WOLVERINE:
Chasing the Phantom
1 x 60 HD Film for NATURE

A phantom slips through the forest, as a pristine mid-winter morning graces the Sierras. Fresh snow blankets the woodland, steeping it in a reverential quiet. Then, at exactly 8:05 a.m. on February 28th 2008, a camera shutter releases with a single click. And in that moment, a ghost of California's wilderness is captured.

The snapshot reveals a wolverine, a creature thought to have disappeared from the California wilderness over 80 years ago.

A remote sensing camera set to capture images for a research project on the American marten, instead captured its larger, more elusive cousin. And with that single grainy image, so begins a full-mounted effort to find this phantom. . .

Our story launches with the breaking news footage of the Sierra wolverine.

Katie Moriarty, the researcher whose camera captured the wolverine, coordinated a massive, collaborative effort by various agencies to learn more about this mystery animal. A troupe of volunteers, researchers, helicopter pilots and even highly-trained, scat-sniffing dogs swarmed in to canvass 120 square miles of the Tahoe National Forest in search of this animal. The last wolverine documented in California was in 1922, so the team pulled out all the stops to identify this animal.

"I was shocked to see a wolverine turn up on my camera," says Katie. "We thought they were long gone from this area, so we really need to find out who this individual is and where it came from."

The still image of the wolverine transitions into footage of a ghostly wolverine in the snow.

This largest and rarest land–dwelling member of the weasel family once ranged throughout tundra and high mountain habitat from Europe and Siberia through Canada and Alaska, and across half of the lower 48. Today, their population and range has shrunk considerably due to hunting and habitat loss.

An animated map illustrates the historic range of the wolverine, worldwide.

After 2 weeks of full-on searching, the effort turned up no evidence. "It's like the wolverine simply vanished into the wilderness," says Katie. "We didn't even find a single track! Hopefully, it will show up again."

Who is the wolverine? Shrouded in mystery, the wolverine has been portrayed throughout history as a solitary wanderer on a bloodthirsty quest through the Northlands. As one of the rarest and least-studied animals on the planet, the wolverine has garnered a public image that teeters between comic book legend and hellion of the wild.

We explore the fearsome reputation of wolverines through myth and folklore. Man-on-the-street interviews reveal how little the general public knows about them and just how misunderstood they really are.

We are transported to a dramatic Alaskan landscape. Sailing over shimmering blue-white glaciers and snow-capped peaks that rise like cathedrals over the snowfields, we descend to a cabin perched on a hill, surrounded by forest.

It's a wintry mid-March morning in Haines, Alaska. A man in his mid-forties stands at his cabin window, looking through binoculars. His sight is trained on a culvert, covered in a foot of snow. "She's been in there for five days, straight," he says, his voice strained thin with nervous anticipation. "She's only come out a few times to eat and then disappears again. It's got to be happening." He takes a deep breath and paces before lifting the binoculars to his eyes again. "This is torture."

What Steve Kroschel is tortured over is the prospect of whether or not he will soon be a new "dad." If it happens, it will be the first time in 16 years. But more than that, it will be one of the rarest events ever to occur in captivity – a wolverine birth.

There is perhaps no one who better understands captive wolverines than Steve Kroschel. Having grown up surrounded by wildlife in rural Minnesota, this self-taught naturalist-turned-filmmaker developed a special connection to wolverines early on. Now he along with his 16 year-old son, Garrett, runs a conservation education facility to teach the public about them.

"Jenny," one of Steve's two females, is about to give birth – or so he thinks. She seems to be displaying the behavior of an expectant mother, but wolverines are expert at concealing pregnancy and there is often no way to know for sure until the day kits arrive.

Jenny had been in a breeding program at the Alaska Zoo, but refused to mate. Female wolverines are choosy when it comes to mate selection and tend to have only one breeding partner. That may explain why wolverines are among the lowest density animals on earth and extremely difficult to breed in captivity.

Zoo administrators felt Steve's compound may offer a better environment for courtship. And they were right – within a few weeks of her arrival, Jenny mated several times with one of Steve's two male wolverines. But mating does not insure pregnancy. So now, eight months later, all Steve can do is wait and hope . . .

We are introduced to the wolverine through Steve's archival film footage. Here we begin to see that the animal Steve has come to know through his life long experience is an animal that science is just beginning to recognize.

Through the white-out of a raging blizzard, three ghostly shapes emerge, pushing through the weather as they ski toward the camera.

