

ACE Diagnostic Blueprint: Structural Cockroaches

Taxonomic classification, spatial habitats, and reproductive matrices for professional field identification.



THE PUBLIC HEALTH IMPERATIVE

- **PATHOGEN VECTORS:** Known transmitters of food poisoning, wound infections, and respiratory infections.
- **DIRECT ILLNESS:** Dysentery transmission.
- **ASTHMA TRIGGER:** Cockroach allergens remain a leading cause of asthma among inner-city youth.



THE TAXONOMIC DIVIDE: BLATTIDAE VS. BLATTELLIDAE

FAMILY BLATTIDAE (ORIENTAL, AMERICAN)

Characteristics: Large body size ($1\frac{1}{4}$ " to $1\frac{3}{4}$ "), slower reproduction cycles (1-2 years to adult), predominantly ground-dwelling, sewer, or outdoor habitats.



FAMILY BLATTELLIDAE (GERMAN, BROWN-BANDED)

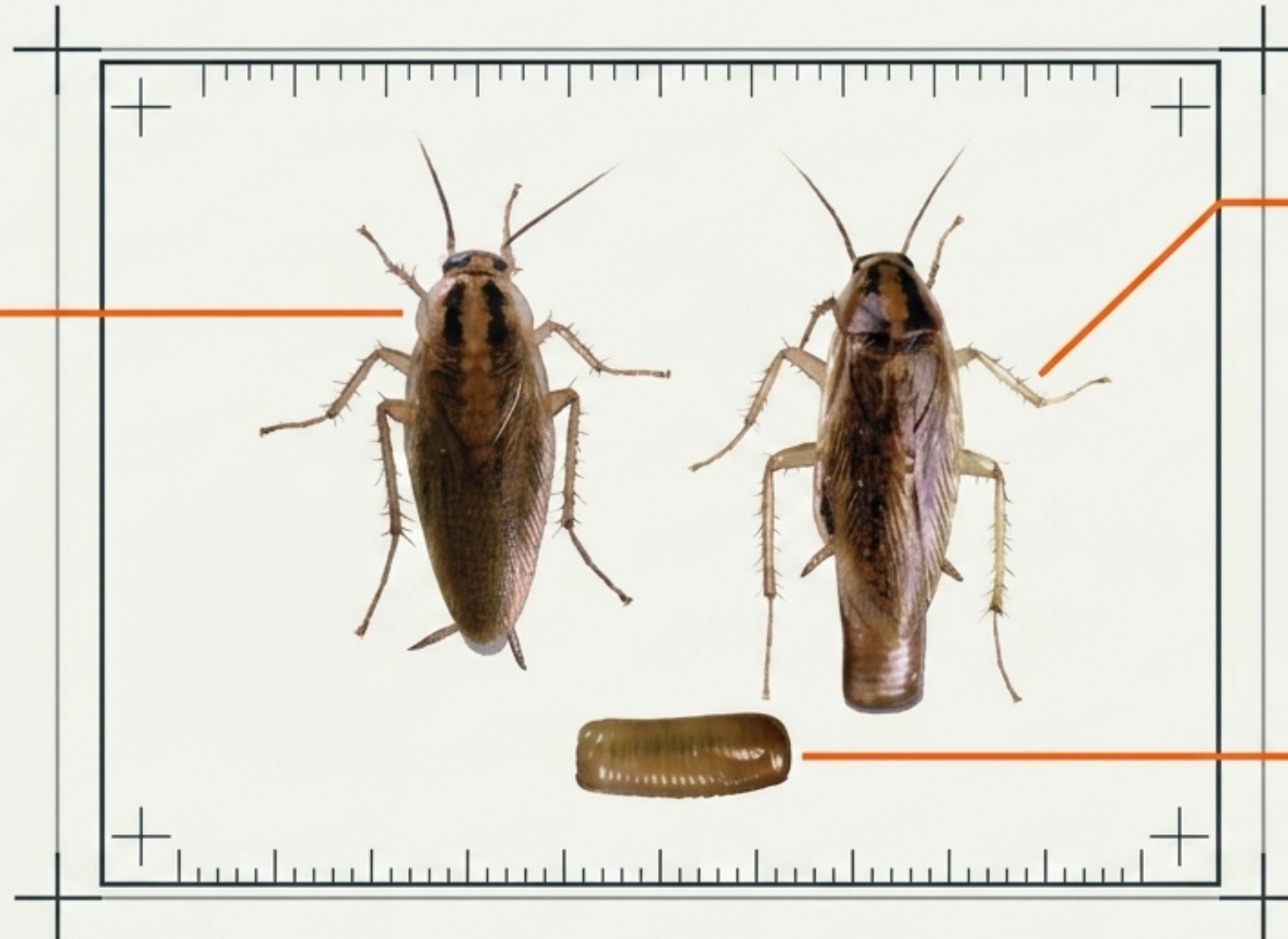
Characteristics: Small body size ($\frac{1}{2}$ " to $\frac{5}{8}$ "), high reproductive rates (2-9 months to adult), strictly indoor, highly adaptive environments.



