

PROFILE: PILAI POONSWAD

Subduing Poachers, Ducking Insurgents to Save a Splendid Bird

Biologist Pilai Poonswad has earned praise for reaching out to southern Thailand's alienated Islamic communities in an effort to observe and preserve hornbills

NARATHIWAT, THAILAND—Two soldiers in dark-green fatigues and camouflage flak jackets creep through the grass in a highway median, searching for bombs. Tensions are high this morning in Narathiwat, one of three restive provinces in southern Thailand beset by an Islamic insurgency. The day before, a district official and an army colonel were killed by a roadside bomb. "I do not feel safe," confesses Pilai Poonswad, after passing the third such army patrol. The soldiers are prime targets; merely being in their vicinity entails risk, she says.

The relief is palpable as the silver pickup truck emblazoned with the Thailand Hornbill Project logo turns off on a dirt road and pulls into a village. Pilai, Southeast Asia's foremost authority on hornbills—the "canaries in the coal mine" of tropical rain forests—joins a few colleagues and a dozen men sitting cross-legged in a circle in a gazebo. The powwow begins, as the men chime in with reports on the hornbills and nests they are tracking. In Thailand, nearly half of all hornbill habitat has been logged out or converted to plantations, and this forested swath of the Kra Isthmus is one of the few areas left with adequate intact forest to support healthy populations. Data from farther south in the province, near the Malaysian border, are secondhand: Pilai urged spotters from that area not to venture out on dangerous roads.

The bird watchers have mixed news. Helmeted hornbills (*Buceros vigil*), which are choosier than other species about nesting sites, are clearly on the ropes, and white-crowned hornbills (*Berenicornis comatus*) are vanishing. But four others—the great hornbill (*Buceros bicornis*), the rhinoceros hornbill (*Buceros rhinoceros*), the wreathed hornbill (*Rhyticeros undulatus*), and the bushy-crested hornbill (*Anorrhinus galeritus*)—are rebounding. "We're seeing a steady increase in fledglings from year to year," Pilai says. In Budo-Sungai Padi National Park, some 40 breeding pairs of the six species are visited twice weekly by the villagers, most of whom once poached chicks for the illicit wildlife trade or engaged in illegal logging. These days, their subsistence incomes are increased by the hornbill project,

which pays them to observe the birds.

The Thailand Hornbill Project, conceived and led by Pilai, 61, is hailed as a smashing success both for its efforts to preserve hornbills and for reaching out to Islamic communities in this predominantly Buddhist nation. And it has earned Pilai international acclaim, culminating in two major accolades in the past year: a Chevron Conservation Award and a Rolex Award for Enterprise.

"Pilai is an icon for indigenous Asian sci-



Looking up. Rhinoceros hornbill numbers are on the rise.

ence," says Alan Kemp, a hornbill expert at the Percy FitzPatrick Institute of African Ornithology in Cape Town, South Africa. Timothy Laman, an ornithologist at Harvard University, told Rolex: "I have never met an individual who has had so much impact on conservation in their country."

Despite Pilai's efforts, however, the plight of hornbills in Thailand, home to 13 of Asia's 31 species, is more precarious than ever. Over the past year, the insurgency has grown in ferocity. Pilai, who spends most of her time in Bangkok, frets whenever she hears about violence in Narathiwat, 745 kilometers to the south. She fears for the safety of her local staff and the village birders, without whom the project would unravel. And the hornbills themselves are under rising pressure from illegal logging. "That's the biggest threat," says

Pilai. Because felling trees is lucrative and easier than poaching, it's hard to persuade loggers to desist for hornbills' sake. "I told my team not to confront loggers," says Pilai. "Certain people I can convince, but not others."

Winning southern hearts

From the beginning of her university studies, Pilai intended to be a science teacher. She dabbled in nuclear physics before settling down in parasitology, which she still teaches at Mahidol University in Bangkok. She might never have studied hornbills if it weren't for a BBC filmmaker who hired her as an adviser and guide in Khao Yai National Park in central Thailand in 1978. Pilai knew the terrain well and volunteered to take him to where she'd seen hornbill flocks. But it was the start of breeding season, and she did not realize that the hornbills had dispersed into mating pairs. "I failed the first time out," Pilai says. But she persisted and tracked a foraging great hornbill male to its nest.

Kemp, for one, appreciates the rigors of fieldwork in Southeast Asia. In 1974, when he was setting off for 5 months of research in Borneo and India, the late Elliott McClure, a renowned ornithologist, confessed to Kemp how difficult it was to locate hornbill nests in the region—"let alone make any meaningful observations." Kemp, who by then had recorded nearly 200 nests in South Africa's Kruger National Park, managed to find a single nest in Borneo's rain forests. "Fast-forward to Thailand in 1991, my first meeting with Pilai," says Kemp, an honorary curator at Transvaal Museum in Pretoria. "She showed me some of her 70 nests in Khao Yai, and hundreds of hours of field data for both breeding and nonbreeding hornbills." In Kemp's view, Pilai proved that with "determination and forest skills, it is possible to obtain sufficient observations and nesting records of hornbills to do good science."

