

Aerangis maireae

Facing Extinction

BRENDA OVIATT AND BILL NERISON

The grace and beauty of species such as *Aerangis maireae* must not be allowed to be lost to extinction!. Grown by Botanica Ltd. and photographed by Brenda Oviatt.

IMAGINE YOURSELF HIKING in a beautiful tropical forest only to realize it is being logged. You discover an orchid on the branch of one of the fallen giants. You know enough about orchids to know that it's an unusual one. The forest is being cleared away quickly. How do you feel? What should you do? Should you remove the plant? Will you look for more? Then what? Depending on your conscience and your luck you could face legal issues if you take the orchid. Keep that in the back of your mind because we'll revisit this subject.

There are extraordinary plants and animals becoming extinct every single day. This is a story about one of them ... believed extinct in nature yet hanging on to life in a few collections around the world. How many are left? No one really knows. Could there still be one growing in an isolated forest area? Has a little bit of seed remained dormant somewhere? Yes, it's a possibility. Are there one or two more Tasmanian wolves secretly hiding somewhere? Is there still a small population of baiji dolphins hidden away in the Yangtze River? Are there a couple of ivory-billed woodpeckers staying hidden in the southeastern United States? Yes, it's possible, but not likely.

It is widely believed that we are in the sixth mass extinction that our planet has undergone. Unlike previous mass extinctions, however, this one is primarily human-caused. It may seem unbelievable but researchers indicate that creatures are going extinct now at a rate greater than the extinction that killed the dinosaurs. The five major reasons for this sixth mass extinction are habitat destruction, pollution, invasive species, overpopulation of humans and overharvesting by humans (i.e., hunting, fishing and gathering). You don't even need to "believe" in climate change to know this is true, and unlike previous mass extinctions, we humans can do something about this. But are we willing?

Now imagine a tropical forest in the 1990s where there really was a special orchid on the branch of a fallen tree; the story of *Aerangis maireae*.

Maire Spurrier's love affair with

Africa began as a newly married wife of a tea-planter in Cameroon some 50 years ago. Orchids didn't figure much during the long, dusty drives up-country to the cool of the grasslands where the lone tea estate provided an island of green in the beige of the dry season. It wasn't until she swapped a chest of tea for a horse from a homeward-bound American Peace Corps volunteer that she started exploring the fascinating land. As the years passed, she and her family moved on to Malawi, Tanzania, Nigeria and Uganda. There she became determined to record as many orchids as possible to avoid that "ignominious sinking into extinction which is the fate of so many plants, insects and animals." With a husband and three kids to do the climbing, and brave the occasional bees, snakes, ants and buffalo-beans (*Mucuna pruriens* — notorious for the extreme itchiness it produces on contact) she was

This article isn't about an orchid available for purchase. This is our attempt to bring the issue of conservation and extinction to as many people's attention as possible. Aerangis maireae is emblematic of an attempt to save one species from vanishing forever.

able to press, draw and identify many orchids.

"Stumbling across the orchid [*Aerangis maireae*] in Tanzania was fortuitous, as it was 20 to 30 feet (6.1–9.2 m) up one of those forest giants that don't think of branching until reaching the canopy another hundred feet (30 m) up. Its roots were clinging to the rough bark somewhat precariously, with no sign of any other specimens." Luckily for Maire, but not for the tree, it had been felled and lay across a small ravine. "Njirikwa Forest, a small enclave of only a few square kilometers, was at that time being heavily logged and is probably completely gone now; along with all the inter-dependent wildlife." Maire and her family hunted through the remaining patch of forest many times but never found more of the plants. The one plant rescued continued to grow and flower happily back on Luponde Tea Estate.

While living in Malawi, Maire had met Isobyl and Eric la Croix, who were an invaluable source of information on

all things orchidaceous. Even when their paths diverged, it was always to them and their access to Kew and the "powers that be" that she sent specimens and queries. Isobyl recalls that Maire brought the orchid to Kew and gave it to (the late) Joyce Stewart. It was quite a big plant, branching at the base, so Joyce pressed part of it (which is now the herbarium specimen at Kew), kept part of it and gave a bit to Isobyl. Maire didn't keep any of the plant; she describes her life then as "too peripatetic for carrying around highly sensitive-to-atmosphere plants!" Isobyl and Joyce described the plant in 1998 and named it *Aerangis maireae* after Maire.