SPECIMEN 01: *BLATTELLA GERMANICA*

GERMAN COCKROACH

PRONOTUM: TWO
DISTINCT DARK
STRIPES WITH A
BROWN CENTER.



SIZE: $\frac{1}{2}$ TO $\frac{5}{8}$ " LONG
(13-16 MM). BROAD
BODY, BROWNISH HUE.

OOTHECA: LONG,
ROUGHLY 16 DISTINCT
SEGMENTS.

HABITAT DATA: FOUND INDOORS IN WARM, MOIST AREAS
(KITCHENS AND BATHROOMS). ADULTS DO NOT FLY.

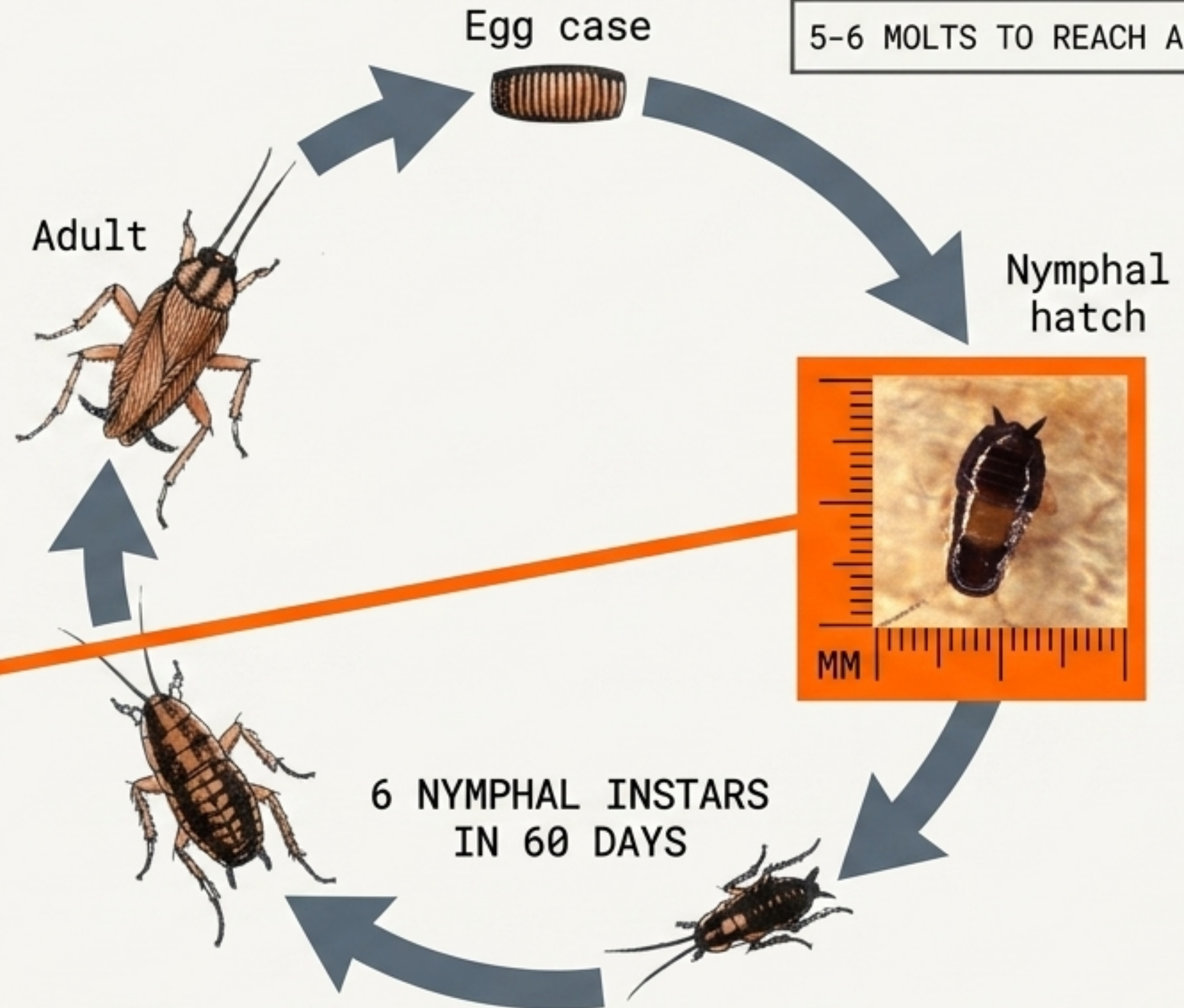
THE REPRODUCTIVE ENGINE OF B. GERMANICA

KEY STATS

30-40 EGGS PER OOTHECA.

2 MONTHS FROM EGG TO ADULT.

5-6 MOLTS TO REACH ADULTHOOD.



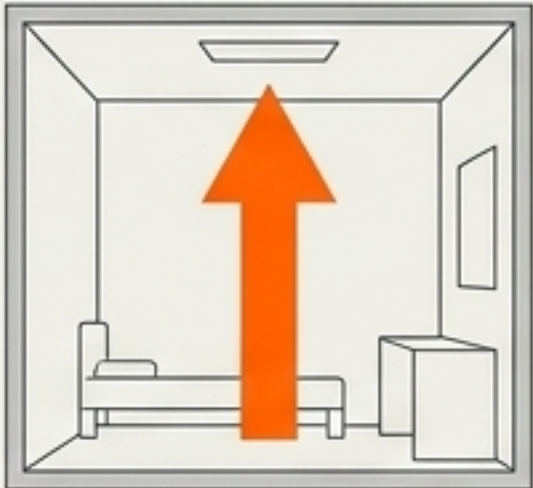
BEHAVIORAL INSIGHT: COPROPHAGY

Early instars remain close to crevices and feed on the feces of older cockroaches.

DIAGNOSTIC TAKEAWAY: PRECISE CREVICE BAITING IS MANDATORY TO TARGET EARLY NYMPHS WHO DO NOT FORAGE WIDELY.

SPECIMEN 02: *Supella longipalpa*

Brown-banded Cockroach



ELEVATION BEHAVIOR

Diagnostic Markers:

½" long (11-14 mm). Distinct banding pattern across abdomen. Adults do not fly.

Reproductive Output:

Moderate. 14-18 eggs per ootheca. 3-9 months from egg to adult.

Habitat Data:

Found indoors throughout the house, unlike the kitchen-bound German roach.

Key behavior: Females glue egg capsules to ceilings and beneath furniture.

SPECIMEN 03: *Periplaneta americana*

American Cockroach

Diagnostic Markers:

1 $\frac{3}{4}$ " long. Reddish-brown with a distinct pale pale edge/brown pattern on the pronotum. Thin cerci. Strong flier.



Reproductive Output:

Slower. 14 eggs per short, smooth ootheca. 9-24 months from egg to adult.

Habitat Data: Subterranean and structural voids (Sewers, basements, furnace rooms, attics).

