《熊猫奇遇记》第二集 成长之路

The Panda Adventure

Chapter 2 Journey of Growth

【解说】历经800万年岁月变迁，大熊猫一步一步走来，成为中华大地独有的瑰宝。在物竞天择的竞技场上，刚出生的大熊猫幼崽，如何从100克的娇小身躯，以惊人的速度成长千倍，最终筑起坚固的生命堡垒？

After 8 million years of change, the giant panda has slowly emerged as a unique treasure of China. In the arena of natural selection, how does the newborn giant panda cub grow a thousand times from a tiny body of 100 grams at an astonishing rate and build a strong fortress of life?

【同期】其实从它们出来以后，跟妈妈生活在一起，它就无时无刻都在模仿，它从平时的游戏当中，它就是学习很多技能。

From the moment they came out, living with their mother, they are constantly imitating her.

Through their play, they can learn many important skills.

【同期】因为未来可能会遇到相应的危险，这样的时候它有准备。

So, he could be prepared when he faces some real dangers in the future.

【解说】在危机四伏的密林深处，野生幼崽又如何在短短两年间，唤醒生命的潜能，成长为生存斗争中的“独行侠”？

Deep in the dangerous jungles, how can the wild cubs awaken life potential and grow into lone warriors in the struggle for survival all in just two years?

【同期】日照金山、还有云海，在这片云海的下面，住着181只野生的大熊猫。

The sun shines on the mountains and the sea of clouds, below which is home to 181 wild giant pandas.

【解说】我们将驻足于国宝生命的原点，开启一场全新的“大熊猫成长旅程”。

We will stop at the origin of the national treasure’s life and open a new Panda Growth Adventure.

第一章

Part 1

【解说】今天的第一站，我们将前往中国大熊猫保护研究中心卧龙神树坪基地育幼室。这里是一间专属于大熊猫双胞胎幼崽的“托儿所”。每当大熊猫妈妈诞下双胞胎，大熊猫的天性，会让它只挑选一只来养育，而另一只幼崽便会被送到这间育幼室，由大熊猫幼崽的人类奶爸、奶妈来精心喂养。

For today's first stop, we're heading to the nursery at Wolong Shenshuping Base, China Conservation and Research Center for the Giant Panda. This is a special nursery for twin panda cubs. When a mother panda gives birth to twins, her instinct is to choose only one of them to raise, while the other one will be sent to this nursery, where it's taken care of by a Manny or Nanny.

【解说】这只熊猫幼崽是熊猫妈妈盼青诞下的双胞胎里的老大，它显得格外活泼，也是整间育幼室里出生时间最长的一只幼崽，嘴巴周围“浓密的胡须”让它成为所有宝宝中“最靓的崽”，这样的样貌特点，在近十年出生的大熊猫幼崽中也是非常少见的。

This cub is the older one from the twins born to Pan Qing. It's quite lively. And it is the oldest cub in the nursery. With its "thick whiskers" around the mouth, it stands out as the "most adorable" among all the babies. This feature is quite rare among cubs born in the last decade.

【同期】这个宝宝长得好别致，嘴黑得好别致，以前很少出现这种嘴那么黑的，有些可能有点花，但是没它黑得那么纯正，别的宝宝嘴都没这么黑，它的墨特别足。它应该是在一群宝宝里面就是一眼就能认出来的那种。

This little one looks cute, with a remarkably dark mouth. Quite few pandas have such dark mouths. Some may have a bit of variation, but none are as pure black as this one. None of the other babies have mouths this black. Its color is strikingly rich. I think it's easy to recognize among the other cubs.

【解说】长相如此奔放粗犷，也许你会以为它是一个“男宝”。但事实上，它却是一个十足的“女宝”。

Such an appearance might make you assume it's a boy, but in fact, it's a delightful girl.

【同期】小姑娘，你把我抱那么紧干什么。

Little girl, why are you holding me so tight?

【解说】小家伙和它的妹妹是神树坪基地2024年出生的第一对双胞胎，而这也是它们的妈妈——8岁的熊猫盼青“熊生”第二次当妈妈。如今，姐妹俩已满70日龄，这差不多相当于人类婴儿的8个月大小，它们的“熊生”正在开启奇妙的成长之旅。

This cub and her younger sister are the first twins born at the Shenshuping Base in 2024. Their mother is Pan Qing, an 8-year-old panda, being a mother for the second time. Now, the sisters are 70 days old, roughly equivalent to an 8-month-old human baby. Their life is just beginning with a wonderful journey of growth.

【解说】睁开眼，盼青大崽开始探索来到世界的第71天。和它的“浓密胡须”一同成长的，是它随时会冒头的乳牙。

With eyes wide open, the older cub starts to explore on day 71 in the world. Growing alongside her "thick whiskers" are her emerging baby teeth.

【同期】70多天的宝宝，我们就会检查它的牙齿。

When the babies reach 70 days old, we will check their teeth.

【同期】你还想咬我，你牙齿都没长出来你就咬我。

You want to bite me? You don’t have teeth yet, and you're trying to bite me.

【同期】你又调皮。

You're so mischievous.

【同期】你还薅我。

And you're pulling at me.

【同期】腿腿伸那么长做什么？

Why your legs are so long?

【同期】你有什么意见？

What's your problem?

【同期】起床喽，给我们的宝宝进行一个排便。

Time to get up. We'll help our baby with a bowel movement.

【解说】出生只有两个多月的盼青大崽，因为身体器官刚刚开始发育，还没有力气自主排便。因此，在它成长的每日清单里，辅助排便被排在第一位。奶爸所掌握的排便手法，全都来自于对熊猫妈妈带娃行为的模仿。

At just over two months old, the older cub is still developing her organs and too small to go on her own. So, on her daily growth checklist, assisting with her bowel movements is the top priority. The Manny has learned the techniques for this by mimicking how mothers care for their cubs.

【同期】给宝宝排便用的棉花，也是用温水给它浸湿，模拟母亲舌头的那个湿度，要给它进行敲击。大一点的宝宝，我们同样也是用模拟母亲舌头舔舐的一个湿度和温度，来对它进行一个刺激，从而进行辅助排便。有时候给它辅助排便，它排舒服了，它就会有那种咕咕咕的声音。这就是它在用力，妈妈也是这样把它抱在怀里，然后舔舐它的一个肛周，对它进行一个刺激，你看我们的宝宝不愿意使劲了，那就说明它就排的差不多了。

The cotton used for the baby's bowel movements is soaked in warm water to mimic the moisture of a mother's tongue. We need to give her a gentle pat. For the older babies, we also simulate the moisture and warmth of a mother's licking to help stimulate bowel movements.

Sometimes, if she feels comfortable after pooing, you might hear a little gurgling sound. She is putting in the effort. Mom does the same, holding her close and licking around her bottom to provide stimulation.

Look, the baby isn't pooping hard anymore, which means she's almost done.

【同期】排完了，别慌别慌，屁股擦干净。

All finished. Don't worry. Let's clean it up.

【解说】肠道排空的瞬间，饥饿感随之而来。出生后的两个多月里，盼青大崽的体重成长了近30倍，育幼师量身定制的奶粉，搭配36到40度的温水调和而成的人工乳，承担了幼崽成长的营养重任。

As the intestines empty, hunger follows closely. In just over two months, the weight of the older cub has increased nearly thirty times. The specially formulated milk powder mixed with water at 36 to 40 degrees provides the essential nutrition for growth.

【同期】就是我们每一个宝宝都有自己的专属的奶瓶，而且还有自己专属的奶嘴，每一个奶嘴的大小，还有它的那个孔的大小都是不一样的。

Each baby has its own special bottle, and its own unique nipple. The nipples and their holes vary in size. 【同期】走，喝奶奶。

Let's go. Time for milk.

【解说】大熊猫幼崽每日的喝奶量需根据当日体重随时调整，70日龄的盼青大崽每八小时喝一次奶，每次喝奶大约100毫升，这个奶量相当于同时期人类婴儿奶量的一半。

The daily milk intake for giant panda cubs needs to be adjusted based on their weight. At 70 days old, the cub drinks every eight hours, about 100 milliliters each time. This amount is just half of what a human baby drinks at the same age.

【同期】吃奶也比较急，嘴比较漏风，声音就比较大。

The baby drinks eagerly, with a bit of a leak and loud sounds.

【同期】吃完了。喝完奶，我们就会给我们的宝宝拍拍奶嗝，我们喂奶不会喂到全饱，一般都是七八分饱，就是让它肠胃不会有那么大的负担，所以它就会还有一点饥饿感，就拍奶嗝的时候，它感觉还想再来一口，它就会在你怀里找奶，它现在在找奶，它在母亲那儿就是这样，就是这样找奶，边找边叫。

All done. After the milk, we give the baby a gentle pat to help with burping. We don't feed them until they're completely full, usually about 70 to 80 percent. This way, their stomachs aren't overloaded, they still feel a bit hungry. When we burp them, if they want more, they'll nuzzle for milk. She is nuzzling for milk, just like she does with her mother. She looks for milk like this, with little cries.

