit of violent sneezing. Tiny blasts of uncontrollable sneezes lifted the dog off of his feet and bounced him a couple of cubits away. Once away from the plant, its effect wore off quickly. Both Fiona and Juniper had recognized the plant as sneezeweed [103] and knew of its properties.

Sneezeweed.

Juniper used it occasionally to help someone get something out that was stuck up their nose. Flint sat with a shocked look on his face and looked back at the plant with disgust.

"Great," he said. "Even the plants out here want to attack us."

They made their way past the sneezeweed, holding their breath.

[103] Sneezeweed, (*Helenium autumnale*) can be somewhat poisonous to livestock and is known to produce tainted milk.

All of them kept their noses to the ground, ears swiveling and searching in all directions, and eyes scanning upwards and sideways, searching for a threat that remained hidden from them.

Their main concern was ground predators. It was early spring now. The winter, with its cold and snow, had driven most of their winged enemies away to southern, warmer climates. Still, golden eagles and the occasional snowy owl [104] patrolled these skies and it paid to be watchful, and it was getting close to dusk. This was the time of day when many four-legged hunters became active.

Even though the coulee had widened a little at its exit, eons of snow-melt and rain had developed a narrow run-off channel down the center. This channel snaked its way back and forth, from one side of the coulee to the other and back again, gradually getting deeper and more steep-walled as it did so.

They had been following the left-hand bank of the dry creek-bed as it entered the main valley, and where it turned to their left, they came to the point where the buffalo herd had crossed. Up to this point, the washed-out gully had been virtually impossible to cross. The walls were vertical, and perhaps 8 to 12 cubits to the bottom. Across the channel, the walls were so steep it would have been difficult to crawl up the other face. Their wisdom in following the buffalo trail became apparent a few minutes later when they reached the place where the herd had crossed. The buffalo had trampled the gully edges and in the process, filled in the bottom so that a gentle slope rose before them.

Pebble had fallen a short distance behind during the last few minutes and the others waited for him at the edge of the gully.

“Sandy, I’m really tired,” Pebble said. “I’m not sure how much longer I can go on today. Is it very much farther, do you think?”

Sandy and Flint sat shoulder to shoulder for a moment, and then Flint stood on his hind legs as tall as he could to get a better look at what lay ahead.

“Well, little one, it is getting dark soon, and the last thing we need is to be wandering around like a bunch of lost puppies out here. So, let’s find a snug hide-a-way for the night and get some rest.”

The sun had already sunk below the western rim of the Lizard Valley, and a crisp black line of shadow was quickly making its way towards them across the valley floor. It would not be long until darkness was complete. The long, quavering wail of a coyote somewhere in the gloaming across and up the valley was answered by another.

[104] The Snowy Owl (*Nyctea scandiaca*) is a diurnal hunter, spending its days foraging and its nights resting, as opposed to the Great Horned Owls who are mostly nocturnal, feeding at night and resting by day. Snowy owls migrate south to the northern extent of the prairies during the winter months, and would certainly take the opportunity to prey upon an errant prairie dog if the opportunity presented itself.

With a quick look around Flint dropped to all four feet and said with an authority and confidence he did not feel, “All right everybody, we’ve got to find some cover quickly now, so no more resting. Let’s move down the valley along the buffalo road for a few minutes and see what we find. Sandy, you take the lead, but stay in the middle of the road and keep your eyes and ears open. Juniper, you take the left, I’ll take the right, and Pebble, you stay between us. Fiona, you take up the rear.”

Juniper looked at him for a moment as he moved away, and thought, “I knew he was an Astiti, but it’s only beginning to come clear to me how well he handles himself out here”. With that thought in her mind, she moved to her side of the buffalo road, and the adventurers moved slowly into the approaching darkness and danger.

Sandy was also deep in thought, wondering when he had lost his role as a leader, and wondering, as well, if he should do anything about it.

They had only been waddling for a few cubits when a smell made Juniper’s nose twitch.

“Is it there?” she thought, the smell so faint it might only have been a memory. Then a drift of wind wafted a stronger scent, and she knew it to be true. In a loud whisper, she called to the others, “Hey, guys, I think there’s a stand of Juniperous up ahead. Let’s find it and sleep there tonight.” she said in a hopeful, yet determined way.

They worked their way past mounds of now-cold buffalo patties, and boulders disturbed by passing hooves, across another low creek bed, and up the other side. There, about ten cubits above the trail on their left, a buffalo had wallowed in the soft shale[105] of the slope, just downhill from a stand of Juniperous. He had crushed the fragrant shrub, letting loose its tantalizing aroma and created a short, vertical wall that led up and under the over-hanging edge of the Juniperous.

With a quick glance around to make sure no one was watching, Flint looked at the shelter, and said, “This looks like it will do quite nicely, so let’s get in under the cover of those branches just as quickly as we can.”

Juniper scampered up a snake-like juniper root that protruded out from under the matt of needles and fine branches, and into the shelter like someone had catapulted her there. Sandy and Fiona followed at a more dignified rate, followed by Pebble, who needed a nudge from below by Flint to get over the wallow rim, and finally by the Astiti himself.

Flint worked his way over the edge and under the branches and sweet-smelling berries. Once well out of sight, he turned and crawled back to the edge, until just his nose was poking out into the last faint rays of the sun. The clump of Juniperous formed a dense matte along the very top of the ridge. Its eastern side sloped gently away and was covered by a thick blanket of crusted, frozen snow. The western face, where they had entered, dropped a short distance to a barren patch of

[105] This region has extensive badlands covered with Bearpaw Shale, left over after the Bearpaw Sea dried at the end of the Cretaceous Period. A day spent walking in this loose shale will fill your boots with dry crumbly bits.

drifted sand that formed a sloping ramp to the snow-covered slope below them. It provided a perfect vantage point, with little to obscure the westward view across the valley.

With the sinking sun sending shards of reddish light into the snug enclosure, Flint lay there watching and listening for a few minutes, and once assured that no immediate danger laid waiting, turned once again and crawled deeper into the security of their bower.

"Well, what do you think Pebble? Does it feel safe to you? Do you sense or hear anything dangerous?" asked Juniper in a mumbly voice, as she lay in a snug little depression she had excavated, munching happily on a particularly strong-smelling Juniperous berry.

Pebble did not respond to Juniper's question.

Flint looked around and saw Sandy had his back to a small rock, sitting there with his rotund belly swelling even more between his knees as he chewed on a dark purple berry. Fiona lay asleep next to him. Pebble, exhausted from the adventures of the day, had not even bothered to eat. He lay curled in a ball at Sandy's feet, sound asleep already, with his nose tucked neatly between his hind feet.

"I think you chose well," said Flint, as he moved deeper into the darkness of the shelter. "The cover is excellent. I don't think even an owl or eagle could see us down here, and I am sure the strong smell of the Juniperous will help to hide our scent from any wandering coyote." The thought of the two coyotes howling nearby still had him a little worried and his hackles rose at the thought of them. He was having trouble keeping the hair on the back of his neck lying flat[106]. "Just the same, I'm going to go back to the opening and sit the watch. Do you think you could trade places after the moon comes up?" he asked Juniper quietly.

She sensed his worry, and nodded her head, whispering, "Yes, I can. I'll grab some sleep now, and you come wake me when you're ready." She saw that Pebble had shifted in his sleep and now lay snugly curled against the round protuberance of Sandy's fat belly. Sandy himself had slumped forward so that his nose and chin lay resting softly upon Pebble's back. Both snorted and snuffled quietly in their sleep, warm and secure in their closeness. Occasionally Sandy's toes would twitch as he dreamed or remembered some portion of the day's events.

"Fine, then," said the Astiti. "I'll be back once the moon is fully up, and you get some sleep."

He turned and made his way to the entrance, and there, with his back to his friends and his claws towards his enemies, he rested his chin on a small patch of pasture sage and lay watchful and alert. Only his eyes and ears shifted as he scanned the darkening landscape before him. In the distance,

[106] Did you ever have the hair on the nape of your neck stand on end as the result of a scary situation? The reaction we commonly refer to as goose bumps is pilioerection, or even better, horripilation. It is a primal flight-or-fight response and in wildlife it makes the alarmed or horrified animal larger in profile by making the hairs stand on end and fluff up, either as a means of deterring the threat, or during aggression, of being the threat.

a wolf howled a long, mournful wail that made every fiber of Flint's hair stand on end. It was answered a moment later by the howl of another, and then another from farther down the valley[107].

Darkness descended quickly.

The moon rose a few hours later above the eastern horizon, framed by the branches of the Juniperous, shedding its pale light in a flickering glow into the shelter. Flint had lain completely motionless for the past several hours, front paws tucked neatly under his chest, and eyes and ears constantly searching for movement.

Nothing disturbed the scene. As the full moon fully broached the coulee rim, he stood on all fours, arched his back in a grateful stretch, and turned softly into the darkness of the shelter.

Juniper was already awake and rose to her feet when he entered the security of the shelter. They paused for a moment, touched noses and cheeks, then silently passed each other: he to occupy the warmth of the nest she had scraped in the shale, and she to resume his vigilance until morning. The rest of the night passed in uneventful serenity, disturbed only by the snoring (a mixture of a snort and snoring unique to prairie dogs) from the friends, and the sighing of the wind through the fragrant branches that sheltered them.

[107] I make mention here, in fairly close order, of both coyotes (Canis latrans) and wolves howling. Historically, wolves dominated the Great Plains of North America. Even today where there are high densities of wolves, there will be low densities of coyotes, and where there are numerous coyotes, there will be few foxes. Size and dominance does matter with canids. When vast herds of bison roamed the prairies large numbers of prairie wolves trailed the herds, searching for the lame, the weak and the careless. Given the huge number of bison (some estimates range up to 60 million), there were always some dying of non-predator related causes, and of course, wolves did and continue to prey extensively on bison where the two co-exist. Coyotes and other canids played a significant role as scavengers and while they were perhaps sympatric, they were not amicable with other canids.

Chapter 22

The Lone Tree

The mystery of why the snow buntings had warned Pebble about not going further than the tree in the valley below quickly became clear the following morning as the five friends began the second day of their journey.

Daylight found them rested from a safe night, snug in their fragrant bower. Juniper was less rested than the others since she maintained the sentry vigil until the others began to awaken. She stretched and yawned when she heard the first movements in the sand behind her, and turning, saw Fiona coming towards her. They greeted each other with a cheek-to-cheek as Fiona asked, “Have you been up all night?” Juniper yawned again and shook her head, explaining that she and Flint had shared the sentry duty.

They were joined a moment later by Sandy, then by Flint and finally, stumbling bleary-eyed from the interior of their shrubby nest, little Pebble Short-Bottom.

Morning dawned clear and sunny, with scattered wispy clouds drifting across a pale blue sky. The wind of yesterday had quieted over the night and while a mild breeze still blew from the west, it was calm where they crouched under the leading edge of the Juniperous shrub. Immediately below them lay the large dust patch where a buffalo had wallowed, then the slope dropped gradually towards the valley floor. The valley at this point curved sharply out-of-side to their left, as did the trail of the buffalo herd they had been following. The trail had dispersed as the buffalo spread out over the landscape, grazing while they walked. Gone now would be the easy waddling they had enjoyed this far.

The snow here lay in patches. Crusted, icy snow was interspersed with large areas of wind-exposed ground.

Flint looked at the route ahead and said to the others, “It looks like we should probably try to stay on the open areas. The shrubs and clumps of grasses will provide us some cover to get into if Pebble hears anything nasty out there.” Pebble shook himself awake, then moved to peek between the larger dogs at the world before him.

With his tiny nose just poking out from under an overhanging branch, he was invisible to any predators lurking outside. He shuffled a little farther forward, front feet on the edge of a precipice and sniffed the breeze carefully, still trusting to his normal senses first. Nothing but the fragrant

berries and leaves around him, the musty smell of dust from the wallow, and the clean fresh smell of the snow and ice that lay below.

Sure now that no coyotes or hawks were in the immediate area, he began to listen, straining forward until he almost fell over the little cliff in front of him. Ears stretched wide and swiveling in all directions, he listened with his senses and with his mind. Nothing. No voices in his head, no sounds of danger anywhere.

The others saw him visibly relax then, and with a general shuffling of feet, a quiet chatter began as he turned back under the canopy.

He overheard Flint asking Fiona, "Do you remember this valley, or anything about the tree, from when you came this way before?"

Fiona sat thinking for a moment. "Yes, I remember seeing the tree. It's the biggest thing I'd ever seen, and while I didn't get close, I used it as a landmark to help guide me. I remember the valley, and I think this is the one with the tree in it."

Flint looked around at the others.

"Everyone ready?" he asked. There was a nodding of agreement. Flint stepped carefully to the entrance, and with a quick scan of the skies, slid down the gravelly slope and into the buffalo wallow below.

The others followed, and again in a single file, led by Flint, they set off into the unknown. Juniper looked with a mixture of fondness and sadness as they left the shrub behind.

Flint decided to stay higher up on the side of the valley wall, rather than descend onto the valley floor. The view was better up here, and he could see that the snow on this side of the valley floor was also a chaotic mess from the cratering and grazing of the large herd buffalo. The snow on the far side, undisturbed by their passing, was a continuous white sheet of snow. It was obviously much deeper than where they were. Traveling would be more difficult there, but they had to cross over to it.

As they traversed the side slope, it began a gentle curve, bringing more of the main valley into view, and with it, a sight none of them, except Fiona, had ever seen.

A tree. [108] And not just any tree. It was a single, skeletal, towering thing that seemed to reach up and tickle the underbelly of the passing clouds.

Fiona took one look at it and said excitedly, "That's it, that's the tree I saw on my way to Crocus Butte. Now you know why it's so hard to describe!"

[108] With the exception of low growing shrubs, trees of any kind are rare in this part of the northern Great Plains, and the one they saw was likely a Cottonwood (*Populous balsamifera*). It would be unusual for a prairie dog to ever see a tree like this up close.

The tree stood some distance away in the bottom of the valley. Pebble looked at it in awe and felt somehow that he had never seen or felt something that felt so *alone*.

He was looking at it when the most over-powering sense of danger he had ever experienced made him drop to his belly in terror. The others, all arranged casually around him reacted instinctively and also dropped silently to the ground, and looked at him for an explanation. His very first instinct had been to yell out an alarm bark as he would have done back in Crocus Butte, but something about this danger kept his lips clamped shut.

The hunger he felt in his mind, the terrible, angry hunger made him almost sick to his stomach. He knew with his very soul, that somewhere very close lay a predator he had never encountered before.

"No, wait," he thought, "There's more than one."

Straining his mind forward he began to get a clearer image of the thoughts of the beings that lay just out of sight, over the crest of a small hill, between the tree and his small party of adventurers. As he listened, he began to build an image, a sense of who they were, and of who they perceived themselves to be.

Wolves! There were about six of them. He knew there were very hungry, very angry, and one of them was hurt. Even the injured one exuded a feeling of satisfaction; of a hunt well hunted.