Now let's return to the edge of that tropical forest you are visiting, looking at the orchid on the fallen tree. Let's say you choose to remove it and take it back home with you. Do you realize that you need a permit to take it out of the country legally?

How ethical are you? Will you go and apply for the proper permits, and if it's as unusual as you think it is, do you think you'll even get the permits? Are you aware that you have to comply with CITES? Do you know what CITES is and understand its requirements?

CITES is the Convention on International Trade in Endangered Species of Flora and Fauna. In the early 1960s, international discussion began focusing on the rate at which the world's wild animals and plants were being threatened by unregulated international trade. The Convention was drafted as the result of a resolution adopted in 1963 at a meeting of the International Union for the Conservation of Nature in Nairobi, Kenya. It wasn't until July 1, 1975 (12 years later), that CITES took effect. It has had to change over the years as the demand for "luxury" items has increased. It has expanded to include thousands of species previously considered unremarkable and in no danger of extinction due to overcollection.

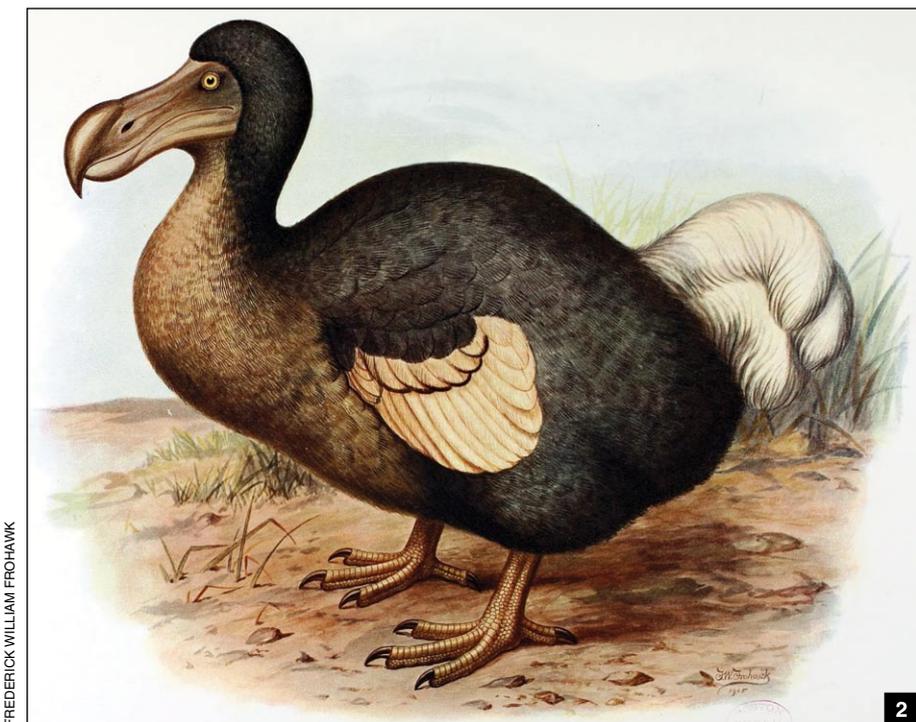
There are some strict rules about the collection and taking of plants and animals. The rules are sound. They were created to protect truly endangered species from being "harvested" to extinction. But like many rules and regulations, those not willing to follow the rules have learned



ways around them. And for the honest, CITES has become a mire of paperwork. Ethics and morals are virtually impossible to enforce! There is a great dilemma between collecting and protecting. We once had a friend remove orchids from a slash pile about to be burned in Mexico in the 1980s. He was lucky to only get in a bit of trouble for it; but the warning about doing it again was serious. Each country has different regulations regarding this type of collection. Salvaging the byproducts of logging can take too long and stands in the way of making money, but allowing this could be one valuable change to the rules. Consider this: of the medicines currently available, about 50% are derived from natural products. What if the plant that holds the key to curing cancer resides in one of those forested areas about to be decimated? Another consideration is to examine why it's being logged in the first place and who is receiving the monetary benefit.

