The saola: rushing to save the most ‘spectacular zoological discovery’ of the 20th Century

4 April 2011 / **Jeremy Hance**

The saola (Pseudoryx nghetinhensis) may be the most enigmatic, beautiful, and endangered big mammal in the world—that no one has ever heard of. The shy ungulate looks like an African antelope—perhaps inhabiting the wide deserts of the Sahara—but instead it lives in the dense jungles of Vietnam and Laos, and is more related to wild cattle than Africa’s antelopes. The saola is so unusual that is has been given its own genus: Pseudoryx, due to its superficial similarities to Africa’s oryx. In the company of humans this quiet forest dweller acts calm and tame, but has yet to survive captivity long.

One of the only photos of a saola in the wild. Photo taken by cameratrap in 1999. Photo courtesy of William Robichaud .

The saola (*Pseudoryx nghetinhensis*) may be the most enigmatic, beautiful, and endangered big mammal in the world—that no one has ever heard of. The shy ungulate looks like an African antelope—perhaps inhabiting the wide deserts of the Sahara—but instead it lives in the dense jungles of Vietnam and Laos, and is more related to wild cattle than Africa’s antelopes. The saola is so unusual that is has been given its own genus: Pseudoryx, due to its superficial similarities to Africa’s oryx. In the company of humans this quiet forest dweller acts calm and tame, but has yet to survive captivity long. Yet strangest of all, the 200 pound (90 kilogram) animal remained wholly unknown to science until 1992.

“[The saola] was perhaps the most spectacular zoological discovery of the 20th century (at least among vertebrates). The only comparable discovery was the okapi of central Africa in 1900. The okapi is like the saola in many ways—a highly distinctive, solitary ungulate dwelling in deep forest, utterly unknown to the outside world until relatively late. But it was found almost a century before saola,” explains William Robichaud in an interview with mongabay.com. Robichaud is Coordinator of the Saola Working Group and one of the world’s foremost experts on the animal.

“How many other terrestrial species in the world the size of a saola […] have never been seen in the wild by a biologist?” asks Robichaud. “None, surely.”

Yet, few mammals in the world are as imperiled as the saola. No one knows whether 100 or 500 survive, but the number isn’t high and the population is declining. Having only known of the species for less than 20 years, conservationists have a considerable problem on their hand: they have little time, working with scant information, to save a species that few

people have ever heard of.

According to Robichaud the biggest threat to saola is hunting, but the ” saola is killed largely as by-catch: a tuna and dolphins scenario.” In this case, snares set in the jungle for other species have pushed the saola to the edge of extinction.

“Ironically, saola is one of the only wild Southeast Asian mammals bigger than a squirrel without a significant price on its head,” Robichaud explains. “The Chinese never knew saola, and so it does not appear in their traditional pharmacopeia. This offers substantial hope for the animal’s conservation. Unlike, say, rhinos, poachers are not racing conservationists to the last saola. ”

Conservation projects to save the species are moving forward. ‘A fund has been set up to provide base funding for the next 30 years in an important area of Laos; WWF-Vietnam is working on training rangers; and the saola was recently named a focal species for the Zoological Society of London’s EDGE program, which will give the saola a bigger profile as well as material aid.

William Robichaud in the Annamite Mountains with saola horns. Photo courtesy of William Robichaud.

In other news, last year a saola was brought into a local village giving researchers the first material evidence of the saola’s survival in over ten years (camera trap photos were taken in 1999). Unfortunately, as with other saolas, the animal quickly perished in captivity.

“It was highly significant for generating renewed interest the animal, and convincing donors and other partners that it still exists,” says Robichaud who was fortunate enough to spend time with another captured saola. “We know, from detailed information provided by local villagers (who, incidentally, are more likely to hide information about saola than exaggerate it) that saola are still out there; in other words, it was the first sighting in 10 years by biologists or westerners, but not by villagers.”

Saving the saola would also benefit a wide array of endangered and little-known animals, some with evolutionary histories as unique in the saola’s. Numerous discoveries over the past couple decades have proven that the saola’s stomping ground, the Annamite Mountains, is rich in weird and wild species found no-where else—from a bald songbird to a prehistoric rodent to a striped rabbit.

Robichaud, who has spent more than 15 years working in Laos, says that it has been easy to convince local people to save the saola once they realize they safeguard the world’s only population.