Without a word to the others, as flat as he could get his little belly to the ground, Pebble slunk backward away from their vantage point. The others, seeing his fear, did likewise and within a few minutes, all were hiding under an overhanging rock.

"What is it, Pebble?" asked Fiona once they were all inside.

"They call themselves wolves," said Pebble, in a strained voice. The mental terror he had felt at their presence in his head was beginning to fade, but it still made him feel slightly nauseous and disoriented.

"Yes," Flint asked, "but what are they?"

Pebble shook his fur flat and settled a bit. "They are like coyotes, but much, much bigger and far meaner than any coyote you've ever seen," said Pebble. "There are six of them, and they reek of blood and death."

Flint looked over at Sandy and said, "I think we should sneak back and have a look; see for ourselves what these wolves are."

Sandy looked at Flint as though, like Granite so long ago, his brains had drained out of ears and onto the sand. "You what?" he asked in amazement.

Flint said again, "I think we should go and have a look. We need to know what they are, where they are, and how to get past them. We can't do that without having a look first."

The logic of the explanation left the little group dumbfounded. This was clearly why Flint was an Astiti and why he had been assigned to travel with them.

Pebble said, “All right. I agree, but I think only Flint and I should go. The rest of you should stay here and out of sight.”

With the decision made, Pebble and Flint crept slowly up the hillside towards the point where they had stopped before.

Flint suggested that they climb a little higher to gain a better vantage and perhaps be a bit farther away from the wolves. They slowly made their way through a small field of boulders and crested the ridge alongside the small stem of a rabbitbrush. Lying flat on their bellies, they slid slowly forward, all senses pushed to the maximum, until just the tops of their heads and eyes[109] broached the edge.

The decision to climb up had been a good one for they now had an expansive view of the scene before them. It was a scene that both enthralled and terrified them.

[109] Prairie dogs and ground squirrels, both fossorial species, have flat-topped skulls with eyes placed very close to the top of the heads. This adaptation to living in burrows allows them to raise just the tops of their heads above the ground and see the world around them, while exposing very little of themselves.

Chapter 23

The Old Bull

The valley with the tree was flat bottomed and wide. The grasslands that spread on either side were a seething mass of huge brown bodies. Hundreds, perhaps thousands of buffalo moved across the landscape, like a carpet woven with magical figures. The snow and grasses were almost invisible under the densely packed bison.

Nearer, closer up their valley, the lone tree stood on a flat area, slightly above and on their side of the creek channel in the valley bottom. Lying on his side near the base of the tree was the old bull with whom Pebble had conversed back at Crocus Butte.

The bull lay there quietly.

Dying.

The ground around him and the base of the tree was a muddy, churned-up mess, clear evidence of a long and vicious fight for life between the old bull and the pack of six wolves that now lay exhausted in a circle around him. He had fought well, for one of the wolves was also dying, lungs crushed from a brutal kick received from the old bull. Pebble was shaken to his very core. Never had he imagined that he would be inside the mind of a being that was dying, let alone two of them at the same time. Yet they were there, faint and weak, and growing fainter by the minute.

The bull seemed to be content in a strange, relaxed sort of way. Pebble could feel that the bull was satisfied with his long life, that he knew his time had come. Contented was the only way Pebble could describe the feeling. A calm resigned and unregretful contentment. Even as Pebble listened, the life drained out of the old bull and with a huge sigh, the last breath drifted from his massive lungs and blended softly with the mild breeze that floated across the landscape. His nose settled gently to the ground and all motion simply stopped.

The wolves were intently focused on the old bull. They were all lying on their bellies, poised to leap forward and resume the chase. All of the wolves were panting hard, tongues lolling out the sides of their mouths. All except the one off by himself, just a short distance away from his pack.

He too seemed content. Proud of his abilities and that it was his attack that finally brought down the tough old bull. His mate could now feed their pups the food they so desperately needed. The kick to his ribcage had come out of nowhere and he had flown backward, landing where he now lay. As the last breath of the old bull sighed away, all panting instantly stopped, mouths closed,

and ears perked up, as the pack of wolves stared intently at their prey. Then, in perfect synchrony, they all rose silently to their feet. All except the injured one.

Pebble, high on the hill above, watched as the wolf's chest rose spasmodically, settled and his last breath wafted away, following after the soul of the old bull. Then it, too, was gone from his awareness.

All feeling left Pebble. All sense of time, of emotion, of awareness, drifted away like a thought on the fickle wind. No sound, no feeling of wind in his fur, no tickle of grass on his feet, no hunger, no fear, no regret, no longing. No pain. Just a soft peace that stole over him like a warm blanket on a cold winter night. So comfortable was he that he welcomed the lack of feelings and drifted away, following after the breaths of the bull and wolf - into the darkness that beckoned him.

Silence. Peace.

Flint whispered, "OK Pebble, let's go back to the others now."

When he received no response he glanced over at Pebble lying beside him. Pebble appeared to be asleep, chin resting lightly on his stretched out forepaws, eyes closed and relaxed. "What the Povertyweed?" thought Flint. He reached over and nudged Pebble with his nose to wake him up. Pebble flopped over lifelessly onto his side with the nudge, and still did not wake up. Now concerned, Flint pulled him away from the edge of the ridge, out of sight of the wolves below, and rearing up on his hind legs, landed both front feet on Pebble's chest with a hollow thump.

Pebble became aware of the wind first. It lifted a tiny tendril of dust under his nose and with an intake of breath, caused him to sneeze. The sneeze brought with it the sensation of sound, and the sound he heard was Flint's voice, insistent and unrelenting. "Pebble, wake up, wake up!" The pain in his ribs from Flint's crushing pounce finally brought him back to an awareness of his circumstances, and he leaped to his feet, sending a surprised Flint tumbling a couple of cubits away.

"What happened? Where are we?" Pebble muttered. Confused and disoriented, Pebble staggered and fell, then rolled back onto his bum and stared around him with dawning comprehension.

"Oh my! Oh my! Flint… they died!" he said with an anguished voice. The death of the wolf and buffalo had captured Pebble, seized his soul. Somehow their spirits had become linked, joined to each other. Pebble, with no thought or control, had begun to join them on their journey. A journey they would spend the rest of eternity traveling together.

Flint's prompt response had interrupted this bond, had cut the thread that bound him to the two spirits. A huge tear welled up at the corner of each eye, and Pebble whispered in a quavering voice to Flint again, "Oh Flint, they died."

Sandy and the others had observed Flint dragging Pebble back towards them and had dashed up the slope to them as fast as they could. They arrived just as Pebble repeated his statement. Fiona

and Juniper both came over and with their arms wrapped around him, let him sag with relief into their solace and strength.

Within a few minutes Pebble had regained his composure and pulling away from Fiona and Juniper, wiped his face on the back of his paws, took a big sigh, and said, “Thanks, I’m fine now.”

Flint described what had happened, both to the buffalo and wolf below and from what he could tell, to Pebble.

Juniper said, “Pebble, now that we know your spirit links so strongly to those you listen to, we are going to have to find a way to prevent this from happening again.”

Pebble nodded, fervently hoping that he would never again feel that bond, but at the same time, perhaps a little less afraid of the thought of dying himself. He didn’t share that last thought with his friends though, preferring to keep the morbid thought to himself.

Fiona, listening to Juniper, suddenly recalled a small clump of shieldwort that they had passed just a short distance back. She mentioned it to Juniper and with an exclamation of combined happiness, that Fiona remembered the plant, and disgust at herself for not seeing it herself, Juniper gave Fiona a quick cheek-to-cheek and said, “Exactly what we need!” Looking over at the others, she said, “You guys stay right here, don’t move until we get back. Now Fiona, show me where you saw the shieldwort.”[110]

They returned a few minutes later with a few dried leaves of the shieldwort, and Juniper said to Pebble, “Here, chew on these. They will protect your mind from any future bonds you may experience. I am so very sorry I didn’t think of it sooner, Pebble. I truly am. If I had, you would not have been at so much risk of joining them on their journey.”

Pebble chewed thoughtfully on the leaves but felt no different than before. He said, “I am fine. We need to keep moving, so let’s get going, OK?”

The little group crept once more to the ridge crest and gazed down upon a primordial spectacle, one that has existed since the beginning of time. The wolf pack had moved in on the old bull, and was now well into a feeding frenzy, ripping and slashing, soaked to the ears in crimson blood.

Pebble watched the scene and once more connected with the minds below, but without the intensity of before. He knew with certainty that one of them was a female who was very close to giving birth to a litter of pups. The timing of the successful hunt could not have better for her. She had found a suitable den site nearby and would whelp within the next few days. The availability of such a large quantity of meat so close would help to ensure the survival of her pups.

Even in death, there is life, and Pebble, despite his terror at the sight of the wolves as they tore into the old bull, felt at least some consolation that this death would benefit others.

[110] Pygmy Shieldwort (*Androsace chamaejasme*) is a low growing herb of the primrose family.

On the far side of the valley, the huge herd of buffalo drifted along, uncaring, unknowing. Wolves and buffalo![111] Who back in Crocus Butte would have believed that he would one day be witnessing such a sight?

[111] Bison are a Foundation Species. This is a species that has unique and significant effects on the ecosystem. They are also a keystone species, since their impacts on the flora and fauna of the Great Plains was so extensive and pervading. Just about every living thing on the plains was affected in one way or another by the presence of vast numbers of bison, and the death of a bull like this would have significant ecosystem consequences long after its death, long after his bones had been bleached by years of hot summer suns.

Chapter 24

Cottontails

They pulled back from the brink of the little ridge and gathered under a silver sage shrub, out of sight of the eyes of lurking predators. Flint looked around, then back at his fellow travelers and said, "Well, that was interesting."

"Yes I suppose you could say that," said Sandy, still shocked by what had transpired.

Fiona stood next to Sandy and said, "Well, what now? We've got to get across the valley, but I'm not sure how with that pack of wolves so close." Flint was nodding to himself, as though confirming something he was thinking about. "Did you notice the little coulee that branched off just below where we were on the ridge? It leads away from there, down to the bottom of the valley. I think we can follow it and get past the wolves without being seen."

Pebble wanted to be on the way, and away from the memory of the two deaths. He was up and waddling away almost as soon as Flint had stopped speaking.

"I saw it." he said over his shoulder, "Let's get going, please, I don't want to be here any longer than we have to be." He led the way, darting from sagebrush to rabbitbrush, from rock to rock and eventually to the edge of the steeply walled coulee that led down to the river below. They crept to the edge and looked down into the ravine. Pebble searched but was not able to detect any danger; and with all eyes and ears watching, began the descent into the small drainage. After a moment, the rest followed him down. The bottom of the coulee was lined with a small stand of stunted trembling aspen[112], and the dense thicket gave them a feeling of security and shelter they'd not had all day.

It was now late afternoon, and almost dusk under the thick branches above them. So densely intertwined were the branches, twigs and stems that the slanting sunlight of the afternoon barely penetrated to the floor of the bower. It soon became apparent that someone else lived here, perhaps

[112] Trembling Aspen (*Populous tremuloides*) is at its extreme southern distribution in this part of the Great Plains, and as a result of low precipitation, grows only in sheltered coulees and draws. The harsh climate stunts the growth of the trees, relegating them to shrub height. Because of the density of the stands, they provide excellent cover for a wide range of wildlife species. In the case of rabbits, the aspen also provides food in the form of bark during the winter months.

several someone else's. The snow that covered the ground here was packed into a network of hard pathways that crisscrossed the forest floor.

Pebble's senses were on full alert, as were those of the others. They moved cautiously under the stand of gnarled aspen, searching for any hint of danger. Pebble sensed other beings, but nothing more. The pathway they were on followed the steep side of the coulee where it met the slightly flattened floor. It twisted and turned, dodging tree trunks and the occasional boulder. Flint had assumed the lead now, and as they passed one of these, he stopped suddenly. Pebble bumped into him from behind and startled by the sudden halt, asked, "What do you see, Flint?"

"There's a tunnel entrance just around this boulder. A fairly large one, but I don't see anything around. The pathway leads directly into it." The others had lined up behind Pebble and Flint, and Fiona stepped forward to crouch beside them. She looked cautiously around the corner of the boulder for a peek at the burrow entrance, then pulled back and said to the group, "I think I know what lives here. When I came east to Crocus Butte, I saw several burrows just like this one. They were all lived in by cottontail rabbits."[113] Looks of incomprehension adorned each of the faces looking back at her. "You must have seen the big, white-tailed Jackrabbit that passes through Crocus Butte occasionally?" she asked.

Everyone nodded, and she continued, "Well, these are similar but smaller, and as far as I could tell, harmless to us."

Flint looked at the group and said, "I don't know about you, but I would like to know who's in there before we go by it. For all, we know it could be a coyote or fox living in there, and I don't want them sneaking up on us from behind." He paused, then looked at Pebble and asked, "Pebble, do you think you could poke your nose into the burrow opening and see if you can figure out who lives here?"

Juniper instantly protested, "You can't ask him to stick his nose into a hole that might have a fox waiting to eat him!" she exclaimed. Fiona still looked undecided, but not as concerned as Juniper. She looked at the others and said, "I am pretty sure it's a cottontail warren and should be safe for him to investigate."

Pebble meanwhile had shifted to the edge of the boulder and was looking intently at the burrow entrance. He strained and strained with his mind, trying to determine if something nasty lived in there, but all he got in return was a feeling of "timidness". He couldn't describe it any better, and so, turning back to the group, said, "I think it's OK. I'm going inside a short distance to see what

[113] In this region of the northern prairies, the Nuttall's Cottontail (*Sylviagus nuttallii*), or Mountain cottontail as it is also known, is the most common species. Unlike their relatives, the white-tailed jackrabbit or snowshoe hare, they do not turn white in the winter. Perhaps as a result, they stay close to the cover of thickets and brushy areas to protect themselves from aerial predators, and near their warrens for security from mammalian predators. The ability to turn white is another form of camouflage that makes the animal cryptic in its environment.

I can learn". With murmurs of be careful, and watch yourself, from the others, Pebble slowly crept forward and into the darkness of the warren[114] entrance.

In many ways, it reminded him of home. The earthen walls, the flattened tunnel floor, and the snug, secure feeling of once more being underground felt nice after the days of being exposed above ground. There was still no sense of danger, but there was definitely someone in here.

"Hello," he called out with his mind "Is anyone there?"

He could sense a shuffling, a movement of bodies a short distance into the tunnel, but still out of sight.

"Hello," he called again, "We are travelers and mean you no harm. Might we come in for a visit?"

Again a shuffling, hopping sound from further down the tunnel, and then cautiously, a small pink nose poked its way around the tunnel corner. It flicked up and down, nostrils flared and searching for the scent of the intruder to its home. The nose was followed a moment later by a small round, brown face with large ears, then by the compact ball of fur.

"Hello," the rabbit said, carefully. "Who are you and what do you want here?"

