

# DELECTABLE Insects

**SAMPLE**

LLI PURPLE SYSTEM BOOK

by Zoë Kashner



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**Delectable Insects**

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# DELECTABLE Insects



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# Insects for Dinner?

A dish called *chapulines* [cha-poo-LEEN-ays] is a common appetizer in one region of Mexico. Many diners love this delicious dish. With a little salt, garlic, and lime, it's a tasty, crunchy treat. The main ingredient in the dish, however, might surprise you—it's grasshoppers.

If grasshoppers don't sound like an appetizer to you, you're not alone. Many people, especially in the United States, Canada, and Europe, don't consider insects to be an edible treat. However, around the world, there are many **cuisines** that celebrate insects as a delicious, healthy addition to the human diet.

Eating insects in Mexico is not a joke, nor something that people do on a dare. Insects are an important and traditional part of Mexican cuisine. And Mexico is not the only place where people love to eat insects. People around the world prize these delicious morsels.

A photograph on the right side of the page shows a woven basket filled with a red, crinkled paper liner. Inside the basket, several fried grasshoppers are visible, which are a common snack in Oaxaca, Mexico.

In Oaxaca, Mexico, fried grasshoppers are a common—and delicious—snack.





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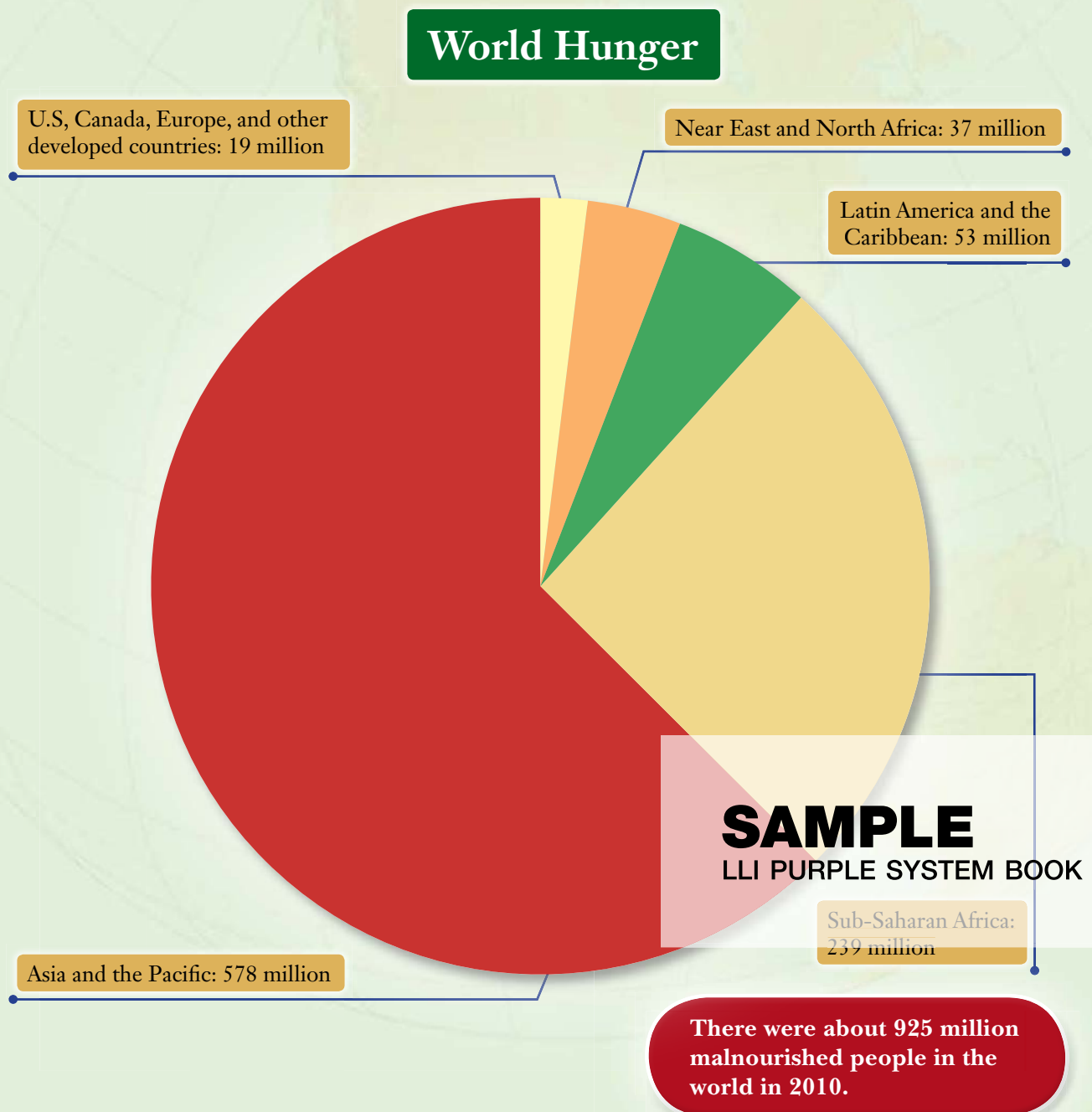
# Nourishing Insects

