

Geography of Cockroaches in the U.S.

Three researchers have completed the first comprehensive taxonomic review of U.S. cockroaches to be conducted in more than 70 years.

by Thomas Atkinson, Philip Koehler and Richard Patterson

The recent detection of newly introduced cockroach species such as the Asian cockroach (Brenner et al. 1986, 1988) and Nicaraguan cockroach (Atkinson et al. 1990) highlights the dynamic nature of cockroach fauna in the United States.

While reviewing scientific literature for information on geographic distribution of outdoor cockroaches, we came to realize that no up-to-date information was available. The last comprehensive taxonomic review of U.S. cockroaches was done in 1917 by Morgan Hebard. This work is the authoritative treatment for identification of North American cockroaches.

Since then, however, many species of cockroaches have become established in the United States from other countries. More extensive collecting along the country's southern borders has turned up additional native species (reviewed by Pratt 1988).

The semi-technical identification manual by Helfer (1963) and the illustrated key to

economic species by Pratt (1955) are widely used for identification of U.S. cockroaches, but are incomplete. We have recently completed a comprehensive review of the taxonomy, ecology and geographic distributions of U.S. cockroaches (Atkinson et al. 1991), which is summarized here.

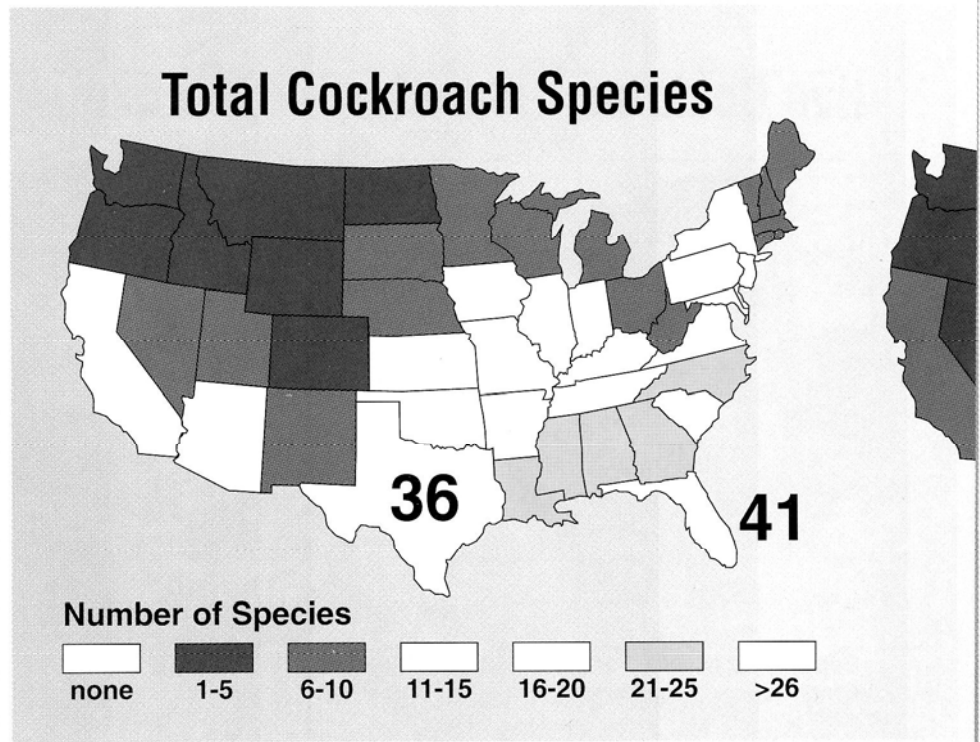
At present, there are 69 species of cockroaches known from the continental United States and Canada. (There are no species known from Canada that do not also occur in the United States.)

The species are listed in the accompanying table.

Land of opportunity

Twenty-four of the 69 species have been introduced from other continents. Given the rate at which new species become established here, this number will undoubtedly grow. The remaining 45 species occur naturally in this country, although many of them also occur in Mexico and the Caribbean.

All of the pest species that breed inside dwellings and



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other man-made structures, such as German, American, brown-banded and Oriental cockroaches, have been accidentally introduced from other areas.

Most of the species that are abundant around houses, such as Asian, smoky-brown, Surinam and Oriental cockroaches, also have been introduced.

Some native species are occasional nuisances, especially in structures built in prime habitats for outdoor species. Even though most of these cannot breed indoors on a sustained basis, large numbers may invade structures and cause complaints. Correct identification of the cockroaches is necessary in these cases to ensure appropriate control measures to source areas of the cockroaches.

Obviously, crack and crevice treatment indoors will have no effect on cockroaches that come from outdoor habitats. Most of the native species and many of the introduced species are found only outdoors and are seldom if ever noticed by the public.

The accompanying maps show the diversity of U.S. cockroach species by state.

