The Bear Book Volume II

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A Happy Surprise

The traps had been set for two weeks, but no bears had shown up in the forest. I started to doubt that bears would come to our traps, and worried we might run out of food before we were able to capture any bears. Each time we visited the traps, we found only unwelcomed visitors like golden weasels, Formosan yellow-throated martens, crab-eating mongooses, and Formosan white-bellied rats. The animals either ate all the bait or triggered the traps. Because of this, we were busy rescuing them or setting up the traps again. Once, a fat masked-palm civet even slept over a trap after eating all the bait! It stayed there until we approached the trap, taking its time running away.

On October 18th, after a routine glance at Trap No. 14, I found it intact and thus was disappointed again. It was one of our favorite traps, which was located on the boundary between the forest and silver-grass steppe above our camp. The trap was located at almost the highest altitude of the distribution of ring-cupped oaks (1,600 m). Several oak trees stood around the steppe with full sunshine. The oaks had considerable big fruits and numerous claw marks on the trunks. Very disappointed, I shuffled to the trap but found broken twigs and scattered shells on the ground. New claw marks were left
on the trunk of the ring-cupped oak supporting the trap. Excitedly I kept shaking hands with Husung behind me, saying “finally a bear has visited the trap!”

The trap was intact and had not been damaged by the bear. I guessed that the bear had stepped on some wood and had climbed the ring-cupped oak supporting the trap, since some broken twigs were still dangling in the tree. In the trap, the stick that was used to hang up the bait was dragged outside, and the bait was eaten. The lasso used to capture the bear’s paw was dragged outside as well. Its loop had shrunk but had no bear hairs on it. “Why was the trap triggered without a bear inside?” I pondered over some possible causes.

First of all, the hole under the loop could be too shallow. If so, the bear could draw its paw back in time when stepping over and detecting the hole covered with leaves and moss. Second, the passage inside the trap might be so wide that the bear could avoid stepping right inside the loop. Instead, it might step on it. Third, the bear’s paw could be too big to be captured by a small loop. Therefore, I made a deeper hole, enlarged the loop, and inserted more branches into the soil along the passage. The last step was to hang a big and delicious bait inside the trap.

I also found the bear’s footprints following the trap-checking trail and disappearing into the silver-grass steppe. I believed that the bear would return to the trap soon, because it only had eaten the fruits of a ring-cupped oak and the bait this time. This was not enough for a bear. Although the capture failed this time, the bear’s visit boosted our confidence.

**Waiting for Bears**

The mountains changed their colors quietly, while we were busy checking the traps and cleaning the work station. Coniferous and broad-leaved mixed forests remained green all the year, but some trees wore
their new clothes. The leaves of Kawakami-maples, black dye trees, Taiwan walnuts and Taiwan cherries, turned yellow, and those of red-flowered persimmons and Taiwan red maples became red. They painted the green mountains with autumn romance and made the valley of Dafen suspension bridge even more beautiful and colorful. When passing along the suspension bridge, I always stayed there for a while deliberately, to enjoy such a scene. Autumn fell to the bottom of the forest, too. Many unknown mushrooms appeared like bamboo shoots showing up after spring rain. They looked different in bright and beautiful colors. It was the first time for me to discover so many kinds of mushrooms in the forest.

The bear had appeared only once, but the forest was full of vitality with the presence of animals other than bears. The animals always showed up suddenly, when we passed through the oak forest. Formosan striped squirrels and red-bellied tree squirrels chased each other at play in the branches and Formosan rock-monkeys often dispersed immediately or howled upon seeing us. Organized folks of jays or Formosan blue magpies called noisily as they flew in front of us and green pigeons’ low-toned songs echoed in the valley. It was not time yet for oak fruits to become mature and fall to the ground, but animals passing by the oaks would make some fruits fall. These fruits became the food for those that could not climb the trees, such as shy and sensitive wild boars, Reeve's muntjacs, and Formosan serows. Their footprints were always found near the trees.

In the forest, almost all animals enjoyed the feast, but there was no sign of Taiwan Black Bears. We grew doubtful and asked ourselves “will they show up?”

