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A SAFE AND EFFICIENT HANDLING DEVICE FOR WILD RODENTS[1,2,3]

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SUMMARY • *A 2-part plastic device with sliding doors and a detachable carrying tube was designed to handle wild rodents kept in laboratory cages. With this device rodents can be transferred, weighed, and anesthetized with a high degree of safety, increased efficiency, and minimal stress to the animal.*

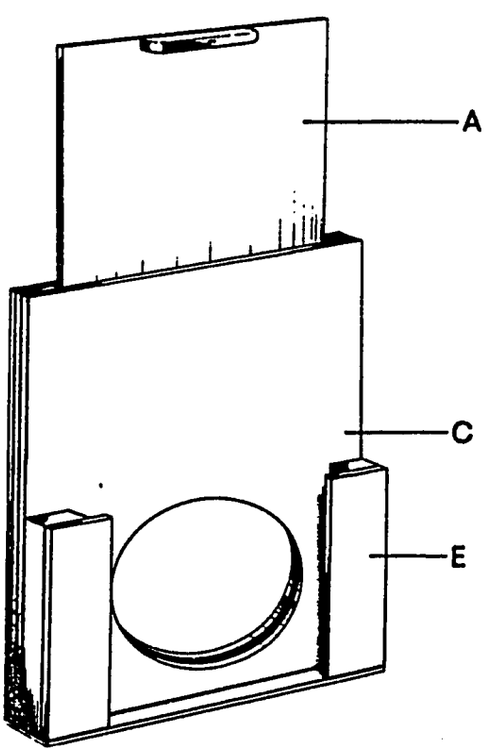
A research program at this laboratory required the use of over 100 wild Norway rats (*Rattus norvegicus*). These animals were highly aggressive, and handling so many of them presented a sizeable problem. Conventional methods of handling were used initially, but these proved to be dangerous and inefficient, and frequently injured the rats. Therefore, a simple transfer device was designed for use with our standard bioassay cages and rodents up to the size of a Norway rat (350g).

The device is constructed entirely of rigid, opaque plastic and consists of 2 basic components: a panel (Fig 1, C) with a sliding door (A), and a carrying tube (Fig 2, D), also with a sliding door (B). The tube is attached to the panel by sliding the tube door frame (F) into the runner slots (E) on the front of the panel.

Materials and Methods

The device is used with our standard bioassay cage (7 x 7 x 9¾"), which is housed in a rack of cages and opens like a drawer. Operation is simple. To remove a rat from the cage, the cage is first pulled open about

Fig 1. *Panel assembly of handling device. C = panel, A = panel door, E = runners to hold carrying tube assembly (See Fig 2).*



[1] From the Denver Wildlife Research Center, Fish and Wildlife Service, Denver, COL 80225.
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[3] Accepted for publication 27 April 1973.
[4] Requests for reprints should be sent to Stanley E Gaddis, Denver Wildlife Research Center, Building 16, Federal Center, Denver, COL 80225.

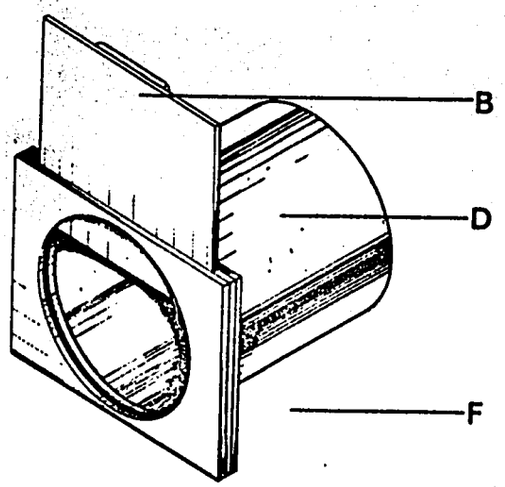

Fig 2. *Carrying tube assembly of handling device. D — carrying tube. B — tube door. F — tube door frame.*

¼", just enough to accommodate the thickness of the panel assembly (Fig 1). The panel assembly, with its sliding door (A) closed, is inserted vertically into the cage with the runners (E) at the bottom and facing the operator. The cage is opened about 5" farther (to accommodate the carrying tube) while the panel is held in place against the front of the rack, blocking the rat's escape and crowding it toward the back of the cage. The carrying tube assembly (Fig 2), with its door (B) closed, is then inserted into the panel runners (E), and its door is removed. The panel door (A) is raised, the rat is crowded until it enters the tube, and the panel door is closed again. The tube door (B) is then replaced in its frame (F), and the carrying tube assembly, with the rat inside, is removed by sliding it out of the panel runners. To replace the rat in the cage, the panel assembly, with its door open, is placed horizontally over the top of the open cage with the runners facing up. The tube assembly containing the rat is slid into the runners, its door is opened, and the rat jumps back into the cage. To prevent escape, the device is held in place over the cage as it is closed. The entire operation (both capturing and returning) takes about 20 sec.

Cage parts dimensions: The dimensions of the components for use with a 7"-wide bioassay cage are as follows:

Panel Assembly (Fig 1)

1) Panel base plate: 6¾ x 9 x ¼" thick with a 4"-diam hole extending to within ¼" of 1 of the 6¾" dimensions.
2) Runners (on back of base plate to hold sliding door A): (2) — 1¼ x 9 x ⅛" thick.
3) Spacers for runners 2): (2) — ⅛ x 9 x 3/16" thick.
4) Door: 5⅜ x 9½ x ⅛" thick. Handle is a scrap of ½" stock.
5) Runners for attaching carrying tube: (2) — 1¼ x 4½ x ⅛" thick.
6) Spacers for runners (5): (2) — ¾ x 4¾ x ½" thick.
7) Base stop for runners (2) and (5): 1¼ x 6¾ x ⅛" thick.

Carrying Tube Assembly (Fig 2)

8) Cylinder: 4" diam x 5" length.
9) Disc to close end of cylinder: 4" diam x ⅛" thick.
10) Door frame base plates: (2) — 4½ x 5¼ x ⅛" thick with a 4"-diam hole extending to within ¼" of 1 of the 5¼" dimensions.
11) Spacers for plates: (2) — ⅜ x 4½ x 3/16" thick.
12) Door: 4⅜ x 5 x ⅛" thick. Handle is a scrap of ¼" stock.

After only a few transfers, rats learn to walk into the device as soon as it is placed in the cage. This further reduces disturbance to the animal and cuts capture time down to about 7 sec. If the carrying tube assembly is tared, the animal can be weighed inside the tube. The device can also be used to give the animal an inhalant anesthetic by opening the door of the tube a slight crack, inserting the inhalent-treated cotton, and shutting the door. In this case, the opaque panel door (B) is replaced with one of clear plastic for observation of the animals' breathing and behavior.

No modifications to the device are necessary if animals smaller than 350g are to be handled. For example, the device is presently being used at this laboratory to handle vampire bats (*Desmodus rotundus*) in similar cages. If animals larger than 350g are to be handled, or if the cage size differs, the concept of the device is not limited to the specifications given, and the dimensions can easily be modified.