This is wolverine country – remote, rugged and profoundly raw. Wilderness at its most elemental, there is perhaps no better wolverine habitat in North America than Glacier National Park; and as our camera sweeps over the craggy granite pinnacles and wind-lashed buttes, we can see why.

To master this million-acre landscape – especially in winter -- one must be a pretty tough critter. And as wolverine biologist, Rick Yates and his hardy band of volunteers press on against 40 mph headwinds, it becomes starkly evident that it takes a tough critter to study a tough critter.

Because of their remote habitat, low numbers and extreme mobility, the wolverine's status in the Lower 48 is virtually unknown. But Rick has set out to conduct one of the first and most comprehensive studies every attempted, here in the heart of the Rockies. New technology such as GPS has allowed the team to access the world of wolverines as never before, shattering long-held theories about them.

"We're just out to answer the basics," says Rick as he and his team battle the elements to assemble a baited hair-snag in the middle of a frozen lake. "We need to find out who's out here, where they are going, who they are traveling with, and how they survive."

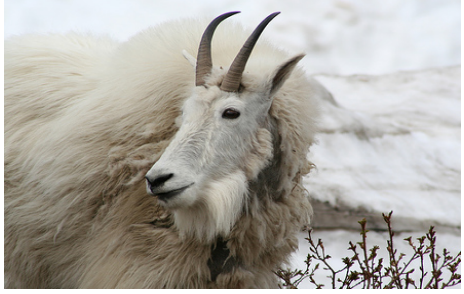
Wolverines are survivors by design. Equipped with their very own specialized "winter gear," they are custom-built to live almost exclusively in cold, snowy regions. Their unique frost-resistant fur helps brace them against the harshest conditions, and powerful legs and broad, snowshoe-shaped feet propel them epic distances over snow. But the survival technique these animals are perhaps most notorious for is their so-called "gluttony."

Gulo gulo, the Latin name for wolverine, means glutton. But just how deserving are they of this alias? Biologist and writer, Doug Chadwick has been volunteering with Rick's team for 5 years and currently writing a book about wolverines called, "The Bone Eaters." As he tethers a beaver carcass to the hair snag as bait, he helps to shed some light on how the wolverine got saddled with such a *sinful* reputation.

"The wolverine will eat as much as it can of anything it can get," he says. "That's why some call it a glutton." But what better strategy to survive the brutal winter conditions, feed kits in the depth of winter, and have the energy to search the vast frozen distances necessary to find enough sustenance? Eat all you can whenever you can, fast, store up body fat against the lean times, and cut up and cache the rest. "That's not gluttonous," he adds, "that's just smart."

For its size, the wolverine is thought to be the strongest mammal on earth. "A wolverine can easily take down prey as large as a moose," Rick says. "And they're tough enough to drive a grizzly off a carcass."

Investigating a cache site, the team finds the remains of a mountain goat, the wolverine's favorite food source in this region. All that is left is a piece of jawbone. "Larger predators usually leave skulls and leg bones intact," Doug tells us, "wolverines won't. They'll come in and crack them to pieces. They aren't just trying to get at the marrow and other rich morsels inside. They eat the bone too."



Autopsies on dead wolverines reveal notably big hearts, lungs, thyroid glands, and stomachs -- and the stomachs are inevitably packed with shards of bone. Hard as bone may be, it is a living tissue with blood, fats, and other nutrients packed within its mineralized structure. Wolverines rely heavily on that fact as they devour and then slowly digest the skeletal scaffolding of other mammals to get through the leanest months.

Archival footage depicts a wolverine feasting on a frozen carcass, buried in the snow. We examine their powerful neck and shoulder muscles, specialized teeth which are rotated 90 degrees to cut through frozen meat, and jaws that exert more than 2300 pounds of pressure per square inch – far greater than that of a wolf.

After canvassing the area, the team discovers a fresh set of wolverine tracks and they revel in the finding. "It never ceases to amaze me to see a set of tracks in the snow in the highest, most rugged country in the wilderness," says Rick. "They not only go where no other animal will dare to go, but thrive where other animals would never survive. You think a bear is tough? Ha! A bear sleeps off the winter. These guys just keep motoring."

"What these animals are capable of is beyond human ability," adds Doug. "When you choose to study the wolverine, you have to realize that you are always going to be chasing a phantom."