**Finally a Bear**

At 9:30 AM on October 25th, I carefully approached Trap No. 14 as usual but found all the wood around the trap collapsed. Stunned, I stepped
forward and saw a black shadow near the Japanese Silver Grass steppe. It was the bear. I walked back to the trail and whispered to Jungnai: “a bear.” He looked doubtful. After telling him to be careful, I quietly walked to the trap and peeked at the black shadow.

I could not believe that the bear that visited one week ago returned to the same trap. I suppose it could have been a different bear. Either way, this bear was finally near us. Quietly, Jungnai and I moved to the trees 10 meters behind it. Unaware of our approach, the bear was gnawing on the loop on its right paw attentively. I estimated its weight to be between 100 - 150 kg. This was a reference for the anesthetic dose I would prepare.

After the brief observation, I did not dare to stay near the trap any longer. I wanted to go back to camp and get the equipment as soon as possible. I rushed back to the camp in only 30 minutes, a walk that usually takes two hours.

Excited and nervous, I could not stop to think about how to deal with the bear and how to inform Qaisul and Anika, the rest of my team. They were on another trail and I had not brought a walkie-talkie with me because I didn’t want to expose it to the rain. Since we didn’t have a walkie-talkie, Jungnai and I yelled “Ho” toward the valley with all our strength. No one responded. It meant that they might be on the other side of the valley, or that our yelling might be drowned out by the stream flow.

Returning to the camp, we found that Qaisul and Anika were not back yet. I took out a set of anesthetic equipment we had prepared beforehand, and looked for iron nails, wires, and hammers to use to build a bear cage. I also grabbed four cans of sweet rice porridge and chocolate for lunch. I wrote two notes: “Bear! Please come to Trap No. 14. We have all the tools.” I put one note inside a self-seal bag and in the rain hurried to the trail they would pass along. In the middle of the trail, I placed the bag under a stone. I then ran
back to the camp and left the other note on the kitchen table. At the same time, Jungnai packed all the equipments into two big bags.

With the two heavy bags on our backs, Jungnai and I began climbing the hill back towards Trap No. 14. After walking for no more than 50 meters, we heard Qaisul’s yelling and running towards us. We returned to the camp and informed them of the bear in the trap. While Qaisul was preparing another saw, Anika hurried his breakfast of a bowl of porridge. To every volunteer researcher, I repeated do’s and don’ts for anaesthetization and everyone’s tasks. At 11:20 AM, we climbed up to the mountaintop. We were ready for the pioneering work of capturing a wild black bear in Taiwan.

At 12:30 AM we arrived at Trap No. 14. I went alone to check on the bear and the place for anaesthetization. The bear was leaning on a small trunk and gnawing the loop. In the light rain, I discussed how to approach and anesthetize the bear with the rest of the team. Everyone was given two syringes filled with anesthetic and a blowpipe. After the preparation was completed, three of us approached the bear from different directions. When we arrived in front of the bear, it became nervous. It anxiously ran around the oak tree fastening the wire loop and then climbed the tree. Its fierce reaction shocked me. It was quite different from the quiet nature of American black bears I had anesthetized previously in the US. Thus, I wanted to finish the anaesthetization as soon as possible in order to alleviate its anxiety. By a gesture, I told the others to go closer to the bear. No one moved. I could understand this. After all, nobody in our group had been face to face with such a large and energetic black bear.

Then, I lowered my body and approached the bear. Suddenly, it rushed at me and howled loudly. I was shocked and took some steps backward. I did not expect to be confronted with such a fierce reaction. I was holding the same blowpipe I had used for anaesthetization American black bears in the US. It was a two-meter-long blowpipe with a syringe attached at the end. I
took time to aim at the bear’s left hip, but the first shot failed with the syringe immediately dropping to the ground, after hitting the bear. I attached the second syringe as soon as possible, and seized the chance to shoot at its right hip, when it was very close to me. After the second syringe hit the bear, it turned its head to me and howled. At that moment, I was face to face with the bear, with only two meters separating us. It stared at me with its round, black eyes, as innocent as a baby. Unfortunately, the second shot failed, too. Half the dose of anesthetic was left in the syringe, and the needle was bent. The failure could have been caused by the bear’s rapid movement when the needle hit the bear or by its slippery, wet hair. In my estimation, no more than three cc’s of anesthetic was injected into the bear. It was not enough to anaesthetize an animal weighing 100 kilograms.

