

THE RETURN OF THE MARMOT



Through a successful captive breeding program, a group of dedicated biologists are helping reverse the fortunes of Vancouver Island's decimated marmot population.

BY FRANCES BACKHOUSE photography: JARED HOBBS

• Marmot biologists Inge-Jean Mattson (left), Chris White (far right), and veterinarian Malcolm McArdle search for marmots atop "P-Mountain," near Nanaimo Lake.

Our rubber boots squeak on the linoleum as veterinarian Malcolm McAdie leads me past a row of empty pens. Otherwise, the Tony Barrett Mount Washington Marmot Recovery Centre is silent. Our boots are wet from the disinfectant bath we stepped in before entering the marmots' living quarters, and we both wear clean coveralls, latex gloves, and surgical masks.

The centre was built in 2001 by the Marmot Recovery Foundation, a registered public charity funded by government, industry, and private donations to try to save the Vancouver

around in the wood shavings that cover the floor, but she's too close to the cinderblock lower wall for me to get a good view through the wire mesh above. McAdie, the foundation's captive-breeding specialist, takes a key from his pocket and inserts it into the heavy padlock.

"We don't usually do this," he whispers, "but Thelma's been around so long that she's used to us." The clank of the latch echoes down the corridor. He swings the door open and I find myself looking down into the obsidian eyes of an animated plush toy.

Thelma was born in the spring of 2001 in a burrow beneath the slopes of the Mount Washington ski resort. In July, shortly after she and her sister made their first above-ground foray, wolves killed their parents. The biologists who discovered the deaths took the orphans into protective custody. Then, since the recovery centre was still under construction, the pups were crated up and sent to the Toronto Zoo. The zookeepers named them Thelma and Louise.

Just over a year later, they made the return trip, to spend

was prime Vancouver Island marmot habitat, vacant only because the species was on the verge of extinction. If the foursome could reoccupy it, their achievement would mark a turning point in the fight to save their kind. Nobody wanted to think about the possibility of failure—but soon they had no choice. Over two days in the middle of August, a cougar picked off all three of Thelma's companions. The next day, the team recaptured her and returned her to Mount Washington.

Twice Thelma had been saved from a premature death,



Island marmot from extinction. With its indoor and outdoor pens, veterinary surgery room, and quarantine area, it was designed as a halfway house for captive-bred marmots en route to release.

Normally the central Vancouver Island facility is off limits to visitors. But today, with only a few marmots in residence, and none of them bound for the wild, McAdie has made an exception. I saw my first Vancouver Island marmots in the wild near here, on Green Mountain, a few weeks earlier; now I'm hoping for a closer look.

We stop at pen 15, home of the legendary survivor known as Thelma. I can hear her shuffling

Marmot are one of the largest members of the squirrel family, and Thelma appears to be about the size of a hefty housecat. Her coat is a dark chocolate brown and she has a white chest patch and muzzle. McAdie crouches in the doorway and offers her a peanut-butter-smear "leaf-eater" biscuit, a special treat for the herbivorous marmot. Sitting on her haunches, she holds it with her small, hand-like front paws and nibbles delicately. We watch for a couple of minutes, then leave her to enjoy her treat in peace.

the winter in the new Mount Washington facility. While Louise would eventually be moved to the Calgary Zoo, Thelma had been selected to take part in the first release of captive Vancouver Island marmots into the wild—a bold experiment aimed at shoring up the rapidly declining natural population.

On July 2, 2003, McAdie and his colleagues drove a captive-bred male and female, a wild-born male, and Thelma down the island to Nanaimo, loaded them into a helicopter, and flew them 32 kilometres southwest to Green Mountain Wildlife Management Area. The subalpine meadow where the researchers liberated the animals

but her long-term prospects still looked grim.

After 25 years on the federal endangered species list, *Marmota vancouverensis* was in worse straits than ever. Seventy-seven marmots were living in captivity. Only 22 were known to be hanging on in their natural haunts. McAdie could have loaded the entire world population of wild Vancouver Island marmots into the back of his Nissan pickup truck without crowding them in the least. And the temptation to do so—to scoop them up and remove them from the treacherous world of sharp-toothed predators and other threats before they all succumbed—must have been strong.



• The golden rays of a setting summer sun highlight an alpine meadow atop Green Mountain, where abundant vegetation has been a rich food source for generations of marmots. opposite: The marmot breeding facility on Mount Washington was designed as a halfway house for captive-bred marmots en route to release.

One month before I met Thelma, I visited the place where she had her second brush with death. On a hot July afternoon photographer Jared Hobbs and I bumped our way over increasingly rough logging roads until we could drive no farther. Then we started hiking.