From the tracks, the camera pans up a mountain and pulls out, revealing the men as tiny figures in an infinite landscape.

Though wolverines are among the toughest creatures on earth, they're also among the most vulnerable. Wolverines favor habitat far from humans. But even in places like national parks, winter recreationists are finding ways to access those areas more readily. "Females will not den in places where there is a lot of human activity," says Rick. "So

activities like snowmobiling could be having a significant impact on a population that is already extremely low."

Researchers are also looking into how climate change may be affecting reproduction and there is concern that global warming could have a catastrophic effect on the species. Wolverines seek eight to ten feet of spring snow when choosing a natal den. This protects their kits from thermal loss and larger predators like bears wolves and mountain lions. Such areas are becoming increasingly rare and if the earth continues its warming trend, it could put the species in grave danger.

Despite researchers concerns about dwindling population in the Lower 48, Montana is the only state that continues to permit wolverine trapping. The quota of 9 animals per season sounds like a small number, but Rick puts it in perspective: "This is actually a bigger problem than it seems because these animals move over such great distances and reproduce at such low levels. A female wolverine will only form a reproductive bond with one male, and if he dies, she will never choose another mate. Males, on the other hand, may be mating with several females across his enormous home territory. So if that male is taken out, it could have a significant ripple effect on the population."

And even though trapping is illegal in other states, there is nothing to prevent wolverines from exploring traps set for other animals. When a wolverine accidentally wandered into a trap set for a bobcat in Idaho, she sustained injuries that required partial amputation of her foot. After much debate about whether to send her to a zoo or return her to the wild, authorities working in conjunction with the Wildlife Conservation Society, decided to release her. As part of a wolverine study in the Greater Yellowstone area, WCS biologists fitted her with a transmitter and sent her off with the name F546 and the great hope that she would somehow survive.

Of course, the biggest obstacle wolverines may face is their PR problem. "The wolverine is a large, important carnivore that is either completely misunderstood, or completely unknown," Rick says. "Even though they are arguably more at risk than polar bears, grizzlies, or wolves, there is very little public support for their protection. We pay attention to wolves because they eat our livestock. We pay attention to bears because they get into our garbage and ransack hunting cabins. Wolverines stay out of our way – and that's a good thing. The problem is that because they are off the radar, people don't have the opportunity to care about them. We need to change that."

With all they seem to be up against, wolverines seem to be the perfect candidates for protection through the Endangered Species Act. Though they have gone up for listing twice in recent years, the petitions were denied on the basis that there is simply not enough data on them. "It's a Catch-22," Rick tells us. "Until we have hard data to support just how few of them there are in the wild, they can't be listed. But, we can't get enough funding to conduct that kind of extensive research *unless* they are listed! Meanwhile, we keep expanding further and further into their habitat, without knowing the full ramifications of our impact."

A small boat slices through the icy waters of a fiord as a small, long-haired woman weaves between icebergs and guides the craft to shore.

One woman that has wolverines very much on her radar is Dr. Audrey Magoun. The coastline of Southeastern Alaska may seem an unlikely place for a wolverine study, but Audrey, "The Den Mother" of wolverine research, knows when to trust her instincts. Audrey has spent the past three decades patrolling areas off the beaten path in order to unlock the secrets of these marvels of the wilderness. We first meet up with her in Petersburg, Alaska where she is conducting the first-ever study on wolverines in a coastal region.

Audrey is working to piece together the portrait of the wolverine in the Alaskan wild – quite literally. Hoisting a case from the boat, she marches with it into the snow-laden old growth forest. Today she is setting up the last of 30 baited camera traps that she has peppered across her 3,500 square mile study area in order to get a complete picture of wolverine activity in the area. Some are still cameras, some are infra-red video and all are rigged in a way that will capture the wolverine's individual markings. As each wolverine has a unique throat pattern, Audrey is able to identify specific individuals. So far she has identified at least 19. And each one seems to have a personality as unique as its "mug shot."

As we shuttle through a series of photos, Audrey shares stories about a few of her favorite usual suspects: We meet Moonshine, Snowstorm, Sarge, and Zig Zag. Sometimes, other creatures heed the call to the camera. Audrey shows us photos of eagles, moose, and her latest surprise, an enormous black bear.