After my second shot, the bear ran towards Qaisul. He held the blowpipe steadily and slowly moved it upward. He blew with all his strength, and exclaimed “It hit the right.” However, Qaisul immediately turned back and ran away, because the bear rushed towards him after his shot. The bear shook off the syringe and climbed the oak tree. I motioned to Qaisul to attach the second syringe to the blowpipe. He gave the second shot, according to my directions. The shot hit the bear securely. In order to calm down the bear and let the anesthetic begin to work, I asked everyone to move away from the bear and leave it alone.

The process had only taken 10 minutes, but time seemed to stop during the confrontation between us and the bear in the rain. We were soaked, so we retreated and set up a small rain shelter. I double checked the dose of the injected anesthetic. Qaisul had two shots. My shots either dropped to the ground or missed the aim. Anika did not have a good chance to shoot. After the messy fight, six syringes were used and scattered in the trap. Some of them missed the bear. Some hit the bear, but anesthetic was not injected before the bear shook them off. Others were not used at all. While it was
possible that the failures were due to the rain, it showed us that our technique of using blowpipes needed to be improved for successful anaesthetization.

Waiting for anesthetic to take effect, I filled three more syringes with anesthetic. I worried that anaesthetization would need to be repeated if the bear remained awake. After three minutes, I approached and observed the bear. It was lying in the tree, staring at me quietly. I gave the bear another shot, and it climbed down out of the tree.

Five minutes later, the bear was lying on the ground. I carefully approached it and carefully touched its sensitive ears and nose with the blowpipe. It did not respond, indicating that it was anesthetized. I knew it was important to seize the time when the bear was under anesthetic. If the work proceeded too slowly, the waking bear would pose a danger to researchers. Although we could keep the bear under anesthesia by injecting more anesthetic, it was not good for the bear’s health. I urgently instructed everyone to move the gear near the bear as soon as possible.

We bustled to move the bear onto a ground cloth to measure its weight. The bear was only 65 kilograms. It was lighter than estimated. I started to worry that too much anesthetic could have been injected, even though the dose was within the tolerance range and the medicine was popular for anaesthetizing bears without side-effects. I began monitoring the bear’s temperature and breathing to make sure that the bear remained in good condition while it was anesthetized.

**Dimu the Bear**

The main reason we were trying to capture bears was to put tracking devices on them so we could study their movements and activity. It took us almost an hour to get a collar on the bear because the size of the collar was similar to the size of the bear’s neck. We spent time adjusting the collar size
to make sure it fit just right. Too loose and the bear would be able to remove the collar. Too tight and the bear would have discomfort. Inside the collar was a tracking device called a global positioning system. This device would record the location of the bear by receiving satellite signals, and then store the locations until we retrieved the collar again. We selected this system after my advisor, Dave Garshelis, and I had evaluated all the tracking devices on the market. Few traditional very high frequency (VHF) transmitters could work well and effectively in locating animals in the mountains, but it was also possible that steep slopes and abundant vegetation might hinder satellite radio tracking. Without a better alternative, we chose the satellite tracking devices and had high expectations of the first trial of these devices in Taiwan. Maybe it will become an important tool for studies in large animals in the mountainous island.

For this first bear, we had to put the satellite tracking device on a wild bear without any field pre-tests. Its performance would remain unknown until we retrieved it and read the data. Unfortunately, we were unsure if we would be able to capture the same bear again to retrieve the device. For this reason, a traditional tracker was also placed in the collar. This gave us the ability to locate the animal on the ground using the traditional tracker if the satellite tracking device did not work well or the bear was not captured again.

Once we had the collar on the bear, Jungnai helped me measure the bear. Qaisul and Anika went to prepare wood for making a cage. I hoped to keep and observe the bears for the coming two days to make sure that it fully recovered and that she would not pull off the collars. I did a full examination of the bear. This examination was of great importance to provide first-hand information and to unveil secrets of wild Taiwan Black Bears, as very little fundamental field data had ever been collected. After drying the bear’s hair with a towel, I implanted a micro-chip in the bear’s back and attached a
plastic colored band to each of its ears for future identification.