Using insects as food is a popular idea these days. One reason is that we are in the middle of a global health crisis. Many people around the world, including some people in the U.S. and Europe, don't have enough to eat. They are **malnourished**, lacking the basic nutrients to stay active and healthy.

One reason why people don't get enough to eat is because global food prices can change. Bread, for example, can become much more expensive than usual if there is a drought affecting grain in a particular year. When that happens, people who live on pennies a day don't have enough money to buy enough food.



Many scientists believe that insects can play an important role in helping to solve world hunger. Insects are an inexpensive and readily available food in many places around the world and can be easier to raise than other kinds of meat. Promoting the eating of insects can help stop hunger, while also improving nutrition.





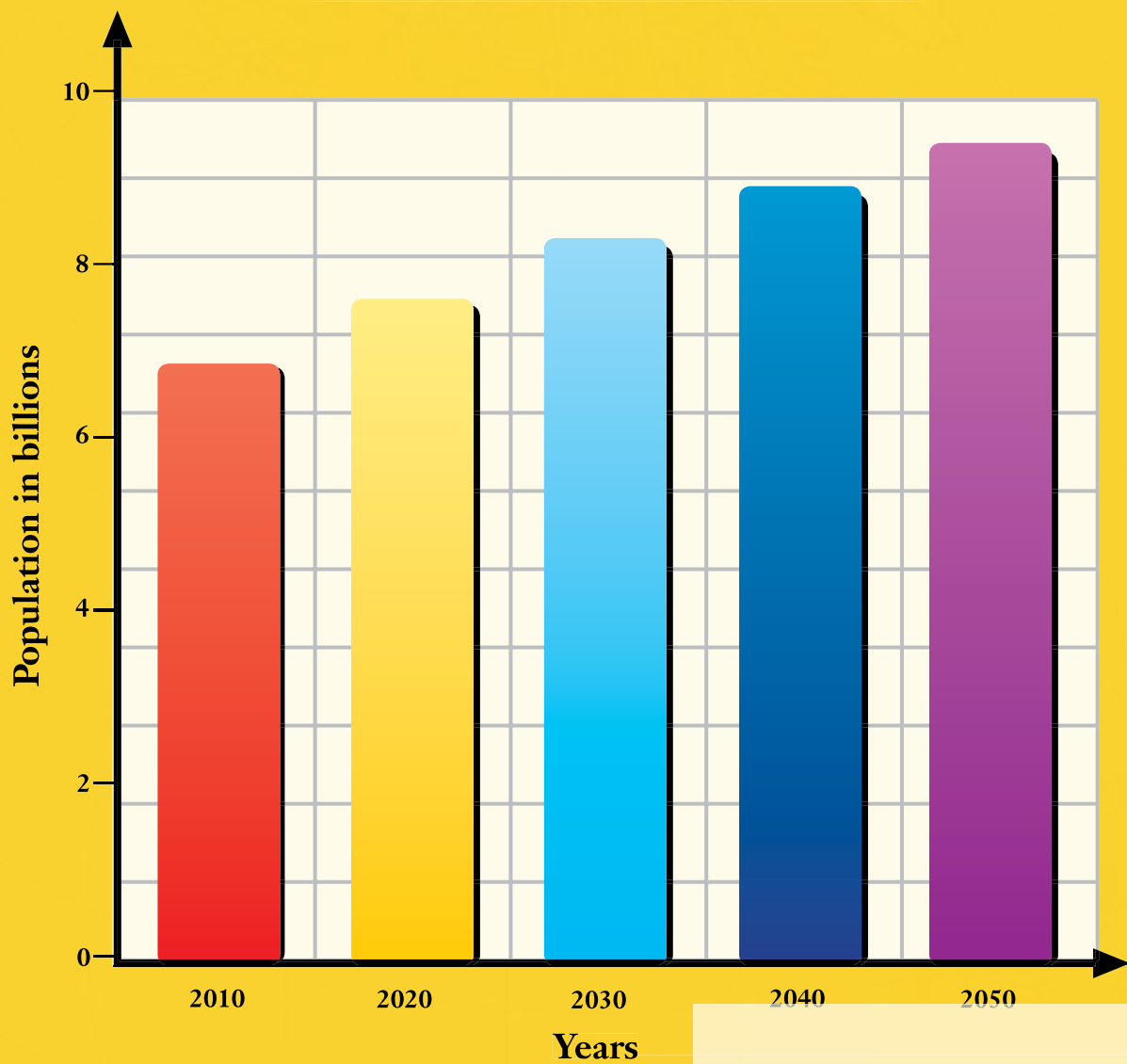
# Nutritious Insects

Another reason to eat insects is that they are actually quite healthful. According to the Food and Agriculture Organization of the United Nations, insects are, in general, high in protein. Protein is an important staple of the human diet because it provides the energy we need to build muscles and stay active throughout the day. Insects also provide fiber, minerals, and vitamins.

Every 3.5 ounces (100 grams) of crickets, for example, contain about 121 calories, with high levels of protein, iron, and essential vitamins. The same size serving of lean beefsteak has around 200 calories. With insects, you can get similar nutrition to what you get by eating a steak, without the extra calories. Using insects as food, rather than steak for example, is just better for our bodies.

Insects offer a great source of nutrition for people everywhere. As the world's population increases, there will be more people and less food to go around. By 2050, the world's population will **surpass** nine billion people, and we'll need to find ways to feed them all.