Though Audrey's cameras have captured countless images of wolverines over the years, she has only ever seen them in the flesh a few times. She explains why their secrecy makes them difficult, yet intriguing to study. "There's a lot of detective work involved with wolverine research," she says. "My apologies to grizzly researchers out there," she jokes, "but bears are relatively easy to study because you can actually sit and watch them. I've even sat and watched wolves at a den for days. That doesn't happen with wolverines. They're just always on the move or hidden away from people. *But,"* she adds, "thankfully for me, they are extremely curious, so if I have a camera set up for long enough time, they'll eventually go up and get their picture taken – they just can't help it."

Paparazzi style night vision video shows a wolverine "caught in the act" playfully rolling around and scent-marking a tree.

Back in Steve Kroschel's cabin, a bittersweet surprise. We find Steve bottle-feeding two tiny white kits. "Meet Jasper and Banff," Steve coos as any proud new father would. But, as it turns out, these kits are *not* Jenny's -- it was a faux pregnancy for her, a phenomenon called a "maternal event."

It was Steve's 16-year-old female, Star – a wolverine he raised from a kit herself -- who shocked him with this birth of twin males! Sixteen is the average lifespan for a wolverine in captivity and no wolverine had ever been known to reproduce at such an advanced age. But the joy of the occasion is tinged with sadness as the birth proved too much for Star, and she did not survive it. Steve is heartbroken, but his grief is coupled with a renewed commitment to raising these orphaned kits as ambassadors of their species.

We step into Steve's archival footage and he takes us through the evolution of his relationship with this creature, and in particular, the kits' mother, "Star."

"Since I was very young," he tells us, "I felt a special kinship to the wolverine and I wanted others to understand them the way I did. They have been saddled with the reputation of a monster, but that couldn't be further from the truth – just look at these little guys. If people could get to know who they really are, they would simply fall in love with them."

We will follow Steve over the course of a year as Steve and Garrett raise Jasper and Banff. Without their mother to learn from, Steve must play "Mr. Mom," caring for them and teaching them the way of the wolverine. We witness the day to day life of raising wolverines and documenting on film their adventures of growing up.
An airplane propeller whirrs and buzzes. Audrey climbs into the back of a tiny plane and adjusts her helmet. A man in a camo vest takes the controls as the plane takes off. We sail above the vast Alaskan wilderness, over glaciers and mountains, lakes and waterfalls.

As winter melts into spring, we meet up with Audrey and her husband and field partner, Patrick Valkenburg, on a telemetry flight. In addition to her camera work, Audrey is also tracking the locations of five wolverines that she has radio-collared. From the air, we experience the spectacular glacial, mountain, and old growth terrain her vast study area encompasses and we hear the occasional blips and beeps of the collared individuals, hidden in the wilderness below. "Wow," announces Patrick as he marks some coordinates in his notebook. "Mariner has really traveled a long way since yesterday – almost to the border!"

"I think he's got a Canadian girlfriend," chuckles Audrey.

Audrey explains the wolverine's insatiable need to keep moving. "They'll truck along at a consistent 5 miles per hour, no matter what the terrain." With broad feet that serve as natural snowshoes, wolverines easily scramble over 10,000-foot snow-covered mountains, skit across scree fields and lope through lichen-draped forests, sometimes covering 40 miles in a day. A male's home range can span 500 square miles – about the same as that of a grizzly, which is 10 times its size.

Though they are keeping tabs on all five wolverines, today Pat and Audrey are on the lookout for one wolverine in particular -- "Sunshine." She's pretty special – and we're about to find out why.

We tap into Audrey's field video footage as she recounts the story of Sunshine's capture:

Audrey approaches a wooden trap and we hear a fierce growl. A peek inside reveals a wolverine curled toward the back, snarling and foaming at the mouth. After sedating the animal, Audrey examines it and is elated to find that it's a female – and she's lactating. This is exciting news because it means she may have kits in the area. The team works quickly to equip her with a satellite collar so they can track her by GPS and radio telemetry. Audrey decides to call her Sunshine, as she was the only one captured during the day. After being collared, she is released. We watch as Sunshine rockets off into the wilderness. But now, we are privy to her secrets – at least some of them.

We transition back to present time. As the plane soars above the snowfields in search of Sunshine, it is plain to see that visually locating an animal in this landscape is virtually impossible. "Getting a visual on this animal is like finding a needle in a haystack," she says. "Make that a 3500 square-mile haystack!"