Pebble, encouraged by the question and the apparent lack of aggression, stepped forward a couple of cubits and said formally, "My name is Pebble Short-Bottom, of the Short-Bottom Ward, in the prairie dog city of Crocus Butte. My friends and I are traveling and just wanted to be sure that you were not a fox waiting to eat us as we went by. We mean you no harm."

The cottontail seemed at first a little non-plussed at being able to talk to this creature, but at the same time, very curious.

"My name is Thorn." He hopped a little closer, moving further into the light at the burrow opening, so he could better see the tiny thing before him.

Cottontails never interact with prairie dogs, and Pebble could sense that Thorn was intensely curious about who and what he was. He rolled back onto his bottom, folded his arms over his belly and tried to visibly relax as much as possible, to put the cottontail at ease.[115] It seemed to work, and Thorn came a couple of hops closer, ears flicking back and forth and nose working constantly to seek out possible danger.

"What do you want here?" he asked, again.

---

[114] In this case, it is actually incorrect to refer to the burrows of the Nuttall's cottontail as being a warren, since this species is not social, preferring to live alone rather than in colonies. The term warren is used specifically with rabbits and hares, as opposed to the terms tunnels or burrows which can be applied to other underground systems. Warrens are usually large, with many entrances and exits, and numerous inter-twining tunnels and chambers.

[115] A female rabbit is a doe, and males are bucks.

Pebble sat for a moment, debating whether to get into a long description of why they were traveling, but in the end, simply said that he and his friends were passing by and that Pebble was hoping he could provide some advice on how to proceed from here.

"We need to get across the valley but are afraid we'll be seen by the pack of wolves that are just a short distance away," he concluded. At the mention of wolves, the rabbit backed up a couple of steps and looked nervously at the entrance behind Pebble. He saw the look of concern and reassured him, "Oh, no need to worry. They don't know we're here, and I don't think they'll be by any time soon."

He explained the situation with the buffalo bull and the wolves and described roughly where they were. It was clear that Thorn did not know where the lone tree was, having never left his little vale, but he seemed reassured to know that the wolves were some distance away and not likely to come to the secluded warren where he lived.

Pebble asked him if he knew of a way to cross the valley safely and he replied, "Oh goodness, no, how could I possibly know that? We never leave the warren, that would be just silly, now, wouldn't it?

Pebble thought about that for a moment, thinking to himself of their journey. He looked back outside and could see that it was rapidly getting darker in the late afternoon light, and wondered if they would be better off staying somewhere around here for the night, then beginning their journey again in the morning.

He asked the buck, "Would you mind terribly if my friends and I stayed the night in your tunnels? We would not be a bother to you, and it would really be so much safer for us than sleeping out in the open."

Thorn looked at him like he had completely lost his mind and said, "Sleep outside the warren? Nobody ever sleeps outside the warren! That would be just silly, wouldn't it? Of course, you and your friends are welcome to stay the night, if you wish."

Pebble thanked him for his generosity and said he'd be right back. With another word of thanks, he turned and went back to the burrow entrance. There he found his four friends anxiously awaiting his return.

Flint said, "Where did you go? We were just about to come looking for you, you were gone so long."

"I met a nice rabbit named Thorn, and he has invited us to stay the night inside his burrow so we don't have to stay outside tonight," Pebble replied.

The others gave a collective sigh of relief.

"Oh, thank you, Pebble, I was not looking forward to sleeping out here." Fiona had been scanning the branches above her the entire time, as though expecting something to attack from

above. When questioned by the others, she just shook her head and said simply that she did not trust forests.

Pebble led the way, and followed by his friends, returned to the warren entrance that beckoned them forward. They filed into the opening, and an instant feeling of relief and warmth flowed over them as they entered the security of the burrow. Thorn was waiting just inside the entrance and watched intently as the group of prairie dogs slowly walked towards him.

Pebble said, "I am sorry, but they cannot hear you. Only I can talk to other beings such as yourself, but I will pass on your welcome to them."

He did that and each of the dogs nodded hellos back to the buck. Pebble introduced each of them in turn and one by one, each stepped forward into the burrow.

Thorn turned and hopped further into the warren. As they traveled deeper into the tunnel system, Pebble began to sense that the warren was far more complicated in structure than a typical prairie dog tunnel system. He could hear voices coming from every direction through the myriad of tunnels that intersected the one they were in. These tunnels came and went at every angle and direction, some up, some down, left, and right. Some were stale and some were cool with fresh air indicating that there were numerous entrances to the system.

They had walked for perhaps thirty cubits when Thorn stopped at the entrance to a large chamber. He waited for everyone to huddle before him, then said to Pebble, "This is the nest chamber of Primrose, and you are welcome to stay here if you wish. Primrose is spending the night with friends farther into the warren and won't be home tonight, so you can use his nest. I'll go sleep in the next chamber just down the tunnel so that if you need anything, I'll be close by."

Pebble thanked him and watched his button tail as he hopped gracefully from the chamber. He turned to the others and said, "Feels good, doesn't it? Being underground again, I mean."

Everyone nodded as they looked around at their lodgings. The nest was considerably bigger than anything they knew of in Crocus Butte, with the possible exception of the Comitia. The floor of the chamber was lined with a nest of grasses and dried forbs[116]. Scattered around the room, there were numerous small branches and twigs, some with the bark intact and others with the bark stripped completely off. Primrose had obviously had his supper here. This thought made Pebble realize that he too was hungry.

"Sandy, do you suppose you might find us something to eat?" he inquired. Sandy looked at him with surprise. "Now that you mention it, I am a tad hungry myself. I completely forgot about food, in all the excitement of coming in here." He looked over at Flint and asked, "Could you come with me, Flint, and help me carry back whatever we can find?"

[116] Forbs are broad leafed plants, compared with grasses that all have narrow leaves. Most flowers are forbs.

Flint stood and stretched, nodding. “Yes, I think things are safe here, and I too am hungry. We’ll be right back,” he said to Fiona and Juniper. The two males went back to the tunnel entrance, leaving the other three to get themselves settled for the night.

Outside, darkness had spread across the forest and little could be seen. They waited at the entrance for a few minutes, listening for danger.

“It seems secure. Let’s go and see what we can find,” said Flint as he stepped forward under the aspen canopy. They ventured out and spent a few minutes gathering chick-wittles[117] and nannyberries. With mouth pouches full, they returned to the nest chamber. Within a few minutes of their arrival, all were fed, and soon sound asleep.

All except Fiona, who, once the rest were sound asleep, rose and limped to the entrance. There, hidden by the overhang she lay and stared at the branches above her. Somewhere up there was the bird that had damaged her foot. She knew it, sensed it, but could not see it. After the moon had risen she drew back into the security of the warren.

[117] Chick wittles (*Cervastium spp*.) are also called chickweed, and derive their name from the habit of young chickens to forage on it. It makes a very tasty addition to salads.

Chapter 25

Into the Valley

The morning of their third day on the trail found the band of adventurers rested and ready to begin once again.

Flint arose first. He debated going in search of their host but realized it would be pointless without Pebble to interpret, so he went instead to the warren entrance to see what sort of day it was. He could see nothing. Even the tops of the short shrubs seemed to just fade away. The air was thick and humid, and faint ghostly tendrils of fog drifted gently through the trees.

"Great. Just what we need," thought Flint, as he returned to the rabbit's nest chamber. When he arrived, the others were up and about, and Pebble had gone off in search of Thorn. They arrived just after Flint, and everyone gathered around as Pebble said, "We thank you for your generosity, but we must be on our way. Do you know how far the trees go down the valley, and what we can expect once we've left them behind?"

Thorn looked at him strangely. "You don't mean to walk down the valley through the trees do you?"

They looked at him, unsure of what he meant. "Of course we do," said Pebble. "We must get down to the valley and across to the other side."

"Oh, well, going outside would just be silly, wouldn't it?" the buck replied. "You come with me and I'll show you a way to get to the valley bottom without having to go outside, where dangers lurk."

Fiona looked vastly relieved at this and said, "You have no idea how happy that makes me. I hate forests and the nasty things that live in their branches."

It took only moments for the group to prepare themselves and once ready, they followed Thorn and Pebble out into the main hallway. They turned to their left and, trying to keep up to the much longer rabbit-hops, moved quickly away from the nest chamber.

It seemed to take forever to get to the exit Thorn eventually led them to. They passed innumerable side tunnels, chambers and dozens of big-eyed, inquisitive, long-eared faces.

Finally, they approached a bright circle of light that marked the exit from the warren. Thorn stopped a short distance away and waited until the group had gathered before him.

He said to Pebble, “This is as far as I can go. Beyond the door lies the valley and it’s just a short distance to the other side. You shouldn’t have any problems now. Good luck on your quest, whatever it is you seek.”

Pebble passed along everyone’s thanks, and they all watched as the cottontail turned and hopped out of sight, back into the mysteries of the warren.

Flint walked up to the doorway and carefully poked his nose out into the fog. He couldn’t see anything; he could hear nothing… just a thick layer of grey fog that clung to his nose whiskers. “Pebble, come up here and tell me what you see and hear.”

Pebble looked at Sandy as though to say, “I thought you were in charge,” shrugged his shoulders and moved up next to Flint. Together they scanned the world outside, searching for hidden enemies.

Nothing.

“I think it’s OK. I don’t sense or hear anything dangerous.” Everyone stepped outside and Sandy said to Flint, “Well, boss, which direction, do you think?” He said this in as mild a manner as he could, but at the same time, leaving no doubt that he had noticed Flint’s assertive nature of late.

Flint paused, looked over his shoulder curiously at Sandy, and said, “If I remember right from our view up higher yesterday, the channel right in front of us leads directly to the main valley just a short distance ahead.”

Fiona and Juniper watched the interplay between Flint and Sandy intently, afraid that something was going to happen between them.

Sandy gave a big sigh, stretched and turned to face the Astiti face-on.

“Flint,” he said, “I was appointed leader of this group before we left Crocus Butte, not you.”

Flint stared back unblinkingly. “You have consistently led us right; taken us the proper way, identified threats, and generally fulfilled your role as Astiti superbly.” He could sense the tension around him as he continued, “So, I think you should stop telling us what to do, in a round-about way, and take on the role of our leader.”

The look of astonishment on Flint’s face was priceless and worth every bit of the lead up. Sandy laughed and shoved Flint on the shoulder. “Relax my friend; I do truly want you to take on the job of leading us. I don’t want it, never did, so give us all a break and take the job.”

Flint looked at Sandy, waiting for the joke to appear, but when it became clear that Sandy was serious, he gave a huge ear to ear grin, slapped Sandy upside the head and said, “My friend, I thank you. You were doing a fine job, but I just can’t help myself. Too many years of being in charge, I suppose. It was very difficult for me but I did try not to get in your way. I really did try. Thanks for trusting me to lead us.” With a renewed feeling of friendship and camaraderie, they set off once again.

They found the drainage channel in the thick fog at the same moment that Flint disappeared. One moment he was there; fat bum waddling along in front of Sandy, the next it was gone. Sandy skidded to a halt and Pebble had to side-step to avoid a rear-end collision. “What’s the matter?”

“Flint’s gone,” said Sandy quietly. “One second here, the next gone.” They all lay on their bellies and listened. The temptation was to call out to him, but instinct kept them quiet.

The silence was shattered a moment later by “What the cactus biting, burrballing, devil’s claw happened?” as Flint cursed below them. Shifting carefully forward, they discovered that Flint had reached the sudden drop-off of the channel wall and had plunged off it into the deep snow at the bottom. It had taken him a moment to dig himself out and begin cursing.

“Are you OK?” Sandy asked, his nose hanging over the small cliff. One by one the others joined him, and soon a line of inquiring noses peeked over the edge at a still-angry Flint.

“I knew there was a reason for wanting you to take the lead,” Sandy said with a little giggle.

Flint started to say something in reply, but realizing the silliness of the situation, he too began to laugh. A big, belly shaking laugh. One which caused him to sink deeper and deeper into the soft snow at the bottom of the cliff. He almost laughed himself out of sight, before getting back under control. Still giggling a little, he looked back at the cliff rim and said, “Well, OK, then. You might as well join me down here.”

He no sooner said the words than Pebble launched himself off the edge, landing with a “poof” just beside Flint’s head. Squirming to get out of the way, Flint managed to crawl a short distance as one by one, the others landed with little explosions of snow.

There was a shallow slope of dry exposed clay right at the cliff base, and they made their way to it, resting now on solid ground. Before them, a flat expanse of undisturbed snow marked the frozen water in the bottom of the channel. Directly across from them lay the opposite wall. It rose vertically from the flat bottom of the channel, except to the left where the clay wall had a gently sloping ramp that led eventually up to the top.

“Now that we’ve had some fun, it’s time to get going again.” He pointed to the ramp. “What do you think about using that to get up to the top?”

There was a general muttering of agreement. Flint stood and had begun to walk across the snow to the other side when he sank so deeply into the loose snow that only the top of his back was visible. Instinct took over and he began to swim, stubby legs dog-paddling across to the other side. Once there he turned and watched, as one by one, the others swam across in his wake. Pebble was last, and using the trail made by the others, was able to walk over.

Flint turned and walked up the sloping ramp. Clods of clay, bits of old debris and twigs slid down the slope as he disturbed them. Roots and rocks jutted out of the cliff face and threatened to push him away and off the trail. At one point the ledge became so narrow and the slope so steep it was impossible to continue.

Looking carefully over his shoulder at the lineup behind him, Flint said, “I’m going to have to dig a trench where the snow and cliff face meet. Otherwise, we’ll never get up there.”

He began digging. Front feet scratching, hind feet shoveling, he rapidly created a pathway along the base of the cliff. Each kick of his hind feet sent a shower of dirt and dust flying back, straight into the face of Sandy who followed behind.

Sandy squinted his eyes and followed, uncomplainingly. It seemed to take forever, but eventually, the hail of dirt stopped and opening his eyes, he found Flint had crested the top and was out of sight ahead of him. Within a couple of cubits, Sandy was above the channel and onto the flat ground once more. Flint had moved a couple of steps and was facing away as the others dragged themselves over the rim.

Flint’s scrutiny of the scene ahead was interrupted by wails of raucous laughter. Turning quickly, he was shocked to see Sandy looking more like a pocket gopher[118] than a prairie dog. He was covered from head to tail with dusty clay. The moisture from around his eyes and mouth had wetted the fine dust and gave him a maniacal mask. Huge, white eyes stared out of black circles; his little pink tongue hanging out in exhaustion from the climb, Sandy was a spectacle indeed. He gave a huge shake and a cloud of dust and debris rained down on the pristine snow all around. With a quick face wash, he was once more semi-presentable.

The group had waited patiently for Sandy to clean himself off, and once he was ready, they moved up a gently sloping hillside, under the scattered protection of Silver Sage shrubs. The fog had lifted a little now and lay like a wet ceiling just above the shrubs. The higher they traveled, the lower the fog came down. Despite the fog, when they reached the crest of the ridge, they could see the distant plain ahead of them.