Africa is also, at times, a world away. At one point, trying to get export permits at the appropriate office in Dar-es-Salaam, Tanzania, Maire was told there was not paper on which to print the permits. She did, with persistence, eventually get the permits. Sometimes doing the right thing is much more difficult than it should be!

Maire Spurrier related to us that when her family finally left Africa, from Uganda in 2000, "its still-protected forests were threatened by the thirst for oil; saved for the moment, by the tourist dollars raised by the gorillas and chimpanzees. The thought of all the delicate *Microcoelia* species, and snowdrop-like *Polystachya vulcanica* and countless others being sacrificed in the rush for energy seems ludicrous on a continent not short of sunlight!" Africa is rich in natural resources; most of the value and money from them, however, go to the West and to East Asia rather than staying in Africa, causing further poverty. There are currently 15 African countries involved in war. At the root of these wars are the rich natural resources each of these poor countries hold. Intertribal rivalries are very real and have always existed, but are exacerbated in many cases by the presence of foreign extractive industries; their opaque, unreported payments to the governments; and the governments' opaque, unreported use of the money to create and fund the wars. The wars serve the purpose of creating a distraction, as the countries and their fleeing, displaced citizens are robbed of their countries' natural resources, easily converted to cash, for the personal use and fortunes



FREDERICK WILLIAM FROHAWK

- [1] Imagine coming across this orchid on the branch of a fallen tree in an area being logged. What do you think would happen to it?
- [2] Perhaps it seems a bit corny, but didn't the movies Jurassic Park and Jurassic World spark a little hope and curiosity in all of us to wonder "Is that really possible? Could an extinct animal be brought back to life?" Well, it's really been done, albeit with very limited success, for the extinct Pyrenean Ibex. What if we were able to make extinct species live again? How much would you pay to see a dodo bird? Would it be worth as much as a ticket to the World Cup or Super Bowl? How do we assign a value to extinct species?

of ruling parties. Often this tribal conflict is deliberately antagonized, so it can be blamed for the conflict.

For us, ex situ propagation has become our attempt to save species on the brink of extinction. We've chosen to focus our efforts on angraecoids. Many people are unaware of how difficult some orchid species are to reproduce at all. Remember, with *Aerangis maireae* there was a single plant to work with. Reproduction could have been achieved through tissue culture, by producing seed from a "selfing" (taking pollen from the plant to pollinate itself) or by an occasional division. Isobyl la Croix's part of the plant grew well and she self-pollinated the flowers and was able to reproduce it, though self-pollination does not always produce the most viable seeds. Isobyl provided us a detailed record of the plants she produced: a total of 148 plants of which 55 went to William Rhodehamel of Hoosier Orchids. At least a few others came to the United States. They were also sold in Scotland, England, France, Belgium, Holland, Sweden, German, Austria, Italy, Canada and Japan. Even if all 148 plants are still alive, to continue

reproducing the species involves tissue culture (mericlone), selfing the selfings or crossing the selfings. We've been lucky to get an occasional division but have been unable to produce viable seed yet. Unfortunately, with a lack of genetic diversity, there may be a limit to how many can be produced.

What does the future hold? There's a dilemma between collecting and conserving and there are no easy answers. Poaching is one of the largest problems that endangered species face, animal parts for "medicine" and for ivory being two of the biggest commodities. Most poaching is carried out by heavily armed criminals and it fuels more crime, corruption, instability and fighting among communities. Central Africa has lost 64 percent of its elephants to poaching in the last decade. We were writing this article when the untimely death of Cecil the lion became headline news. Cecil, a studied and collared lion, was apparently lured from the safety of the preserve where he lived, killed and beheaded. If this is allowed to continue with an exquisite creature like a lion, known widely to be endangered, by an

educated American, what hope is there for less dramatic plants and animals facing endangerment and extinction? Trophy hunters will tell you that the \$60,000 paid to hunt Cecil benefits the conservation effort. Did any money aid the local Zimbabwe economy? We wonder. It made us feel a great sense of hopelessness. What can we do to get people to care about protecting endangered species, the ones that will never receive widespread attention? How many more species must go extinct before people start realizing the importance of caring for them and their environment?