The more Pilai learned about hornbills, the more entranced she became. (Pilai admits she has an obsessive personality, and one obsession is food: She bemoans the shrinking Thai palate and pines for the wider variety of fruits and delicacies available in her youth.) Hornbills are known for their sometimes brilliantly colored casques—protrusions above the beak that may help dissipate excess body heat—and wingspans reaching nearly 2 meters. Hornbill myths abound. Borneo's Iban people, for example, believe that the birds transport the souls of dead people to God. Males are fiercely protective of females and pairs are believed to bond for life, although this remains unconfirmed due to the paucity of long-term observations. "We'd like to see if this is true," Pilai says. During mating, the

female walls herself into a tree cavity using her feces, mud, and regurgitated food, leaving the male to forage and otherwise dote until a chick (or chicks, depending on the species) fledges a few months later.

In the early 1990s, fearing that Thai villagers would strip the forests of anything of value, especially in the impoverished south, Pilai decided that remaining a dispassionate scientist was not enough. “I could not sleep. I felt if I did nothing, the hornbills would be lost.” She mulled the problem in her office in Bangkok, and in 1994, came to an epiphany: She had to join forces with southern communities. “I knew we had to express our goodwill, some way.”

At the first village Pilai visited, her proposal to pay people to observe hornbills was greeted with skepticism. Exasperated, she lashed out. “I said, ‘Your children will curse you for destroying the forests.’” After an awkward silence, she recalls, an assistant village chief responded: “There are times I’d like to curse my own parents for what they did to the forest.” But Pilai still had to convince Muslim villagers to work with a Buddhist from Bangkok. “I asked them, ‘Have you ever seen me or my team take anything but data sheets from here? If you do not want this project, I can easily work somewhere else!’” Since then, Pilai has enlisted bird watchers in 11 Islamic villages. Many are sponsored by Thai families that she has persuaded to “adopt” hornbill nests.

Not for the faint-hearted

Trekking into the backcountry of Budo-Sungai Padi National Park, dotted with baubinia stands ablaze with copper-colored leaves, Pilai pauses to pick up what seems to be an ordinary stick. She snaps it and fragrant cinnamon wafts up. A few minutes later, she grabs what looks like a green mango. “I love picking up fruit to have a close look,” she says, before dropping it suddenly. She bends down and points to patches of dark goo on the skin. The fruit is a nasty cousin of mango with toxic resin, one of the few hazards in the park, the prime one being snakes.

After an hour’s hike, Pilai, accompanied by her local project manager and a village birder, reach a blind that had been fashioned from branches and palm leaves for observing a nest of a great hornbill—the largest species, with a wingspan that reaches nearly 2 meters—in a Hopea tree 100 or so meters away. The blind is a charred ruin. Pilai can only speculate who might have torched it: insurgents who are rumored to maintain forest hideouts, an army patrol that mistook the blind for an insurgent shelter, or teenage arsonists. No matter who is the culprit, the destruction is a troubling sign.



Taking off. After attaching a wing tag, Pilai Poonswad prepares to release a great hornbill, one species that’s making a comeback in Thailand.

Fortunately, the hornbill pair is doing fine. The chick has already hatched and the parents, at first unsettled by the presence of humans, calm down amid the drone of cicadas and fly off in search of food.

Pilai heads back to camp and the two men, *Science* reporter in tow, press deeper into the forest to check on an artificial nest adopted by a great hornbill pair. The nest is a couple of kilometers away across hilly terrain; great hornbills like to spread out. By late morning, the humid air is stifling and our shirts are drenched in sweat.

As we pause to rest in a glade, we’re ambushed by the nastiest, most bloodthirsty creature in the forest. It is half the length of a pinkie and has no arms or legs, but the dreaded land leech attacks with astonishing speed. Leeches cartwheel onto our shoes and bound toward our ankles, seeking flesh. One had latched on earlier and was feasting through my sock. I yank it off, and the bloodstain widens.

After vanquishing the marauders, we approach the artificial nest, strapped to a tree about 20 meters up. Pilai’s team began erecting the fiberglass boxes in the park 2 years ago as an option for hornbills that fail to find a suitable home. “The forest is very fragmented at present, and suitable cavities are now the limiting factor for hornbill populations,” Pilai says. Two pairs of great hornbills set up house this year in artificial nests. The species is more adaptable than other species and is even known to nest in limestone crevices.

A month ago, the mother had broken out of

this nest, and the chick had resealed it; the researchers were expecting it to fledge any day. We find that it has already done so. Debris from the nest wall after the chick wriggled through the gap to the outside lies splattered on the ground around the tree.

Back at park headquarters that evening, Pilai’s team welcomes several dozen schoolchildren, nearly all Muslim, for a 3-day hornbill camp. Project members give introductory slide shows about the birds, and the youngsters, most aged between 9 and 12, reciprocate with songs and skits. The next morning they will tromp into the forest to observe the nest near the burned blind. The walls of three local schools are adorned with hornbill scenes painted by the children. Pilai believes these kids will care about hornbills all their lives.

What Pilai takes the greatest pride in, she says, is that “the former poachers never go back to poaching.” These days, anyone who dares to do so suffers the wrath of the community. Recently, a man from another village tried to snatch a hornbill chick but was attacked viciously by the baby’s father. Little did he know that he was tangling with a helmeted hornbill, a species known for its aggressive aerial jousts. Wounds from the hornbill’s beak required 10 stitches—“and the villagers cursed him,” Pilai says. “If only they would curse illegal loggers, too.” There’s nothing she can do if someone were to skulk into the forest and cut down a nesting tree. Even Pilai’s obsession for hornbills cannot save the magnificent birds—if there’s no place left to nest. —RICHARD STONE