The bear was a female adult. In addition to the yellow V-shape chest mark, she had black hairs dotted with white ones. The hairs on her neck were particularly dense and long (over 10 cm). There was sign that she had given birth to cubs in the past. Also, her teeth were yellow, and the four large fangs were fractured and round, indicating that this bear was likely older. Later on, based on analysis of teeth cementum layers, we learned that the bear was twelve to fourteen years old. It is the oldest bear we have ever captured.

The Missing Paw

What shocked me most was that the bear had no left front paw. It also had a particularly small fifth digit on its right back paw and no claw there. Seeing this, Qaisul blurted out, “This bear could have been captured by traps more than once.”

When I had previously captured black bears in Minnesota, I never saw missing paws or digits like this. Later, I asked my graduate school advisor whether he had seen missing toes and paws like this. He shook his head no, and he’s captured more than 600 American black bears.

The missing paw was consistent with stories told by aboriginal hunters. The bears caught by wire loops or a jaw traps would sometimes escape with traps on their paws. As time passed, cells of their paws die and fall off due to reduced blood circulation. Few hunters would take bears due to traditional hunting taboos. Instead, their main prey were Reeve's muntjacs and Formosan serows. Besides, the popular tool used to capture any prey was a snare, because it was light and inexpensive. A hunter could set up hundreds of snares in the forest where animals showed up frequently. It would thus become a large net fully covering the forest, and bears with bad luck would not escape from it. I have been told that some bears would bite off the trapped digits in order to escape. Finding this bear with a missing paw
increased my determination to check the traps frequently. Also, I realized why the bear was biting the loop on its paw with all its strength when I spotted it in the trap for the first time. It might repeat the method that helped it survive after being captured in the past. I was sorry about its poor destiny, because it was captured again for my study. However, different from its previous experience, I would promise that the bear would return home safe and sound.

At 5:00 PM, the physiological measurements were finished. I injected a dose of ATP and Vitamin B into the bear, in the hope of supplementing some nutrition for its energy. We then checked the bear for ectoparasites and collected those that were found. We had been working on the bear for a long time, and decided not to collect blood, as we feared we had little time left before the bear began to wake. I asked the others to finish the cage quickly, so that we could put the bear in the cage and I could inject Yohimbine into the bear, a reversal drug that would help wake her up.

At 5:40 PM, the sky turned dark. Finally, we moved the bear into a just-made, one-meter wide wooden cage. After I injected Yohimbine into the bear, Qaisul and the others blocked the cage entrance with wood tightened by wire. More than 10 minutes passed by. The bear woke up slowly. We made noises to stimulate its reaction. Twenty minutes later, I thought that that the bear would not fall asleep again. I was ready to leave her. I left rice and preserved meat inside the cage while the others finished packing the equipment and waited for me under the rain cloth. By the headlight, I saw them quivering subtly. All of them were soaked, cold, hungry and exhausted. The four cans of sweet rice porridge, prepared for lunch, remained unopened in the bag.

It was almost 7:30 PM when we returned to the camp. At dinner, we talked about naming the bear. Qaisul wanted to name it after dogs, because
black bears were also called “dog bears”. He suggested the name “Dimu.” It was the name of an indigenous hunter’s female hound, which was extremely good at tracking prey. We all agreed on the name. Before going to bed, I thanked the god for giving us a bear.

**Dreaming of a Bear**

The rain was intermittently heavy and light that night. I did not sleep well because I worried about Dimu: would she remain safe or would she break out of the cage? I left my sleeping bag before 5:00 AM; before dawn had broken. After making a fire, I cooked some food for Dimu. Jungnai came to the kitchen with sleepy eyes and took up cooking. I went to prepare anesthetic, a first-aid box, and the radio tracking equipment for the morning’s work.

I went to check on Dimu with Qaisul. He told me that Anika had a dream of the old man (their ancestor) again. The old man promised to give us two more bears.

I was still very anxious when approaching Trap No. 14. I threw a stone near the cage to probe the bear. The stone hit the rain cloth with water, and a black shadow moved. The bear was alive. In fear of other bears lingering nearby, I took out my pepper spray and approached the bear step by step. The bear howled and snorted toward us. It also managed to stand up, but her head was lowered given the small size of the cage.