Finally, imagine yourself being part of the solution. *All* of us can help make positive changes. Start with the orchids you love; “adopt” a threatened species and work to keep it safe in its environment. Encourage other orchid growers to do the same. Then expand it beyond orchids and choose to live a more responsible life; help increase awareness of fellow humans. Cooperation, ethics and enforcement are needed. Look at the big picture: how can *you* help? What can *you* do to facilitate positive change?

Acknowledgments

Only with the invaluable correspondence and personal experience offered us by Isobyl la Croix and Maire Spurrier was this article possible. We cannot thank them enough!

Additional Reading

“Frohawk Dodo” by Frederick William Frohawk (16 July 1861 - 10 December 1946), an English zoological artist and lepidopterist. - Transferred from Commons. Extinct birds : an attempt to unite in one volume a short account of those birds which have become extinct in historical times : that is, within the last six or seven hundred years : to which are added a few which still exist, but are on the verge of extinction. By Lionel Walter Rothschild, 2nd Baron Rothschild (8 February 1868 – 27 August 1937). (http://www.archive.org/details/extinctbirdsatte00roth). Via Wikipedia - https://en.wikipedia.org/wiki/File:Frohawk_Dodo.png#/media/File:Frohawk_Dodo.png
<http://www.telegraph.co.uk/news/science/science-news/4409958/Extinct-ibex-is-resurrected-by-cloning.html>
<http://www.africasunnews.com/wars.html>

North American Orchid Conservation Center

Few people realize the precarious positions many orchids are in. This article is about one in Africa, but the issue is worldwide! **When an environment is in danger, orchids are often the first to go. That is why scientists launched the North American Orchid Conservation Center (NAOCC), a continent-wide network based at the Smithsonian: because saving orchids can hold the key to saving entire ecosystems. More than 200 orchid species grow in North America. Over half are threatened or endangered somewhere. Beautiful, cunning and occasionally deceptive, orchids are also red flags for extinction.**

Smithsonian Environmental Research Center’s North American Orchid Conservation Center — <http://northamericanorchidcenter.org/>



MAIRE SPURRIER 3

<https://www.cites.org/>
<https://en.wikipedia.org/wiki/CITES>
<http://www.fws.gov/international/cites/>
<http://www.endangeredspeciesinternational.org/>
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<http://www.nature.org/ourinitiatives/regions/africa/>

—Brenda Oviatt is an artist and Bill Nerison is an architect. They live on the Clark Fork River in Missoula, Montana (a corner of paradise), with their daughter Marisa, son Tristan and an assortment of animals. They’ve been growing orchids together for over 30 years and in that time have grown in many settings. For the last 10 years, their orchid growing has focused on the ex-situ propagation of endangered angraecoids and the education of hobbyists and growers (website botanicald.com).



MAIRE SPURRIER 4

[3] This is Maire’s “collecting team” when living in Malawi. The photo reminded her of the scents, “I can smell the tang of the *Helichrysum* and Cedar that always permeated Mulanje Mountain in the dry season!”

[4] Looking at orchids; Livingstone Mountains, Tanzania in the 1990s, though one had to be quite careful of photographing anything in Tanzania at the time.

[5-6] Our plants typically bloom in the autumn and are tipped with a pinky-peach to orange-peach color. They have been their most colorful in that season. One of the same plants bore a single inflorescence in the heat of the summer and the flowers had just a bit of color. In Tanzania it was found at a rather high elevation of 6,500 feet (2,000 m) and it may prefer cooler temperatures at bloom time.

BRENDA OVIATT



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BRENDA OVIATT



6