Finally, Patrick picks up a signal and the plane banks in a tight circle to try to zero in on it. "There she is!" announces Pat. The camera pans the ground, but she has already vanished. But getting a positive location on her is key. "Sunshine has been spending a lot of time in this area and only making short forays out for food, suggesting that she has a den where she may be keeping kits," Audrey says cautiously. "But unless I can get a photo of them when they venture out with mom this summer, I just won't know for sure."

The plane sails off across a glacier and we dissolve to a shot of a snow-capped mountain. From the snowy peak, we pan down to reveal a young wolverine kit, perched on a tree snag in the foreground. We watch as he clumsily tries to make his way down the slope of the snag.

It's now late-June and Jasper and Banff are 4 months old. They are at a playful and curious age.

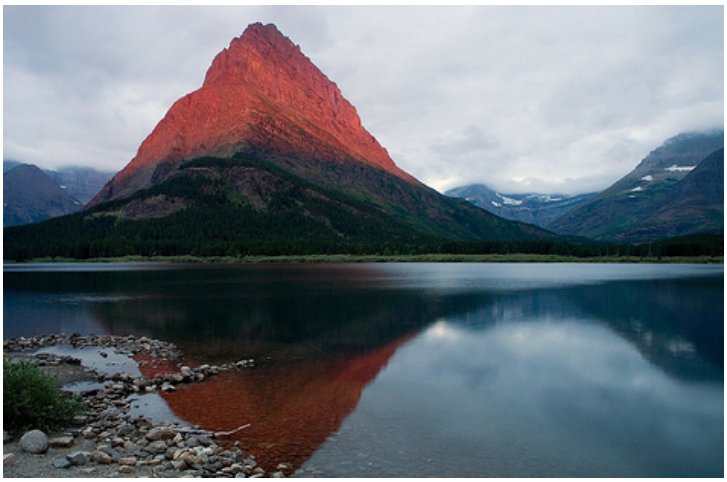
Steve is teaching Garrett how to load a film camera and talks about his quest to tell the wolverine's story through the eye of the lens. As father and son head out to film, Jasper and Banff scamper behind. They busily explore their surroundings, but never stray too far from Steve. Although they would never survive in the wild without their mother, Steve does what he can to give them as near an experience of wild freedom as possible. And though they are captive reared, their natural instincts are in full swing. We see Jasper and Banff as curious, playful, and mischievous brothers (as they attack the film camera). As he films them climbing trees, taking their first swim, and wrestling each other, Steve relates their behavior to what they would be learning from their mother at this age.

We segue from Steve's footage of a wolverine mother on a hunting foray with her kits to three mountain goats standing sentinel over the majestic landscape of Glacier National Park.

Rick Yates scrambles over the rocky backcountry terrain, out to collect more clues on the park's resident wolverines. He finds a rendezvous site – a den that a wolverine has been using in the short term. He examines fresh scat and bone fragments and concludes that it has been used within the past few days. "This is F25's home range, so she may be using this site," he says, adding: "of course, she could also be fifty miles away by now."

One thing Rick seems to have in common with wolverines is their tenacity. "These guys are completely undaunted by time and space," He tells us. "If they want to get somewhere and there's a mountain in the way, heck, they'll just go for it."

With the help of CGI, Rick introduces us to the feats of M1, a legendary male who traveled over a thousand miles through the park, festooned with a GPS collar which recorded his movements at five minute intervals, ultimately providing over 18,000



locations. Rick points to a peak in the distance. "He made countless ascents over Grinnell Point," he says. "That is one steep 9,000 foot climb. I gave it a shot in summer and had to turn back before I got half-way." He laughs, "I thought I was going to die!"

"And then there's M3 – he's M1's son," Rick adds. "He may have had a thing for showing up the old man, because he summitted Mt. Cleveland -- over 10,000 feet -- in 90 minutes! And he did it in the middle of winter!"

As the technical data from the study is being assembled, a surprising picture of this animal is beginning to emerge – especially with regard to their social lives.

An animated map depicts the movements of a pair of wolverines over several months, as Rick deciphers the data his team has collected.

"We discovered some pretty exciting stuff," he tells us. "Wolverines have a reputation for being loners, but we documented family members as well as unrelated males and females traveling together outside of mating season," he says. "We also found them at times setting off on separate routes and then meeting up again at rendezvous sites hundreds of miles away!"