Flint leaned over to Fiona and asked, “Have you seen this before?”

Fiona moved to stand beside him and looked carefully around at the scene spread out ahead of them.

---

[118] The Western Pocket Gopher (*Thomomys talpoides*) is the most widely distributed of the three genera of pocket gophers. They are always allopatric (not over lapping their home ranges). They are a true fossorial species, spending the majority of their time underground. They dig with their front feet and have evolved central toes and claws that grow much faster than the other toes, due to the great wear placed upon them by constant digging. Their preferred forage is forb leaves and roots. Forbs increase under heavy grazing and when large numbers of bison occupied the Great Plains, the abundance of pocket gophers must have been much higher, due to the preference of bison for grasses. This sympatric relationship is another example of facilitation, or commensalism.

Abundant pocket gophers on the landscape facilitate the ability of other species to survive. Species such as the tiger salamander (*Ambystoma tigrinum),* the hog-nosed snake (*Heterodon nasicus*), and a wide variety of invertebrates use pocket gopher burrows to travel, forage, breed and raise their young, and perhaps to hibernate. Coyotes, foxes, and snakes all prey upon pocket gophers.

The mound-building activities of pocket gophers change the landscape in which they live, bringing to the surface nutrients and soil that then supports a new and lush growth of vegetation, which in turn is consumed by bison and other ungulates. In this case, the relationship between bison and pocket gophers becomes one of mutualism.

“Yes. Yes, this I remember. It took me most of a day to cross this plain. It seemed to go on and on forever. But, on the far side of it, against those hills on the horizon is the city of Broken Hills. In fact, those are the Broken Hills.”

She visualized her return to friends and family, then shuddered at the thought of what they might find. “We have to cross this plain, and then we’ll come to a river. Somehow we have to get across it. Then we won’t be too far from the city. Let’s go, I need to see what’s out there.”

Chapter 26

A Gathering of Sharp-tails

The fog descended again. It hovered over the tops of the silver sage shrubs that lay scattered across the vast plain before them. The shrubs stood eight to ten cubits high and provided shelter as the prairie dogs dashed from one to the next. Bare branches. Patches of wind crusted snow. Buffalo wallows. More sage shrubs. It seemed to go and on, never varying, never changing.

And always the wind. It was not as strong as on the morning of their departure, and despite the fog and moisture that clung to everything, the temperature had warmed up enough that spring felt like it was finally arriving. At least the snow was gone, melting into the ground as though it had never been, and leaving behind the clinging damp and heavy fog that surrounded them now.

Flint was in the lead followed by Fiona who was discussing her first journey across this region with Sandy. “I know it seems like we’ll never reach the other side, but believe me there …”

“Hush, what’s that?” Sandy whispered.

Flint walked a few more steps before he realized that everyone else had stopped. He lay on his belly, motionless, waiting, like the others, for a repeat of the sound that had alarmed Sandy.

Squik-wockle.

They had stopped near the top of a gentle rise when the strange sound drifted up to them. Flint glanced back at the others, puzzled. He looked in the direction of the sound again, then motioned for Pebble to crawl up to him.

“What do you think that is?

Pebble strained forward, listening. *Squik-wockle, squik-wockle,* came the sound, obviously close by.

“I don’t know, but I don’t sense anything dangerous. Let’s crawl a little closer,” he whispered back.

The sound had a wet, marbley feel to it, as though someone was trying to talk with a mouth full of small rocks. It floated eerily up through the fog several more times as they crawled towards the edge of the hillock.

Speckled brown on creamy white feathers. Motionless now; as wraiths of fog obscured them, then visible again as the fog cleared momentarily. Gone from sight again, until another burst of

squik-wockle drew their eyes towards another spot, just a few cubits to their right, then to another area off to their left.

A fresh breeze lifted the fog enough for the dogs to see clearly. Fiona gazed upon the scene with Flint and Pebble.

Pebble whispered, "Do you know what they are? Have you seen them before?" Fiona raised herself up slightly to get a better view, then back down again, as a new burst of *squick-wockles* drifted up through the fog to them.

Fiona said, "Yes I do. I saw them on my first trip through here."

She backed down, and the others followed to where Juniper and Sandy waited impatiently.

"I think they're Sharp-tailed Grouse[119], and from the look of them, mostly males."

Sandy started to say "Let's …" as Juniper said, almost at the same instant, "Let's go back and see them. I want to know what they are."

Sandy nodded agreement. They crawled back up to the crest of the hillock, and poked their noses over the edge, just as the fog once again drifted away.

A small flock of perhaps fifteen sharp-tailed grouse grazed quietly upon the lower branches of the sage shrubs. They drifted in and out of view, hidden by the shrubs and then the fog.

Three pairs of males were dancing and singing to each other, strutting around and around in small circles. The closest pair, with pantaloons of pure white leg feathers, swayed to an ancient chant. Snowshoe-like, feathered feet tapped-danced to the beat of a silent rhythm; to a song older than the hills themselves. Bodies raised and fluffed up on high, heads held low with beaks pointed, almost touching, the males spun and circled, danced and strutted. Yellow eye-combs brilliant in the soft light, and with speckled wings held stiffly out to the sides, they danced and sang. A brief pause followed, where all motion ceased, then they returned to their circling and strutting. With a rising crescendo of squik-wockling joy, they stopped, stared intently at each other, then lay upon their fluffed-up breasts, beak to beak, silent and motionless.

The other two pairs continued their dance, their songs over-lapping, layer upon layer of grouse song. In the distance, a coyote began to serenade them, and then another, far off to the south, joined in, harmonizing in an eerie, primeval duet that blended in and out of the grouse song.

As the haunting yodel of the coyotes drifted off into silence, the fog slowly descended once more. With it came a profound and intense silence, so quiet it seemed loud after the rapturous song of the grouse.

---

[119] There are six living subspecies of Sharp-tailed grouse. In southern Saskatchewan the subspecies *Tympanuchus phasianellus campestris* are fairly common on this part of the Great Plains. At this time of year (late February, early March) males begin to dance and conduct their breeding rituals at leks all over the northern prairies. What Pebble and the others are hearing is the courtship calls of one male to another. Courtship dancing is not serious yet, merely a prelude to the serious business of courting and breeding yet to come.

The five adventurers lay side by side, gazing down into the fog-shrouded lek below them. A herd of buffalo must have passed through within the last day or so, as the ground where the grouse danced was dotted here and there with fresh wallows. Tiny puffs of light dust floated in the air around their feet as they shuffled and tapped, dipped and swayed.

Pebble looked at the others. “Do you think we should go and ask them for directions? They are birds, after all, so they should know the area fairly well. They might be able to tell us how much further we have to go.”

Flint was up and walking as Pebble finished, followed by everyone else except Fiona.

“Aren’t you coming?” Pebble asked as she fell behind. She looked a little nervous. “You go ahead, and I’ll be along in a moment.”

“Is there something that concerns you?”

“No, nothing, in particular, I’m just not very comfortable around birds of any kind.” As she said this, she unconsciously raised her deformed paw from the ground and held it against her breast.

Pebble began to comment, then stopped.

“She clearly doesn’t want to talk about it, or go to where the birds are,” he thought. Aloud, he said, “OK, but stay close, please. The fog could roll back in at any moment, and I don’t want you separated from us.”

She assured him she would then watched as he moved down the slope towards the grouse below them.

Pebble caught up to Juniper and Sandy shortly and mentioned to Sandy that Fiona was staying behind. Sandy stopped and asked why, but when Pebble was unable to give him a clear answer, said, “I’ll go back and stay with her; she shouldn’t be alone out here.”

Sandy turned and went back to where Fiona huddled against the base of a large silver sage. He saw the look of relief on her face as he approached, but said nothing, but gave her a cheek-to-cheek, then returned his gaze to where the others had now gone out of sight.

Flint was in the lead, with Pebble at his hip and Juniper right behind, as they approached the nearest of the grouse. Up close, they seemed much larger than from a distance, and Pebble could understand why Fiona felt nervous. This particular grouse appeared to be a female and she was quietly shuffling along on wide, feathered feet, nibbling at the tops of the winterfat stalks that stood around in clusters.

Pebble had been straining the entire time for any sign of aggression, but all he sensed was a form of disinterested curiosity. The grouse could care less whether they were here or not and had clearly already dismissed them as being insignificant.

He cleared his throat.

“Hello Mistress, how are you?”

Mistress seemed safe since he did not know how to address her.

She cocked one eye at him; head tilted to one side.

“I am featherly well, thank you. What do you do, traveling here? There is no town of your kind near here.” She said this last as a firm statement.

“We are searching for the nearest town of our kind, and we're hoping you or someone in your flock might know where we could find it?”

She continued to move around, walking from one morsel to the next, but keeping an eye on him the entire time, glancing over at Flint and Juniper occasionally. They sat some distance away, chewing quietly on stalks of winterfat.

“You stay here, strange one, and I’ll go and beak with the others.” She began to shuffle-walk away, crossing a patch of snow without sound or footprint but had gone only a few cubits when she stopped. Motionless.

Then, with a sudden explosion of feathers, she blasted into the air. With a rapid whirring of blurred wing beats, a long descending coast, then another blur of wings, they were all airborne and gone. In seconds she and all her flock were mere dots, dropping into the far distant sage forest.

Everyone dropped as flat and as close to cover of some form as they could. Pebble listened intently and then heard it, the voice of a coyote.

“Cursed snow. I hate this cursed, crunchy snow; I hate it!” The coyote had been trying to sneak up on the flock as it grazed, but apparently was betrayed by the sound of its furred paws on the frozen snow. As far as Pebble could tell, the coyote didn’t know they were there, nor could he see them. Pebble looked over his shoulder and could see Juniper and Flint huddled tightly against the base of a tall greasewood shrub.[120] He glanced back towards the coyote, but couldn’t see it. It appeared to be about 20 cubits away and dog-trotting on a line that would miss them.

Pebble hurried to where the others lay and whispered an explanation of what had happened. Juniper looked around trying to find an abandoned hole or rock to crawl under. She stopped and stared at a shrub just a couple of cubits away. “Quick,” she hissed, “this way!”

With a glance to ensure the coyote was still out of sight, she crawled across to, and under the sheltering lower branches of a dogbane shrub.[121] She had remembered the collection of dogbane she kept in her apothecary back in Crocus Butte. “This is perfect. He won’t detect us under here.”

Pebble was worried about Sandy and Fiona, on the hillock behind them, but at least the coyote seemed to be headed away and not towards where they lay sheltered.

---

[120] Greasewood (*Sarcobatus vermiculatus*) is a member of the Goosefoot family, and grows in flat areas across the northern plains. It derives its name from its flammability during prairie fires.

[121] Spreading dogbane (*Apocynum androsaemifolium)* probably has no ruinous, repulsive action on dogs, as the name would imply, but wild animals do use olfactory masking to shield them from predators. Burrowing owls do it with bison dung, and many song birds do it by lining their nests with buffalo hair.

Juniper had each of them snip off a few of the finer branches, and quickly twist them into braids that they hung around their necks. The smell of the dogbane would help to mask their scent, and with luck, the coyote would wander off without detecting them. She made two more for Sandy and Fiona, and then everyone lay under the spreading branches and waited until Pebble could assure them that the danger had passed.

It seemed to take forever for the coyote to tip-toe away, but at last, Pebble could detect no hint of him. They returned to the others and described their close call.

Sandy and Fiona donned their dogbane necklaces. Sandy asked, "Did you learn anything from the grouse? What did they say? Are we close to Broken Hills?"

Flint looked disgusted and said, "No. That flea-bitten, mangy, lice factory scared the flock before they could say a word, other than that the city is not near here."

Fiona was disappointed with the news, and still very worried about her family and friends in Broken Hills. With her head drooping, limping more than usual, she turned and began slow-waddling towards the late afternoon sun.

The fog had lifted unnoticed and the sky was a slate-grey blanket, broken by strands of yellow and gold that lay in horizontal strips just above the horizon. The long trek of the day, the encounter with the coyote, and the disappointment at not learning more about the whereabouts of Broken Hills had the little group feeling tired and dispirited.

They were in a mood of glum exhaustion when they found an old hole that a badger had dug under a large boulder.

They decided, after a thorough search, that this was their home for the night. Juniper suggested that they all take off their dogbane necklaces and leave them lying around the burrow entrance. Should the coyote investigate their scent trail, the dogbane should ward it away. Sandy scoured the immediate vicinity and returned carrying armfuls of winterfat and grama seeds for their evening repast.

Once everyone had eaten, they huddled together and one by one fell into a senseless sleep. Flint, on the outside of the heap, lay awake for a little longer. Far off in the distance, he could faintly hear the *squik-wockles* of the grouse as they once again began to dance on their ancient lek.[122] Tired beyond endurance, he too fell into a dreamless slumber.

[122] A *Lek* is a place used by male birds of various species to perform their courtship rituals. On the Great Plains, bison wallows were frequently used by sage and sharp-tailed grouse to dance their spring courtship. Some of the leks in Grasslands National Park have been used for decades, if not for much longer.

Chapter 27

Flint's Unexpected Battle

Flint didn't know what woke him. He lay, surrounded by the snuffling and gentle snoring of his friends, and while he listened intently, didn't hear it again. Just as he was beginning to relax, and heavy-lidded, nodding off to sleep, it came again.

A long, drawn-out, high-pitched howl.

At first, he thought it was a coyote. But no, this was different. There it was again, closer this time.

He rose carefully, so as not to disturb his nest mates, and crept slowly to the burrow entrance. All traces of the previous day's fog had dissipated, and the night sky was brilliant with fading stars. Dawn was just poking its face above the eastern horizon and the world around him was alight in the soft glow of not-quite-daylight. Not a breath of wind. He listened.

There, off to the left, another howl.

"What the Devil's claw is that?" he thought to himself. He sniffed the air, searching for any trace of danger. Nothing. He listened, but despite the occasional repetition of the howl, heard nothing else.

He stopped and placed one of the dogbane garlands around his neck, just to be safe. Careful to remain close to shrubs, he crawled quietly away from the burrow entrance.

He had only walked for perhaps a dozen cubits when a strong scent assailed his nostrils. It came from a small pit in the soil at the base of a greasewood shrub. He moved over to it and with one or two sniffs, knew that this was a scent mound, probably from a mouse or vole of some kind. He had never met a mouse or vole that moved around much in the dark, most of them preferring morning and evening, so he hoped not to disturb them in their slumber.

He moved a few more cubits and this time smelled food; lots of food. He searched cautiously, nose close to the ground, moving back and forth and found it buried in a shallow tunnel. He dug down into it with his front claws and within half a cubit was suddenly famished as the intoxicating aroma of dried grasshoppers wafted up. It had been months and months since he last had a feed of the crunchy treat.

Still listening carefully, he lowered his head into the pit he'd dug and pulled out a small mouthful.

"Ahhh, Bluebur[123], but these are good!" He rapidly finished the snack and leaned back down into the tunnel for another morsel.

