

# Why Aren't We Eating More Insects?

They're high in protein, low in cost, eco-friendly and tasty. And only in the West have we resisted them.

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JAPANESE GIANT HORNETS, known in their native land as *suzumebachi*, are behemoths of their kind, some nearly two inches long and reportedly capable of stinging through leather. They often build their nests underground, in forests of cypress and cedar, and there, in autumn, hunters rouse the grown hornets, swatting them into jars of shochu, where they flail and drown. The clear liquor is left to steep for at least two years; it turns umber as venom and pheromones leak from the dead insects. Some who've drunk it liken the taste to whiskey, others to salt and ash. But the larvae and pupae, carefully tweezed out of disinterred nests, are eaten immediately, gently simmered with ginger so they stay creamy, or fried to a crisp.

The Food and Agriculture Organization of the United Nations estimates that two billion people, more than a quarter of the world's population, eat bugs as part of their standard diet. In Kenya, termites are drummed out of their mounds — the sound evokes rain, to trick them into emerging — and eaten live and juicy or dry-roasted. Peruvian Amazon weevil grubs, which live inside rotted aguaje palms, are charred over an open flame; lush from feeding on palm tissue and oil, they quickly caramelize. Shaken from mango trees in the Isan region of northeastern Thailand, red weaver ant larvae bear a distant memory of fruit, and pop in the mouth like tiny water balloons.

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Only in the West have we resisted such gustatory pleasures. We're quick to down slippery oysters, stinking cheese and hot dogs made of entrails unknown, but we shy from anything that might once have crawled, hopped or hovered over a picnic blanket. This is historical, attributable in part to geography: Over the past million years, much of Europe languished during several ice age cycles inhospitable to life, and the continent's small size and topography haven't encouraged high biodiversity. Europe is home to just 2 percent of the world's edible insects, and its specimens don't grow as large (and thus aren't quite worth hunting) as those in the equatorial tropics.

So Europeans, and by extension European settlers in North America, never had a bug-eating tradition. Indeed, we largely consider insects dirty and drawn to decay, signifiers and carriers of disease; we call them pests, a word whose Latin root means plague. Although the Christian Bible condones the consumption of certain bugs — John the Baptist survived on locusts in the desert — Leviticus 11:8 is clear: "Every swarming thing that swarms on the ground is detestable; it shall not be eaten."



Western honeybees (*Apis mellifera*) with a ceiba borer beetle (*Euchroma gigantea*) accompaniment. Photograph by Kyoko Hamada. Styled by Todd Knopke. Photographer's assistant: Jonah Rosenberg

NONE OF THIS, however, has stopped entrepreneurs in the West from promoting bugs as a superfood, rich in protein and ecologically sustainable, appealing to health obsessives and environmentalists alike. In the past few years, a number of start-ups dedicated to entomophagy (the human consumption of bugs), including Exo Protein Bars, Bitty Foods, Aspire Food Group and Hargol FoodTech, have raised millions of dollars in venture capital. Silicon Valley offices have been spotted stocking up on snacks and treats based on a “flour” of roasted and pulverized crickets. And the American market for edible insects exceeded \$55 million in 2017 and is projected to increase more than 43 percent by 2024, according to the research firm Global Market Insights.

But the insects these companies are purveying no longer look like insects. That’s because while our minds may have evolved, our eyes have not: To many, the presence of coldblooded hexapods on a plate is still a source of revulsion. Instead, those who champion entomophagy are trying to smuggle bugs past our defenses, often ground into a blandly inoffensive, uniform powder. Texture and flavor are almost entirely lost, which is seen as an advantage — or we won’t even know we’re eating insects because they’re treated like potato chips. (As Stephen Colbert observed on “The Late Show” in July, after watching the Harlem-based chef and restaurateur Marcus Samuelsson dredge chicken in cricket flour and drop it in sizzling oil, the “deep-fat-frying it” is what makes it American.)

But secrecy isn’t the way to persuade a wary public: The anticipated billion-dollar market worldwide isn’t reliant on camouflaged products. Rather, gains are predicated on increasing demand for insects *qua* insects, in their natural physical state. The price of giant water bugs, for example, has risen in Thailand — where the pheromone secreted by males is considered an aphrodisiac — as the species has declined due to the use of agricultural pesticides. And other cultures around the world have for millenniums consumed

insects at every stage of life, from egg to larva to pupa to adult, sometimes as rudimentary protein but more often as seasoning or nuance. They've been prized for the very qualities that make some people shudder: their crunch, chewiness and final deliquescence on the tongue.

OF COURSE, WE already *do* eat insects, unintentionally, possibly as much as two pounds per year, as stray fragments that wind up in peanut butter or packages of frozen broccoli, all allowed in limited quantities by the U.S. Food and Drug Administration. And we willingly eat honey, each teaspoonful of which represents the lifetime regurgitations of 50 bees. Yet back in 2012, when Starbucks was discovered to be using a natural food coloring derived from crushed cochineals to dye its strawberry Frappuccinos red, there was an outcry, and the company switched to tomato-based lycopene.