Then, instead of her fierce reaction like yesterday, it squatted down in one corner of the cage with its back to us. She looked very tired. I seized the chance to carefully observe her. She was smaller than I had remembered. With one claw falling apart from the front paw, its toe was bleeding. I worried about the ensuing infection and wanted to give her an injection of antibiotic. I quickly gave up on that idea, though, as I remembered her strong vitality with a missing paw. In comparison, the bleeding toe would not
become a fatal injury. Besides, it was unnecessary to disturb her, even for an antibiotic injection. The bear did not eat the preserved meat I had placed inside the cage last night. Still, I put one more piece in and filled a half kettle of water. She did not take a drink.

Later than night, an alert of heavy rain was reported on the radio. At 9:00 PM, a land warning of Typhoon Beatrice was announced. Only one star was found in the sky, with the faint moonlight. The tracking device attached to Dimu beeped steadily. Dimu was resting. We would free her tomorrow.

**Dimu Set Free**

October 27th was of the day we freed Dimu. Qaisul and I approached the cage with blowpipes at hand. The bear was scared and anxious, and she shorted and howled. She climbed one corner of the cage, and Qaisul had a shot at her back leg. The injection was successful, and anaesthetic took effect. We left to give her room. After 10 minutes, I checked on the bear, who responded weakly. I retreated and waited for another four minutes. When I returned the second time, the bear slept well with a deep breath, curled inside the cage like a cub.

We unblocked the entrance to the cage and hauled the bear out of the cage. I found that only one piece of preserved meat and half of the rice were left. I checked to make sure the collar size was suitable, and injected one dose of antibiotic and one dose of Vitamin B. Some povidone iodine and anaflex were also applied to her right back paw with the injured claw. This was the most I could do to help her.
After the final examination of her body condition, we took photos of the bear respectfully.

Then we packed the equipment and left. I asked the others to leave first. Qaisul led the way for “our escape from the bear.” I injected Yohimbine into the bear, which would wake her up very soon. Touching her forehead, I said “Dimu, I am sorry but grateful to you. Take care.”

After leaving Dimu, we stayed on the northern slope of the mountain. It was 100-meters away from the trap. We monitored the bear’s location using the radio tracking device. It beeped steadily for 10 minutes, and the signals changed in amplitude. This meant that the bear had started to move. In fear of its approach following our odor, we became nervous and discussed what we should do. We took out the pepper spray and kept it handy. Ten minutes later, the signal gradually became weaker; bear was moving away from us.
The story you just read is an excerpt from Dr. Mei Hsiu Hwang’s book, “The Journal of Black Bears”. Dr. Dave Garshelis wrote the Foreward to this book, which is provided below:

The Journal of Black Bears

Foreward written by Dr. Dave Garshelis

I first came to Taiwan in 1994 as a representative of the Bear Specialist Group. A Specialist Group is a collection of experts working under the auspices of the IUCN World Conservation Union, an international organization dedicated to the conservation of the world’s fauna and flora. The Bear Specialist Group together with the Conservation Breeding Specialist Group organized a workshop in Taipei to investigate the status, future, and conservation needs of the Formosan black bear, a recognized subspecies of the Asiatic black bear. Asiatic black bears are categorized as “vulnerable” by the IUCN, a category meaning not quite endangered but headed that way. The Formosan subspecies was of particular concern because if its population was driven to very low levels it could not, living on an island, be replenished from a reservoir of bears elsewhere.

Bears have inherently low reproductive rates. They mature late, and they produce cubs only every other year, at most. They are able to persist and even thrive in some places only because of their naturally high rate of survival. They can even sustain controlled hunting. The overriding concern for Asiatic black bears is that levels of hunting are likely unsustainable. Asiatic black bears are legally hunted only in Japan. In other parts of their range, from Eastern Russia, through China to Southeast Asia and westward through India to Iran, hunting is prohibited. However, poaching, to supply a thriving market for bear parts (particularly gall bladders and paws) in Traditional Chinese
Medicine, has severely impacted this species. Among the world’s eight species of bears, the Asiatic black bear appears to be most threatened by illegal hunting.

The central focus of our Formosan bear workshop was on what is called a “population viability analysis” or PVA. A PVA aims to forecast the future of the population under varying scenarios, especially varying human impacts. The workshop gathered together people in Taiwan who had a diverse interest and knowledge of bears, including university professors, government officials, representatives of conservation organizations, teachers, and indigenous people. The purpose was to pool all available knowledge about the bear’s biology, and also examine the wide range of viewpoints on conservation issues related to this subspecies.