【同期】它现在前肢还不怎么撑得住，所以它撑的时候，有时候重心就会偏移，就容易磕着下巴，成长过程中总有坎坷，没有那么（一帆风顺）。

Her front legs aren't strong enough now, so when she pushes up, sometimes she loses her balance and bumps her chin. There are always bumps along the way, it's not all smooth sailing.

【同期】小朋友，17.7。然后测胸围，腿腿有劲了，马上马上，19，劲大了。

Little one. 17.7. Now, the chest. Those legs are getting strong. Almost done. 19. She's getting powerful.

【解说】为了让双胞胎大熊猫幼崽都能得到妈妈的关爱与照顾，每隔一段时间，饲养员都会进行“换崽”。今天，老大就要回到妈妈的身边。

To ensure both cubs get love and care from their mom, the keeper regularly swap them. Today, the older one will return to her mom.

【同期】不要调皮，要回你妈妈那儿去了。

No being naughty now. Time to go back to your mom.

【解说】只是，今天距离上次见到妈妈，已有10天的时间，母女俩想要重新认出彼此，有一环必不可少。

However, it's been 10 days since they last saw each other. For them to recognize each other again, there's a crucial step.

【同期】熊猫放进去过后，涂了粪便，母猫过去的时候，先会去闻一下，就是熟悉一下幼崽的气味，让母猫更容易认定它的崽。

Once the cub is in, covered in feces, the mother will get over and sniff her first, getting familiar with the cub's scent. This helps her recognize her baby more easily.

【解说】妈妈粪便的味道加速了母女相认的过程，但回到妈妈身边并不意味着万事大吉，学习走路这件事，小家伙还是得靠自己。

The scent of the mother's feces accelerates the process of recognition. But returning to mom doesn't mean everything is perfect. The little one still has to learn to walk on her own.

【解说】这天清晨，当小家伙醒来时，发现妈妈不在身边，但这却正是它学习走路的绝佳时机，它望向妈妈的方向，目标明确、一鼓作气。但是，却发现自己连翻身都还不会。

One morning, when the little one woke up, she found mom was not there. This was the perfect opportunity to practice walking. She looked in the direction of her mother. With a clear goal in mind, she tried to get up. However, she couldn't even roll over yet.

【解说】对妈妈的渴望让小家伙充满了力量，它试遍了所有的角度，终于在无数次的努力后抓住了翻身的时机，它迫不及待地寻找妈妈的身影，寻求一个肯定的眼神。

The longing for mom filled the little one with strength. She tried every angle. After countless attempts, she finally caught the moment to roll over. Eagerly, she searched for her mother, seeking a reassuring glance.

【解说】这一次看似微小的翻身，却是盼青大崽，成长旅途中跨越的一大步。这些珍贵的进步，被妈妈记在心里，奖励在行动中。

This seemingly small roll was a significant step in the journey of the cub's growth. These precious milestones were noted by the mother, and rewarded through her actions.

【解说】在妈妈身边的日子总是过得飞快，来到世间的第三个月，盼青大崽再次回到育幼室的奶爸身边。

Days spent with mom always pass so quickly. In the third month of her life, the older cub returned again to the nursery with her Manny.

【同期】小朋友，你的嘴巴，嘴巴黑的消了一些了。

Hey, little one, your mouth...the black around it has faded a bit.

【同期】我感觉它没那个（妹妹）重呢。

I feel like she's even lighter than her sister.

【同期】不要动。（体重）5580，（牙）快出来了。怎么回事，怎么牙齿还没长出来？

Hold still.

(Weight) 5,580 grams.

(The teeth) are coming in.

What's going on? Why haven't the teeth come in yet?

【同期】在母亲那长得挺好的，而且你看它颜色有点黄黄的，就是因为它在母亲那儿母亲就会给它舔舐，口水氧化，它就会黄黄的红红的，这个也是我们有时候评判母亲带的好不好的一个标准。我们这儿你看慢慢地就会又变白。

She was growing well with her mom, and look, its fur is a bit brownish. That's because her mom licked her, and the saliva oxidizes, giving her that brownish-red tint. This is sometimes a standard we use to judge how well the mother is raising her cub. Coming back here, it will slowly turn back to white.

【解说】随着日龄的增长，盼青大崽从最初隐隐冒头的小犬齿，已经一点点长出了稚嫩的门齿和臼齿，大熊猫幼崽的乳牙，通常在出生后3到5个月内长齐，共有24颗，比人类幼崽多出4颗。

As the days go by, the older cub has gone from barely visible little canines to developing her baby teeth and molars. Giant panda cubs typically have all baby teeth erupt within 3 to 5 months after birth, 24 in total, four more than human infants.

【同期】它每天都在长大，每天都有一点小小的变化，今天长一颗牙齿出来，明天又长颗牙齿出来，现在牙齿都还没有长齐，它的牙齿就是逐步在慢慢地长全。

She's growing bigger every day, with little changes each time. Today, a tooth pops up, and tomorrow another one. Right now, the teeth are still coming in. They're growing gradually to completion.

【同期】大了，活动比较多了，我们就会给它放到它自己这个区域里面，就不会放篮子里了，篮子影响发挥了。它现在这个阶段，就对周遭的环境就会充满好奇，活动量比之前要大一些。

As she gets bigger and moves around more, we'll let her explore its own area, instead of keeping it in a basket. The basket limits movement. At this stage, she's curious about the surroundings and is more active than before.

【解说】与牙齿生长齐头并进的，是它日渐有力的四肢。

Alongside the growth of her teeth, her limbs are becoming stronger.

【同期】它现在就是前肢基本上能撑起来，然后后肢逐渐往后面撑开，到现在慢慢回归，然后再尝试撑起来的一个过程，这样它开始走路的时候，它的前肢后肢都会撑了。后肢也会蹬，就是很明显地感觉它这个力量在增加。

Now, she can mostly support herself on her front legs, while gradually pushing her back legs out, and then slowly pushing them back, trying to lift herself up. When she starts to walk, both her front and back legs will be ready.Her back legs are pushing. As you can see, her strength is clearly increasing.

【解说】在撑起、摔倒、再撑起、再摔倒的千百次反复中，盼青大崽在摇摇晃晃中摸索着站立的技巧。

She's lifting up, and then falling down. Through thousands of repetitions of lifting and falling, the cub is wobbling and learning to stand.

【同期】它一般在120日龄左右，它就能自主行走了，它能独立行走了，然后我们就可以还给母亲。

Generally around 120 days old, they will be able to walk on their own. Once they can walk independently, we can return them to their mother.

【同期】流水的宝宝，铁打的奶爸。

The little ones come and go, while the caregivers remain steadfast.

【解说】在学会独立行走的这天，我们来到神树坪基地的育幼室，亲眼见证姐妹俩的这一场“毕业典礼”。从这天起，两只幼崽都将回到妈妈的身边继续成长。

On the day they learn to walk independently, we visit the nursery at the Shenshuping Base to witness the "graduation ceremony" of the sisters. From this day on, both cubs will return to their mother to continue growing.

【同期】这个就是我们的盼青崽，它现在要回到妈妈那儿去了，就是还给妈妈了。

This is Pan Qing's cub. She's going back to her mom. We're taking her back.

【同期】我们去看一下，好可爱！

Let's go and take a look. So cute!

【同期】这个是盼青的崽。

This is Pan Qing's cub.

【同期】盼青的大崽。

The older one.

【同期】回妈妈那儿了。

You're going back to mom.

【同期】这是二崽吗。

Is this the younger one?

【同期】想出来了。

She wants to come out.

【同期】好乖。

So cute!

【同期】他现在就是要给它抹一点母猫的粪便，要把那个粪便抹上，这个就是妈妈的粪便，抹在它的身上。对，要掩盖下它的气味。抹上妈妈的味道。

Now, he's applying a bit of the mother's feces on her. Oh, rub some feces on her. That is her mom's feces, and we need to rub it on the cub. Yes, it's to mask her scent. Let's get mom's smell.

【同期】好软感觉，好配合。

So soft! So cooperative!

【同期】这对它们俩来说是非常重要的一天。对。很有纪念意义。

For both of them, today is an important day, right? Right. It's quite memorable.

【同期】它们两个之前没有在一块玩过，现在第一次在一块，有伴了。

They haven't played together before. This is their first time. They finally have a companion.

【同期】对。

Yes.

【同期】而且第一次同时见妈妈。

And it's the first time they see mom together.

【解说】从出生到四个月，这是姐妹俩第一次同处一室。熊猫妈妈盼青，也自此正式接过了同时抚养两只幼崽长大的任务。

From birth to four months, this is the first time the sisters are in the same room. Pan Qing, their mom, officially takes on the task of raising both cubs simultaneously.