The blow took him on his right rear hip, high up near his spine. He was hit so hard from the side that he flew sideways out of the small pit, and rolled a dozen times, eventually coming to a stop against a thick fescue clump.

He could barely move; his back was twisted so badly from the impact. Dazed and in pain, he rolled onto his belly and tried to figure out what happened.

He looked up and smack!

Another blow, this time to his neck from a hard shoulder, and suddenly teeth were trying to bite into the base of his neck. Forgetting completely about his injuries in his rage, Flint began to fight back. He gave a mighty shake and his opponent flew off to the side, landed softly on its feet, spun around, and prepared to attack again.

He was finally able to get a look at who had attacked him so viciously. It was a reddish-black colored mouse, of average size, but clearly of abnormal nastiness. The grasshopper mouse[124] circled to one side, forcing the bruised and stiff Flint to spin in place. He kept his butt to the base of the fescue clump for a bit of protection and scrutinized his enemy. The mouse reared back on his hind legs, lifted its small head and howled a long drawn out wolf-like howl, startling Flint so much he almost wanted to run away.

Then, with no further warning, the grasshopper mouse attacked again, dashing under Flint's defensive claws and slashing with razor-sharp teeth.

---

[123] Bluebur (*Lappula myosotis*) is a member of the borage family that is often called stickweed. As the name implies, the seeds of the plant have small barbs that help the seed stick to the fur of passing animals. It seemed a suitable curse word for a small animal covered by the sticky seeds. Plants use six primary means of dispersing their seeds. This type of seed dispersal is called Allochory.

[124] The Grasshopper mouse (*Onychomys leucogaster*) is a nocturnal mouse that is unusual in many ways. Some mice are crepuscular, preferring to move around during the evening and morning hours, while the grasshopper mouse is strictly nocturnal. As Flint discovered, they are very territorial and mark the boundaries of the territories with strong smelling deposits from the scent glands in little holes, known as signpost burrows, which they excavate. The grasshopper mouse is also unique in its diet selection – it's a carnivore; preferring the taste of insects, other mice, small snakes or worms. Prairie dogs are primarily herbivores (consuming vegetation), but may also be omnivorous – eating just about anything. The mouse hunts like a cat, stalking its prey and attacking from ambush. The food cache that Flint found probably belonged to the grasshopper mouse. It was also likely defending its territory, which can be up to nine acres during the breeding season.

Grasshopper mice often share prairie dog colonies; occupying abandoned tunnels, and may be an alternate host for the fleas that carry sylvatic plague. Up to 57 different species of fleas have been found on grasshopper mice, many of which are known to be vectors for the disease.

He was in and gone before Flint had a chance to react, and left behind a slicing cut that ran diagonally from the left side of Flint's nose, across the bridge to just below his right ear, just missing his eye.

Blood poured from the wound, soaking his chest and lower legs.

"OK," he said to himself, angry now both at the effrontery of the puny little cactus biter and at the pain in his nose, "this little vermin caught me by surprise twice now. It's not going to happen again."

His determination paid off a second later as once again, the tiny bundle of rage and teeth attacked. This time Flint was able to grapple and hold the mouse with his much larger front legs and claws and keep him close. The grasshopper mouse's teeth kept slashing, and scored a hard nip on Flint's left front foot, breaking a toe.

Flint went into full battle mode. With a twisting, snapping bite, he took a huge chunk out of the shoulder of the mouse. He spat out the fur and tissue, preparing for a death strike when the mouse slid from under him and was gone.

Flint ran behind as fast as he could but soon lost the faster and more agile mouse in the tall grasses and scattered shrubs.

He lay against the side of a boulder and tried to relax, yet remain vigilant in case this dangerous little attacker came back. He slowly relaxed and began to take stock of his injuries. His lower back, where it joined his hips, was so stiff he could barely move, the longest toe on his left foot was broken and drooped at an awkward angle, and his nose hurt so much he could barely see. The blood from his facial wound was beginning to dry and form a crusty, sticky mess on his chest, pulling his hair with every move. "This is not good, this is not good at all," he thought. "Time for me to find the others and see if Juniper can fix me up."

He stood to leave and had to settle back down again until the sensation returned to his lower back. Rising once more, and making sure that the little creep wasn't still waiting to ambush him, he slowly made his way back to the old badger burrow where the others still slept. It wasn't far but seemed to take forever. With every step his broken toe seemed to catch on something and roll under his toe pads, causing excruciating pain. After just a couple of steps, he had to hop along, keeping the broken toe off the ground.

He had lost his dogbane garland in the battle, and shifted those of the others to the side as he entered, then rearranged them in a protective barrier as he crawled slowly down the floor of the burrow. Sandy must have been awake and on guard because he was at Flint's side almost the moment he entered.

The smell of fresh blood and impotent rage rose off of Flint like a cloud.

"What the stinkweeding burr-ball happened to you?" Sandy said, then turned and barked, "Juniper, come quickly. Flint's been hurt."

Juniper leaped to her feet and dashed over to Flint and Sandy.

"Oh, you big idiot, what have you gone and done to yourself now? Get into a fight with a badger, did you? Perhaps a coyote, or from the look of this cut, maybe a bobcat?"

Flint could already hear the derision from Cobble and the others back at his Ward in Crocus Butte, jeering and taunting him on his surviving his near-death battle with a – mouse?

Here, though, he had to be honest. Outside, the grasshopper mouse howled again. This time with an undertone of pain, but also with a great deal of defiance. They had to know what lurked in the grasses so that what happened to him would not happen to them.

"I was attacked by a mouse," he said simply.

Juniper was searching his body with her paws, gently prying apart his hair, looking for hidden cuts, for injuries that would cause problems later. Finding only the cut to his face and a broken toe, she sat back at looked at him.

He could see it coming and pre-empted her.

"Yes, the little cactus biter was a mouse, but unlike anything, I've ever seen before." He tried not to sound defensive. "I've never even heard of a mouse that fought so well, so fast. I think I must have found its food cache and was just sampling some of the items in it, to see what they were like when out of nowhere this bundle of teeth and claws took me completely by surprise. The sneaky coward wouldn't just come up and ask me what I was doing. Oh, no, he had to ambush me. Lucky for him, he caught me by surprise or he'd be coyote poop tomorrow!"

Juniper's hum had a magical quality to it.

Anyone who listened to it began to feel calmer, more relaxed.

"Sandy, take Pebble with you and see if you can find any of these herbs."

She gave them a wish list of the plants she needed. As they departed, she called out, "You both wear a dogbane garland, and Pebble, you pay attention. I don't need anyone else hurt tonight. Leave the other garlands there to hide our smell. And Sandy, see if you can detect any of Flint's blood on the ground and if so get rid of it."

Her long string of directions finished, she turned back to Fiona.

"Can you help me get him over here, to this pile of old couch grass? I think he'd be more comfortable there."

Together, they managed to get the huge Astiti shifted and comfortable, and Juniper began a more thorough investigation of his worst injury, the slash to his face.

The cut began near the bare skin on the left side of his nose, then traveled over the nose, under his right eye and ended under his right ear. Where it crossed his nose, the mouse's teeth had cut right to the bone and it glistened whitely between the brilliant red sides of the cut. Juniper

continued her gentle hum, and Flint was now almost nodding off when Sandy and Pebble came back, arms laden with supplies.

Fiona sat with Flint and gently massaged his lower back, trying to work out the tightness that threatened to seize him up, while Juniper examined the collection of herbs. Early spring, in the dry sage shrublands of the northern Great Plains, was not the best time to find a bountiful supply of medicinal herbs. She had asked them to find some willow leaves or fresh willow bark or failing that, some bitter tonic to ease the pain. She needed some soapweed[125] to clean the cuts, a few strands of needle-and-thread to sew him back together again, and finally. some speedwell[126] to help him heal.

What she got was a couple of shepherd's needles, four strands of old buffalo guard-hair, a couple of dried leaves of self-heal, and a carefully-collected spider web.

Pebble and Sandy looked apologetic.

"Sorry, but this is the best we could find out there. If we had more time or knew the area better, perhaps we could have done better, but we thought these should help."

Juniper looked at Sandy and asked, "How did you know about the spider web?"[127]

Sandy laughed, "My friend Granite. Back when we were pups, he forgot to pay attention where he was running during a game of tag-you're-it and ran straight through a patch of prickly pear. He managed to get sliced up quite nicely. His mother used spider webs to hold the cuts together and speed up the healing."

"Well, given our circumstances you did very well. Nothing for his pain, but he's a tough old dog, and will have to bear it until we can find something to relieve the hurt."

It took only a few minutes for Juniper and Fiona to clean and dress Flint's injuries. He lay there stoically ignoring the pain as they stitched him up. Juniper carefully nipped a small hole in the larger end of the sharp needle. Using the needles, threaded now with long strands of tough buffalo hair, she pulled the jagged slice back together. A couple of small whimpers escaped from Flint when they straightened and bound his broken toe.

"You are going to have a pretty nasty scar on your face from that cut, but that should only make you more formidable to the other males back at Crocus Butte; and more attractive to the females," Fiona said teasingly. "I'll have to nip the buffalo hair in the next day or so and pull out the stitches, but you should be fine. Your toe though is going to slow you down a little. I'll keep an eye out for

---

[125] Soapweed (*Yucca glauca*) is a very rare plant in Canada, and is found in only four locations (www.sararegistry.gc.ca). The roots of the plant produce a soap-like product that can help rid the body of lice and mites.

[126] Speedwell (*Veronica peregrine*) gets its name from its ability to promote the healing of broken bones.

[127] I've read that a well collected spider web can be used to help a small wound begin clotting and thus speed up the healing process.

some pussy toe slippers to keep your toe from dragging. Some Boneset [128] would be nice too if we can find it."

They kept close to the old badger burrow for the remainder of that day. Flint could walk, but only with considerable difficulty.

It was by mutual assent, and much chagrin on Flint's part, that they decided to stay another day. If they were caught in a situation where fast movement to avoid danger occurred, Flint would be at great risk.

Out of spite, more than appetite, Sandy, Juniper, and Pebble returned to the site of the battle and removed all of the food left in the grasshopper mouse's caches.[129] It felt good to get a little retribution, and the meals of dried beetles, ants, and grasshoppers went a long way towards helping Flint recover enough to travel again the next day. A day that proved to be their last on the Great Sage Flats.

[128] Boneset (*Eupatorium perfoliatum*) is usually found in the aspen parkland, not this far south into the mixed-grass prairie.

[129] Wild animals store food in two general ways and both are known as hoarders. The food cache built by the grasshopper mouse is known as a "larder cache", a place where large quantities of food is stored and then defended. A lot of energy and time goes into creating a larder cache, and it's worth the risk of defending it against marauders. Prairie dogs also build larder caches. The second type is a scatter cache, or scatter hoarder. Small quantities of food are scattered over a large area, and is not defended. The theory here is that if someone finds the cache, they don't get a lot, and much remains elsewhere. Magpies and chickadees are scatter hoarders.

Chapter 28

The Silver Sage Flats

Sandy woke up lying flat on his back, legs flopped out to the sides. For a moment he couldn't figure out what the sound was. Then he felt pressure on his tummy and lifting his head, found Fiona lying snuggled close, her chin resting on his plump belly. She was drooling in her sleep and his fur under her chin was wet with a little puddle of it. She snorted again, a deep inhalation of breath that sucked his belly hair towards her nose, then a long drawn out exhalation that blew them flat again. The feeling was oddly tender and warm.

He lay there, relaxed and contented, listening to the sounds each of his companions made as they slept around him. Light filtered in from the opening above them, creating a faint glow that provided just enough light to see everyone.

Everyone except Pebble.

Carefully lifting his head, so as not to disturb Fiona's slumber, Sandy looked around and could see no sign of the little dog. He was just about to begin to worry when a flicker of motion at the top of the burrow caught his eye.

Pebble walked quietly down the ramp of the old burrow and entered the chamber. He saw Sandy watching, and whispered, "I was just outside, standing guard while you slept. I didn't want that sneaky mouse to show up looking for his supper. And besides, I couldn't sleep. Morning is just about here, and it's been quiet all night."

Sandy nodded, then lay his head back down on a clump of old couch grass he had pulled together as a pillow. Fiona twitched in her sleep, legs making small running motions, her ears flattened, and she began to breathe fast and deep. Clearly, she was dreaming, and he wondered if he should wake her. After a moment she quieted, and he decided to let her sleep.

Fiona dreamed of her first trip across the sage flats that lay before them.

Life in Broken Hills had been crowded. No new space was available to set up her burrow system, and she was forced to remain with her coterie. What she really wanted was to begin her own family, in her own tunnels and her own nesting chambers. But the only place to do so was on the very edge of the city, where numerous predators lurked and preyed upon any dog that got too careless. It was early in the spring, and a strange, restless urge to leave had taken hold of her recently. All she could think of was trying to find a new home. She had heard about a city to the

east, from other dogs that had traveled from it to her city. They said that Crocus Butte lay six or seven days walk to the east, depending upon how fast you traveled and that there was abundant room for dogs like herself to set up her own home.

She rose early one morning and found her mother busy sorting out a meal of scarlet mallow.[130] "Mother," she said as she yawned and stretched, "I have made a decision." She paused for a moment, not sure how to say what was on her mind.

"There is no future here for me. There aren't any dogs my age that I want to spend my life with. There's no room for me to set up my own tunnels, and it's time I settled down and raised a family of my own.[131] So, I've decided to go to that city we heard about – to the east of here, and see if I can find peace of mind there."

Her mother continued to sort through her meager stores of end-of-winter forage, without seeming to pay attention to what she had said. Then, taking a deep breath, she turned and looked at her daughter with a mixture of sadness and envy. "Daughter, I wish I knew I could convince you to stay, but I also understand how you feel. I, too, felt that way once, but never dared to emigrate."

She put her bundle of bread root down and moved over to where Fiona sat. She lay her cheek against Fiona's, and they sat for several minutes, cheek to cheek, silent. A single tear rolled down Fiona's cheek as she realized that she was going to do this. She really was going to leave everyone and everything she knew. She felt giddy with fear and anticipation, excited and terrified at the same time.

"Oh, mother, I'm going to miss you! But I must go. If I don't, I know I'll live the rest of my life regretting the decision to stay. I need to discover what's out there for me."

She spent the rest of that day visiting with her friends and family, saying goodbyes and good lucks to everyone she loved. There was a general sense of surprise and shock at her decision, yet at the same time, almost everyone understood. Her father did not understand, nor did he approve. Despite her best attempts to explain and justify her desire for adventure, he just could not accept it.

Early the next morning, she rose and crept silently from the only home she had ever known. Her goodbyes had been said, her tears had been shed, and she wanted to leave before everyone else awakened. She paused for a few moments and lay across the sentry mound of the tunnel,

---

[130] Scarlet mallow (*Malvastrum coccineum*) is one of the only mallows native to the Northern Great Plains. It has a bright brick-red flower; a color that is rare on the prairies. The plants contain natural gums called mucilage, pectin, and asparagin, which gives them a slimy texture when crushed. It is the presence of these gums that creates the marshmallow effect. The members of the Mallow family are mostly edible as a salad greens and potherbs, although not very commonly used, probably due to their slimy consistency. The flowers and seeds are also edible (from www.wildflowers-and-weeds.com).