## World Population Growth



Source: U.S. Census Bureau

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As population grows, we need more food to feed everyone.

# Insects, an Efficient Food

Another reason insects are eaten around the world is that insects are **efficient**. They don't need much space or food. People are increasingly concerned about the environment and producing beef or chicken, for example, takes a lot of land and energy.




In the United States alone, there are about 33 million beef cows. These animals need to eat massive amounts of food to survive. They also create a lot of waste. Manure is a significant factor in water pollution. Manure also emits greenhouse gases, which contribute to global warming. Insects require far less food than cattle. Scientists also recently discovered that insect waste contributes far less to greenhouse gases than the waste from cattle or pigs.

Most insects are much more efficient at converting food to meat than cows are. Some call all the resources that an animal requires to produce meat a "foodprint." This term refers to the land needed to grow food and raise all the meat to feed one person for a year.

When compared to beef cattle and chickens, grasshoppers have by far the smallest foodprint. This is important because the fewer resources it takes to produce meat, the cheaper that meat will be. Insects can be produced efficiently and inexpensively to provide a good source of protein.



## Resources Needed to Raise an Equal Amount of Meat

Animal	Feed Needed	Land Needed
Beef Cattle 	25 tons (22.7 metric tons) of crops	About 22 acres (9 hectares)
Broiler Chicken 	6 tons (5.4 metric tons) of crops	About 5 acres (2 hectares)
Grasshoppers 	4 tons (3.6 metric tons) of algae	0.17 acres (0.7 hectares)

Source: Third Millennium Farming

Grasshoppers require far less feed and land than cattle or chickens to produce an equal amount of meat.