【同期】盼青，崽崽回来了。

Pan Qing, your babies are back.

【同期】有一只已经进去了，找妈妈去了。所以现在它是对这两个崽没有一些排斥反应吧？

One has already gone in. She is going to mom. So now, she's not showing any rejection towards the cubs, right?

【同期】对。现在从它的这些反应来看，它带的还挺好的。

Right. From her reactions, she seems to be handling it quite well.

【同期】两个崽也不会有任何的危险了对吗？

The cubs should be safe now, right?

【同期】对。

Yes.

【同期】那真好。

That's wonderful.

【同期】小宝宝在长到一岁左右的时候，它学的技能会更多一些。

When the babies grow to about a year old, they will learn even more skills.

【同期】对，然后对小崽来说，也是一个非常好的事情。

Yes. And for the younger cubs, that's a great thing.

【同期】它们的成长，其实还是能给我们带来一个肯定，我们也希望它们茁壮成长。看到它们健康成长，其实我们也很有成就感。

Their growth actually brings us reassurance. We hope they thrive, and seeing them grow up healthy gives us a sense of accomplishment.

第二章

Part 2

【解说】育幼师在大熊猫幼崽成长阶段的退场，标志着已学会独立行走的幼崽正式从婴儿期迈向了幼儿期。我们从育幼室离开，把探索的脚步迈向神树坪基地外圈。这里，我们将解锁120日龄到2岁间的熊猫幼儿，观察它们不为人知的成长经历。

The exit of nursery keeper's from the cubs' current life stage means that the cubs can walk on their own, and have moved from infancy to toddlerhood. We're leaving the nursery to explore the outer area of the Shenshuping base. Here, we'll get to know the hidden growth stories of panda toddlers aged 120 days to 2 years.

【同期】嗑叔、惠营，早。

Keshu, Hui Ying. Good morning!

【同期】这里就是蕊蕊和它两个崽崽的家，蕊蕊崽是它亲生的，然后贤贤崽是它的养子。

This is Rui Rui's home with her two cubs, Rui Rui's cub is her own, while Xian Xian's cub is adopted.

【同期】那你们现在能区分这两只崽吗？

Can you tell them apart?

【同期】蕊蕊崽它的鼻梁上有一条非常明显的黑色的线条，贤贤崽这个线条就相对来说要浅很多。

Rui Rui's cub has a clear black stripe on its nose, while Xian Xian's cub has a lighter stripe.

【同期】这些细节也被你们捕捉到了。

You captured these details.

【同期】不好区分这个。

It’s hard to make a distinction.

【同期】对。

Yes.

【同期】李蓉是它们一家的奶妈。

Li Rong is their nanny.

【同期】崽崽。

Zai Zai.

【同期】蕊蕊。

Rui Rui.

【同期】我们经常都说，就像我们带的幼儿期的熊猫一样，我们就好像就是幼儿园的大班长。

We often say that when we take care of these young pandas, we're like a kindergarten class leader.

【同期】想出来崽崽，等一下，马上，打扫完了就出来。

Are you ready to come out, Zai Zai? Just a moment! In a minute, you can be out after I finish cleaning up.

【解说】身为幼儿园大班长，奶妈李蓉早已摸清了“蕊蕊班”三只大熊猫的秉性。7岁的辣妈——蕊蕊。

As the class leader, Li Rong knows the personalities of Rui Rui and her two cubs well. 7-Year-Old Hot Mom, Rui Rui.

【同期】咱们的蕊蕊妈，天呐，相当地活泼，跑上跑下、爬树、然后撒娇、打滚，咱们的水池里面洗澡，然后不光它洗，还要拖着崽崽洗，非常的辣妈的那一种。

Look at Rui Rui, gosh, she's quite lively, running up and down, climbing trees, playing happily and rolling around. She loves to take a bath in the pool, and not just by herself, she drags her cubs in for a wash too. She's definitely a hot mom!

【解说】1岁2个月的文静亲闺女——蕊蕊崽。

1-Year-Old Quiet Daughter, Rui Rui's Cub.

【同期】就是一个很腼腆的女孩子的性格，喜欢挂在树上。感觉它就是说“你们玩吧，我要睡觉”。

She has a shy personality, preferring to hang on the trees. It's like she's saying, "You guys have fun, I'm just going to sleep."

【同期】你们玩你们的。

You play your game.

【同期】你们玩吧。

Go ahead and play.

【同期】我安安静静地美美地坐在树上，对吧。

I'll sit in the trees quietly and beautifully, right?

【解说】还有同为1岁2个月的淘气干儿子——贤贤崽。

And 1-Year-Old Adopted Son, Xian Xian's Cub.

【同期】贤贤崽长得确实很乖，脸蓬蓬的，好多网友就给我们的贤贤崽送了一个称号，就是2023届的“颜王”，就是颜值比较高一点。它喜欢探索外面的新事物，所以好奇心会更重一点，喜欢黏人一点。这个是亲妈和干妈，我们这个奶妈，我们也算是半个妈，是吧。

Xian Xian's cub looks really cute with a fluffy face! Many online fans have given him the title of "The Most Handsome of 2023" because he's pretty good-looking. He loves exploring new things, so he's a bit more curious and clingy. She is both the birth mom and the foster mom. I, the nanny, am like a half-mom, right.

【解说】这是大熊猫贤贤，2023年8月，贤贤诞下一对双胞胎。半岁时，贤贤妈妈带着老大开始野化培训，老二交由蕊蕊抚养，成为了蕊蕊的“干儿子”。

This is Xian Xian. August 2023, Xian Xian gave birth to a pair of twins. When they were six months old, Xian Xian started wilderness training with the firstborn, while the second was raised by Rui Rui as her "adopted son."

【同期】好多网友就是说它们的一家的日常就跟演小品似的，每天都有故事，都有一出戏，看着这个画面很温馨，就是一幅岁月静好的画面。

Many online fans say their daily life is like a comedy act, with a new story every day. It's such a loving scene, like a picture of peaceful times.

【解说】当熊生迈入1岁阶段，母乳和配方奶依旧是幼崽长身体的必需品。

As the cubs reach one year old, breast milk and formula are still essential for their growth.

【同期】蕊蕊同时给两个崽崽喂奶，这个画面就很温馨。

Rui Rui is nursing both cubs at the same time, and this scene is so heartwarming.

【同期】我知道大熊猫是有四个乳头，它们一般是哪两个乳头喂它们？

I know giant pandas have four nipples. Which two nipples does she use to feed them?

【同期】这个是崽崽的习惯了，其实它就是都会用，你看它同时喂养两个崽崽，就是这边的两个归它管，那边的两个归它管，所以它们会自由地去分配这个。母爱不分种群的这种体现就出来了。

It depends on the cubs' habits. Rui Rui actually uses all of them. You can see she's feeding two cubs at once with one on each side, so they share freely. Mother’s love knows no boundaries, and this really shows it.

【解说】婴儿时期的奶瓶，显然已经无法满足体重已达60斤的幼崽的需要。在“幼儿园”里，饭盆成为幼崽的主要餐具。

The baby bottles clearly can't meet the needs of cubs that weigh 30 kilograms. In the "kindergarten," the feeding bowls become the main dishes for the cubs.

【同期】崽崽喝的都是配方奶，婴幼儿奶粉和动物奶粉按照比例配制而成，每只熊猫根据它的生长情况，对它的量有一个把控的。

The cubs drink formula made from infant and animal milk, mixed in the right proportions. Each cub gets a specific amount based on its growth.

【同期】崽崽，快来，跑起跑起，来了，开饭了。

Zai Zai, come here! Run, run! Come here. It's time to eat!

【解说】除了奶量的增加，还有一项关键的“食性转换”会出现在“幼儿园”成长阶段，幼崽们可以从只吃奶过渡到吃奶加吃竹笋了。

Besides increasing the milk volume, there's another key "dietary transition" during the "kindergarten" stage. The cubs can move from just drinking milk to eating bamboo shoots as well.

【同期】食性转换其实最能体现的就是它的一个成长，从婴幼儿时期喝母乳到后来母乳不够的情况下，添加我们的人工乳，换牙的时候开始逐步地给它加竹笋，不是说要让它去学着吃这个竹笋，主要是磨牙的作用，就跟我们人类一样。它换牙的时候，它会有一个磨牙棒的存在，我们贤贤崽好多时候，你看拿了一根笋，在吃了半天都是假吃，对笋没有伤害，那个时候只是起到一个磨牙的状态，逐步地在转换。

This dietary transition reflects their growth from nursing as infants to eventually needing supplemental formula when the mother's milk isn't enough. When they're teething, we gradually introduce bamboo shoots. It's not just about teaching them to eat bamboo. It's mainly for teething purposes. Just like humans, when pandas are teething, they need something to chew on. Xian Xian's cub often grabs a shoot and pretends to eat it for a long time it doesn't harm the bamboo. At that stage, it's mainly for teething, gradually transitioning the diet.

