an X,Y-plane, the surface 10 having a surface texture that facilitates bugs crawling on it without falling off. The shape of the surface 10 can be designed to keep the bugs that enter the trapping device 1 on the surface, and to minimize bugs crawling off of the surface 10, i.e., to trap the bugs on the surface 10. The trap surface 10 can be surrounded by another surface (e.g., a second surface 510, shown in Figure 8) that is not favored by bugs or is not suitable for bugs to crawl on. The surface materials can be selected so that the bugs favor the trap's surface 10 over the second surface 510. For example, the second surface 510 can be smooth, lacking adequate texture for the bugs to get a foot hold on the second surface 510.

As shown in Figure 1A, the trapping device 1 has a triangular or funnel-shaped base (i.e., base funnel 20), a bottom edge 201, and side walls 202, 203. The base funnel 20 tapers toward the top, connecting to a first wing section 21 by a narrowing or a first neck 22. The first wing section 21 can further be connected to a second wing section 23 by a second neck 24. The trapping device 1 may comprise additional wing sections connected to each other by narrower sections or necks. For example, the trapping device 1 may comprise 1-5 wing sections, 1-3 wing sections, or 2 or 3 wing sections. At least one wing section (e.g., the second wing section 23) is further connected to a collecting area 30 by a bridge 31. For example, the topmost wing section can be connected to the collecting area 30. In alternative embodiments, more than one wing section can be connected to the collecting area 30, or the trapping device 1 may comprise more than one collecting area. The bridge 31 can be horizontal or angled relative to the X-axis in the in the X,Y-plane . The shape of the collecting area 30 can be any suitable shape, such as a rectangle, a rounded rectangle, or a rectangle with an irregular bottom edge 301.

The edges 202, 203 of the base funnel 20 are angled as defined by angle α20. According to an embodiment, the angle α20 is in a range of about 30°-75°, or about 40°-65°. The bottom edge 201 of the base funnel 20 is substantially horizontal and can be aligned with a horizontal surface (e.g., floor) when the trapping device 1 is in use. The first and second wing sections 21, 23 may comprise angled bottom edges (211 and 231, respectively), having an angle α21, α23, respectively, as measured from the side edge 212, 232 of the wing section 21, 23, respectively. The angles α21 and α23 can be in a range of about 30°-90°, or about 40°-75°. The angles α21 and α23 can be independently selected. The wing sections may also have an angled top edge (e.g., top edge 213) that may be parallel to the bottom edge (e.g., bottom edge 211). Alternatively, the angle of the top edge 213 may be independently selected. In the

30. Once in the collecting area 30, the insects may not find their way back out onto the base funnel 20 and off the trapping device 1. Although most insects will stay on the collecting area 30, a catching area 310 (shown in Figure 5, alternatively catching area 742 in Figure 9) may be arranged below the collecting area 30 to catch any insects that fall off of the collecting area 30. The catching area 310 may be, for example, shaped as a platform or a trough and may comprise a glue or adhesive to prevent insects from exiting the catching area 310.

Embodiments of the trapping device 1 with alternative designs for the collecting area 30 are shown in Figures 2 and 3. The collecting area 30 may have a rectangular design, or may have a rounded bottom as in Figure 2. Alternatively, the bottom edge 301 of the collecting area 30 may be configured to encourage insects to stay in the bottom area of the collecting area 30. As seen in Figure 3, the bottom edge 301 may comprise pointed extensions 303 extending downward from the collecting area 30. The pointed extensions 303 take advantage of the natural behavior of bed bugs to explore such areas on a surface, leading more bugs to collect in the bottom area of the collecting area 30.

The collecting are 30 may further comprise recesses 304 on one or both sides of the entrance into the collecting area 30 through the bridge 31. The recesses 304 act to deter insects from leaving the collecting area 30.

An embodiment of the trapping device 1 is shown in Figure 4, where the trapping device 1 comprises two entrance areas, the base funnel 20 and a top funnel 40. The second entrance area may have a similar or corresponding (but inverted) shape as the first entrance area. In the exemplary embodiment in Figure 4, the second entrance area comprises a top funnel 40, a first wing section 41 connected to the top funnel 40 by a neck 42, and a second wing section 43 connected to the first wing section 41 by a second neck 44. The first and second entrance areas are connected by a connecting section 60 that may have in it a cut-out 61. The cut-out 61 serves to guide the insects from the entrance areas into the collecting area 30. The edges 601 of the connecting section 60 may be rounded so as to encourage insects to move along the edge. The overall shape, configuration, and dimensions of the trapping device 1 are configured to (a) guide the insects into the collecting area 30, (b) make it difficult for the insects to exit the collecting area 30, or (c) to discourage insects from staying or entering back into other areas of the trapping device 1.

CLAIMS

What is claimed is:

1. A trap for capturing insects comprising a textured two-dimensional surface, wherein the surface comprises:

one or more triangular sections, wherein one of the triangular sections comprises a base; and

one or more wing sections, each wing section being connected to either one or more triangular sections or to another wing section by a neck,

and wherein the trap comprises a collecting area connected to one or more wing sections by a bridge.

2. The trap of claim 1, wherein the surface is substantially vertical.

3. The trap of claim 1, wherein the surface comprises one or more of paper, fabric, or fiber.

4. The trap of claim 1, wherein the trap comprises two or three wing sections.

5. The trap of claim 1, wherein the wing sections comprise one or more wings defined by angled bottom and top edges, wherein the bottom and top edges of the wings are angled upward.

6. The trap of claim 1, wherein the trap further comprises a catching area with an agent capable of immobilizing insects.

7. The trap of claim 1, wherein the trap comprises a case that encloses the surface on at least four sides, the case comprising one or more entrance openings.

8. The trap of claim 7, wherein at least some parts of the case are opaque.

9. The trap of claim 7, wherein the case comprises a catching area with an adhesive agent capable of immobilizing insects.

10. The trap of claim 7, wherein the case comprises a material with a smooth surface.

11. The trap of claim 7, wherein the case comprises plastic, glass, or metal.

12. The trap of claim 1, wherein the insects comprise bed bugs.

13. The trap of claim 7, wherein the surface comprises a preferred material for bed bugs and wherein the case comprises a non-preferred material for bed bugs.

14. The trap of claim 9, wherein the case comprises a material with a dark color and the catching area comprises a material with a light color.

15. The trap of claim 6, wherein the agent comprises an adhesive.

16. The trap of claim 6, wherein the agent comprises an insecticide.

17. The trap of claim 1, wherein the collecting area comprises an insecticide.

18. The trap of claim 1, wherein the wing sections are defined by edges and wherein at least some of the edges comprise a repellent.