SPECIMEN 04: *Blatta orientalis*
Oriental Cockroach

Males have
wings $\frac{3}{4}$ length
of abdomen.



Females have
widely separated
wing pads.

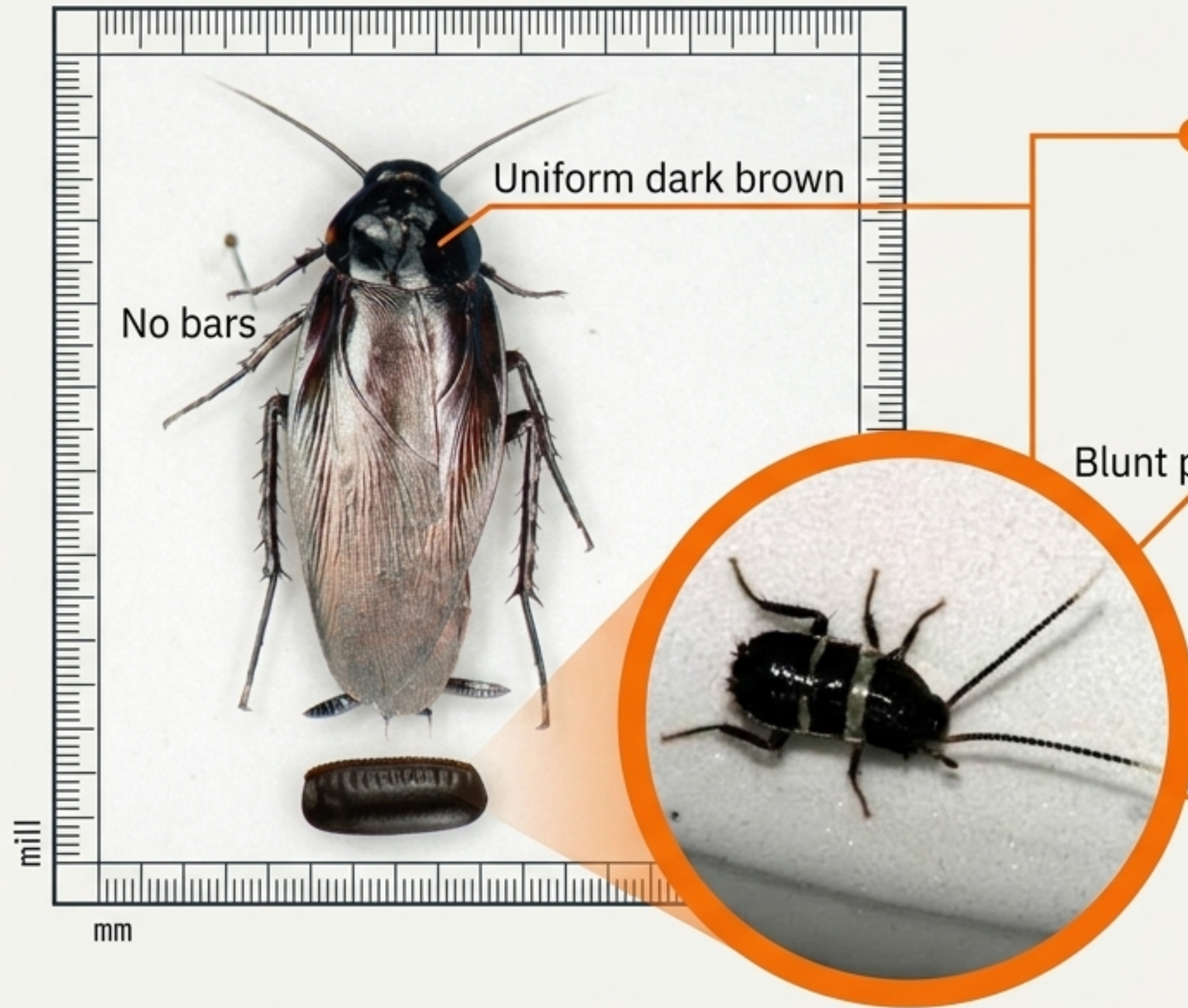
Diagnostic Markers: 1 $\frac{1}{4}$ " long.
Dark red-brown to black.
Extreme dimorphism.