Since we commonly think of cockroaches as requiring warm, humid conditions to thrive, it is

not surprising that the Southeast has the greatest diversity of species. A glance at the maps shows that the Sun Belt could also be referred to as the "Roach Belt."

The inside of a kitchen in Seattle or Boston is not that different from one in Miami or Los Angeles, in terms of environmental factors important to cockroaches.

Having many different kinds of roaches is part of the price Southerners pay for not having to shovel snow. Florida and Texas are head and shoulders above the rest of the states, since both have tropical cockroach species not found elsewhere.

No winter relief

Surprisingly, however, there are appreciable numbers of cockroach species found in cold, temperate areas (e.g. native-woods roaches of the genus *Parcoblatta*)

and arid and semi-arid regions (e.g. sand cockroaches of the genus *Arenivaga*).

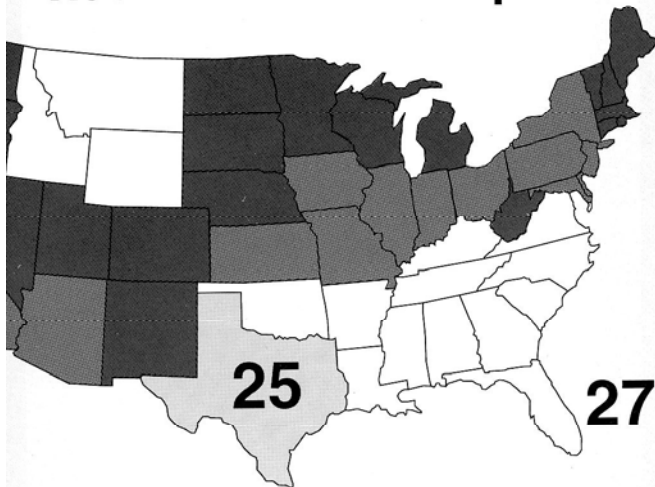
Most of the major pest species are found throughout the United States. A notable exception is the Oriental cockroach, which is not found in Florida and the lower Gulf Coast.

The inside of a kitchen in Seattle or Boston is not that different from one in Miami or Los Angeles, in terms of environmental factors important to cockroaches. Species such as American and Surinam cockroaches, found only inside structures in most of the country, have healthy outdoor as well as indoor populations in the warmer, more humid parts of the country.

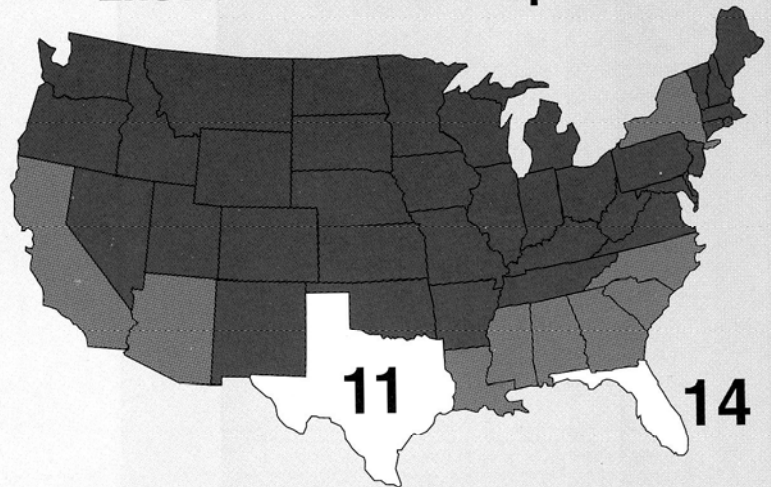
Outdoor species, both native and exotic, tend to be much more restricted in their geographical distributions, since these species must cope with climatic factors, such as extreme temperatures and humidity. **PC**

The references cited by the authors for this article are available upon request.

Native Cockroach Species



Exotic Cockroach Species



Geographic distribution of cockroach diversity by state: total species, native species, and exotic (introduced) species. (Data summarized from Atkinson et al. 1991.)