【解说】当乳牙一颗颗转变为恒牙，一场从磨牙竹笋开始的食性转换，将贯穿大熊猫幼崽的整个幼儿期。教授幼崽转换技巧的老师，并非“苦口婆心”的幼儿园大班长李蓉，而是“言传身教”的辣妈蕊蕊。

As baby teeth turn into permanent ones, the dietary transition starts with chewing bamboo shoots and continues through the cubs' toddlerhood. The teacher showing them how to transition is not the stern kindergarten head, Li Rong, but the hot mom, Rui Rui, who leads by example.

【同期】我们食性转换的时候，还是希望它能够尽量地去跟妈妈一样的，就是还原它的自己一个本性，萌芽的一个启蒙的状态。它会模仿着妈妈的状态去吃，竹笋最开始我们也是剥皮的，就给它剥的很好的，然后那个时候还不会剥皮，然后慢慢地妈妈教会了它剥皮，它学会了剥皮。它就是看着妈妈竹笋怎么吃的，妈妈怎么剥竹子的，然后妈妈这个行为动作是怎么样的，它会无意识地进行一个模仿，在这个模仿当中，其实就是学习了一个技能。然后逐渐地要教它吃竹叶，再到吃竹子，然后中间的这个过程，对它整个熊生来说非常地重要，这个也是让它从婴幼儿时期到青少年时期这样一个转变，这样一个成长，这也是一个必须的过程。

When cubs go through dietary transition, we hope they can mimic their mother, returning to their true nature. In a budding state of enlightenment, they will imitate how their mother eats. At first, we peeled the bamboo shoots for them because they didn't know how to peel yet. But slowly, the mother taught them. They learned how to peel. They watched how their mom ate and peeled the bamboo, observing her actions. They unconsciously imitate, and in that imitation, they learn a skill. Next, they'll be taught to eat bamboo leaves, and then bamboo. This process is crucial for their growth, marking the transition from infancy to adolescence, and being an essential part of their growth.

【同期】贤贤崽它就很喜欢探索外面的这些东西。

Xian Xian's cub really enjoys exploring the outside world.

【同期】小朋友我们差不多也是这个年龄阶段，他就有口欲期，他就喜欢用嘴巴去探索一些他未知的一些事物，所以熊猫在这个阶段也有一个这样的期是吗？

Kids around this age also go through a phase when they like to use their mouths to explore new things. So, pandas have a similar phase, right?

【同期】从出生到一岁半，还处于婴幼儿时期，在这个时期的话，它都是处于这种探索欲比较强烈的。

From birth to a year and a half, they are still in their infant stage. During this time, they have a strong desire to explore.

【解说】在蕊蕊纯天然的教导模式下，青梅竹马的两小只，在吃饭课程上几乎做到了同步。但仔细观察，玩心重的贤贤崽在细节的学习上明显慢姐姐一拍。

Influenced by Rui Rui's natural teaching style, the two little ones have nearly synchronized in their feeding lessons. But if you look closely, the playful Xian Xian's cub is clearly a bit behind in the details of learning.

【同期】说实话蕊蕊崽的话，它吃竹笋就比较娴熟了，但贤贤崽的话，现在剥皮还是有点懵，有时候我觉得看着还是，看着姐姐剥笋这样剥的，它也会去模仿，所以对它来说这个也是间接的一种学习，学习本领的这样一种状态。

To be honest, Rui Rui's cub is quite skilled at eating bamboo shoots, but Xian Xian's cub still finds peeling a bit confusing. Sometimes, it seems like he just watches Rui Rui's cub peeling and tries to imitate her, so for him, this is also a kind of indirect learning.

【解说】幼儿成长阶段的熊猫幼崽，正是靠模仿妈妈的一招一式来提升战力。

Panda cubs in their toddlerhood improve their skills by mimicking their mother's every move.

【同期】它们的一个天性，妈妈就会让它们去爬树，它出来，它会先爬，崽崽会跟着会爬。

It's in their nature. Mom encourages them to climb trees. When Rui Rui comes out, she starts climbing, and the cubs follow along.

【同期】对。

Yes.

【同期】所以它们这个年龄阶段是会去模仿妈妈的一些动作，一些行为。其实从它们出来以后，跟妈妈生活在一起，它就无时无刻都在模仿。

At this age, they imitate their mom's actions and behaviors. From the moment they came out, living with their mom, they are constantly imitating her.

【解说】想让1岁多的幼崽掌握战斗精髓，辣妈蕊蕊采用了最朴素的摔打教学法。

To help the one-year-old cubs master fighting skills, Rui Rui uses the simplest approach, the tumbling method.

【同期】它们平时在一些追逐嬉戏打闹的时候，在这个过程中，妈妈可能会对贤贤崽的话，可能摔打得更厉害一点，对贤贤崽更严厉一些，它更皮一点。

Usually, when they're playing and chasing each other, mom might be a bit tougher on Xian Xian's cub. She's more severe with him as he is a bit more mischievous.

【解说】今天这堂课上，蕊蕊化身为“野外天敌”，对贤贤崽发起“攻击挑战”。

In today's lesson, Rui Rui plays the role of a "wild enemy" and challenges Xian Xian's cub.

【同期】把它从树上拽下来，这是为什么？就把它从树上那么生硬扽下来，它不怕孩子摔着？

She pulls him down from the tree. Why? She pulled him down from the tree like that, doesn't she worry about him getting hurt?

【同期】它这个是不用怕的，因为在它心里，它应该是有一个衡量的，这个高度它知道摔下来没事。它的皮毛…

She doesn't need to worry, because she knows he can handle it. She understands that falling from this height is fine. His fur is...

【同期】很皮实。

Quite tough.

【同期】对。

Yes.

【同期】让它往下摔是不是也是锻炼它的一个过程？

Letting him fall is part of his training, right?

【同期】对，摔打的。

Yes.

【同期】为了让它更皮实一些。因为未来可能会遇到相应的危险，这样的时候它有准备。

This way, it can take a fall. It's to make him tougher. So, he could be prepared when he faces some real dangers in the future.

【解说】摔下树的幼崽还有点懵，但辣妈蕊蕊没有心软，它控制好力度，在地面对贤贤崽施展了一波连环技：跳起按头、抓臂摔、腿部锁、翻滚逃脱，这些技能训练不但能提高幼崽的身体素质，还能锻炼它的应变力和适应力。

The cub that fell from the tree looks a bit dazed, but Rui Rui doesn't hold back. She controls her strength and shows Xian Xian's cub a series of moves on the ground, jumping to push his head, grabbing his arms, applying leg locks, and rolling to escape. These skill drills not only improve the cub's physical fitness, but also enhance his adaptability and quick thinking.

【同期】贤贤崽老想骑到妈妈身上，这是在帮它叼毛吗？还是在帮它？

Xian Xian's cub always wants to climb onto his mom. Is he trying to groom her, or is he just...

【同期】没有，玩耍，咬着玩。

No, he's just playing, biting and having fun.

【同期】在动物界来说这个叫做游戏行为，比方说狮子，它在野外，它吃饱了之后就相互撕咬、相互的翻滚，就锻炼它野外的一些生存技能。

In the animal world, this is called playful behavior. For example, lions in the wild, after feeding, will bite and roll around to help them develop survival skills.

【同期】对。

Yes.

【同期】就是说它从平时的游戏当中，它就是学习很多技能。

So, through their play, they can learn many important skills.

【同期】蕊蕊刚出外场的时候，教两个崽崽爬树，那个时候就是两个崽崽一人爬一棵树，然后完了，我们的蕊蕊不知道怎么办了，抱谁呢，就在两棵树之间来回地跑，这个看一眼，那个看一眼，很有共鸣，就跟人一样的，这一个崽、那一个崽，怎么看怎么办，感觉看上去手足无措的那种表情，温馨的同时也觉得有点搞笑的成分在里面。

When Rui Rui first came out, teaching them to climb trees, each cub climbed its own tree.

Then, after that, Rui Rui didn't know what to do. Which one should she hold? She ran back and forth between the two trees, looking at one, then the other. It was quite relatable, just like humans. With one cub here and another cub there, she didn't know what to do. She looked a bit flustered, which was both heartwarming and a bit funny.

【同期】李蓉老师，这位这也是两个孩子的妈妈，而且她是双胞胎，跟熊猫很像。

Mrs. Li, she is also the mother of two children, and they are twins, just like pandas.

【同期】所以我特别想问的是一个人带俩辛不辛苦？

So, I really want to ask, is it hard to take care of two kids?