Reproductive Output: Slower.
16 eggs per bulging ootheca.
1-2 years from egg to adult.

Habitat Data: Cooler sites close to
the ground. Primarily basements,
sewers, and crawl spaces.

Specimen 05: *Periplaneta fuliginosa*

Smokybrown Cockroach



Data Card 1

Diagnostic Markers: 1 $\frac{3}{4}$ " long. Uniform dark brown coloration (no bars on pronotum). Note: 1st instar nymph features striking white banding.

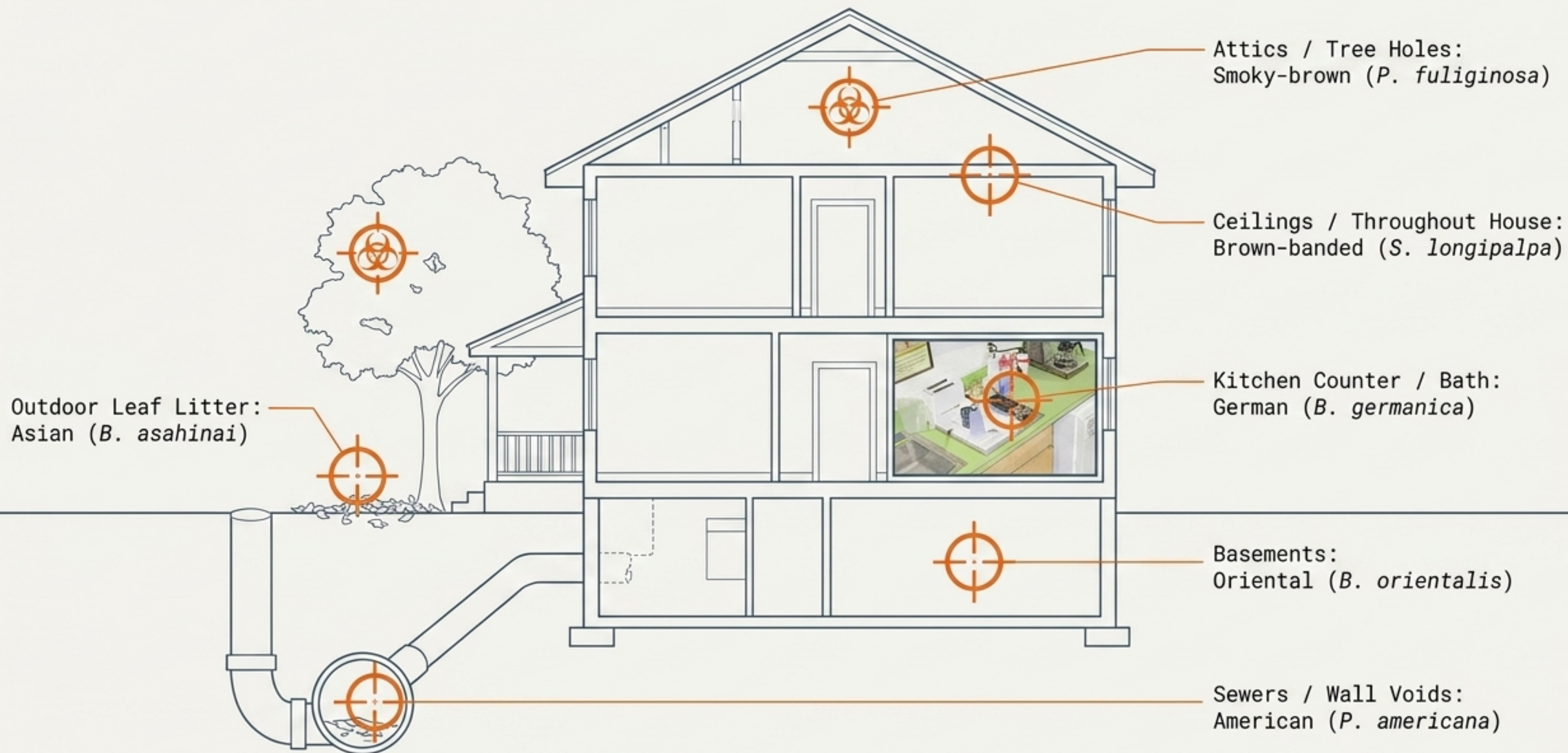
Data Card 2

Reproductive Output: Slow. 20-28 eggs per blunt-pointed ootheca. 12 months from egg to adult.