[131] Fiona has never had pups, and this makes her *Nulliparous*, or never having given birth. *Primiparous* indicates a female has birthed once, and *Multiparous* that she has had multiple births.

looking at the silent city around her, memorizing the scene, knowing she would never see it again.[132]

The sun of a beautiful spring day slowly spread its amber rays across the city, painting bright highlights across the sentry domes. Turning her face toward the sun, she took a deep breath, and said to herself, "Well, it's now or never."

With a firm resolve to not look back, she set out upon her adventure. She couldn't do it though, and at the top of a hillock over Broken Hills, she stopped and looked back. The city lay sprawled across the flatlands before her. An immense, densely packed and vibrant city. Her only home.

After crossing the Whitemud River and working her way through a towering stand of Thorny Buffalo Berry trees, she found herself passing through a vast flat plain. She had stopped last night, tired from her journey, but determined to rise early and continue with her trip. The boundless expanse of silver sage seemed to have no end, no borders, just an eternity of space and wind. It was just after her noonday snack of winterfat, as she passed by an isolated Thorny Buffalo Berry shrub when she sensed movement above her.

She stopped, motionless, waiting for the flicker of motion to repeat itself when a flash of grey hit her hard. She had no idea what it was or where it came from. One second she was standing on all fours, the next she was rolling across the dusty clay. She staggered to her feet just as the Loggerhead Shrike landed in front of her and attacked again.[133] She was bigger and heavier than the bird but was completely unprepared for the vicious, determined attack. The shrike launched itself at her again, and she managed to lift her front right paw to protect her face from its hooked beak.

The black-masked shrike latched onto her wrist with a grip of iron, twisting and wrenching, trying to throw her down so it could attack her throat. She regained her wits quickly and with a fury that surprised her, launched into a counter-attack. She grabbed the shrike by the wing with her teeth and felt the crunch as she broke the fine bones and crushed muscle and tissue. The shrike, surprised by her aggression, released its grip on her wrist and with a staggering, flopping hop, managed to get out of reach, just as she snapped at its neck. With a screech of rage, the injured bird hopped out of sight and was gone in an instant.

---

[132] Prairie dogs do indeed disperse, but generally more males than females leave their home colony. Leaving home is referred to as either a natal dispersal, or a breeding dispersal where adults leave to seek mates. It is a method by which they reduce the risk of inbreeding within a colony or coterie. Dispersal distances of up to six kilometers are known.

When two or more colonies are within waddling distance, it is referred to as a prairie dog complex. If the colony is isolated from all others, usually by a geographic barrier such as a river, it is referred to as being insular. Insular populations that are isolated from all others are known as a deme.

[133] The Loggerhead Shrike (*Lanius ludovicianus*) is a very effective predator on small mammals, insects and the occasional bird. The shrike earned its nickname of the "butcher bird" from its habit of impaling its prey on thorns of shrubs like the thorny buffalo berry, to store it for future meals.

She lay there, stunned. It had taken mere seconds from the moment she caught the flicker of motion to the disappearance of her attacker, yet the fight had seemed to go on forever. She was exhausted and shocked, and the pain began to make itself known. Her paw was obviously broken and had already begun to swell. She looked around, desperate for any form of shelter that would protect her from another attack. Off to right, just barely visible through the intervening stems and branches of sage, she could see the side of a large boulder that towered above the surrounding shrubs. In her travels, she had seen several boulders like this, and in almost every case, someone had dug a burrow under it. Perhaps this one had one as well, and with luck, it would be unoccupied.

Lifting her paw from the ground, she hobbled carefully through the dusty sand, stumbling over branches and roots. Twice she tripped and fell, landing hard and with intense pain. After what seemed an eternity, she made it to the boulder, then lay silently for a few minutes, searching with everything she had to try to determine if danger lay hidden here. Eventually, with no indication that a threat lurked, she crawled to the entrance of the burrow. The dust had not been disturbed and grasses grew unmolested around it. Thankful to find security so close to the attack, she slipped silently into the opening and the darkness below.

She lay there, alone, scared, in pain and often delirious. For two days she suffered before the swelling began to subside and the shattered bones started to knit themselves together.

With no Boneset or other herbs to alleviate the pain and no assistance to set the bones in proper alignment, she waited. Hunger eventually drove her to leave. She knew she had to move, otherwise, she would weaken to the point where she would be unable to travel. The difficult decision was which way to go. She knew how far she had come but was not certain about how far she had to go. The thought of returning to her home, after the anguish of leaving, was too difficult to bear, and so, her resolve strengthened, she set off once again early the next morning. About mid-morning she passed by a low lying area where a small stand of willow had taken root. There, she spent the rest of the day, chewing fresh willow leaves and stripping sap-laden bark for the pain-relieving ability she knew it contained. Her mother had used willow bark every time she bore a litter of pups, to help with the delivery and pain of pup-birth.

Several days later, emaciated and carrying a now permanently deformed wrist and limp, she arrived at the city of Crocus Butte. She was met with open arms, and within a short while had met Grandfather Quivertail. He had convinced her to become a teacher, to educate pups about life and the greater world around them. Her life seemed so good, so stable and secure during the months that followed. Then came the request to accompany the little band of adventurers.

She snorted so loudly she woke herself up. Her tongue had dried out and it was stuck to her palate. She pried it off and after a couple of ineffectual attempts to talk, managed to say, “What time is it? Is it daylight yet?” She knew she had dreamed, but like many dreams, she was left only with a vague feeling of unease, and of not having had a restful sleep.

She lifted her head off of Sandy’s wet belly and rose, stretched languorously and asked what was for breakfast. Their morning feast was comprised of a small snack of winterfat that Pebble

had located while guarding the entrance to their temporary home. It was soon consumed and with the fifth day about to begin, they set off once again. She did not look back when they left the large boulder behind. Had she done so she would have realized that it was the same one she had sheltered under after her attack by the shrike.

Chapter 29

The Thorny Buffalo Berry Forest

A short distance after leaving the boulder, Fiona caught a flicker of motion above her.

When she looked past a shielding shrub and saw the tall Buffalo Berry shrub, standing there like some angry being intent on doing her harm, she stumbled and almost fell.

Sandy was beside her in a flash and braced her with the side of his body. “Are you OK?” he asked, quietly.

“Yes, thanks. This is where that vicious bird attacked me. My foot hurts just thinking about it.” Sandy thought about this, then moved ahead to warn the others about the threat that might lurk in the branches.

As they continued, the vegetation changed from the flat, hard-pan clay covered in sagebrush, greasewood, and cactus, to one where the ground became softer, and the soil deeper. With the deeper soil came taller grasses, less cactus, and eventually, no sagebrush at all.

It seemed to take forever to work their way through the forest. The ground was thick with fallen branches that were covered with needle-sharp thorns, each as long as a prairie dog leg. Several times one or the other of the little group would not see a deadly spike hidden in the grass until they had straddled it and felt the pressure of the point pressing against their abdomen. It wasn’t long before every dog in the group was waddling along on tip-toes, trying to get their bodies as high off the ground as possible. Pebble followed along behind, watching where Fiona, just in front of him, reacted to avoid being punctured. She would flinch, and he would then cautiously work his way to one side or the other.

Sunrise was coming up to their left, and now a pale orange, then blue and then yellow light cast flickering shadows on the ground. It looked like the northern lights had fallen from the sky and become impaled upon the thorns of the shrubs, stuck and unable to arise to the sky where they belonged. As they traveled deeper under the forest canopy even the rising sun couldn’t probe the darkest recesses of the hidden places here. Dark, gloomy alleyways and arched pathways led off in every direction.

So little sunlight reached down to the forest floor that it was still covered in a thin blanket of snow. Grey and dirty, the coldness of it was surprising.

Pebble moved up front alongside Flint and whispered, “This place scares me, Flint.” Pebble had begun to shiver slightly; whether from the cold or some primordial instinct, he didn’t know. Flint just nodded and continued forward slowly, ears straining for any movement, his claws ready to slash at whatever might suddenly leap out at them from the dark pathways to the sides, or the gloomy blackness in the branches above.

He froze as he entered one particularly large, smooth floored hall that traveled off to the left and right, disappearing into black nothingness in just a short distance.

“Do you sense anything there, is there a danger that I cannot see?” Flint asked.

Pebble shuffled forward far enough that his nose poled out into the open space in front and strained with his Foreteller’s gift.

Nothing.

A vague sense that something had been here fairly recently, but also the feeling that it was now gone. “Nothing, Flint. I don’t sense anything close by.”

The snow here was packed into a dense highway and was littered with small round balls. About the size of his front paw, and a light brown color, he at first thought they might be some form of fruit. A tentative sniff soon dispelled that. These were animal droppings. They smelled like ground-up wood, and from their texture, that seemed to be what they were made from.[134] Strange.

Flint looked over the back of Pebble, who had lain low beside him, and whispered to Sandy, “Have Fiona come up here, please. I need to ask her a question.”

Fiona came forward, squeezing past Sandy in the narrow confines of their trail, and rested her head on Pebble’s bum. She could see over him into the broad hall beyond, and it felt good to have some physical contact. Pebble seemed to feel it too and stopped his shivering for a moment.

“Yes, Flint?” she asked.

“Does this seem familiar to you? Did you come through such a place after you left Broken Hills?

Fiona took a deep breath and slid past Pebble into the vastness of the open hallway. She walked a short distance to her right, then turned and walked past Flint and the others in the other direction. When she had left Broken Hills, she had been alone, and many of the experiences she had on the journey were muffled and blurred, due to the terror and loneliness she had felt in places like this. She sat and slowly relaxed, closed her eyes and tried to remember.

---

[134] The ground under the protection of the thorny buffalo berry shrubs is the haunt of both white-tailed jack rabbits, and the Nuttall’s’ cottontail. They are likely responsible for the packed trails and sawdust-like droppings that Flint saw. In species like the rabbits and hares, and even beaver, the digestive system is very inefficient at extracting nutrients from the woody plants that they eat. These un-used vitamins and minerals are excreted in the feces, and what better way to get them back, than to eat the pellets again and extract what they missed the first time round? This is known as Coprophagy.

“Yes!” She rose and went back to the others. They had all bunched up now, side by side and plugging the entrance to the pathway they had been following.

“Yes, I remember,” she said. “This hallway goes for a very long way in both directions. I remember that when I entered it, I decided to stay on it with the hope that it would take me out of the forest. It didn’t, though. I eventually found a side pathway, like the one we came in on and took it out of the forest.” She paused and looked up and down the main hall. “I don’t know where we are in relation to where I came into it, but if I remember right, we need to find another pathway on the far side and continue going south.” Her confidence was increasing with the returning memories.

“When I came through here, I remember that after I crossed the river, I had to climb a steep bank. This forest was at the top of the bank, and a short distance from the top of the bank was a hall like this, perhaps even this very one.”

“Well, OK, then,” said Flint. “If we’re going, we’d best be moving. Do you have any idea about whether we should go one way or the other?”

Fiona simply shook her head, and Flint stepped forward further into the hall. He looked left, then right. It seemed that he could see what might be the entrance to a similar pathway to theirs, farther down and on the opposite side. With a shrug of his shoulders, he turned and began to move down the center of the icy floor of the hall.

As they approached the opening ahead, they could see a glimmer of light filtering through the branches. This gave them some hope that they might be at the top of the river bank and would soon be free of the oppressive feeling of the forest. One by one, they turned and filed into the narrow pathway, with Flint in the lead, followed by Pebble, Fiona, Juniper and finally Sandy bringing up the rear.

Flint stopped in the exit to the narrow hallway and surveyed the vista spread out before him. Satisfied that no immediate threat lay waiting, he moved to one side, and the others crept out of the darkness and into the golden light of morning.

They were indeed free of the forest and had emerged onto a narrow flat area that stretched along in either direction, between the edge of the forest and the banks of the river. Right in front of them, a steep slope dropped away at their feet. Here in the open, out of the oppressive gloom of the forest, the ground was now snow-free, and covered with a dense matte of grasses, flattened and compacted by the pressure of last winter’s snow. At the bottom of the slope lay the White Mud River. The other side rose just as steeply to a land of open sage and greasewood. Beyond that lay the high, rough hills which they knew must be the Broken Hills. On the other side of those lay the city of Broken Hills.

There was only one problem.

The White Mud River had frozen solid during the long months of winter, but now, with spring well underway, the warmer temperatures and snow-melt runoff from the surrounding hills had eroded the ice from underneath. The center of the river was open, for perhaps two to three cubits.

This channel of open water swirled and gurgled for as far as they could see. It was a dark greenish-black, and from where they sat, they could see far into its depths. Something moved in there. Something huge. Even as they watched, a long, curved back broached the surface, and then in a rolling arch, slid back into the depths. The river, and what it contained, seemed like a barrier which was finally going to stop them in their tracks.

End of Book One

GLOSSARY OF TERMS

This Glossary of Terms is divided into two sections; the BROKEN HILLS GLOSSARY is a glossary of terms used throughout the book, and are a mixture of fictional terms I invented, along with others that, while actual words, would not normally be used in this way. These words helped to establish a sense of order and place in the fictional world inhabited by the characters. The second glossary is comprised of scientific terms; words that ecologists, biologists, and behavioral scientists use to describe the world as they see it.

BROKEN HILLS GLOSSARY

Many of the words that follow are either Latin, or words which I created from a Latin word. For example, the Comitia really was a popular legislative assembly in ancient Rome and a Cathedra is a chair of a teacher or person in authority. Most of the terms used here had a meaning in ancient Rome, that is reflected in the structure of prairie dog society. This society is hierarchical.

Adhorator: The Adhorator is the leader of the four Evocators who lead the Astiti. The Adhorator reports directly to the Comitian. He is at a level of authority roughly equal to that of the Cathedrans.

Astiti: The Borderland defenders or guards. This is an elite group of prairie dogs whose job is to keep the rank vegetation of the Great Unknown from encroaching towards the city. This band of short grass, unoccupied land provides a warning zone that is patrolled by the Astiti. They watch constantly for predators who live within the Great Unknown and the open space provides them the time to warn the cities citizens of the approach of danger. Each squad of four Astiti report to an Evocator, who in turn reports to the Adhorator.

Borderlands: The Borderlands represent a band of unoccupied land that surrounds the city and separates it from the Great Unknown that lies beyond the Wall. This area is kept clear of tall vegetation to provide security to the dogs living within the city. It is maintained and patrolled by the Astiti. The borderlands are divided into four zones, based upon the cardinal directions of North, East, South and West. Each Zone is commanded by an Evocator. The Evocator is responsible for each of the Astiti in his zone.