【同期】那肯定辛苦，还是累。因为说实话我们这个工作比较特殊一点，回家陪孩子的时间不多，那个时候我问他的时候因为刚好是六年级，他就说以前的时候，他说我还是心里还是怨的，我说你没有告诉我了，他说我告诉你没用，他说你不可能不工作的。

Of course it's tough.

It's quite tiring, isn't it?

To be honest, our job is a bit special, and we don't get much time at home with the kids. When I asked him if he resented me, he was in sixth grade, and he said he used to feel that way. I asked why he didn't tell me. And he said it wouldn't have made a difference. He said, "You have to work."

【同期】孩子还是很懂事的。

He is quite understanding.

【同期】对。

Yes.

【同期】但是他说后来，就是后来吧，慢慢地也变为理解了，从抱怨然后慢慢理解了。

Over time, he gradually changed from complaining to understanding me.

【同期】长大以后他一定还会说一句话，从熊猫才是妈妈的孩子变成熊猫也是妈妈的孩子。

When he grows up, he'll probably say something, changing from "You only care about pandas" to "Pandas are also your kids."

【同期】这个说得真好。

That's so true.

【同期】擦嘴嘴。

Let me wipe your mouth.

【同期】其实我今天看了你的这种工作的流程，我会觉得说挺繁琐的，而且每天重复性也挺强的，不仅是需要体力，而且我觉得也是需要耐心和爱心。

Actually, after watching your work process today, I think it's quite complicated, and the daily routines are repetitive. It requires not just physical strength, but also patience and love.

【同期】耐心是超级需要的，其实之前我脾气是有一点暴躁的，很典型的川渝的辣妹子的形象，就是一点就着的那种。

Patience is essential. I used to have a bit of a temper, very much like a typical Sichuan girl, easily set off.

【同期】来了。

Come on.

【同期】做了这个工作以后我就发现我自己脾气没有了，对。

After starting this job, I found my temper has calmed down. Yes.

【同期】真乖！经常我也说这个工作对我来说真的是一份恩赐。

You're sweet! I often say this job is truly a gift for me.

【同期】真乖！你看人家姐姐都在扒笋吃，你在这耍。

So sweet! Look, your sister is eating bamboo shoots, and you're just playing around.

【同期】真乖！

So sweet!

【同期】你跟它们在一块的时候就是非常亲密的，那到什么一个阶段你可能会刻意地去跟它们保持一些距离。

When you're with them, it's very close. At what stage do you intentionally keep some distance with them?

【同期】跟我们接触从出生然后到一岁多，我们的熊猫幼崽跟我们人类是最亲密的时候。在这段时间，我们会近身地去照顾它们，给它喂盆盆奶，跟它们一起互动。但是就是一岁多以后，互动开始慢慢地逐渐减少，逐渐地会让它们去跟着妈妈去学习独立，不过度地去依赖我们人类的感情，将来它们会成年、会求偶、交配、繁育后代，必须要去学会要适应它们的那个圈子。

From birth to a little over a year, panda cubs are closest to us humans. During this time, we take care of them closely, feeding them and interacting with them. But after they turned over a year old, my interactions with them gradually decrease. I gradually encourage them to learn independence from their mom and not overly rely on us humans. In the future, they will grow up, find mates, breed, and raise their young. They need to learn to adapt to their own environment.

【同期】我不抱，抱不起了，快去耍了。

No. You're getting too big to carry. Go play.

【同期】在这种刻意地保持距离的时候，会有分离的焦虑吗？我觉得没有。作为老母亲，它每学会一样新的技能，只会为它感到高兴。

When you intentionally keep distance, do you feel separation anxiety?

I don't think so. As its keeper, I only feel happy when they learn new skills.

【同期】好乖。表扬一下！

So sweet! Good job!

【同期】就是我们说的，有一种爱就叫放手。

As we say, there's a kind of love means letting go.

第三章

Part 3

【解说】大熊猫妈妈和人类奶妈共同守护的圈舍，为熊猫幼崽打造了安全且舒适的成长环境。然而，在遥远的野外，还很脆弱的大熊猫幼崽，又将如何在面对天敌威胁的情况下，继续自己的成长旅程呢？

The mother panda and the human nanny jointly protect the enclosure, ensuring a safe and comfortable environment for the cubs. However, in the wild, how will the vulnerable panda cubs continue their growth journey while facing threats from predators?

【解说】我们驱车前往280公里外的宝兴，作为世界上第一只大熊猫的科学发现地，这里如今生活着181只野生大熊猫，在这片被誉为“熊猫老家”的古老土地上，我们将跟随野生动植物保护专家的足迹，通过观察野外大熊猫妈妈养育幼崽的成长过程，探究野生的熊猫幼崽如何在充满变数的大自然里，从依赖妈妈迈出独立成长的关键一步。

We drive 280 kilometers to Baoxing. This is where the world's first giant panda was scientifically discovered, and now it's home to 181 wild pandas. On this ancient land known as the "panda homeland," we will follow the wildlife protection experts to observe wild panda moms raising their cubs and see how wild panda cubs take that crucial step toward independence in the unpredictable wild.

【同期】小心点。

Be careful.

【同期】还挺漂亮的。

It's quite beautiful.

【同期】银装素裹的。

It's all covered in snow.

【同期】咱们跟紧了跟紧了。

Let's stay close. Stay close.

【同期】郑老师，你们平时巡山的工作都做些什么？

Mr. Zheng, what do you usually do during your mountain patrols?

【同期】主要是开展样线巡护，还有一些动物的是否正常死亡，一些疫源疫病监测方面的事。

We mainly conduct transect patrols, and check for animal deaths. We also monitor epidemic sources and diseases.

【同期】平时您的工作基本上就是在和动物和植物打交道？

Your work mostly involves interacting with animals and plants, right?

【同期】对。但是不会打扰到动物的正常的生活的。

Yes, but we don't disturb the animals' normal life.

【同期】我现在是穿梭在四川宝兴的一个野林子里面，在我的周围都是被雪覆盖着的冷箭竹。在这个区域，红外相机拍摄过一只野生的母熊猫带幼崽的画面。

We're now moving through a wild forest in Baoxing, Sichuan. Surrounding us are Cold Arrow Bamboo covered in snow. In this area, an infrared camera has captured a wild mother panda with her cub.

【同期】小心点，踩稳了再上去，踩实每一脚，好。

Be careful. Step carefully as you go. Make sure each step is solid. Okay.

【同期】咱们跟紧了，跟紧了。

Let's stay close. Stay close.

【同期】这边就是大熊猫频繁活动的区域，我们在这里也安装了一部分红外相机进行监测，这里海拔二千九百多，接近三千了。

This area is where giant pandas frequently roam. We've installed some infrared cameras here for monitoring. The elevation is over 2,900 meters, close to 3,000.

【同期】那也就是说相当于是熊猫很喜欢待的海拔。

This is a height that pandas really like, right?

【同期】对，它非常舒适的这地方。

Yes, they feel very comfortable here.

【同期】这就是去年八月份我们在这里发现了母带崽的（踪迹）。

Last August, we found traces of a mother with her cub here.

【同期】你看这是红外相机正好正对着的地方。

You see, this is the spot the infrared camera was aimed at.

【同期】对，就是那个位置对过来，就刚好拍着它们八月份。

Yes, just at the position, they were captured perfectly in August.

【同期】刚好有块空地，妈妈就跟它在地上打滚、嬉戏。

There was an open space where the mom and cub were rolling around and playing.

【同期】按动物学来说，当它吃饱了之后，它有些精力要发泄，它就是通过这种游戏相互打闹、相互这种摔。一方面是它发泄自己的精力，再一方面它是培养幼崽，它将来的一个身体的协调能力。

According to zoology, when they're full, they have energy to burn. They play and tumble with each other, which helps them release energy and also develops the cub's coordination skills.

【同期】野生大熊猫从出生到它成为一个成年大熊猫，这个过程当中，它都需要学习什么样的技能？

From birth to adulthood, what skills do wild giant pandas need to learn?

【同期】其实最重要的就是要爬树。

The most important skill is climbing trees.

【同期】幼崽等妈妈的时候，它会爬上去躲避天敌，它就在上面睡觉一直等。等到妈妈回来了它才下来。

When the cub waits for its mom, it climbs up to avoid predators. It sleeps up there, waiting. It won't come down until mom comes back.

【同期】对，它才下来。

Right, it only comes down then.

【同期】第二个就是要学习分辨各种竹子，哪些竹子的哪个部位，在什么季节能吃。全世界大概有1076种竹子，我们中国大概有五百多种，但是大熊猫能吃的大概是五十多种，它最喜欢吃的主食竹大概是二三十多种。

The second skill is learning to identify different types of bamboo, which parts are edible in which seasons. There are about 1,076 types of bamboo worldwide, with over 500 in China, but pandas can eat around 50 types. Their favorite staple bamboos are about 20 to 30 varieties.