Two paramount conclusions were reached. First, it was very apparent that too little was known about the Formosan black bear to make any meaningful predictions of its long-term viability. Second, it was clear that the general public in Taiwan was very ignorant of the issues, possibly even unaware that bears still existed on this island. Two recommendations ensued: one, that a research project should be developed, and two, that greater efforts should be devoted to public education regarding the dire plight of this bear as a result of continued poaching for its parts.

The obvious problem was who would do it? In theory many prospective graduate students might be interested in studying this little-known bear, and possibly even making a real contribution to its conservation. In practice, though, such a study would be extremely difficult, and few students, or even experienced bear researchers, could successfully accomplish it.

The only way to effectively study a low density, cryptic, forest-dwelling species like the Asiatic black bear is using radio telemetry. That is, bears would have to be radiocollared and then followed using a radio receiver to see how much space they needed, what habitats and foods they preferred, and
what interactions they had with people. The first hurdle would be in catching some bears to study. But how could enough bears be caught to gain reliable information? If the bears were really as scarce as people thought, then who would want to commit the time and energy that it might take to catch a scientifically respectable sample?

A second, even greater concern would be in radiotracking these bears. The signals from the collars on their neck have a limited range, especially in the rugged mountainous terrain where the bears live. And bears in general are known to travel long distances. To locate them by hiking around these steep mountains with few trails would be virtually impossible. Certainly no graduate student in their right mind would want to spend years in such an effort, with the real risk that success would be unattainable.

Enter Hwang Mei-hsiu: I met Mei-hsiu on my second trip to Taiwan in 1995. I was visiting Dr. Wang Ying, renowned professor of wildlife biology from National Taiwan Normal University. Dr. Wang kindly took me to one of his study sites in Yushan National Park to spend a few days. We went with a group of undergraduate and graduate students. Also along was prospective graduate student Hwang Mei-hsiu. Dr. Wang knew Mei-hsiu very well from former work, including a small project involving the release to the wild of a captive Formosan black bear. He had been impressed with Mei-hsiu’s field skills and especially her enthusiasm for doing field research. Mei-hsiu had also done a Master’s degree radiotrackingmongooses, demonstrating her field savvy and tenacity.

I didn’t speak any Mandarin, and Mei-hsiu spoke little English, so we couldn’t communicate much. However, it was clear to me that she was adept in the forest, eager and energetic. Would she have what it would take to conduct a bear study here? Was it even possible to conduct such a study in Taiwan? We went for a long hike one day, looking for bear sign. We found what looked to be some bear bite marks on one small tree, but we couldn’t
tell for sure that a bear had done it. We also found some freshly eaten bamboo sprouts. But again, we couldn’t tell if a bear had nipped these off. One thing was clear: bears were not abundant here. We saw no footprints in mud along the trail. We found no bear droppings.

For Mei-hsiu to do this study, she would have to quit her job as a biology teacher and start a project that had no funding for either equipment or salary. I suggested that Mei-hsiu wait at least another year to see if we could raise some money for the study; meanwhile, she could continue her job and save some money. She was upset. She wanted the project. She was afraid that someone else might take it in the meantime. I couldn’t adequately explain to her that there wasn’t really a long line of people waiting to do this.

Mei-hsiu convinced me, nonetheless, to accept her as a student at the University of Minnesota, where I was an adjunct associate professor in the Conservation Biology program. She came the next summer (1996) to take classes in English, and then immediately began class instruction in conservation, ecology, wildlife management, statistics, and the like. She quickly proved herself an astute student, not only able to learn, but able to think and problem-solve.

After getting some classes behind her, she was ready to make a preliminary reconnoiter into the field. She spent a summer hanging bear baits in four potential study sites. This method is routinely employed by bear biologists to find good places to trap. However, a couple of months later, after checking 80 baits, she found that only one had been taken by a bear. The prospects for a study, and for bear conservation, looked bleak indeed.