Comita: The central seat of authority for the entire town or city. This is a mysterious place no ordinary prairie dog is ever allowed to enter. Only the Cathedrans from each Ward are permitted entry here, and only when problems of national security or of gravest concern to the colony are discussed.

Comitian: The Comitian, or Lord of the colony or city, presides over the assembled Cathedrans. This is an elected position. When he or she dies, they are replaced by an election held by the Cathedrans, and a new Comitian selected from among their number.

Comitium: a place of assembly, the council chamber where issues that affected the entire colony are discussed and resolved. Each Ward has its own Comitium and the colony has one central Comitia.

Cathedra: The Cathedra is a large throne like chair placed at the head of the Comitium. The chair is only used by the Wards' Cathredran, the prairie dog that presides over all serious matters.

Cathedran; Each Ward has one Cathedran, and in Ward Two that dog is Catella Catilina. Each Cathedran is elected by the combined vote of all Maternae in the Ward.

Coterie: A family group of related individuals. The coterie occupies one portion of a Ward and is presided over by a Maternus. There may be numerous coteries within a Ward. The older the colony and its Wards, the more family groups there are.

Cubits: A unit of measure, equal to the length of a prairie dog. It was used by the Romans and described a unit of measure equal to that of an average man's forearm. Since the prairie dog has a pretty short forearm, I use it here to mean the average length, from nose to the base of the tail of the average dog.

Evocator: The leader of a squad of four Astiti. Each squad patrols one of the four zones in the borderlands. Their role is to ensure that the zone they patrol is continuously watched for the arrival of danger and to warn the residents in the area. Each of the four Evacuators reports to an Adhorator.

Great Unknown: Beyond the Borderlands lies a vast mysterious region known as the Great Unknown. If you stand with your back to the city, looking across the barren open of the Borderlands, you will see a towering, impenetrable wall of rank vegetation known as the Wall. What lies beyond the Wall is anyone's guess, but everyone knows that danger lurks out there. Occasionally a youngster will stray across the Borderlands and through the wall, or someone with a foolhardy adventurous nature will intentionally enter it, but seldom do they ever return. The Wall is penetrated in several places by Minor and Great Roads. These roads are not maintained by the Prairie dogs, but are instead created and maintained by other species such as Bison.

Herbalists; The doctors, shamans and healers. Also one of the bravest groups as they have to travel deep into the Great Unknown to obtain the plants they require to keep the city's people healthy.

Maternus: The Maternus is always the eldest female in the family group, and is usually referred to within the Coterie as Grandmother. She rules the complex of tunnels and chambers that make up the central residence of her family.

Maternae: The plural term for all Grandmothers.

Ward: This is a term used in both the true scientific sense, and in the fictional version. In real prairie dog colonies, each city is divided into Wards. These Wards are occupied by one or more coteries or family groups. All members of a Ward are related in some way, and may represent many generations of prairie dogs who descend from the original founders of the city. In the fictional view, all members of a Ward therefore have the same last name. In Sageville there are 6 Wards, plus a 7th associated territory, known as the Borderlands. All of the dogs who live within the same Ward, have the same last name.

1. Twitchtail Ward
2. Quivertail Ward
3. Clayback Ward
4. Shortbottom Ward
5. Wetfoot Ward
6. Brokenclaw Ward
7. The Borderlands

Glossary of Actual Ecological Terms

Adaptation; characteristics that are genetically determined, such as morphometry, phenotype, behavior) which enable an organism to reproduce and survive under current environmental conditions. For example, the behavior of baby masked shrews to form a line that mimics a snake in its movement, is an adaptation that reduces predation. See footnotes; 187, 225

Allopatric; Having different areas of geographic distribution or home ranges that are not over-lapping. Plains and wood bison were historically allopatric because they occupied different areas of the North American continent, with wood bison occupying the northern boreal forests, and plains bison occurring southward in the great plains of central and southern North America. There was a narrow, generally east –west, band of range over lap, through north-central Alberta and Saskatchewan.

Northern pocket gophers are truly allopatric, in that their home ranges never overlap with a neighboring home range.

See the opposite, sympatric.

Altricial; newborns that are completely dependent upon parental care for survival, usually born naked and blind.

Altruistic; a type of behavior where an individual increases the welfare of another at the expense of its own welfare.

Amensalism; a relationship between two species where one is harmed or inhibited by the actions or presence of another. For example, black walnut tree roots secrete a chemical that harms or kills other tree species around it, essentially stopping their growth while enhancing its own.

See footnotes; not used in the book; find an example and insert in text, or remove from glossary

Aposematic coloration; A color pattern that warns a predator of potentially unpleasant consequences should it attack. The yellow and black coloration of a wasp is an example.

Aggressive mimicry; the resemblance of a predator to a harmless species to deceive potential prey.

Autecology; the ecology of individual species in response to environmental conditions.

See footnotes; not used in the book; find an example and insert in text, or remove from glossary

Batesian mimicry; the resemblance of a palatable or harmless species, (the mimic) to an unpalatable or dangerous species.

Bergman's rule; populations of homiotherms living in colder climates tend to have a larger body size to surface area ratio, i.e. northern mammals are larger than southern one of the same species.

Body temperature regulation

Endothermic: endothermy is when the animal employs its own metabolic rate to generate heat;

Ectothermy: is when the animal uses external heat sources (snakes);

Heliothermy: is used by some animals to maintain or increase body temperature (the basking described above);

Poikilothermy: is a behaviorally based thermo-regulation, the animal's body temperature varies and is dictated by the temperature of its surroundings;

Thigmothermy: determines the body temperature based upon the temperature of the substrate rather than directly from the sun, and,

Heterothermy: is when they have the ability to act as either a poikilothermy or homeothermy (warm blooded).

Brumation; a state or condition of sluggishness, inactivity, or torpor exhibited by reptiles (such as snakes or lizards) during winter or extended periods of low temperature.

Casting; a mass of indigestible food thrown up by an owl, hawk, etc.

Commensalism; an association between two organisms where one benefits, and the other receives no benefit or harm. See also, Amensalism,

Conspecific; individuals of the same species; everyone in a colony of prairie dogs is a conspecific.

Coprophagy; the reingestion of fecal material; common in rabbits and hares. The material is recycled because they are very inefficient digesters, and the fecal material still contains large quantities of nutrients. Material is only recycled once. Also known as refection.

Crispation: A slight involuntary muscular contraction, often producing a crawling sensation of the skin.

Cryptic coloration; the coloration of an animal that allows it to blend or hide in the background of its environment.

Cursorial; pertaining the running motion of animals. Bison are a cursorial species, with the neonates able to keep up to the herd within a very short period following parturition.

Deme; an isolated population. Prairie dogs live in colonies. If several colonies lie within about 6 km of each other, it's known as a complex. If there are no other colonies where interchange of individuals is possible, it is known as a deme.

Desiccation: a state of extreme dryness, or a process of becoming extremely dry.

Directional selection; selection favoring individuals at one extreme of the phenotype in the population.

Ecotone; the transitional zone between two different communities.

Egestion; the elimination of undigested food material, prior to hibernation for example.

Endothermy; the regulation of body temperature by internal metabolism and heat production.

Endozoochory; the passage of spores and seeds after passage through the gut of an animal.

Entrainment; the synchronization of an animals' activity cycle with environmental cycles. Snakes for example.

Epidemic; rapid spread of a disease in a human population, as opposed to an epizootic in wildlife.

Epizootic; the rapid spread of a disease through a wildlife population, such as plague.

Estivation; to pass the summer in a dormant state or torpor. Richardson ground squirrels and prairie dogs aestivate. They do so to during the hottest parts of the summer to escape the intense heat. The torpor can be so deep that it mimics hibernation.

Estrous: A recurring period where the female is sexually receptive and ready to breed.

Extinct: When no living members of a species exist. The moment of extinction is when the last individual of the species dies.

Extirpated: Species such as the Western Hog-Nosed Snake, have been extirpated from the region of Grasslands National Park. No one is quite sure why, perhaps a combination of persecution, or simply that this area represents the very northern end of their natural distribution. To be extirpated simply means that there are no living members of the species within a specified geographic region.

Evolution;

Convergent evolution; This term is used to describe the evolutionary pathway where two or more similar species evolve towards a single species. This happened with two ancient

bison species, Bison antiquus and Bison occidentalis. They merged together to form the ancestor (Bison bison) to modern day plains bison (Bison bison bison).

Divergent evolution; This term is used to describe the evolutionary process where one species gradually splits into several new species, usually because the original species occupied a large and diverse habitat. A group living in one region that is very different from one living in a very different ecosystem, will develop adaptations that enable it to survive. Over millennia these minor adaptations can accumulate and result in new sub-species. If the differences are extreme enough, or if one sub-species becomes extinct due to its inability to adapt to changing environmental conditions, it might become extinct, leaving the other species to now represent the entire species. Once again, bison provide a good example, with Bison bison occupying most of North America. The ecosystems are so diverse that eventually two subspecies of bison evolved, Plains Bison (B. B. bison) and Wood Bison (B. B. athabascae).

Evolutionary time; the period during which a population evolves and becomes adapted to an environment by means of genetic change.

Extirpation; the complete removal of a population from a geographic area. The species survives elsewhere.

Extinction; the species no longer exists.

Facilitative grazing: Facilitation describes species interactions that benefit at least one of the participants and cause no harm to either. An example is where bison graze a stand of coarse vegetation, leaving behind a sward that then produces succulent, tender and easily digested forage that is more easily consumed and digested by another species. Bison facilitate grazing by deer.

Flagship species; is a species chosen to raise support for biodiversity conservation in a chosen place or context.

Fossorial: A organism that is adapted to living underground. Ground squirrels, badgers, black-footed ferrets and prairie dogs are examples of fossorial species.

Founder effect; a population begun with a small number of individuals that contains a small and often biased sample of genetic variation of the parent population.

Funk hole; a tunnel or burrow that an animal hides within when frightened.

Genetic feedback; evolutionary response of a population to adaptations of predators, parasites or competitors.

Heliothermy; an animal that acquires heat by basking in the sun.

Heterospecific: of, or belonging to a different species. Heterogeneity, or diversity of species or genes within an ecosystem, is often the goal for management of a system.

Heterotherm; an organism that during part of its life history becomes either an endotherm or an ectotherm. Snakes are endotherms that switch to ectotherms during hibernation.

Hibernation; winter dormancy of animals characterized by a severe reduction in metabolic rates.

Homeotherm; an animal with the ability to maintain a fairly constant internal body temperature by physiological means.

Inbreeding depression; detrimental effects of inbreeding.

Interspecific; between individuals of different species.

Intraspecific; interactions between individuals of the same species.

Keystone Species; species are described as playing a critical role in maintaining the structure of an ecological community, affecting many other organisms in an ecosystem and helping to determine the types and numbers of various other species in the community. A keystone species is a plant or animal that plays a unique and crucial role in the way an ecosystem functions.

Lek; communal courtship area used by males to attract and mate with females.

Leveret; a young hare

Natural selection; the differential reproduction and survival of individuals that results in elimination of maladaptive traits from a population.

Neonates; new born animals

Nepotism: Favors shown to relatives, in this context, warning relatives of danger.

Metabiosis; where one organism uses something the first created, however after the death of the first. Hermit crabs that use gastropod shells. Meadow voles use bison skulls as nesting habitat.

Mimicry; the intentional resemblance of one animal to another, in order to deceive predators.

Mutualism; relationship between two individuals or species in which both benefit.

Niche; the functional role of a species in the community, including the activities and relationships.

Obligate dependence; a relationship where one organism is obligated to depend upon another. The Mormon meadowlark butterfly is obligated to live only where the umbrella plant lives. The Greater Short-Horned Lizard is obligated to live in an environment with horizontal Juniper and

relatively open, shale soil types. The black-footed ferret is an obligate predator – it is obligated to live in prairie dog towns.

Opportunistic dependence; a relationship where one organism opportunistically depends upon another.

Omnivore; an animal that feeds on both plant and animal matter.

Parasitism; an interaction between two organisms, in which one organism benefits and the other is harmed. For example, female ticks (the parasite) require a blood meal prior to laying their eggs, and they obtain this through parasitizing an animal such as a moose or deer (the host).

Parturition; the process of being born.

Plantigrade: an animal that walks with the entire sole of the foot on the ground. Bears, people are plantigrade.

Polygyny; mating of one male with several females, similar to polygamy.

Polyandry; mating of one female with several males, whales do it.

Precocial; young animals able to walk or run shortly after birth in order to keep up to their mothers, bison calves.

Ruminant; ungulates with three or four chambered stomachs.

Saltatorial; movement by jumping, as is done by the kangaroo rat.

Seed dispersal mechanisms;

Allochory; Allochory refers to any of many types of seed dispersal where a vector or secondary agent is used to disperse seeds. This vectors may include wind, water, animals or others.

Anemochory; Wind dispersal is one of the more primitive means of dispersal. It can take on one of two primary forms: seeds can float on the breeze like a dandelion seed, or alternatively, they can flutter to the ground like those of a maple tree.

Autochory; Autochorous plants disperse their seed without any help from an external vector, as a result this limits plants considerably as to the distance they can disperse their seed. Two other types of autochory are blastochory, where the stem of the plant crawls along the ground to deposit its seed far from the base of the plant, and herpochory (the seed crawls by means of trichomes and changes in humidity).

Barochory; the plant uses gravity for dispersal of its seeds, and is a simple means of achieving seed dispersal.

Ballochory; is a type of dispersal where the seed is forcefully ejected by explosive dehiscence of the fruit.

Hydrochory; seed dispersal through water.

Social parasite; an animal or bird that uses other individuals or species to rear its young, such as the brown-headed cowbird. The cowbird evolved to travel with bison as they migrated across the great plains. Because they had to stay with the herd to find food, (an obligate dependence), they learned that if they laid their eggs in the nest of another species, the host species would rear their young for them. The newborn cowbirds are often larger, and always more aggressive than the host species, and they dominate the attentions of the parents, often to the demise of the real offspring. They are also referred to as parasitic nesters.

Stochastic; a process characterized by a sequence of random events or variables that cannot be predicted. Three main types of stochastic events affect wildlife populations; genetic, demographic and environmental uncertainty. These in turn affect the survival potential of a population or species.

Subspecies; Subspecies is the rank immediately subordinate to a species. It is a taxonomic group which is less distinct than the primary stock or species from which it originates. The characteristics attributed to a subspecies are generally derived from changes that have taken place or evolved as a result of geographical distribution or isolation from the primary species or nominate form. A subspecies always originates from a common ancestral stock.

Survival Potential; the inherent ability of a species or population to survive; it depends upon three characteristics; 1) its resilience, 2) its fitness, and 3) its ability to adapt and evolve. **Resilience;** The resilience of a population is determined by a combination of; age structure, reproductive potential, social system, and generation time. **Fitness;** is dependent upon the population having the genetic diversity required to cope with prevailing ecological circumstances. **Adaptability;** is dependent upon the maintenance of sufficient genetic variation, of individuals, to permit the species the opportunity to change with changing circumstances. Failure to change leads to extinction.