【同期】我们宝兴分布的主食竹种类比较多，一千米左右主要就是笼竹，还有一些白夹竹这些；一千五百米左右的还有方竹；在二千五百米左右，一般就是冷箭竹。

In Baoxing, we have a variety of staple bamboos. At around 1,000 meters, Fargesia Conferta and some Phyllostachys Bissetii are common. At around 1,500 meters, there's Square Bamboo. By 2,500 meters, it's generally Bashania Fangiana.

【同期】其实咱们这一路盘山往上找熊猫的过程，特别像熊猫的一个有趣的行为，叫撵笋，就是追赶笋的意思。大家知道大熊猫最喜欢吃竹笋，但是竹笋它的生长是和它的海拔有关系的，海拔越高、气温越低，它萌发的时间就会越晚，所以说每年到春季的时候，大熊猫就会从低海拔往高海拔一直追着竹笋的生长，一直往上去追赶笋。

As we climb up the mountain searching for pandas, it really resembles a fun behavior of pandas called "chasing bamboo shoots", which means going after the shoots. Everyone knows that giant pandas love to eat bamboo shoots, but their growth is related to elevation. The higher the elevation, the lower the temperature, and the later they sprout. So every spring, pandas move from lower to higher elevations, chasing the growth of bamboo shoots.

【同期】跟着食物走。

Follow their food, right?

【同期】对。

Right.

【同期】第三个是它要去学习如何去寻找水源地。还有一个就是它要学习如何去嗅、去分辨哪些动物是它的朋友，哪些动物是它的天敌。初生牛犊不怕虎，但幼崽的话，它可能看到一个动物它就觉得没有危险，它想去靠近。那其实这个动物可能对它很危险，这个时候妈妈就在边上，可能去帮助它去抵御那些天敌，这也是需要学习的，跟妈妈一年多，对它来说是人生最重要的，也可以说是它的学前班。

The third skill they need to learn is how to find water sources. They also need to learn how to smell and distinguish which animals are friends and which are foes. Young cubs aren't afraid of anything. When they see an animal, they don't think it's dangerous and want to approach it. However, that animal could be very dangerous. At that moment, the mother is there to help protect them from threats. This is also something they need to learn. Spending over a year with their mom is the most important time in their lives, almost like their preschool.

【同期】我觉得妈妈选择这样的一块地方带崽，一定是有它的道理的。

I think the mom has a good reason for choosing this spot to raise her cubs.

【同期】对。

Right.

【同期】这附近你看全是吃的，而且相对这块地又平坦，冷箭竹也没有那么密集，可以方便来回地穿梭。

Look around; there's plenty of food here. The ground is relatively flat, and the Bashania Fangiana isn't too dense, making it easy to move around.

【同期】对。

Yes.

【同期】它有兽道，它是走的专门走的路，并且背风向阳，这附近还有水源，它喝水也很方便的。

Plus, there are animal trails specific paths they use, and it's wind-sheltered and sunny. There's also a water source nearby, so, it's easy for them to drink.

【同期】在以往的理解里面，我可能会觉得熊猫是一个比较懒，它老坐在那儿，坐在同一个地方吃东西，但是今天知道了母熊猫带崽的环境之后，发现它们不是懒，是非常有智慧的，它们选择的这个栖息地，选择带崽的这个地方，它们是很聪明的带崽方式。

In the past, I might have thought pandas were lazy, just sitting around in one place and eating. But after learning about their raising environments I see they're not lazy at all. They're very smart. The habitat they choose for raising their young shows their clever approach to parenting.

【同期】对。这个长期进化的结果，它们有它们的生存之道。

Yes. This is the result of long-term evolution, they have their own survival strategies.

【同期】嗑叔，我还是挺好奇的，就是当母熊猫带崽，这个崽长到两岁断奶了以后，它能够独立生活了，那它要怎么跟熊猫幼崽去交流说你已经长大了，你得离开妈妈了。

Keshu, I'm curious about something. When a mother panda raises her cubs and they wean at two years old, becoming independent, how does she convey to them that they have grown up and it's time to leave her?

【同期】它会驱赶它的，这时候它也要发情，它如果带着孩子，它就没办法再去接着发情。你可以看到它幼崽长大了，还会去找妈妈的树洞，但是那个时候，那个妈妈已经怀上了新的孩子了，妈妈为了保护新的孩子，会把原来的孩子要赶走、会吼它、会打它。孩子一两次之后，发现被妈妈拒绝之后，它就知道自己应该独立了，它就离开了。

She will drive them away. At this time, she also needs to mate. If she's with her cubs, she can't go into heat. When the cubs grow up, they still look for their mom's tree hollow, but by then, their mother will be pregnant with another cub. To protect the new baby, she will push the older ones away, growling or even swatting at them. After a couple of rejections, the cubs realize they needs to be independent, so they leave.

【同期】就一定要靠自己了。

They know they must rely on themselves.

【同期】而且熊猫它的社会结构和普通的食肉目动物还是不太一样，普通的像狮子这种群居动物，它是雄性被妈妈赶走之后，它会远走高飞，去开拓它的新领地。但是大熊猫是女儿会远走，雌性被妈妈赶走，去到另外一块山，去寻找它的新的领地。如果雌性还留在这里的话，它们基因就会产生近亲繁殖，就会影响它们的基因的后续，而雄性会留在妈妈的领地，它和它的兄弟以及它的妈妈，会在这一块会相互重叠的，有的时候甚至会起到一个保护它这个族群的作用。

Panda social structure is different from typical carnivores. For social animals like lions, after being driven away by their mothers, the males leave to find new territories. But with giant pandas, it's the females that leave. When a female is pushed away by her mother, she goes to another mountain to find her territory. If she stays, it could cause inbreeding and harm their genetics. However, males stay, overlapping with their mother and siblings, sometimes even helping protect the group.

【同期】你这么一说我就明白了，为什么宝兴片区会有这么多片的，就在不同地方都发现过野生大熊猫，就是因为它们必须要保持一定的距离，所以大熊猫的片区会一片一片又一片。

Now I understand why there are so many areas in Baoxing reserve, where wild giant pandas have been found. It is because they need to maintain distance from each other that their territories are scattered.

【同期】对。

Yes.

【解说】原始的自然世界，为野生幼崽走向独立提供了广阔的探索空间，但对于圈舍的幼崽来说，一直和妈妈住在同一屋檐下的它们，又会如何面对必须要经历的分离时刻呢？

The natural world offers wild cubs a vast space to explore, helping them become independent. But for cubs in enclosure, who have always lived with their mother, how will they face the inevitable separation moment?

【同期】大哥，那上面是不是上不去了？

Sir, is it impossible to go up there?

【同期】上得去，山有点高，你到哪里去？

Yes, you can go up. The mountain is a bit high. Where are you heading to?

【同期】我去那个，叫什么，鹿子坪。

I'm going to...What's it called? Luziping.

【同期】那有点远，鹿子坪有点远。这山有点陡。

That's a bit far. Luziping is quite away in the distance. This mountain is a bit steep.

【同期】我看你开的这车也是北京，是吧。

You're driving a Beijing model, right?

【同期】是。

Yes.

【同期】这什么型号的？

What model is it?

【同期】我是老款北京40。

I have the older version, BJ40.

【同期】我这是全新的BJ40。

This is the brand new BJ40.

【同期】那你这个是新款。

Oh, so you have the new model.

【同期】我这动力好。

Mine has good power.

【同期】你这个新款安逸。

Your new model is quite nice!

【同期】我们这现在电视台录节目，我们录的叫《熊猫奇遇记》，我们要开着这个全新BJ40去找大熊猫去。

We're filming a show called The Panda Adventure. We're taking this brand new BJ40 to find giant pandas.

【同期】那就开这个没得问题，这儿是陡，这儿海拔接近4000米，那个路又烂，这个车子没得问题，我这个老款都有两个，买了两个。

Then this should be fine. It's steep here, with an altitude of almost 4,000 meters, and the road is rough, but this car can handle it. I have two of the older models.

【同期】买两个了您都？

You bought two?

【同期】爬坡凶得很，爬坡相当凶。

They're fierce and reliable on hills.

【同期】您再换的话，换个全新BJ40。你这样，咱留个联系方式。

If you switch, get a brand-new BJ40. How about we exchange contact details?

【同期】要得。

Sounds good.

【同期】录节目把车卖出去了。

I'll sell the car during the show.

【同期】135……

My number is 135...

【同期】什么时候要换车了，然后给我打这个电话，到时候我到4S店提车的时候给你有优惠，好不好？

When you're ready to change cars, call me. When you pick up your new car at the dealership, I can get you a discount. Sound good?

【同期】好，谢谢。

Great, thanks!

【同期】那行，我接着往前走了大哥。

Alright, I'll keep moving ahead, sir.

【同期】车子没得问题，好。

This car can hold it. Good.