Geographical Distributions of U.S. Cockroaches by Region

SPECIES	REGION										ORIGIN
	FL	GC	TX	SE	NE	MW	RM	PSW	PNW		
Family Cryptocercidae											
<i>Cryptocercus punctulatus</i>				■	■				■		
Family Blattidae											
<i>Blatta orientalis</i> (oriental cockroach)			■	■	■	■	■	■	■		Middle East
<i>Blatta lateralis</i> (Turkestan cockroach)			■					■			Central Asia
<i>Eurycotis floridana</i> (Florida woods roach)	■	■									
<i>Eurycotis lixa</i>	■										
<i>Neostylopyga rhombifolia</i> (harlequin cockroach)								■			Southeast Asia
<i>Periplaneta americana</i> (American cockroach)	■	■	■	■	■	■	■	■	■		Africa
<i>Periplaneta australasiae</i> (Australian cockroach)	■	■	■								Africa
<i>Periplaneta brunnea</i> (brown cockroach)	■	■	■	■							Africa
<i>Periplaneta fuliginosa</i> (smokybrown cockroach)	■	■	■	■				■			East Asia
Family Polyphagidae											
<i>Arenivaga apacha</i>								■			
<i>Arenivaga bolliana</i>			■								
<i>Arenivaga erratica</i>			■					■			
<i>Arenivaga floridensis</i>	■										
<i>Arenivaga genitalis</i>								■			
<i>Arenivaga grata</i>			■					■			
<i>Arenivaga investigata</i>			■					■			
<i>Arenivaga tonkawa</i>			■								
<i>Compsodes cucullatus</i>	■		■								
<i>Compsodes schwarzi</i>	■		■					■			
<i>Eremoblatta subdiaphana</i>			■					■			
<i>Holocompsa azteca</i>								■			
<i>Holocompsa nitidula</i>	■										
<i>Myrmecoblatta wheeleri</i>	■										
Family Blattellidae											
<i>Attaphila fungicola</i>			■								
<i>Blattella asahinai</i> (Asian cockroach)	■										East Asia
<i>Blattella germanica</i> (German cockroach)	■	■	■	■	■	■	■	■	■	■	Asia
<i>Blattella vaga</i> (field cockroach)			■					■			Southwest Asia
<i>Caribblatta lutea</i>	■	■	■	■							
<i>Caribblatta minima</i>	■		■								
<i>Chorisoneura parishi</i>	■										Caribbean
<i>Chorisoneura texensis</i>	■	■	■	■							
<i>Ectobius lapponicus</i>					■						Europe

FL, Florida; GC, Gulf and lower Atlantic Coasts; TX, Texas; SE, interior Southeast, including seaboard to Delaware; NE, Northeast; MW, Midwest; RM, Rocky Mountain states; PSW, Pacific Southwest, including southern Arizona & New Mexico; PNW, Pacific Northwest. Origin refers to general area of origin of introduced species. (Data summarized from Atkinson et al. 1991).

SPECIES	REGION										ORIGIN
	FL	GC	TX	SE	NE	MW	RM	PSW	PNW		
<i>Ectobius pallidus</i>					■	■					Europe
<i>Ectobius sylvestris</i>					■						Europe
<i>Euthlastoblatta abortiva</i>			■								
<i>Euthlastoblatta gemma</i>	■	■	■								
<i>Ischnoptera bilunata*</i>	■	■									South America
<i>Ischnoptera deropeltiformis</i>	■	■	■			■					
<i>Ischnoptera nox</i>	■										Central America
<i>Latiblattella lucifrons</i>								■			
<i>Latiblattella rehni</i>	■										
<i>Neoblattella detersa</i>	■										
<i>Parcoblatta americana</i>								■	■		
<i>Parcoblatta bolliana</i>		■	■	■		■					
<i>Parcoblatta caudelli</i>		■	■	■		■					
<i>Parcoblatta desertae</i>			■								
<i>Parcoblatta divisa</i>	■	■	■	■		■					
<i>Parcoblatta fulvescens</i>	■	■	■	■		■					
<i>Parcoblatta lata</i>	■	■	■	■		■					
<i>Parcoblatta notha</i>								■			
<i>Parcoblatta pensylvanica</i>		■	■	■	■	■					
<i>Parcoblatta uhleriana</i>	■	■	■	■	■	■					
<i>Parcoblatta virginica</i>	■	■	■	■	■	■					
<i>Parcoblatta zebra</i>				■		■					
<i>Plectopera picta</i>	■	■	■	■							Central America
<i>Plectopera poeyi</i>	■										
<i>Pseudomops septentrionalis</i>			■								
<i>Supella longipalpa</i> (brown banded cockroach)	■	■	■	■	■	■	■	■	■	■	Africa
<i>Symploce morsei</i>	■										
<i>Symploce pallens</i>	■										Africa
Family Blaberidae											
<i>Blaberus craniifer</i>	■										
<i>Blaberus discoidalis</i>	■										
<i>Epilampra maya</i>	■										South America
<i>Hemiblabera tenebricosa</i>	■										
<i>Panchlora nivea</i> (Cuban cockroach)	■	■	■								South America
<i>Phoetalia pallida</i>	■										
<i>Pycnoscelus surinamensis</i> (Surinam cockroach)	■	■	■	■							Southeast Asia
<i>Rhyparobia maderae</i> (Madeira cockroach)					■						Africa
Total cockroach species	41	23	36	21	13	15	4	19	6		

* This species was mistakenly reported by Atkinson et al. (1990) as *Ischnoptera bergrothi*.