The team has also found evidence of strong pair bonding. When a female was trapped for research purposes outside of breeding season, she had apparently been traveling with a male. "He stayed all night and the following day until they let her go," says Rick. "Even under the stress of the presence of several of humans handling her -- still that male stayed by her." On another occasion an older male was found in a den with a female and her young. "This completely blows away the 'solitary wanderer' theory," he says.

Perhaps most fascinating is that the male appears to participate in rearing kits. "We've found the kits traveling with their father on a number of occasions. This is completely unheard of in carnivore species, except for the most social animals!" Rick exclaims. "But it makes perfect sense. By taking his young under his wing and teaching them how to hunt the way he does, the father ensures the health of his offspring."

Glacier in late August brings all its residents out to enjoy the last tastes of summer. Goats and bighorn sheep graze by their young, a marmot lazes on a rock basking in the warmth as its smaller cousin, the pica, busily gathers its last morsels before heading underground for the coming winter.

Rick explains why Glacier is such great habitat for wolverines, but is careful to point out that Glacier's population should not be viewed as an indicator of the health of the population as a whole. "Glacier National Park is wolverine nirvana," he explains. "They

have everything they need here, from food, to snow, to unadulterated wilderness, so they are able to eke out a living. But, to survive as a species, they need to disperse out the park, and once they do that, all bets are off. It's a tough world for a wolverine out there."

As the sheep stand grazing, a marmot suddenly sends out an alarm call in a piercing whistle. The sheep startle. Something is afoot. And then, out from the grass, a wolverine approaches and the sheep bolt. The wolverine turns once toward the camera and we see a flash of her ear tag before she disappears into the brush.
Rick later identifies her as F25. "Man, it's good to know she's still alive and well. She obviously knows she's got a good thing going here."

The footage plays out again in slow motion and we are reminded just how rare this sighting is.

A helicopter sweeps over tree-clad mountains and follows along a river, before setting down on the bank. Audrey climbs out of the chopper.

Audrey hauls a deer carcass into the woods and installs still and video cameras in the area where Sunshine is thought to be keeping her kits. She explains that dens are the Holy Grail of wolverine research.

"First of all, you have to find a female that's reproductive and then you have to be lucky enough to find a den – and that doesn't happen very often. We were able to do it, but now we want to show that she really did have babies there. Hopefully, we'll get he evidence we need." She explains the importance of locating viable den sites in order to make informed decisions on managing wolverine habitat.

It's early Fall in Haines, Alaska and Jasper and Banff are nearly fully grown. Steve steps onto the scale with Banff -- now 40 pounds! Today, Steve is heading over to the elementary school for a wolverine presentation.

Inside the classroom, the kids' excitement is palpable. As they prepare for the presentation, we find out what they know—or think they know -- about wolverines. "They're scary," says one little boy. "They can eat two bears a day!"

Steve introduces Banff to the group of wide-eyed children and shows some video footage of wolverines in the wild. He captivates the audience with his hands-on lesson on wolverine ecology. The kids are won over. Back in his cabin after the presentation, Steve recounts the success of the day. The kids' reactions give him hope. "Most people have never seen a wolverine, yet they have this deep, predisposed fear of them. It's terrific to see that fear melt away. Hopefully, meeting them now might make a difference in how they vote someday. It's code-red for wolverines, so they could use a few more friends out there!"

A helicopter emerges from behind a mountain, headed once again on Audrey's field site.

Today Audrey is going back to collect her cameras in the hope that they have captured the image of the wolverine she has been searching for -- Sunshine. "This is the moment of truth," she says.

"It's like panning for gold," says Audrey. "You're never sure if you'll find anything, but it's really exciting to look – and then when you get something, you get pretty darn excited about it!"

As Audrey enters the area where the camera traps were set, she finds the video cameras lying on the ground. "Oooh, bear," is all she says. And then we see it – footage of a black bear approaching the camera, its nose right up to the lens. The camera shifts and all goes black.

Despite the fate of the video footage, Audrey still holds out hope for the still camera. Later in the quiet of her cabin, as she begins to scan the images, we watch her expression change from hope to disappointment. Again, we see image after image of a black bear: eating the carcass, moving the carcass, sleeping on the carcass. "Darn, she says. "No wolverine shots at all."

But then, she makes a shocking discovery. After thousands of bear images . . . a wolverine! Audrey is dumbfounded. "There are four thousand pictures of bears," she says. "And then, somewhere around number 4700, there's a wolverine chewing on cleaned off, dry bones!"