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# Insects in *Your* Diet

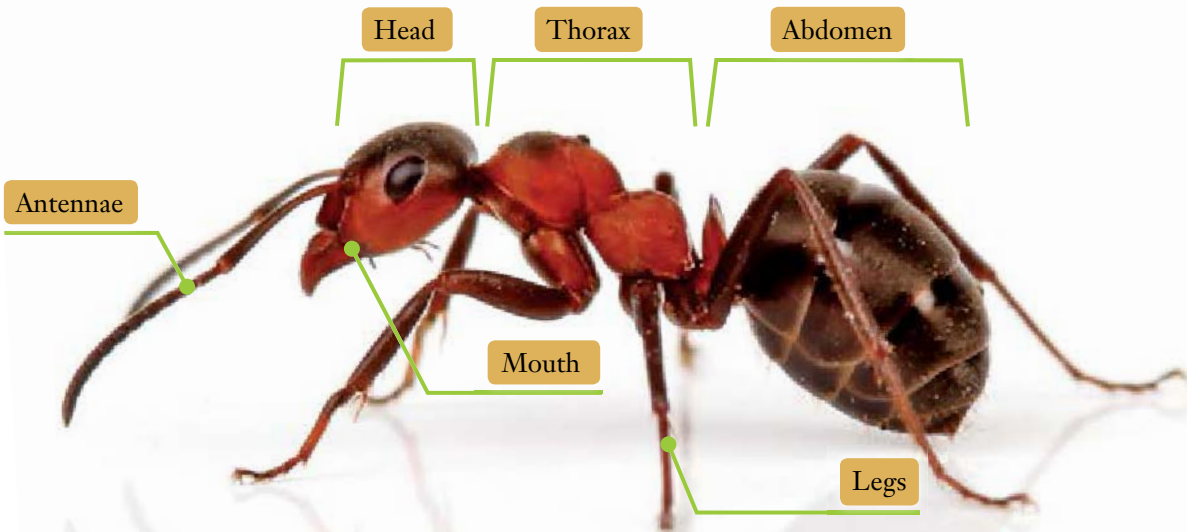
You might think eating insects is a good idea, but you still can't stomach eating one. Well, you actually may have eaten insects already. **Microscopic** insects and insect parts can be found in most of the food you enjoy. In fact, the U.S. Food and Drug Administration, which monitors the quality of food for sale in the United States, has a long list of foods that can have acceptable levels of insects, worms, or rodent hairs in them.

For example, as many as twenty whole insects can be found in a 100-pound (45-kilogram) bag of peanuts. There can be up to ten whole flies or an **equivalent** number of fly parts and up to thirty-five fruit fly eggs in every eight ounces (227 grams) of raisins. If more than these amounts are found, however, the foods cannot be legally sold.