A Formosan black bear study, especially a Ph.D.-level project, based entirely on capturing animals might well be impossible. Her thesis committee concluded that her project needed a second means of data collection as a backup. Studies elsewhere have been able to obtain valuable information from indigenous people, especially hunters, who know a great deal about the
forest and the animals that live there. We agreed that Mei-hsiu would need to find a way of tapping into their knowledge about bears. This would be no easy task either, as it would entail asking people of another culture about their illegal hunting activities. Moreover, any time spent in this effort would be time away from trapping and radiotracking.

The following summer, before flying back to Taiwan to start her dissertation fieldwork, Mei-hsiu spent several weeks in Voyageurs National Park in northern Minnesota learning how to trap, drug, and radiocollar bears. The experience gained here would be essential when catching bears in Taiwan – presuming she could catch some. One day in June, while checking traps along a trail in Voyageurs with her, I commented about the relationship between food supply in the forest (berries and nuts) and success at trapping bears. She then asked me what I thought of her trying to trap in an oak-rich area in southeastern Yushan National Park, a place called Daphan. A former hunter, now employed by the park, told her that bears congregated in this area during the fall, at least during falls with good acorn crops. “Sure, that sounds ideal,” I said. “Except one thing,” she added, “it takes three days to walk there. Even indigenous hunters rarely go in that far.”

The trade-off was thus a highly inaccessible area that might have lots of bears, at least seasonally, versus more accessible areas with a very low density of bears. There really was no choice; she had to go with the former, but the logistics of setting up a camp there, supplying it, and working from there for long periods would be daunting. Was this really a feasible study for a Ph.D. student? It sounded more like something requiring a team of experienced biologists, with lots of financial support!

Six months later, in early December, I was in my Minnesota office when the phone rang – a call from Mei-hsiu in Taiwan. I hadn’t heard from her in a couple of months, since she set out to trap in Daphan. She said she needed a favor. I feared that something terrible had happened. Instead, I was overjoyed
to hear that the favor she requested was for me to ship her more radiocollars, immediately. She needed them because she was catching so many bears that she had run out of collars! I never expected it. Nobody did.

The initial success of her project attracted immediate attention, by television, radio, newspapers, and magazines. When I came to visit her project in the summer of 1999, two television crews followed us into the field. The next year we had both television and magazine along. This is not what Mei-hsiu had anticipated, nor desired. However, she put up with the bother of assisting the news media because she knew that this was the best means of educating the public, and thereby swaying opinions and policies to better conserve bears. Ironically, the research project served conservation more directly by attracting media attention than it did by collecting scientific data. It provided vivid visual images of bears to a public that was virtually unaware that they even existed in their homeland, and also provided a knowledgeable national spokesperson.

Indeed, possibly the best outcome of this project was that it generated a respectable voice for the bear, that being Hwang Mei-hsiu. Here was a person, a young woman no less, who accomplished the nearly impossible. She survived severe bee stings, landslides, blown-out bridges, typhoons, and camp-raiding bears, all to fulfill not only a graduate degree, but a passion. The indigenous people living around the park, who freely provided her with volumes of information about bears, began referring to her as “bear momma,” a name arising it seems from their belief that she was living in the mountains in order to care for the bears.

On account of her efforts, we are appreciably more hopeful for the Formosan black bear. We have significantly better information, some of which suggests that the population may be larger than previously suspected, and also that rates of poaching may be on the decline. More so, we have someone committed to campaigning on their behalf.
I am certain that readers of this book will gain not only an appreciation of Mei-hsiu’s ordeals, but also a clear picture of what wildlife research is really about. The images of wildlife studies on television and magazine often appear glamorous. The real work is anything but. It is physically exhausting and mentally taxing, involving long periods with little or no gain, followed by bursts of activity for which one is often not fully prepared. Mei-hsiu captures all that in this wonderful book, in her written stories taken from her field notes, in her comments from hindsight, and in her stunning photos.

When you are finished reading this book, you will be tired just thinking of the mammoth task that Mei-hsiu has accomplished, and you will be appreciative not only of her efforts, but of her willingness to tell about it in such a candid fashion. Above all, through reading this book I think you will discover a desire in yourself to do something for the bears and other wildlife that share the island of Formosa. If the book spurs people to action, and I think it will, maybe urging on some future field biologist, but mainly just promoting a greater public conservation-mindedness, then Mei-hsiu will have succeeded. Enjoy her adventure – and then join her campaign!