From the early 1960s to the early '80s, a group of downhill skiing enthusiasts ran a ski hill on Green Mountain. Our route followed the steep track of an

Green Mountain's rocky summit on the south and west sides offer everything a Vancouver Island marmot could desire: a spring-to-fall banquet of grasses, sedges, and flowers; soil soft and deep enough for burrow excavation; rock outcrops for lookouts; and a microclimate that ensures early snow melt. For human hikers they also offer panoramic views of forest-clad peaks and distant, glinting ocean—but we weren't there for

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old T-bar lift through dense stands of lichen-draped conifers and past the ruins of the abandoned ski lodge. Forty-five sweaty minutes after leaving the truck, we reached marmot heaven.

Although dispersing juvenile Vancouver Island marmots occasionally wander down to sea level, their breeding habitat is extremely restricted. Colonies are confined to small subalpine openings on steep, south- to west-facing slopes at elevations of 900 to 1,450 metres in the Vancouver Island Ranges. None of B.C.'s other three marmot species (the yellow-bellied and hoary marmots and the woodchuck) has such a limited range or is as imperilled.

The precipitous meadows that wrap around the base of

the scenery. Hobbs, who was familiar with the site from previous visits, soon had us stationed in a prime spot, and within half an hour we were watching marmots forage and lounge about near their burrows. The most exciting thing they did was exchange nose-kisses, but seeing them was enough of a thrill.

The commotion of the ski hill apparently never bothered the marmots, which typically hibernate from late September or early October to late April or early May. But the logging operations that scaled the surrounding mountainsides during the same era proved less benign. At two years old, many marmots leave their birth families to look for new homes. Some join existing colonies, while others pair up and settle

in vacant habitat. In 1981, biologists were surprised to find a new colony in an alien location—a logged cutblock on the east side of Green Mountain.

Over the next decade, dozens more marmots dispersed into clearcuts downhill from the natural meadows where they were raised. The number of colonies and marmots climbed steadily, rising to a peak population of 300 to 350 in the mid 1980s. And then they nose-dived. In 1990, marmot numbers dropped below 200. By the end of the decade, they had descended into the double digits.

● above: **Marmot biologist Sean Pendergast prepares to be picked up from a marmot release site in high alpine habitat in Strathcona Provincial Park.**

opposite: **Biologist Chris White relies on telemetry equipment in his work to locate and monitor marmots in Strathcona Provincial Park.**

Don Doyle has been counting Vancouver Island marmots one way or another since 1982. Back then, he was a BC Ministry of Environment wildlife biologist. Now, one year into retirement from his government job, he still chairs the 13-member Vancouver Island Marmot Recovery Team that was formed in 1988. No one really knows what caused the population crash, says Doyle. “That's the million-dollar question.”

they could safeguard some marmots and get them procreating, eventually they might be able to augment the wild population.

Between 1997 and 2004, they captured 55 animals, mostly pups and yearlings, and installed them in four facilities: the Toronto Zoo, the Calgary Zoo, the Mountain View Conservation and Breeding Centre in Langley, and the purpose-built Tony Barrett Mount Washington

After the Green Mountain calamity, McAdie was wracked with doubt. He recalls wondering whether it was even possible to get captive-born marmots through their first summer in the wild, let alone to the point of reproducing. “You don't know at first how captivity has altered a wild critter,” he says. “Do they know how to recognize predators? Do they know what to eat? Do they know to use a burrow?”

In 2006, Haida and Onslow, who had been released in 2004, became the first captive-born pair to breed in the wild. “It was such a breakthrough moment to go out there and realize that Haida had actually had pups,” McAdie recalls. Since then, he adds, sounding like a proud uncle, “some of her pups have had pups, and she's probably got great-grandchildren this year and they're all bouncing around out there.”



Initially, observers blamed the unnatural habitat created by logging. Now the recovery team places more weight on increased predation by the marmots' three main enemies. “There was a surge in cougar numbers in the '90s, all across western North America,” Doyle notes. “We also had wolves recolonize the area. We had golden eagles.” Human activities undoubtedly contributed to the changes in predator numbers, but in Doyle's opinion, “the proximate cause of the decline was that the marmots were being eaten faster than they were reproducing.”

As the population plummeted, the risk of losing the species to a single catastrophic event, such as a disease outbreak or extreme weather conditions, escalated. In 1996, the recovery team decided the best hope of success lay in captive breeding. If

Marmot Recovery Centre. They also established the recovery foundation to fundraise, increase public awareness, and carry out the centre's day-to-day business.

The birth of the first captive litters in 2000 was a joyous occasion during an otherwise bleak period. By 2003, only six or seven breeding females remained in the wild, and the last two viable colonies—one on Mount Washington and the other on Mount Moriarty, near Green Mountain—lay 95 kilometres apart. In marmot terms, they might as well have been on separate continents. With a burgeoning population of captive-bred marmots, it was time to see if they could reverse their species' fortunes by releasing Thelma and her fellow pioneers.