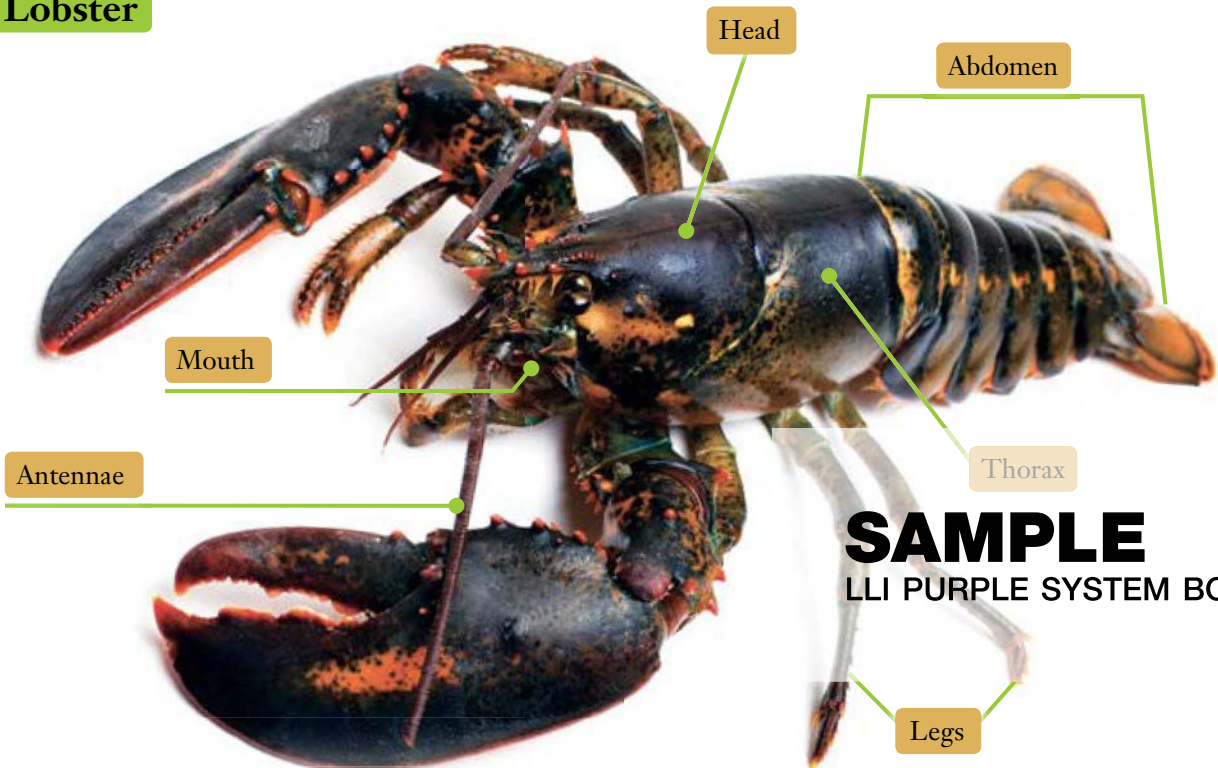
Additionally, Europeans and Americans have no problem eating some close relatives to insects, such as crabs, lobsters, and crawfish. Insects, lobsters, crawfish, and spiders are part of the arthropod **phylum**. A phylum is a group of animals or plants with similar characteristics that make them different from any other animals or plants on Earth. Arthropods all have bodies that are made up of segments and are covered by an exoskeleton. An exoskeleton is a hard material on the outside of an animal's body that holds the shape of the body. An arthropod's body also has **appendages**, including legs.

## Comparing Arthropods

### Ant



### Lobster



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Ants and lobsters are part of the phylum of arthropods and share some characteristics.



In Europe and the United States, lobster is an expensive delicacy, but lobster is not the only delicious arthropod in the world. In China, you can find scorpions for sale on street carts. In Cambodia, many people enjoy eating tarantulas. Tarantulas are collected in forests, mainly in northern Cambodia. They have been shown to contain valuable nutrients, such as zinc.

Some people in Cambodia deep-fry tarantulas, roast them, or even ferment them in a jar. The only problem with eating tarantulas is that they are becoming harder to find because of their popularity.

Several people and companies are trying to make insect eating more culturally acceptable in Europe and the United States. One way of doing this is by reminding consumers that insects are related to animals they already enjoy eating. For example, one company that promotes insects as food refers to insects as “land shrimp.”

**Tarantulas are a delicious treat to some Cambodian people.**





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# An Old Trend Lives On

While insect-eating is not yet completely culturally acceptable in the United States, Canada, and Europe, it is by no means a new trend. Mexico and South America have had their own distinct cuisine, which includes insects, for thousands of years. The same is true for some of Africa and parts of Asia.

## Mexico

In Mexico, native peoples took full advantage of the opportunity to eat insects. Stinkbugs, crickets, maguey [muh-GAY] worms (which are actually caterpillars), and ant eggs are all still appreciated in areas of Mexico.