“They’ll commonly ask, ‘But doesn’t America have lots of saola, or that place we heard about with lots of wild animals, Africa?’ When they learn that the answer is no, and that saola isn’t found even in neighboring Thailand or China, or even other provinces of Laos, you can see a paradigm shift in their eyes. They begin to become proud of the animal, and the role they can have in its conservation. ”

This female saola named ‘Martha’ was captured in 1996 in Laos by local villagers, and transferred to a nearby menagerie, but survived only a few weeks. Copyright 1996 by William Robichaud/WCS.

Saving the saola will be an uphill battle: there are none in captivity and only a small population left in the wild; threats are only increasing, as evidenced by the Ho Chi Minh road plans; the animal is little known even in the conservation community; and the impetus across Asia is development at any cost, not conservation for future generations. It wouldn’t be surprising in a decade or two to read that the long-unknown saola had vanished into the jungle’s shadows for good.

Of course, it doesn’t have to be this way.

“What are we waiting for?” asks Robichaud. “For those wishing to make a significant, incremental contribution to

conservation of the earth's biodiversity, among species it is hard to imagine a more compelling focus than saola."

In an April 2011 interview William Robichaud discussed the surprise of the saola's discovery, the threats this species faces, the conservation efforts being put together, and spending time with a saola dubbed 'Martha'.

Survey team poses in prime saola habitat in the in Nakai-Nam Theun National Protected Area in the Annamite Mountains. Photo courtesy of William Robichaud.

INTERVIEW WITH WILLIAM ROBICHAUD

Mongabay: *What is your background?*

William Robichaud: I was born and raised in Wisconsin. My first interest was hawks and falcons – that's where I put my professional attention through my undergrad years (and still do somewhat). I have degrees in Zoology from the University of Wisconsin (BSc.) and University of British Columbia (MSc.).

Mongabay: *How did you become involved in saola conservation?*

William Robichaud: Following a research trip on Sarus Cranes to Vietnam in 1990 with the International Crane Foundation (my first time in Southeast Asia), I basically went next door to Laos afterwards as a tourist. The place grabbed me by the lapels, and I've been going back and forth ever since.

In the early 90s, I was sitting in a noodle shop in Vientiane (the Lao capital), reading the English-language *Bangkok Post* newspaper, and turned the page to see a photo of biologist John MacKinnon holding a pair of strange, long horns, announcing the discovery of a new species of bovid in Vietnam. From the inset map showing the site of the discovery, it was clear this thing (which the world eventually came to call by its Lao name, saola) must also occur in Laos. And my interest in saola conservation developed from there.

The animal also happens to occur in one of the most remarkable regions in Asia, the Annamite Mountains along the Lao/Vietnam border. Since the saola turned up, the Annamites have been home to the discovery (by the outside world, at least) of several other large mammals, birds, and even ethnic groups and languages not known before. It's a deep, fascinating place.

Female saola in brief captivity. Copyright 1996 by William Robichaud.

THE SAOLA

Mongabay: *Tell us about the saola—what makes this species special?*

William Robichaud: For starters, it was perhaps the most spectacular zoological discovery of the 20th century (at least among vertebrates). The only comparable discovery was the okapi of central Africa in 1900. The okapi is like the saola in many ways—a highly distinctive, solitary ungulate dwelling in deep forest, utterly unknown to the outside world until relatively late. But it was found almost a century before saola, and thus saola's discovery was more of a stunner, surely.

And how many other terrestrial species in the world the size of a saola (175-220 pounds, 80-100 kilograms) have never been seen in the wild by a biologist? None, surely.

Village in saola's region. Photo courtesy of William Robichaud.

It is highly distinctive. In essence, there is only one species of 'saola' in the world. Not only is it its own genus, some believe it merits its own tribe with the Bovinae (the mammalian group which includes wild and domestic cattle, buffaloes, yak and some antelopes). Saola is unlike anything known before.

Finally, it is probably the most endangered large mammal in Southeast Asia (and perhaps all of Asia). In short, saola may be the most distinctive, endangered animal many people have never heard of, and few have seen.