Taking a closer look, she informs us that it isn't Sunshine, but a male she calls "Paleface" who roams the area. And if that weren't enough of a surprise, several shots later, a smaller wolverine appears in the frame – one that Audrey can't identify. "It's not giving me enough of a chest pattern to identify who it is." It could be Paleface's kit, or perhaps his mate.

Though it's not the wolverine she was out to find, Audrey is excited to see a new face. "It's kind of exciting to see there is a new wolverine in town," she says as we shuttle through the images of the pair.

Back in the air, we soar over the immense, rugged Southeast Alaskan terrain and Audrey realizes that in this great wilderness, Sunshine may just keep her family secrets to herself. "We may never know if she had kits or not -- that's just the way it goes with these guys."

But it's that mystique that energizes her. "There's something about the essence of wolverines that makes things wild and special for me," she muses. "The northern wilderness areas that I love are what wolverines love, and I know that if there were no wolverines in Alaska, it wouldn't be as an exciting place for me."

In terms of her own research, Audrey feels she is just getting started. "After 30 years, I feel like I'm just beginning to crack the nut on what this creature is all about. I know I'll be out there following them until I can't move anymore. And then," she chuckles, "I'll take all my footage and make movies and write books about them."

From the air, we see a man with a backpack and telemetry gear cresting the ridge of a mountain.

Rick Yates is once again headed for the hills -- this time, outside the park. He is trying to pick up a signal on M1, who he believes may have dispersed since his son, M3 took over his home range within the park.

Sadly, once again the petition to list the wolverine as an Endangered Species has been denied for lack of sufficient data and the project's funding ran out. But Rick is still committed to continuing the work on his own time. "We were just beginning to collect the first clues into what this animal needs to survive. They could be critically endangered for all we know and as a biologist, I feel like I personally owe it to them to continue to find out what I can. I just can't give up on them now."

Rick explains his hopefulness in the face of the future. "Look, there's no doubt they are up against a lot – habitat loss, trapping, climate change . . . but if there is one thing I have learned, it's that wolverines are true survivors and more adaptable and resilient than we ever thought. We just need to learn how to live with them."

The camera circles above Rick on the ridge and pulls away, leaving him to his work in the midst of the wilderness.

It's late February and Jasper and Banff are now a year old. Steve and Garrett are out filming the twins in the snow.

"Wow, just look at them," he says with a tone that can only be described as reverential. "It just moves me deeply that these two have come into my life and given me this extraordinary opportunity to share their story."

We dip back into Steve's footage and come to experience Steve's own quest for wilderness through the animal that embodies it. We see Steve walking through a wintry landscape, wolverine trailing behind.

We segue to present day. As Jasper and Banff lope across the snow, somersault down hills and wrestle each other, Steve is there, still filming and beaming. He muses over his first year with the wolverines and talks about his plans for the future. "I realize I will never be able to release them into the wild," he says, thoughtfully. "But I have a profound responsibility to do right by them. That's a task I take very seriously. If I can somehow bring others into their world and give them a glimpse of just how precious they are, then I will feel I have at least begun to honor my end of the bargain."

There is more news on phantom of the Sierras. A single hair was uncovered from the location where the wolverine was initially spotted in the Tahoe National Forest in and DNA results conclude that it matches up genetically to a population located over 700 miles northeast in Idaho's Sawtooth Range.

An animated map illustrates not only the remarkable distance covered, but also the road systems and mountain ranges the wolverine would have had to pass through to get there.

Cautious optimism circulates about what it may suggest: that this individual migrated a distance farther than anyone previously recorded and that there may be an unknown population out there. This scenario holds promising news and hope for the future.

We are only just beginning to unravel the mystery of who the wolverine truly is. One thing we know for certain is that it is a creature that clings tightly to its secrets -- perhaps to keep hold of its precarious place in the wilderness. Born of the wild, the wolverine is the essence of wildness. And if it is to succeed in this world, we need to understand what it needs to live a secure and healthy life. Only then can we make intelligent choices about using the land to meet our needs, while providing the room for this remarkable creature to roam.

Out there, somewhere, another phantom slips through the forest and goes looking for winter. She has lessons to share about the resilient spirit of nature our place in it. Perhaps, if we give her some space, she just might share them with us.

An aerial camera shot homes in on a wolverine running in the snow. As we pull up and out to a wide shot, we find this creature at home in its element, in the vast frozen wilderness.