In Zapotitlán Salinas, a small town south of Mexico City, green caterpillars have been a speciality for a long time. Called *cuchama*, they are only available during a few months every year. People collect them by picking them off trees.

In areas around Mexico City, farmers once used **pesticides** to get rid of grasshoppers that travel in swarms. Now they are planting cheap corn to *attract* grasshoppers, because collecting and selling these insects actually earns farmers more money than farming corn. Farmers also raise maguey worms to sell as food. Some worms are now even sold to fancy restaurants.



Maguey worms are served in many Mexico City restaurants.





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## Southern Africa

In southern Africa, people have eaten mopane [moe-PAH-nee] worms for hundreds of years. Mopane worms are probably southern Africa's most popular insect snack. People in many African countries harvest and eat this animal.

The mopane worm is actually a caterpillar. It lives on—and eats the leaves of—the mopane tree. The trees don't grow very high, so people can simply pluck the worms out of the trees, squeeze out the guts, and collect the empty tubes for cooking. After the worm is boiled briefly, it can then be dried and prepared however you prefer.

Mopane worms aren't the only enjoyable insects in southern Africa. Stinkbugs, which are especially high in protein, can be eaten raw or cooked with porridge.

Stinkbugs are also harvested by hand. Making stinkbugs edible is a challenge, because they release **secretions** that have a terrible smell and flavor. Harvesters rinse and stir the insects with a wooden spoon until the secretions stop. Some harvesters even turn their heads away from the stinkbugs to help avoid the smell as it wafts off the stinkbugs. The insects are then boiled, dried in the sun, and eaten or sold at markets, smell free.







Food and drinks with insects  
in them can look beautiful—  
and taste great.

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## China

In China, centipedes, crickets, and fly maggots are all eaten regularly. Scorpions (which are arthropods actually, not insects) also are raised on farms like chickens or cows. You can buy scorpions in a restaurant or marketplace, deep-fried and delicious. Some vendors place scorpions on sticks, like meat skewers.

Eating insects is part of China's cultural tradition. While an American or British person might like something with a **uniform** and smooth texture, like a cheese sandwich, many Chinese people enjoy having something that provides a more interesting chew.

"In China, the sensation of a thing in your mouth is part of the pleasure of eating it," explained Fuchsia Dunlop, a cookbook author who specializes in Chinese cuisine.

Crunchy scorpion skewers can be bought at outdoor markets in China.





## Thailand

Thailand also has a very insect-rich cuisine. Caterpillars, crickets, and giant water bugs can be found in markets and on the menus of some restaurants. You can buy deep-fried insects in Thailand, but some markets also sell insects that are still alive for home cooking. They are served on banana leaves or in containers.

Jennifer Gampell, a food writer, visited one restaurant in the northern Thai city of Ubon that is especially noted for its insect fare. “I ordered a small plate of mounded grayish-brown flies,” Gampell wrote in an article about the experience. She enjoyed every bite of the meal and explained that pan-frying creates a more delicate and enjoyable flavor than deep-frying.



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## Some International Insect Eaters



Many people all over the world enjoy insects as food.





# Eating Insects Today

Dr. Julieta Ramos-Elorduy Blásquez is a university researcher in Mexico City and an international expert in cultures that eat insects. “The traditions [of insect eating] are part of the **ideology** of a culture,” she explained. Preserving those traditions helps keep these diverse cultures alive.

The doctor began her study of insects after reflecting on the malnutrition she saw in many poor people in her home country of Mexico. If they ate more insects, they might be healthier. She has recorded more than 1,700 different types of insects around the world that people consume as food. She tested their digestibility and nutritional value. The doctor has even found that some insects have medicinal properties. People have told her that some insects can cure coughs or be used as **anesthetics**.

Eating insects is not just common for **indigenous** peoples of the world. Even people who have their choice of any cuisine in the world enjoy eating insects. Actress Salma Hayek was born and raised in Mexico. She told a talk-show host that she loves to eat insects. “They’re delicious,” she explained. She described how grasshoppers have a smoky flavor and how ants are especially good with guacamole [GWAH-kuh-MOH-ley], a dip made of avocado.