Mongabay: *The saola was recently found and photographed for the first time in 10 years. What's the significance of this for you?*

William Robichaud: It was highly significant for generating renewed interest the animal, and convincing donors and other partners that it still exists. We know, from detailed information provided by local villagers (who, incidentally, are more likely to hide information about saola than exaggerate it) that saola are still out there; in other words, it was the first sighting in 10 years by biologists or westerners, but not by villagers. Yet nothing compels and convinces the rest of us quite like a photo. The animal's loss was tragic, but some good may have come from it.

Conservation poster for the saola. Photo courtesy of William Robichaud.

Mongabay: *What happened to the individual?*

William Robichaud: It died after just a few days of captivity in the village. The Wildlife Conservation Society Lao Program and provincial officials scrambled a team to the village to gather some basic information about the animal and release it, but they couldn't get there in time.

The village is a full day's walk from the nearest road. They reached the village in the evening, and the animal died before the next morning.

Mongabay: *Why do saolas do so poorly in captivity?*

William Robichaud: Probably related to a specialized and varied diet (of particular plants found in the Annamites), and also limited experience and expertise in the range countries in keeping captive wildlife. All captive saola to-date have been kept under amateurish and often stressful conditions (but we don't know if they'd survive under better care; at a minimum, much needs to be learned about their diet first).

Mongabay: *Was anything new learned from this specimen?*

William Robichaud: It has tremendous research value. The entire carcass was preserved—the only saola specimen for which this is the case. Most importantly, we collected samples of its dung, which we hope to use to train dogs to find saola dung (the identification of which can then be confirmed by DNA analysis) as a survey and monitoring method.

Mongabay: *Will you tell us about your time with a live saola?*

William Robichaud: It was a memorable experience. "Martha" was captured by Hmong villagers in January, 1996 (not far from where the animal in August 2010 was caught), in response to a cash reward offered by a general in central Laos, who had an interest in wildlife and a small menagerie. By stroke of luck, I learned of it and reached the menagerie about a day after the saola did. I spent most of the next three weeks observing Martha, until her death (again, probably at least in part from insufficient diet).

The most remarkable thing about her was her calm nature.


William Robichaud with Martha. Photo courtesy of William Robichaud.

To minimize her stress, I limited my time inside or close to her pen, but nonetheless human contact didn't faze her. Within three days of being captured, she could be touched and stroked, and would calmly feed out of the hand. I measured her where she stood, checked her ears for ticks, etc. She was more confiding than a village cow or goat.

A reasonable explanation for this, which is seen in other animals, is abnormal behavior induced by the intense stress of captivity. But I'm not sure that's the full explanation in the saola's case. She groomed herself, fed, took notice of and shook off flies, etc. And she reacted very defensively/aggressively to the approach of a dog of any size. But people? Nothing. A Buddhist monk who came to see her (the local Lao were also very interested in seeing her) told me, "A nickname we have for saola is the 'polite animal', because it always walks slowly and quietly through the forest, and is never obstinate." Another Lao man who came to see her said, "The only thing saola are afraid of is dogs."

She died at dusk on a Friday. Felt like Good Friday. No living saola has been seen by the outside world since. To compound the sense of loss, she turned out to be pregnant with a male fetus.

Mongabay: *The saola was only discovered in 1992. How did the saola remain unknown to science for so long?*

William Robichaud: A combination of factors: fairly small range in remote, dense forest. Quiet, solitary habits. Even local villagers don't see it very often (in fact, they say it's almost never seen without the aid of hunting dogs, to bring it to bay). While 'calm', they also say saola are very wary and elusive. The Vietnam War and conflicts leading up to it surely played a major role, as well—not many biological surveys along the Lao/Vietnam border from the 1950s through the 70s!

Still, it is surprising that, for example, French colonialists in Indochina never stumbled upon saola, especially given the animal's spectacular horns. The late, great Russian ornithologist Vladimir Flint once commented to me, "You know, ve vere very surprised by saola discovery. In 1980s [after the communist regimes took power in Vietnam and Laos in 1975], Russian colleagues did biological surveys in zis area, and never did find saola."

THREATS TO THE SAOLA

Mongabay: *What are the major threats against the saola's survival?*


Member of a survey team holds confiscated snares. Photo by William Robichaud.