From a scientific standpoint, our rejection of bugs as food is illogical. Insects share many characteristics with crustaceans, which are coveted and esteemed; both are members of the phylum Arthropoda. David Foster Wallace, in his 2004 essay "Consider the Lobster," noted that "lobsters are basically giant sea-insects," with a footnote citing Maine slang for lobsters: bugs. Like insects today, lobsters were once dismissed as bottom feeders too abundant to be treasured. In colonial times, indentured servants and prison inmates were purportedly fed them almost daily, until ordinances were passed to prevent such cruelty. Only with the arrival of the cross-country railroad in the 19th century, when noncoastal dwellers had a chance to taste canned lobster, did it become an exotic, desirable dish.

Can bugs undergo a similar makeover? Some 2,100 insect species worldwide have been identified as edible, from leafhoppers and water boatmen to stink bugs and agave worms; the most popular globally are beetles, followed by caterpillars. Their nutritional benefits, while varied across species, are substantial: high in energy yield, rich in essential amino acids and comparable and sometimes superior, per ounce, to beef, chicken and pork in amounts of protein, omega-3 fats, iron, magnesium, calcium and zinc. Bugs also don't require much nurturing by parents or space to develop, and they generate far fewer greenhouse gases than conventional livestock: one-tenth the methane and one-three-hundredth of nitrous oxide. Almost all of an insect can be consumed, as opposed to less than half of a cow (nose-to-tail eating notwithstanding). And they reproduce and grow from larvae to adult with startling swiftness — a horror story if we think of them as enemies, but a blessing if we recognize that they could keep us alive when the world's population hits 9.7 billion in 2050 and other sources of protein run out.

Still, the idea of introducing insects into the Western diet would have once seemed improbable. Now an odd confluence of forces is at work: On one side, there are food evangelists — like Palmiro Ocampo of the recently shuttered 1087 Bistro in Lima, known to drizzle strawberries with weevil-grub fat — who view eating insects as an ancient practice that reconnects us to nature and terroir; on the other, we have technology companies that harvest "micro livestock" as a solution to world hunger and environmental degradation. Over the next few years, the Texas-based Aspire Food Group plans to build several automated cricket production facilities, where robotic modules can tend to billions of bugs annually, monitoring intake of food (organic) and water (triple-filtered), until the insects are dry-roasted whole for snacks or milled into powder.

While robots may eventually take over the cultivation of bugs, a crop like palm weevil larvae doesn't require significant overhead or sophisticated equipment, making it ideal for small-scale family enterprise and offering a path out of subsistence poverty. Aspire has also trained hundreds of local farmers in Ghana to rear palm weevil larvae as a way of earning stable, yearlong incomes. In the past two decades, villagers in impoverished northeastern Thailand have started housing crickets in concrete pens in their backyards.

As demand for the insects has risen, so have profits: One farmer reportedly went from selling 10 kilograms to more than two tons a day. Now around 20,000 such farms have been established, collectively earning more than \$3 million a year.

ENDING HUNGER AND POVERTY, protecting the environment: These are sound arguments, even if they smack a little of “eat your vegetables.” But it seems archaic to be presented with cricket flour and mealworm powder — insects as abstractions — in an era when chefs have been minding the seasons and favoring the honest ugliness of gnarled vegetables over the Plasticine perfection of factory farms. We’ve shown a willingness to embrace suspect foods in the name of reducing waste, taking delight in animal parts once discarded, like pig’s feet, sweetbreads and other organs. As insects enter our larders, shouldn’t we accept them as they are?

A movement toward global food tourism may provide the push. In part, that shift is a legacy of the late writer and TV host Anthony Bourdain, who was always game to try something new, however disconcerting, because he respected the fact that in another culture, it was beloved. Now, at the fine-dining restaurant Quintonil in Mexico City, diners pay hundreds of dollars for a tasting menu that might feature grasshopper adobo and *escamoles* (ant eggs), which the former New York Times food critic Ruth Reichl equated in texture to marshmallows. Humbler preparations are also gaining popularity: Baseball fans at Safeco Field in Seattle happily toss back crunchy *chapulines* (grasshoppers); more than 18,000 orders were sold in the first two weeks of the 2017 season. The insects come from Oaxaca, Mexico, where they are a familiar snack, and cooked in the traditional style: After being boiled, dehydrated and shucked of legs and antennae, they’re mobbed by chiles and kissed with lime juice.

It can be difficult to adopt the wisdom of other cultures. But imagine the rewards of biting into a witchetty grub from the Australian bush, which Aborigines traditionally dug from the roots of acacia trees, and which the Japanese chef Shoichi Uchiyama compares to fatty tuna, at once meaty and melty. In the Nordic Food Lab’s 2017 cookbook “On Eating Insects,” Josh Evans, a Canadian researcher, describes ants foraged from a Danish forest as lemony, “with a hint of burnt sugar — like lemon rinds seared on the grill,” and a wood cockroach, when roasted, as redolent of “coffee and chocolate, malt and black mustard.”

It’s useful to remember that our ancestors didn’t eat bugs simply out of proximity or necessity or perceived impending apocalypse. They also did it out of desire: for the crackle of the exoskeleton and the gooeyness within, followed, perhaps, by a Thai silkworm’s underlying lilac must; or the cosseted funk of dried shrimp, evoked by a Ugandan katydid; or the clean, clarifying aroma of bruised lemongrass, as with an Amazonian *saúva* ant. They ate insects because insects are delicious.