As it turned out, the new recruits had most of the right instincts. They just needed a little extra help. For the next few years, as the releases continued, “shepherds” (several dozen paid staff and volunteers) provided vulnerable colonies with round-the-clock security from spring through fall. The human presence may have repelled cougars and wolves, while bear bangers proved effective for scaring away eagles.

The half-dozen marmots I saw on Green Mountain during my day there were also products of the captive-release program: descendents of Elvis, originally from the Mountain View centre, and Meadow, a wild-born female who was relocated from Mount Moriarty. Hearing their shrill calls and watching them graze on purple lupines, I felt privileged to make their acquaintance, an opportunity that was so nearly lost for everyone.

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The Vancouver Island marmot recovery strategy goal is 3,400 to 4,600 animals divided between three metapopulations—geographically isolated populations representing the naturally far-flung distribution of the species. The target locations are: the Nanaimo Lakes region, which includes Green Mountain and Mount Moriarty; Mount Washington–Forbidden Plateau; and western Strathcona Provincial Park–Schoen Lake. Currently, the free-living population stands at about 350, but its concentration in the Nanaimo Lakes region and at Mount Washington means that the costly captive-release program, funded by the Marmot Recovery Foundation, remains vital.

The 55 wild marmots that were brought into the captive breeding program between 1997 and 2004 have now produced 515 pups, and 408 of the captives have been released. “If they survive their first year, their subsequent survival rate is almost identical to wild marmots,” Doyle says. Any deaths during that year could be due to a misjudgement in hibernation timing. With fat reserves depleted, waking up even a few weeks early can be fatal, especially when spring arrives late after a harsh winter.

• A marmot and her pup scan the summit of Green Mountain for approaching predators, such as wolves, cougars, eagles, or bears.

Fortunately, an experiment in supplementary spring feeding at Mount Washington appears to be boosting first-year hibernation-survival odds. Two years ago, the recovery team tried filling lengths of PVC pipe with the leaf-eater biscuits I watched Thelma eat and placing them where marmots had emerged through the snowpack. “We could hardly fill them fast enough,” Doyle says. “We’d see them shaking the pipe and sticking their heads in and throwing biscuits all over the place.” Besides keeping the rookies alive until green-up, the extra calories also benefitted the veterans, resulting that first year in “an explosion of pups like we had never seen before.”

The success of the feeding experiment has also changed the Mount Washington recovery centre’s operations. Previously, all release candidates stayed there over winter to habituate to local conditions, but that didn’t solve the hibernation problem. Now, newcomers will spend one winter in natural burrows beneath the ski runs, enjoy free breakfast upon waking, then be recaptured and transferred to sites where room service is less feasible.

While the centre is no longer involved in the captive breeding program, it will still be used in spring and summer as a holding facility, and to prepare new arrivals from the captive populations for release. Wild catches are also brought into the facility prior to transport. In winter, though, the cages that once housed as many as 98 sleeping marmots will be empty.

As we walk back past the vacant pens, McAdie tells me he’ll be shipping Thelma and the other remaining residents to Langley and Toronto shortly. After producing four litters during her time at Mount Washington, Thelma may be too old to breed again, but McAdie believes she deserves a good retirement. “She really has been part of the whole thing,” he says.

Much has changed in her lifetime. And while there’s still much to be done, there’s more reason than ever to be hopeful. ☺

EPILOGUE: Thelma died last winter while hibernating at the Mountain View Breeding and Conservation Centre in Langley. At 11 years of age, she was nearing the limits of the known Vancouver Island marmot life span.

WEB EXTRAS
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Learn more about marmots with our five fast facts.



WHERE

The best place to view Vancouver Island marmots in the wild is Mount Washington Alpine Resort (mount.washington.ca), 25 kilometres west of the Comox Valley. Take Highway 19 to Exit 130 (Dove Creek Road and Strathcona Parkway), and then follow the Strathcona Parkway 18 kilometres up the mountain. Summer visitors regularly spot marmots from the Eagle and Hawk chairlifts and on ski runs such as Hawk, Invitation, and Rick’s Ride.

INFO

- **The Marmot Recovery Foundation** (marmots@telus.net; http://marmots.org) runs the recovery program. You can help by donating money or sponsoring a marmot.
- **The Vancouver Island Visitor Centre** (discovercomoxvalley.com/explore/vancouver-island-visitor-centre). The marmot display features a life-sized model burrow, a taxidermy mount, and a video on the recovery program.
- **Tourism Vancouver Island** (250-754-3500; vancouverisland.travel).