William Robichaud: Hunting. Tragic in one sense and cause for hope in another is the fact that saola is killed largely as by-catch: a tuna and dolphins scenario. Most endangered terrestrial vertebrates in Southeast Asia are threatened primarily by wildlife trade, either for bushmeat or traditional East Asian medicine (or a few specialty luxuries such as ivory). All sorts of taxa are getting hammered by this—turtles, pangolins, elephants, rhinos, deer, primates, bears, tigers, other cats, etc.

Ironically, saola is one of the only wild Southeast Asian mammals bigger than a squirrel without a significant price on its head. The Chinese never knew saola, and so it does not appear in their traditional pharmacopeia. This offers substantial hope for the animal's conservation. Unlike, say, rhinos, poachers are not racing conservationists to the last saola. However, the methods used by poachers (e.g., snaring) for the animals they do seek are collaterally driving saola toward extinction.

Mongabay: *How do you get people to stop hunting, or at least using particular methods when hunting?*

William Robichaud: There is substantial—*substantial*—scope for better enforcement and protection in the region's protected areas. We need to start there first, and urgently.

Poverty alleviation and 'rural development' won't do it, or will take too long to help saola.

I just returned two days ago from a saola survey in Nakai-Nam Theun National Protected Area (NNT NPA) in central Laos. We learned that a few months ago a villager there found one of the rare 'golden turtles', *Cuora trifasciata*, 300 grams in weight, and sold it to a Vietnamese trader for US$4,000 (the Chinese believe it can cure cancer). With prices like that, you can do poverty alleviation until the cows come home (or all the saola are gone), and people will still be motivated to poach wildlife. Rarely have I ever met anyone—in the US, Europe, or Laos—who felt they had 'enough' money, and ceased seeking economic gain.

We need short-term holding actions (better enforcement), while simultaneously implementing long-term solutions, such as conservation awareness-raising and the changing of Chinese (and Vietnamese) attitudes to wildlife medicines. The latter, long-term solutions can take a generation or more to show results, and saola (and other species) don't have that much time, thus the urgency of immediate-impact actions in the interim.

Mongabay: *How do you think the Ho Chi Minh Road will impact the animal?*

William Robichaud: Likely a huge impact, by opening up access to previously remote saola areas to more poachers and the wildlife trade networks.

A current flurry of road building in Laos (significant components of it promoted by the Asian Development Bank) is having a similar effect.

Aerial view of unbroken forest which makes up the saola's (and many other species'_ habitat. Photo courtesy of William Robichaud.

Mongabay: *Conservation measures are being stepped up to save the species. What measures have so far been implemented?*

William Robichaud: One of the most promising is the long-term, substantial funding ($1 million per year for 30 years, indexed to inflation) guaranteed to NNT NPA (from revenues of the recently completed Nam Theun 2 hydroelectric dam). But this is a promise yet fulfilled—it remains to be shown that the money can be used to effectively protect the biodiversity of NNT.

Another recent and encouraging development is the establishment of two new saola nature reserves by Vietnam, and the agreement between WWF-Vietnam and the provincial management authorities to allow WWF to be involved in the recruitment, training and supervision of the new rangers for these protected areas (WWF and its donors will also provide funds for more substantial, attractive salaries than the scratchy norm, to attract better ranger candidates). This is a highly promising—and probably essential—model.

Mongabay: *How successful have these been from your opinion?*

William Robichaud: The WWF-Vietnam project is just starting, so too early to tell. The funding stream to NNT NPA has been flowing since late 2005/early 2006, but the area still faces significant issues on the conservation side. Jury still out.

Mongabay: *The saola has recently been named a 'focal species' by the Zoological Society of London's conservation program, EDGE. How will this help the saola?*

William Robichaud: A constraint to saola conservation has been that it's off the radar, too little known—among donors and other potential partners in its conservation. Saola is probably the most endangered large mammal in Asia, yet many people have never heard of it. Getting on the EDGE list is a great boost to raising its profile.

'Martha', female saola in brief captivity. Copyright 1996 by William Robichaud..

Mongabay: *What would you like to see happen that so far hasn't?*

William Robichaud: Greater interest taken by key actors whose are essential to saola conservation: conservation NGOs, donors, and the governments of Laos and Vietnam. Also the Asian Development Bank, which seems hell-bent on criss-crossing Indochina with roads, with little attention to the environmental consequences.