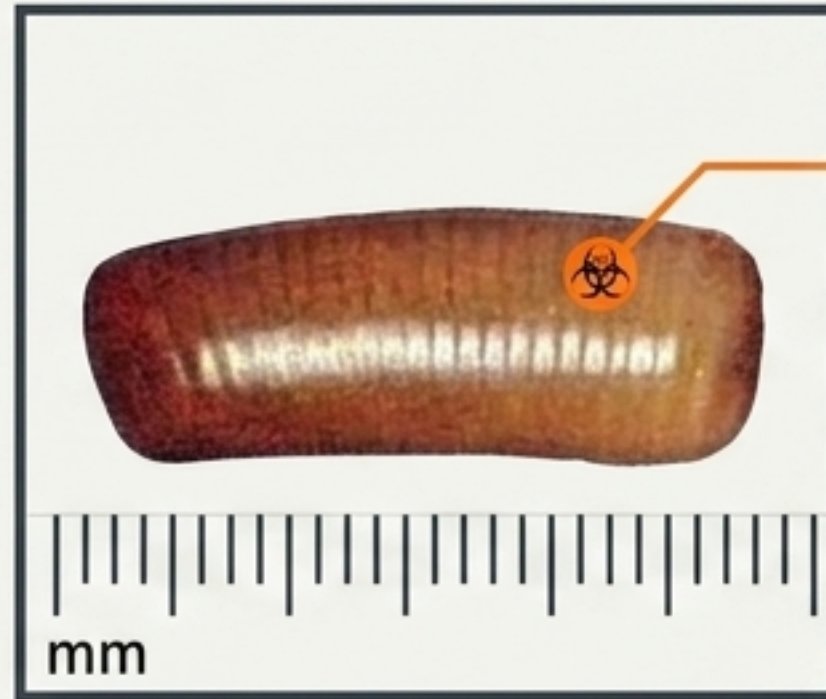
Data Card 3

Habitat Data: Principally outdoor habitats. Woodpiles, trees, palm trees, attics, and soffits.