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# Insects for Everyone

Many people are working to change people's minds about eating insects. Dr. Julieta Ramos-Elorduy Blásquez thinks that even calling insects *bugs* is hurting their reputation as a delicious food. "It is a **derogatory** word," she explained. The doctor challenges people to learn more about edible insects and even try some for themselves. Her suggestion is to eat them "fried with oil or butter, or even raw."

Jakub Dzamba, a researcher from McGill University in Canada, is studying the environmental and health impacts of eating insects. He is currently working on ways to make insects more palatable to Europeans and Americans. Dzamba and a chef are trying to create a type of protein-rich flour from crickets, which could then be made into pasta and meat nuggets.

Dzamba hopes that people can change their attitudes about insects—and learn to enjoy them for their own sake. "Twenty-five years ago, eating raw fish [in Europe and North America] was considered disgusting," he explained. "Today lots of people in Europe and North America love sushi."

Even if you've never eaten an insect, you may discover that you enjoy the flavor and texture.





Dzamba and many others think that raising more insects for food could help solve world hunger problems while also benefiting the environment. If people around the world are ready to expand their diets and their minds, insects could be the world's next favorite main course—and a solution for global malnutrition.

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# Glossary

**anesthetics** (a-nuhs-THEH-tiks) n., substances that have the ability to dull pain

**appendages** (ah-PEHN-dij-is) n., arms and legs of an animal

**cuisine** (kwi-ZEEN) n., style of cooking or a particular food that is cooked

**derogatory** (di-RAW-guh-toh-ree) adj., showing a poor opinion

**efficient** (i-FIH-shuhnt) adj., achieving maximum productivity with minimum wasted effort or expense

**equivalent** (i-KWIV-luhnt) adj., of an equal amount

**ideology** (igh-dee-AW-luh-jee) n., the ideas and manners of a cultural group

**indigenous** (in-DIH-juh-nuhs) adj., native

**malnourished** (mal-NUHR-isht) adj., not having enough food with nutritional or healthful value

**microscopic** (migh-kruh-SKAH-pik) adj., smaller than can be seen with the naked eye

**pesticide** (PES-tuh-side) n., a substance used to destroy insects or other organisms harmful to plants

**phylum** (FIGH-luhm) n., group of loosely related animals or plants that form a broad category

**secretion** (si-KREE-shuhn) n., a substance, such as saliva, produced in an animal's body and given off by a part of the body

**surpass** (suh-PAS) v., to become greater or more than

**uniform** (YEW-nuh-form) adj., not changing, consistent



## **Insects on Your Plate**

If you found a fly in your soup in New York, London, or Sydney, you might freak out. After all, flies aren't food. Or are they? It all depends on your perspective.

In countries such as Thailand, you might special order a plate of flies and gobble them up without a second thought. In Cambodia, you can enjoy a tasty tarantula. In Mexico, a basket of fried grasshoppers might be just the snack you crave.

People in these countries aren't trying to be gross or daring. Insects and other related animals, like scorpions and spiders, have been a regular part of their diet for many years.

As our planet population grows, how to feed the growing number of malnourished people around the world—and ourselves—is something we must consider. Insects are healthful, delicious, and easy to harvest. Even if it makes you a little nervous, you'll never know how fantastic insect cuisine can be until you try it for yourself—or at least read a book about it!

### ***Acknowledgment***

The author would like to thank Jakub Dzamba and Dr. Julieta Ramos-Elorduy Blásquez for their invaluable assistance in the creation of this book.

## Eating Insects

We eat mammals, like cows and pigs. We eat fish. We even eat birds, like chickens and turkeys. Why, then, is it so hard to imagine eating insects? While insects are not a typical part of the European or American diet, they are a regular—and delicious—part of the human diet in other parts of the world. Find out what's so great about eating insects and why it might be something you'll want to try.

### Nonfiction: Persuasive

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