



## IMPROVED CDC RESTING TRAP

### MODEL 1732

#### *Instructions*

#### ***Background***

The Improved CDC Resting Trap (Model 1732) is based on the original **Centers for Disease Control and Prevention (CDC) Resting Trap**,<sup>1</sup> which was developed as a novel device for collecting resting mosquitoes. The CDC developers reported that resting collections in general are far superior to other types of collections for acquiring blood-engorged female mosquitoes. Collecting blooded female mosquitoes is a valuable tool for researchers evaluating host preferences of mosquitoes and pathogen transmission dynamics, and for mosquito control personnel interested in monitoring human biting rates among local mosquito populations. Modern polymerase chain reaction technology can now identify the blood meal source to the species level among vertebrates, and forensic techniques can be



*Figure 1. Improved CDC Resting Trap Model 1732*

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<sup>1</sup> Panella, N. A., Kent Crockett, R. J., Biggerstaff, B. J., & Komar, N. (2011). The Centers for Disease Control and Prevention resting trap: A novel device for collecting resting mosquitoes. *Journal of the American Mosquito Control Association*, 27(3), 323–325. <https://doi.org/10.2987/09-5900.1>

used to determine the individual blood donors for anthropophilic vectors, such as *Aedes aegypti* (L.).

The new resting trap mimics natural and man-made sites by providing a secluded and shaded resting location with minimal air movement for females digesting their blood meal and in the process of oogenesis. Examples of natural resting sites include caves, tree cavities, animal burrows, root masses and dense vegetation. Man-made resting sites include structures such as barns, culverts, basements, and our new Improved CDC Resting Trap Model 1312.

The CDC scientists that developed the original CDC Resting trap present data demonstrating an effective new device for collecting resting mosquitoes. Furthermore, they indicate that this has the potential for facilitating vector ecology research and for augmenting surveillance for certain mosquito-borne pathogens (e.g., arboviruses, filarial nematodes, and malaria [*Plasmodium species*]), especially those pathogens transmitted by mosquitoes in the genera *Culex* Linnaeus, *Anopheles* Meigen, and *Culiseta* Meigen.”

The trap provides a resting location for mosquitoes using wood-fiber nursery pots modified with an aspiration device to improve recovery of the resting adults. The original CDC Resting Trap, in extensive field work conducted in Colorado, collected 16.0 and 5.2 times more adult *Culex pipiens* Linnaeus and *Culex tarsalis* Coquillett female mosquitoes than similar wood-fiber nursery pots without the aspirator. In their evaluations, the CDC scientists collected a total of 11 species with the wood-fiber traps. They collected mostly *Culex* species in a greater proportion of engorged mosquitoes than the carbon dioxide-baited traps (22.2% engorged from resting traps vs. 1.4%).<sup>1</sup>

The trap is seen to be useful for the collection of blood-engorged mosquitoes in the genera *Culex*, *Culiseta*, and *Anopheles*.<sup>1</sup> They are mostly ineffective for sampling many genera of nuisance and vector mosquitoes such as *Coquillettidia* Dyar, *Psorophora* (Robineau-Desvoidy), and *Aedes* (Meigen). Note that our gravid traps (PN 1712 CDC Gravid Trap and PN 1719 Frommer Updraft

Gravid Trap) using bacteria-laden water as an oviposition attractant are other excellent traps for collecting gravid *Culex* females.

## **Operation**

The Improved CDC Resting Trap design is very similar to our Frommer Updraft Gravid Trap. The trap is provided with a battery-powered aspiration fan that pulls resting adults into a collection chamber below the fan. The adults do not go through the aspiration fan and therefore remain in pristine condition for identification and storage.

The aspirator and collection chamber assembly is mounted in a half couple that is permanently at-

tached to the wood-fiber resting pot; the resting pot has holes cut in it to create a secluded and shaded resting location. Immediately above the pot is the collection chamber fitted with a non-removable inverted stainless screen cone in the bottom; attached to the top of the collection chamber is a couple with a stainless screen disk. This assembly is the collection chamber. The trap comes supplied with two collection chambers. In the morning with the fan still running, the collection chamber and upper fan are removed from the coupling attached to the base. A cap (supplied) is put on the bottom of the chamber and the fan is disconnected from the battery. The fan housing and rainshield are removed. After the mosquitoes are knocked down with cold, the couple (with attached screen disk) is removed and the mosquitoes are removed by inverting the collection chamber.



*Figure 2. Improved CDC Resting Trap Model 1732 comes complete with aspirator body with rainshield, wood-fiber resting box with couple, and two collection chambers.*

## ***Electrical Requirements***

The Improved CDC Resting Trap (Model 1732) requires ca. 0.15 Amp per hour to operate at 6.0-6.3 VDC. Four D-size flashlight batteries (preferably alkaline) in series will provide power for several nights of operation (optionally available: PN 1.50 Four D-Cell external battery holder). Our Sealed, Gelled-Electrolyte Battery, 6 V, 12 Amp Hrs (PN 2.3) will operate the trap for more than 72 hours without recharging. You can estimate the maximum run time for a fully charged and new battery by dividing the AmpHr rating of the battery by the power consumption of the trap. Please note, older batteries, even though fully charged, will provide substantially less run time.

Excellent automatic chargers for this 6-volt gel battery are the Automatic charger for one 6 Volt battery. Input 115VAC, 50/60Hz. Output 3A 6V. For use in USA (Model 7.10) or the Automatic charger for one 6 Volt battery. Dual input 115/240VAC, 50/60Hz. Output 3A 6V. Intended for sale/use outside USA (Model 7.30). Both 6- and 12-volt gel batteries can be charged with the Auto-sensing solar-powered charger for 6- and 12-volt batteries (Model 2.55).

## ***Trap Placement***

Proper location of resting traps is particularly important. In general, the best catches are made where cover is good, and the humidity is relatively high. Locations a short distance into the margins of wooded areas and swamps are very desirable; traps over open water or in open pasture are typically less productive. For mosquito control operations, one or more traps should be located between known breeding sources and inhabited areas; others are best located in critical spots such as near residential and recreational sites. A single trap usually reflects mosquito flight activity within a few yards of its location. A trap may represent an area as large as a block, but this information is not always reliable, and a sufficient number of traps must be utilized to assure a representative sample. The actual number required will depend upon several factors including the degree of accuracy required, the manpower available, size of area involved, etc. If a site fails to produce the expected number of mosquitoes, judging from collections in other traps in the area, the trap is relocated. Sometimes a shift of only a few yards makes a considerable difference in the number of mosquitoes attracted. If arbovirus survey work is done where live catches are essential, care is taken to place the traps where they will be shaded from the morning sun.

Since the new resting trap mimics natural and man-made sites by providing a secluded and shaded resting location with minimal air movement for females digesting their blood meal and in the process of oogenesis, use your entomological knowledge of *Culicidae* behavior in the placement of this device.

### ***Useful References***

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