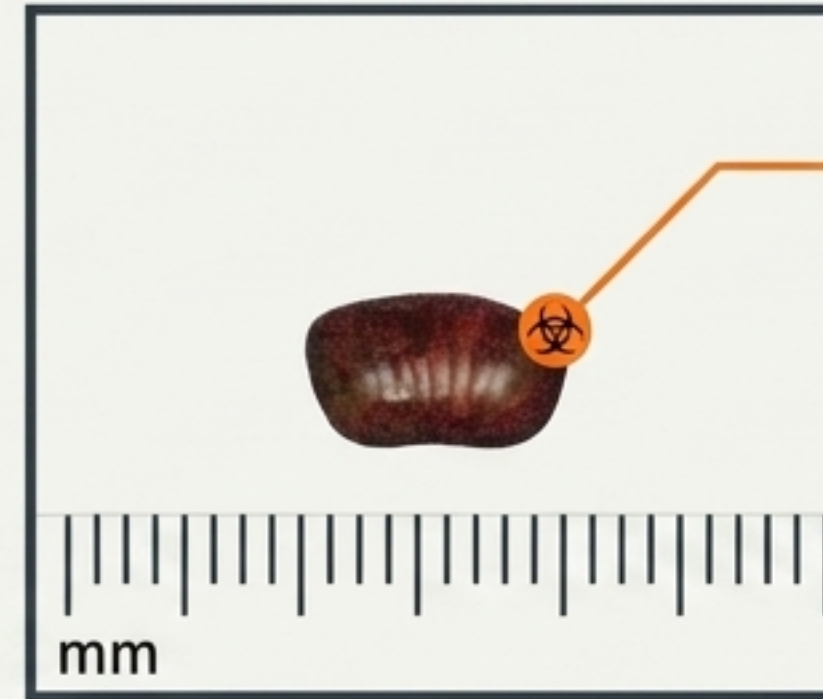
Spatial Habitat Map: Target Zones



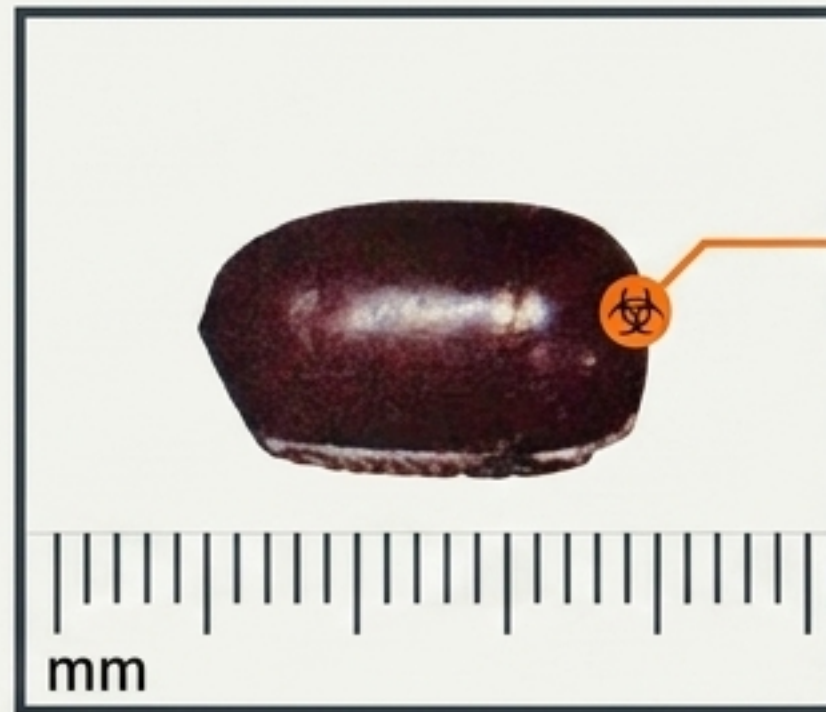
Ootheca Identification Matrix



German:
Long, ~16 distinct
segments.
(30-40 eggs).
Carried by female
until hatch.



Brown-banded:
Smallest,
reddish-brown.
(14-18 eggs).
Glued to
ceilings/furniture.



American:
Short, smooth,
dark.
(14 eggs).



Oriental:
Distinctly bulging
shape, almost
black.
(16 eggs).

Maturation & Output Table

Species	Size	Eggs per Ootheca	Maturation (Egg to Adult)
German	$\frac{1}{2}'' - \frac{5}{8}''$	30-40	2 months (Fastest) 
Brown-banded	$\frac{1}{2}''$	14-18	3-9 months 
Smokybrown	$1 \frac{3}{4}''$	20-28	12 months 
American	$1 \frac{3}{4}''$	14	9-24 months 
Oriental	$1 \frac{1}{4}''$	16	1-2 years (Slowest) 

Which of the following cockroaches is likely to have an ootheca with 15-20 distinct segments?

A) German

B) Smoky brown

C) Oriental

D) American

Revealed Answer & Rationale

A) German cockroach.

Blattella germanica oothecae typically feature roughly 16 (up to 20) segments, housing the highest reproductive payload of 30-40 eggs.

Which of the following cockroaches are most likely to be found deep in a subterranean sewer system?

A) German

B) Smoky brown

C) Oriental

D) Asian

Revealed Answer & Rationale

C) Oriental cockroach.

Both the Oriental and American cockroaches (Blattidae family) are biologically adapted to cooler, ground-level, or subterranean environments like sewers and basements.