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# A Beautiful, Terrifying Guide To The World's Man-Made Plants And Animals

These photographs of mutated animals are a striking look at man's relationship with nature.



1/9 *World Goldfish Queen*. China organised the first International Goldfish Championships in Fuzhou in 2012. Over 3,000 goldfish from 14 countries competed for different titles including the World Goldfish Queen crown. Goldfish are judged by five criteria: breed, body shape, swimming gesture, colour and overall impression. The show stealer was a giant goldfish weighing around 4kg. The judges noted that not all goldfish can grow this big as factors such as breeding may affect size. Goldfish are bred out of generations of genetic mutations since the Jin Dynasty and their exact origins are unknown. [Photo: Robert Zhao Renhui]

BY KATHARINE SCHWAB 4 MINUTE READ

You won't find goldfish in the wild. That's because they were domesticated thousands of years ago in China and bred to create the approximately 250 species found in aquariums around the world today. But goldfish are far from the only animal or plant that's mutated into something new, whether due to genetic modification, ecological conservation, or pollution.

Struck by the vast numbers of living things that have been modified actively by people—or that have adapted to survive better in a human-dominated world—the Singapore-based artist Robert Zhao Renhui decided to create a compendium of these man-made creatures. Called *A Guide to the Flora and Fauna of the World*, the book consists of a series of photographs and digitally manipulated images that illustrate the impact of humans on the natural world.

The series of photographs begins with the winning goldfish from the first International Goldfish Championships in Fuzhou, China, in 2012, where over 3,000 goldfish from 14 countries competed in a spectacular dog-show-for-fish, with the categories including breed, body shape, swimming gesture, color, and overall impression. The giant goldfish that won weighed about nine pounds.



*Painted molly, Rainbow Star Warrior variant.* There are several methods to create artificial colors in fish and certain methods remain well-kept industrial secrets. A recent method is the use of dye lasers to tattoo aquarium fish with patterns, colors, and text. It is similar to a method dating back to 1975 used by scientists to monitor movements of fish in the wild by marking them. The Rainbow Star Warrior variety created in Singapore in 2002 uses a sophisticated version of the dye laser to create colorful mollies with as many as 256 colors. [Photo: Robert Zhao Renhui]

Other animals Renhui documented include the Rainbow Star Warrior fish, which was dyed with colors, patterns, and even text in order to make it more appealing to customers, a common practice dating to the 1970s, and the fluorescent zebrafish, created by scientists in Singapore in 1999 using fluorescent protein extracted from jellyfish that makes the zebrafish glow if it has ingested pollutants. More recently, fluorescent zebrafish have been used to track the behavior of cells in real time. Renhui says they're also the first commercially available genetically modified fish. You can even buy them online.

Fish aren't the only genetically modified animals in the book—Renhui also highlights artificial grapes made of gelatin, grape flavor, and food coloring that have been mistaken for real ones in Chinese roadside markets. There's an extremely overweight polar bear, who scientists believe fattened up so much because its hunting time has been so shortened due to climate change. And rhinos and elephants that have evolved with smaller tusks, or without them altogether, because poachers tend to kill both types of creatures for their valuable ivory; only tuskless animals have survived to pass on their genes.



*Fat polar bear swimming in Hudson Bay.* A polar bear weighing around 950kg, the heaviest ever recorded, was spotted swimming towards Hudson Bay, Canada. As winters — the hunting period for polar bears — get shorter because of global warming, polar bears must fatten themselves up or perish in summer. [Photo: Robert Zhao Renhui]

The project, which Renhui thinks of as an encyclopedia of man-made creatures, is a glaring reminder of how humans have actively modified other animals for aesthetic pleasure or novelty, or have unintentionally created entirely new evolutionary imperatives. The photographs are all based on real creatures, but are heavily edited; Renhui says no animal was hurt in the making of the project.

“We may not always think about our impact with nature on a daily basis but if we look carefully, even the simple act of switching on the lights at night may start to take on a different meaning,” Renhui tells *Co.Design* in an email. “Many insects are attracted to the fluorescent lights of our home and this attraction most likely leads to the deaths of many insects.”

Published originally in 2013, a segment of *A Guide to the Flora and Fauna of the World* was recently republished as part of the *Atlas for the End of the World*, a collection of maps representing the human impact on biodiversity and ecological hotspots. *Co.Design* wrote about some of the photographs when they were on display in Melbourne, Australia, in 2015, but many of the images included in the atlas take a more stylized approach.



*Rhinoceros with no horns.* A small population of white rhinoceroses in Africa has evolved to have horns so small that they are barely visible. Experts believe this could be due to years of hunting individuals with large horns. The remaining rhinoceroses with smaller horns left to breed will eventually create a whole new hornless generation. [Photo: Robert Zhao Renhui]

The series is part of Renhui’s overarching artistic project, called the Institute of Critical Zoologists, which uses the guise of science to make artistic statements. “I started the Institute of Critical Zoologists because I think we give a lot of trust and belief in science,” Renhui says. “I borrow the language and look of science into art to see if people will give art the same amount of trust and belief.”

And given the scientific cloaking and design of the Institute’s website, it can sometimes be difficult to tell that it’s an artistic project. Some projects appear to be earnest research inquiries, like one looking into biodiversity on the Indonesian island of Palau Pejantan. Others have more apparent critical intent built in. One project, for instance, proposes to develop tiger farms: “This proposal is based upon the premise that biodiversity is best preserved by commercialization,” proclaims the Institute’s website. “Medical farming may possibly be the most positive and widespread economic incentive for the conservation of tigers in Asia.”

For Renhui, *A Guide to the Flora and Fauna of the World* is meant to represent one piece of humanity's relationship to nature. The descriptive captions, which are crucial to understanding each image, are a necessary complement to the encyclopedia's visual elements.

"The images are really to add another layer to the text I present to you, to think about what all these modifications of nature really 'look' like," Renhui says. "Most of the time, it's invisible."