【同期】要得，我这个老款都没得问题，你这个新款更加没得问题。

Sure. My old car can do it, so your new car will be just fine.

【同期】好。

Alright.

【同期】路上注意安全，要得。

Drive safely. Got it.

【同期】今天跟大叔学了个新词，凶得很。

Today, I learned a new phrase, fierce and reliable.

【同期】你看我们四川话是不是很传神？凶得很。

Don't you think it is expressive? Fierce and reliable.

【同期】在卧龙片区咱们开的路就已经够野的了，真没想到今天开的路更陡更凶，咱们就凶起来吧！好。

The roads we drove in the Wolong reserve were wild enough. But today's roads are steeper and wilder. Let's embrace the wild! Okay.

【同期】你们知道我每次开全新BJ40是什么感觉吗？

You know how I feel every time I drive the brand new BJ40?

【同期】什么感觉？

How's that feeling?

【同期】一个字爽、两个字顺溜、三个字没有咱上不去的地方。

One word, amazing.

Two words, smooth ride.

Three words, no place I can't go.

【同期】惠营，你数学是体育老师教的吧？三个字不是应该是凶得很。

Hui Ying, did your PE teacher teach you math? Three words? Shouldn't it be fierce and reliable?

【同期】我们四川话说应该是凶得很。

It should be fierce and reliable.

【同期】凶得很。

Fierce and reliable.

【同期】还不够完整，应该是全新BJ40的爬坡能力凶得很。

It's still not complete. It should say the new BJ40's climbing ability is fierce and reliable.

第四章

Part 4

【解说】在都江堰基地盼盼园，我们见到了这对热爱运动的大熊猫母女。正在原地做操的是熊猫界大名鼎鼎的张卡。

In the Panpan Garden at the Dujiangyan Base, we met this active mother-daughter pair of giant pandas. The one exercising in place is the famous panda, Zhang Ka.

【同期】你看刚才它左右摇摆的动作，是不是像我们小的时候做操，配这个音乐就特别合适是吧。

Did you see how she swayed side to side? It's just like when we did...Radio calisthenics. This music fits perfectly, right?

【同期】广播体操现在开始。

The radio calisthenics are starting now.

【同期】然后这个是脚部运动，脚部运动、手部运动。

And here are the foot movements. Foot movements. Now for the arm movements.

【同期】因为它自己也挠不着，特别是背面。

That's because she can't scratch herself, especially on her back.

【同期】就熊科都会有这样的一个行为，都有蹭，找一个地方蹭，用硬物蹭。

The Ursidae often exhibits such behavior? Yes, they rub against something, against something hard.

【解说】如今的它已迈入老年，在它24岁的熊生中，曾养育过张想、张梦等5只大熊猫，可以说是一名功勋母亲。喜欢依偎在张卡怀里的，是2岁的女儿中中，它对女儿格外娇惯。

Now in her senior years, at 24 years old, she has raised five giant pandas, including Zhang Xiang and Zhang Meng, making her a distinguished mother. Cuddling up to Zhang Ka is her 2-year-old daughter, Zhong Zhong. she is particularly indulgent to her.

【同期】那它现在还喝奶吗？

Does she still drink formula milk?

【同期】现在不喝奶了，有时候可能也会吃一定的母乳。

Not anymore. Sometimes she might have a bit of her mother's milk.

【同期】它从什么时候开始断奶的呢？

When did she start weaning?

【同期】一般一岁半，有时候也会提前，看母猫的状态，因为有些母熊猫就是它体质好，她的母乳量就多一点，所以说我们就可能提前把盆盆奶给它断掉。

Generally around a year and a half, but it can be earlier, depending on the mother's condition. Some mothers have a good constitution, so they produce more milk. And we might stop feeding cubs formula milk early.

【解说】2岁的中中已经结束了换牙期，和妈妈同在一张桌上吃饭的日子，让它的身体飞速成长，女儿日益强壮的身体，还有那仿佛浑身用不完的精力，渐渐让妈妈有些招架不住。如今，摆在它们面前的，正是女儿即将面临的分离课程。

At two years old, Zhong Zhong has finished her teething phase. Eating together with her mom has helped her grow rapidly. With her increasingly stronger body and seemingly endless energy, it's becoming a bit much for her mother to handle. Now, what lies ahead for them is the separation lesson that the daughter will soon face.

【同期】那分开的时候是突然就是选定那一天，就把它俩突然分开了，还是说慢慢地先隔一下，比如说它在隔壁圈。

Will the separation happen suddenly, on a designated day, or will it be gradual, like, keeping her in an adjacent place?

【同期】就像断奶一样，先减少见面的次数，然后最后再完全地隔绝，是怎么？

It's like weaning, reducing their meeting frequency before completely separating them? How do you...

【同期】多种因素考虑，比如说母兽的一些身体状况，还有幼崽的一些发育情况，主要是从母兽这方面，因为有时候母兽到了一定的年纪，它就会主动地驱赶幼兽。

It all depends on various factors, like the mother's health condition and the cub's development. The main focus is on the mother, as sometimes, when she reaches a certain age, she will instinctively drive the cub away.

【同期】那分开了就是永远的分开吗？还会再见吗？

Does separation mean they'll never see each other again? Will they ever meet again?

【同期】一般不会再见。

Generally, they won't meet again.

【同期】生下崽的那一刻，可能就是一个渐行渐远的过程吧。

The moment a cub is born marks the beginning of a gradual distancing process.

【同期】对。

Yes.

【同期】不管是大熊猫来讲还是我们的人类来讲，可能我们都会要去经历这样的一个过程，不管是人生还是熊生都是一样的，都有一些共通性。

Whether for giant pandas or for us humans, we all go through this kind of process. In a human's life or in a panda's life...It's the same. There is something in common.

【同期】对。

Yes.

【解说】离别的难过终将度过，因为独立才是大熊猫成长旅途中的主色调，离开妈妈的大熊猫们正过着怎样的生活，我们带着一份“竹子见面礼”继续我们的探访之旅。

The sadness of parting will eventually fade, because independence is the main theme of a giant panda's journey of growth. What kind of life are the pandas leading after leaving their mothers? With a "bamboo gift" in hand, we continue our exploration.

【同期】竹子两边摔破就行了，摔好了就放地上。

Just break the bamboo on both sides. Smash it and put it on the ground.

【同期】为什么摔它呢？

Why do we do this?

【同期】我们主要就是利于熊猫保护牙齿。

We primarily do this to help protect the pandas' teeth.

【同期】都摔完。

Smash it all.

【同期】我们听见摔竹子的声音的时候，有的时候会觉得耳朵扎一下子，然后就突然间耳鸣了，因为这个声音音量特别高。但是圈里面的熊猫听见这个声音，它是非常享受的，因为它会觉得要开饭了。

When we hear bamboo smashing, sometimes it feels like a sharp noise in our ears, and then suddenly there's a ringing, because the sound is very loud. However, for the pandas, they really enjoy this sound because it means mealtime.

【解说】4岁的巢天骄和顿顿，从小青梅竹马一起长大，这是它们离开妈妈的第二年。虽然在成年前暂处同一圈舍，但它们绝大多数时间都生活在互不干扰的节奏和世界里。圈舍边缘，一大清早便开始打滚与绕场巡视的是男娃巢天骄。

4-year-old Chao Tianjiao and Dun Dun have grown up together. This is their second year away from mom. Although they share a place before reaching adulthood, they mostly live in their own rhythms and worlds, without disturbing each other. On the edge of the place, bright and early, the boy starts rolling around and patrolling. He is Chao Tianjiao.

【同期】骄骄。

Jiao Jiao.

【同期】骄骄打滚了，打滚了。

Jiao Jiao is rolling. He’s rolling.

【解说】而圈舍中央，全程稳坐小平台，把自己埋进竹子里专注吃早餐的，是女娃顿顿。

Meanwhile, in the center of the place, the girl is comfortably seated on a platform, buried in bamboo, focused on enjoying her breakfast. She is Dun Dun.

【同期】这个好。看见咱们俩了。

That's good. She is looking at us.

【同期】顿顿，吃饭。

Dun Dun, enjoy your breakfast.

【同期】熊猫是独居动物，还是群居动物？

Are pandas solitary animals or social animals?

【同期】独居。

Solitary.

【同期】都知道独居，那它俩为什么在一块？

We all know they're solitary. So why are they together?

【同期】还没成年。

They're not adults yet.

【同期】不对吧，三岁就成年了。

I don't think so. Three years old is considered adult.

【同期】三岁算成年吗？

Three years old is considered adult?

【同期】一般是三到五岁，是到它的性成熟时期。一般在野外它要分开的其实，但是因为它们是从小…

Yes, generally, they reach sexual maturity between three to five years old. In the wild, they usually separate. However, they are...

【同期】要么夫妻，要么兄弟。

Either couples or siblings.