It is hard to think of another animal in the world, which shares Saola's combination of three attributes:

- Genetic distinctiveness: it is the only species in its genus
- Degree of endangerment: Critically Endangered, the highest category of threat in IUCN's Red List; and there is no 'doomsday' reservoir of saola in captivity.
- Paucity of conservation attention: saola is far more threatened than other large mammals in Asia with greater attention and funding, e.g., tiger, Asian elephant, giant panda, orangutan.
- And I'll add a 4th—saola's beauty! This is a truly gorgeous animal, and one with a remarkable 'personality' to match.

In addition, [if we] conserve saola we go a long way to conserving the Annamite Mountains, one of the most remarkable and important ecosystems in the world. Since the saola's own discovery there, two new species of deer (muntjacs), a rabbit, several birds and an entirely new mammalian family (the kha-nyou, a bizarre rodent) have been found in the Annamites. This is in addition to the plethora of other endemic species (and human cultures) already known from the area.

In sum, what are we waiting for? For those wishing to make a significant, incremental contribution to conservation of the earth's biodiversity, among species it is hard to imagine a more compelling focus than saola.

Mongabay: *How have local people responded to your conservation work?*

William Robichaud: Very well. Working with local people is the easy part, at least in my experience in Laos (I'm less familiar with the situation in Vietnam). Saola conservation has little 'cost' for local people: the animal is not a significant source of food, it has no high trade value, it's not a crop pest.

Local boy sporting saola conservation shirt. Photo courtesy of William Robichaud.

It entails little or no sacrifice on their part to refrain from killing saola.

The main route of persuasion is simply helping them understand that the only place in the world saola is found is their backyard. They'll commonly ask, "But doesn't America have lots of saola, or that place we heard about with lots of wild animals, Africa?"

When they learn that the answer is no, and that saola isn't found even in neighboring Thailand or China, or even other provinces of Laos, you can see a paradigm shift in their eyes. They begin to become proud of the animal, and the role they can have in its conservation.

It's important to understand that villagers in the saola's range have been labeled among the 'poorest' segment of the populace of one of the world's 'poorest' countries (both assessments are flawed in my view, but that's another story). For years, well-intended development projects, aid agencies and their own government have showed up to inform them of what they *lack*, of how poor they are, and how much help they need. Now, for one of the first times in their lives, they are hearing that they have something the rest of the world doesn't, and is interested in. This is an empowering piece of information.

Mongabay: *What are your thoughts on fencing off a large area of saola habitat with live saolas as a 'captive' breeding strategy?*

William Robichaud: Hard to find a compelling reason to do it. If poachers wanted to get at them, they would just climb over the fence, and chase saola against the fence with dogs.

An extensive fence would keep saola in, but not poachers out. Also, local villagers report that saola make seasonal movements (perhaps following seasonal changes in browse, and/or sources of water). For now, the option would probably put saola at higher, not lower, risk.

Mongabay: *What other rare species are found in the Annamite Mountains?*

William Robichaud: Among Annamite endemics (and thus not found in, e.g., neighboring Thailand, or even other parts of Laos and Vietnam), to name just a few of the more significant mammals:

- Large-antlered Muntjac (*Muntiacus vuquangensis*), discovered in 1994, listed as Endangered
- Annamite Dark Muntjac (*Muntiacus truongsonensis*), discovered in 1997, listed as Data Deficient

- Douc Langur (either three subspecies, or three species)
- Some other endemic langurs, in particular the Francois' Langur species complex
- At least two species of gibbon
- Annamite Striped Rabbit (*Nesolagus timminsi*), discovered in the 1990s, listed as Data Deficient
- Kha-nyou (*Laonastes aenigmamus*), discovered in 2005, listed as Endangered

And a wide array of endemic higher plants, fish, herps, birds ([in 2009] my colleagues Will Duckworth and Rob Timmins announced the discovery of a strange bald songbird, the Bare-faced Bulbul (*Pycnonotus hualon*)), and human ethnic groups and languages.

Large antlered-muntjac (Endangered) killed in a snare. Photo courtesy of William Robichaud.