Sympatric; more than one species that occur within the same geographic area, at the same time. In ecology this usually means that they share ecosystem at the same time, without a lot of conflict. In Grasslands National Park Richardson's Ground Squirrels and the Black-Tailed Prairie Dog often share a dog town. They might not live in the same burrow, but will live in an adjacent one. See Allopatric.

Umbrella species; these species indirectly protect the many other species that make up the ecological community of its habitat. By protecting the habitat of one umbrella species (such as sage grouse), countless other species benefit. See also Keystone Species and Flagship Species.

Univoltine; breeding only once a season.

Warm and cool season grasses; Cool season grasses start their growth early in spring and continue that growth while cool temperatures and rain prevails. Warm season grasses, on the other hand, focus their energy on establishing deep roots during their first and second year of life, and then growing during their second and third year.

Literature Cited

Adams, G. 1986. Archaeological Reconnaissance of Grasslands National Park, 1985. Saskatchewan Archaeology 7:1-24. 1986.

Althen, C.L. 1975, The interaction of circadian rhythms and thermal stress in controlling activity in the black-tailed prairie dog. Ph.D. Dissert., Univ. Colorado, Boulder, 168 pp. In: Clark, T.W. 1986. Annotated Prairie Dog Bibliography, 1973 to 1985. Montana BLM Wildlife Technical Bulletin No. 1.

Bakko, E.B. 1977. Field water balance performance in prairie dogs (*Cynomys leucurus* and *C. ludovicianus*). Comp. Biochem. Physiol. 56A:443-451.

Bergstrom, C.T., and M. Lachmann. 2000. Alarm calls as costly signals of anti-predator vigilance: The Watchful Babbler game.

Blumstein, D.T. 2007. Feeling the heat: Ground squirrels heat their tails to discourage rattlesnake attack. PNAS, September 4, 2007., Vol. 104, No. 36, 14177-14178.

Bryan, L. 1991. The Buffalo People: Pre-contact Archeology on the Canadian Plains. University of Alberta Press, Edmonton.

Bryan, R.D., and M.B. Wunder. 2014. Western burrowing owls (*Athene cunicularia hypugaea*) eavesdrop on alarm calls of black-tailed prairie dogs (Cynomys ludovicianus). Ethology 120: 180-188.

Barber, K., Editor 2001. The Canadian Oxford Dictionary. Oxford University Press.

Clark, T.W. 1986. Annotated prairie dog bibliography, 1973 to 1985. Montana BLM Wildlife Technical Bulletin No. 1. 32 pp.

Dickason, O.P. 1992. Canada's First Nations: A history of Founding Peoples from Earliest Times. University of Oklahoma, Norman, Oklahoma. 589 pp.

Driver, J. 1976. Dogs from Archaeological sites in Alberta. Paper in fulfillment f Archaeology 602. The University of Calgary. Manuscript on file at the Archaeological Survey of Alberta, Edmonton.

Foltz, D.W., and J.L. Hoogland. 1981. Analysis of the mating system in the black-tailed prairie dog by likelihood of paternity. J. Mass. 60;706-712. In Clark, 1986.

Fortenbery, D.K. 1972. Characteristics of the Black-Footed Ferret. U.S. Department of the Interior, Resource Publication 109. 1972. 8 pp.

Forsman, J.T., and T.E. Martin. 2009. Habitat selection for parasite-free space by hosts of parasitic cowbirds. Oikos 118: 464-470.

Friesen, N. 2000. Guide to the Archaeology of Grasslands National Park. In: Smith-Fargey et al. Grasslands National Park Field Guide. Published by Prairie Wind & Silver Sage – Friends of Grasslands Inc.

Garrett, M.G., J.L. Hoogland, and W. L. Franklin. 1981. Demographic differences between an old and a new colony of Black-Tailed Prairie Dogs (Cynomys ludovicianus). The American Midland Naturalist. 108 (1): 51 to 59.

Gauthier, D.A. and J.L. Boon. 1994. Density and distribution of Black-Tailed Prairie Dogs, Grasslands National Park, Canada. Report of the 1992 and 1993 field surveys. Dept. of Geography, Univ. Saskatchewan, Regina.

Gilmore, M. 1977. Uses of plants by the Indians of the Missouri River region. University of Nebraska Press. Reprint of a work first published as the 33rd Annual Report of the Bureau of American Ethnology. Washington, D.C. 1919.

Gummer, D.L., and M.A. Ramsay. 2000. Winter activities of the northernmost black-tailed prairie dogs. Grasslands National Park, Annual Report #5.

Halpern, M., D. Raals, and S. Lev-Yadun. 2007. Plant biological warfare: Thorns inject pathogenic bacteria into herbivores. Environ Microbiol 2007, 9:584-92.

Hilton, B. 2007. Hummingbird internal anatomy and physiology. Hilton Pond Center for Piedmont Natural History.

Holroyd, G., and H. Trefry. 2000. Notes on Burrowing Owls in and near Grasslands National Park – 1998-1999. Grasslands National Park, Annual Report Vol. 5.

Hoogland, J.L. 1978. Prairie dogs avoid extreme inbreeding. Science 215:1639-1641.

Hoogland, J.L. 1979. The effects of colony size on individual alertness of prairie dogs. Anim. Behav. 27:394-407.

Hoogland, J.L. 1983. Nepotism and alarm calling in the black-tailed prairie dog. Anim. Behav. 31(2):472-479.

Hoogland, J.L. 2006. Conservation of the black-tailed prairie dog: Saving North America's Western Grasslands. Island Press.

Johnson, D.L. 2001. Band-winged grasshoppers of the Canadian Prairies and Northern Great Plains. Arthropods of Canadian Grasslands 7: 5-12. Published by the biological survey of Canada, Ottawa.

Kindscher, K. 1992. Medicinal plants of the prairies: an ethnobotanical guide. University Press of Kansas.

Kotliar, N.B. 2000. Application of the new Keystone-Species concept to prairie dogs: How well does it work? Conservation Biology, Vol. 14, No. 6, December 2000. 1715-1721.

Krueger, K. 1986. Feeding relationships among bison, pronghorn and prairie dogs: An experimental analysis. Ecology. 67(3), 1986, pp. 760-770.

Levey, D.J., R.S. Duncan and C.F. Levins. 2004. Use of dung as a tool by burrowing owls. Nature, Vol. 431, Sept. 2004.

Lindzey, F.G. Chapter 33, Badger. Pages 653-663, in Chapman, J.A. and G.A. Feldhamer. 1982. Editors; Wild Mammals of North America, Chapter 43, pp 851-861. The John Hopkins University Press, Baltimore and London.

Lockwood, J.A., and L.D. DeBray. 1990. A solution for the sudden and unexplained extinction of the rocky Mountain Grasshopper (*Orthoptera: Acrididae*). Environmental Entomology 19:1194-1205.

Long, K. 2002. Prairie dogs: A Wildlife Handbook. Johnson Publishing Company, Boulder, CO.

Looman, J. and K.F. Best. 1979. Budd's Flora of the Canadian Prairie Provinces. Agriculture Canada Publication 1662.

Looman, J. 1983. 111 range and forage plants of the Canadian prairies. Research Branch, Agriculture Canada, Publication 1751.

Lyford, ME., S.T Jackson, S.T Gray, and R.G. Eddy. Validating the use of Woodrat (*Neotoma*) middens for documenting natural invasions. Journal of Biogeography, 2004, 31, 333-342.

Manno, T.G. 2007. Why are Utah prairie dogs vigilant? Journal of Mammalogy 88(3):555-563.

McHugh, T. 1972a. The time of the buffalo. Alfred A. Knopf, New York, 339 pp.

McTaggert, I. and C.J. Guiguet. 1978. The Mammals of British Columbia. British Columbia Provincial Museum, Pub #11. 414 pp.

Knowles, C.J. 1985. Observations on prairie dog dispersals in Montana. Prairie Nat. 17(1):33-40.

Olson, W. E. 2005. Portraits of the Bison; An Illustrated Guide to Bison Society. University of Alberta Press.

Owings, D.H., M.P Rowe and A.S. Rundus. 2002. The rattling sound of rattlesnakes (*Crotalus viridis*) as a communicative resource for ground squirrels (*Spermophilus beecheyi*) and burrowing owls (*Athena cunicularia*). Journal of Comparative Psychology. 2002, Vol. 116, No.2, 197-205.

Pagnucco, K., L. Zanette, M. Clinchy, and M.L. Leonard. 2008. Sheep in wolf's clothing: Host nestling vocalizations resemble their cowbird competitor's. Proc. R. Soc. (2008) 275, 1061-1065.

Phelps, S.M., A.S. Rand, and M.J. Ryan. 2007. The mixed-species chorus as public information: Tungara frogs eavesdrop on a Heterospecific. Behavioral Ecology 18:108-114.

Ponomarenko, E. 1998. Reconstruction of natural disturbances history for ecosystems of Grasslands National Park by Ecosystems Archaeology Method. Parks Canada Rep.

Reiserer, R.S., G.W. Schuett, and H.W. Greene. 2018. Seed ingestion and germination in rattlesnakes: overlooked agents of rescue and secondary dispersal. Proceedings of the Royal Society B. https://dx.doi.org/10.6084/rspb.2017.2755

Riley, C.V., A.S. Packard, Jr. and C. Thomas. 1880. Second report of the United Sates Entomological Commission. Washington, DC. Government printing Office.

Rundus, A.S. and L.A. Hart. 2002. Overview: Animal acoustic communication and the ole of the physical environment. Journal of comparative Psychology 2002, vol. 116, No. 2, 120-122.

Rundus, A.S., D.H. Owings, S.S. Joshi, E. Chinn, and N. Giannini. 2007. Ground squirrels use infrared signal to deter rattlesnake predation. Proceedings of the National Academy of Sciences. 104L 14372-14376.

Russell, A.P., and A.M. Bauer. 1993.The amphibians and reptiles of Alberta: A field guide and primer of Boreal Herpetology. University of Calgary and University of Alberta Presses.

Schowalter, T. 2000. Guide to Mammals of Grasslands National Park. In: Smith-Fargey et al. Grasslands National Park Field Guide. Published by Prairie Wind & Silver Sage – Friends of Grasslands Inc.

Seal, U.S., M.A. Bogan and S.H. Anderson, Editors. Conservation biology and the Black-Footed Ferret. Yale University Press.

Seipel and Lavin. No date. Common plants of the North-central C.M. Russell National Wildlife Refuge and Adjacent American Prairie Reserve Lands. Montana State University, Bozeman.

Spry, I.M. 1963. The Palliser Expedition: An account of John Palliser's British North America exploring expedition, 1857-1860. The MacMillan Company of Canada, Ltd.

Shriner, W.M. 1998. Yellow-bellied marmot and golden-mantled ground squirrel responses to heterospecific alarm calls. Anim. Behav., 1998. 55, 529-536.

Stone, E. and C.H. Trost. 1991. Predators, risks and context for mobbing and alarm calls in black-billed magpies. Anim. Behav., 1991, 41, 633-638.

Shipley, B.K. and R.P. Reading. 2006. A comparison of herptofauna and small mammal diversity on black-tailed prairie dog (Cynomys ludovicianus) colonies and non-colonized grasslands in Colorado. Journal of Arid Environments, Vol. 66, Issue 1, July 2006, pp. 27-41.

Slobodchikoff, C.N., and R./ coast 1980. Dialects in the alarm calls of prairie dogs. Behav. Ecol. Sociobiology. 7:49-53.

Smith-Fargey, K, S. Duquette Larson, S.J. Grant, P. Fargey, and C. Schmidt; Editors. 2000. Grasslands National Park Field Guide. Published by Prairie Wind & Silver Sage – Friends of Grasslands Inc.

Stebbins, R.C. 2003. Western Reptiles and Amphibians, Third Edition. Peterson Field Guides.

Streubel, D. 1989. Small Mammals of the Yellowstone Ecosystem. Roberts Rinehart, Inc. Publishers.

Stromberg, M.R. 1974. Group response in black-tailed prairie dogs to an avian predator. J. Mamm. 55(4):850-851.

Stone, E., C. H. Trost. 1991. Predators, risks and context for mobbing and alarm calls in black-billed magpies. Anim. Behav., 1991, 41, 633-638.

Sweet, A.R., R.W. Klassen, D.S. Lemmen, and T.T. Tokaryk. 2000. Guide to the Geology, Paleontology and Geomorphology of Grasslands National Park. In; Smith-Fargey 2000.

Thomas, M. 2009. Dung beetle benefits in the pasture ecosystem. http://attra.ncat.org/attra-pub/dungbeetle.html.

Truett, J.C., M. Phillips, K. Kunkel and R. Miller. 2001. Managing bison to restore biodiversity. Great Plains Research. (Spring 2001): 123-144.

VanNimwegen, R.E., J. Kretzer and J.F. Cully, Jr. 2008. Ecosystem engineering by a colonial mammal: How prairie dogs structure rodent communities. Ecology, 89(12), 2008, pp. 3298-3305.

Vaughan, T.A. 1961. Vertebrates inhabiting pocket gopher burrows in Colorado. J. Mammal. 42(2)171-174.

Vogel, S.C, C.P. Ellington Jr., and D.L. Kilgore Jr. 1973. Wind-induced ventilation of the burrow of the prairie dog. J. Comp. Physiol. 85:1-14.

Von Uexkull, J. 1975. A stroll through the worlds of animals and men: A picture book of invisible worlds. In C.H. Schiller (Ed)., Instinctive behavior: The development of a modern concept (pp. 5-80). New York: International Universities Press.

Wagner, J. n.d. The prairie dogs of Val Marie. The Bluejay, pp 12-17.

Wardhaugh, K. and T. Ridsill-Smith. Anti-parasitic Drugs, the Livestock Industry and Dung Beetles - Cause for Concern? Australian Veterinary Journal, 1998. 76(4):259-261.

Wettlaufer, B. The Mortlach site in the Besant Valley of Central Saskatchewan. Anthropology Series No. 1. Saskatchewan Department of Natural Resources, Regina, 1955.

Wheeler, B.K. 2003. Raptors of Western North America. Princeton Univ. Press, Princeton, NY.

Whicker, A.D., and J.K. Detling. 1988. Ecological consequences of prairie dog disturbances. BioScience Vol. 38, No.11, 778-784.

Williams, E.S., E.T. Thorne, M.J.G. Appel and D.W. Belitsky. 1988. Canine Distemper in Black-Footed Ferrets (*Mustela nigripes*) from Wyoming. Journal of Wildlife Diseases. 24(3). 1988, pp. 385-398.
Subject, Ferrets

York, T.P., and K.M. Capels. 1998. Preparing for the future: Projecting bison herd sizes, market potentials, and the most effective management pathways. In: Irby and Knight, eds. 1998. International symposium on bison ecology and management in North America. Bozeman: Montana State University, pp. 384-395.