【同期】对，它们从小就在一起生活，打小就在一块。

Right. They've lived together since they were little. They've been growing up together.

【解说】4岁的大熊猫处在亚成体阶段，距离大熊猫成年仅一步之遥。

At four years old, the giant pandas are in their sub-adult phase, just one step away from adulthood.

【同期】它现在四岁多，大概也就是相当于人类的十几岁的样子，人的十二三岁的样子，它在这个时期，它需要学习非常多的技能，这是为它将来成为一只真正的、能够迎接挑战的大熊猫的一个非常大的准备。其实跟大家，我觉得最大的点就是在这里，我们都在成长，都是在一个充实自己的一个过程之中。

Now, they're over four years old, roughly equivalent to humans in their teenage years, around twelve or thirteen. During this period, they need to learn many skills. This prepares them to become true giant pandas capable of facing challenges. Actually, I think the biggest point is here, we are all growing. We are all engaged in a process of equipping ourselves.

【同期】你们在学习中成长，它们也在学习。

You are growing through learning. They are learning too.

【同期】你们觉得这个熊猫跟你有相通之处吗？有没有？

Do you think the panda has something in common with you? Does it?

【同期】老师说他长得比较像熊猫。

The teacher says he looks a bit like a panda.

【同期】老师说我长得比较像熊猫。

The teacher says I look a bit like a panda.

【同期】那是国宝，你是咱们班班宝。

That's a national treasure. You are our class treasure.

【解说】青春期的孩子要继续为学业努力，但“青春期”的大熊猫已经过上了边吃边拉的无忧无虑的生活。

Teenagers need to continue studying hard, but "teenage" giant pandas have already led a carefree life of eating and eliminating.

【同期】现在它们吃的这竹子都是刚才我摔的。

The bamboo they are eating now is from the bamboo I just prepared.

【同期】就是说你像一只鹿，它吃一百斤的草，它能吸收八十斤，百分之八十左右它的营养物质，像大熊猫你们猜是多少？

Let's say, a deer eats 50 kilograms of grass, from which it can absorb about 40 percent. That's around 80 percent of the nutrients. Can you guess how much a giant panda absorbs?

【同期】三十？

30 percent?

【同期】不到百分之二十，就是百分之十七左右，所以它的吸收的效率是非常非常低的，吸收的效率低，所以它吃什么基本上就拉的就是什么。

Less than 20 percent. It's about 17 percent. So, their absorption efficiency is very low. As a result, what they excrete is basically what they eat.

【解说】一天花费十几个小时来吃饭的它们，看似呆萌，实则已经成长为接近自然界顶端再无天敌的存在。而战斗力的直接体现，便是它超强的咬合力。

Spending over ten hours a day eating, they may seem adorably clumsy, but they have grown into beings that are close to the top of the food chain, with no natural enemies. Their combat strength is directly reflected in their super powerful bite force.

第五章

Part 5

【解说】仅凭远距离的观赏，还无法让我们解锁这副好牙口的战斗秘诀，我们带着好奇，驱车来到了贵州双河洞，在这幅收纳了数万年生命的地穴画卷里，我们能近距离地观察大熊猫成长所进化出的牙齿秘密武器。

Just watching from a distance won't unveil the secrets behind these strong teeth. With curiosity, we drove to Shuanghe Cave in Guizhou. In this cave, which has recorded thousands of years of life, we can closely observe the secret weapon of teeth that giant pandas have evolved for growth.

【同期】这牙齿太完整了。

These teeth are remarkably complete.

【同期】我们大概根据这个磨蚀斑可以判断出来，它可能是刚成年，就是说它是一个青壮年的个体。

Based on this abrasion plaque, we can infer that it was likely just an adult, meaning it was a young individual.

【同期】这只熊猫距今多少年了？

How many years ago was this panda alive?

【同期】我们测了一个碳14的年龄，距今有三万多年了。

We measured its age using carbon-14, and it dates back over 30,000 years.

【同期】这三万年前的熊猫和现在的熊猫有什么不一样吗？

What differences are there between the pandas from 30,000 years ago and today's pandas?

【同期】双河洞这边的熊猫和现生的熊猫基本上差不多，体型可能会比现生的熊猫要稍微大一点点。

The pandas from Shuanghe Cave are basically similar to modern pandas, although they might be slightly larger in size than modern ones.

【解说】透过这块跨越数万年仍保持完整的牙齿化石，我们亲眼观测到了大熊猫咬合战力的集中爆发区——臼齿，也就是人们常说的后槽牙。

Through the fossilized teeth, which have remained intact for thousands of years, we can observe the concentrated area of bite force in giant pandas, the molars, commonly known as the back teeth.

【同期】熊猫的牙齿非常特殊的，可以看到齿尖还是比较锋利的，然后有一些小的磨蚀斑，而且它有很特殊的瘤突，就是像瘤状的一些突起，这些对于它吃这么坚硬的竹子什么的，都起到了很大的作用。

Pandas have very unique teeth. As you can see, the cusps are quite sharp, with some small abrasion plaques, and they feature distinctive tubercles, which are lump-like protrusions. These play a significant role in eating such hard bamboo.

【解说】独有的臼齿瘤突，如同无数个细小的齿轮，搭建了一座座磨碎竹子的小工厂，而大熊猫的牙齿武器，是历经了数百万年的进化，才成长为如今精密运转的模样。

The unique molar tubercles act like countless tiny gears, creating little factories for grinding bamboo. The tooth weapons of giant pandas have evolved over millions of years to reach their current precise operational form.

【同期】这里有一张云南的禄丰始熊猫，这个时候它还非常小，但是我觉得有一个很大的差别——长宽比，是它的长度大于它的宽度。但是再看这里，它的宽度比它的长度要大，说明它变宽了。和那个时候相比，它这个牙齿更适应吃竹子这种，而且它吃竹子不仅是通过牙齿。我们可以看到矢状脊非常高，大概有超过两公分的非常发达的矢状脊，可以附着更多的肌肉。

Here are some teeth of the Ailurarctos lufengensis from Yunnan. At that time, the molars were still very small. But I notice a significant difference, the length-to-width ratio. Their length is greater than their width. Now, look at these.

Right.

Their width is greater than their length, indicating they have become broader. Compared to that time, the teeth are now better adapted for eating bamboo. Moreover, pandas don't just use their teeth to eat bamboo. As we can see, the sagittal crest is very high. Over two centimeters, it's highly developed, allowing for more muscle attachment.

【同期】咬肌这一块是吧？

The masseter muscle, right?

【同期】对。

Yes.

【同期】熊猫头可能会更圆一点，所以说我们看到熊猫的咬合力，力量非常强大，它可以把竹子给咬碎。

Pandas' heads might be a bit rounder. That's why we see the incredible bite force of pandas, they can crush bamboo.

【同期】竹子对大熊猫来说，虽然大家觉得它好像走了偏门，但是实际上这也可能是它生存下来的一个重要的原因。

While some may think that bamboo is an odd choice for food, it could actually be a key reason for pandas' survival.

【同期】对。

Yes.

【同期】因为竹子它四季无论是海拔高还是海拔低，无论是气温高还是气温低，竹子都能够生存，它很顽强，所以大熊猫能够靠它，度过一次次的气候的变化，它能够活下来。

Because in all seasons, whether at high or low altitudes, regardless of temperature, bamboo can thrive. It's very resilient. That allows giant pandas to endure various climate changes, enabling their survival. 【同期】所以也就是说，随着时间的推移，如果要是能够适应这些气候变化也好，或者是地理环境变化也好，这样的物种就更大机率能够存活下来，其他的物种就会灭绝。

So, over time, species that can adapt to climate changes or geographical shifts have a better chance of survival, while others may go extinct.

【解说】在跨越八百万年间的进化长河中，大熊猫闯过了无数个“熊生第一次”——第一次在东倒西歪中翻身、第一次在摇摇晃晃中站立、第一次品尝鲜嫩的竹笋、第一次挑战坚硬的竹竿、第一次在高耸的树冠领略世界的辽阔、第一次在清澈的溪边品味生命的甘甜、第一次学会战斗、第一次接受离别……我们所解锁的“熊生第一次”，或许只是这个古老物种成长的冰山一角，属于大熊猫的成长一刻未停，我们期待在这条道路上，找到更多关于生命、关于自然、关于共生的答案。

In the evolutionary journey spanning eight million years, giant pandas have experienced countless "firsts" in their lives, the first time they rolled over wobbly, the first time they stood up while swaying, the first taste of tender bamboo shoots, the first challenge of hard bamboo stalks, the first time they marveled at the vast world from high treetops, the first time they savored the sweetness of life by a clear stream, the first time they learned to fight, and the first time they faced separation. The "firsts" we have learned of may just be the tip of the iceberg of this ancient species' growth. The growth of giant pandas has never stopped, and we look forward to finding more answers about life, about nature, and about coexistence along this path.