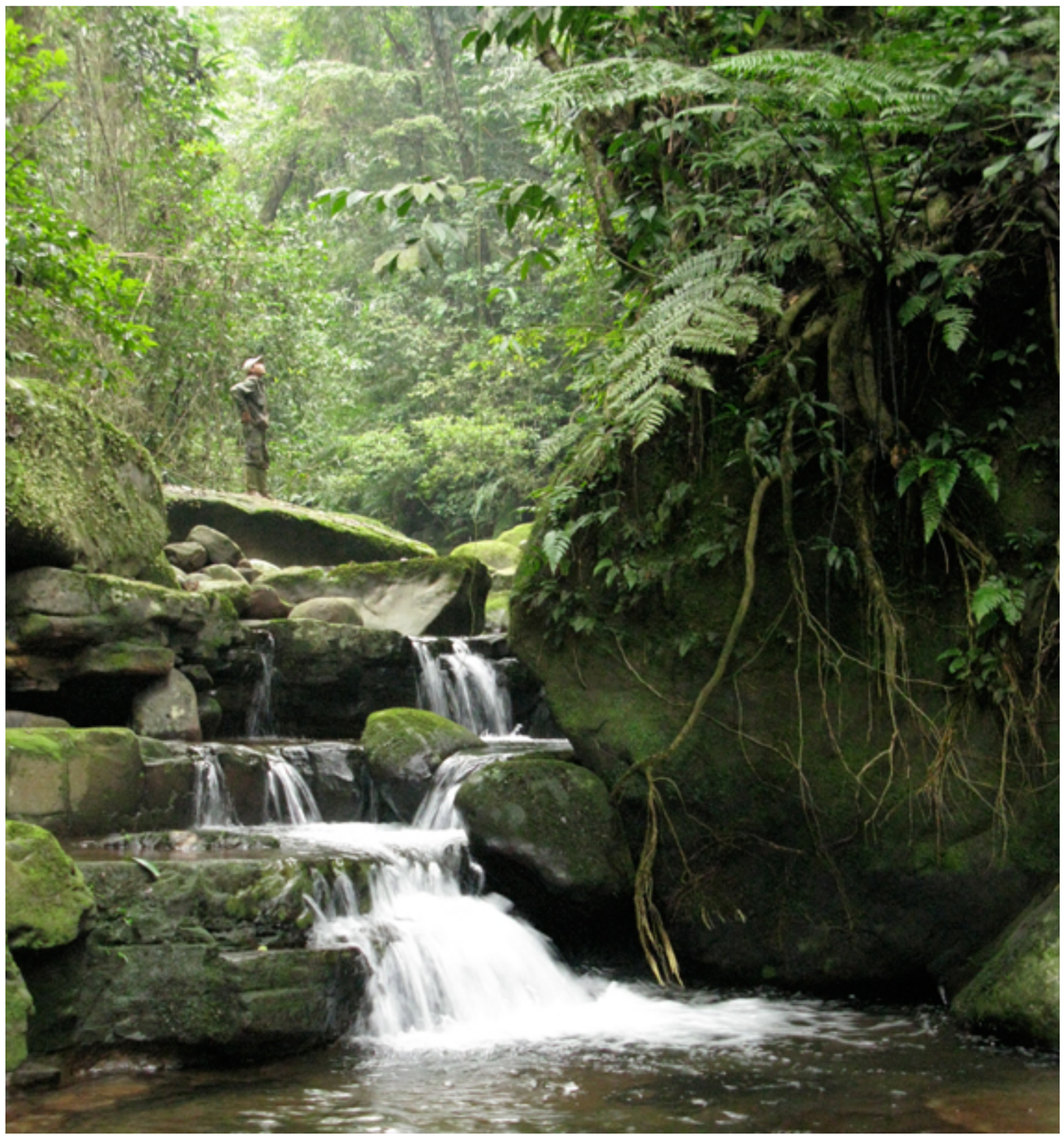
The Annamite range surely holds still more discoveries to be made, if poachers don't find them all first. It's a remarkable area of the globe, and the saola its most intriguing constituent.

For more information on saola conservation: Save the Saola.

Captive female soala. Copyright 1996 by W. Robichaud/WCS.

Wild Saola caught on film by an automatic camera-trap in central Laos in 1999. Photo by Ban Vangban village/WCS/IUCN.

Survey team poses with snares (Robichaud is in the middle) in the Nakai-Nam Theun National Protected Area in the Annamite Mountains. Photo courtesy of William Robichaud.



Stunning rainforest in the Annamite Mountains, home to the saola and other strange and little-known speicies. Photo courtesy of William Robichaud.