

THE SHAPE

OF ENRICHMENT

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Give Your Bats Grenades

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Remember the "bat bomb" of World War II? A top-secret government plan to attach explosive devices to bats in order to destroy enemy targets? Well, times have changed. We give our bats their own grenades. They can pull a pin and see what happens next.

Originally designed by bat keeper Rick Gutman, grenade feeders have proven to be amazing enrichment for our Old World fruit bats during the past year. The grenade offers food that the bats can both see and smell. However, obtaining the reward requires interaction.

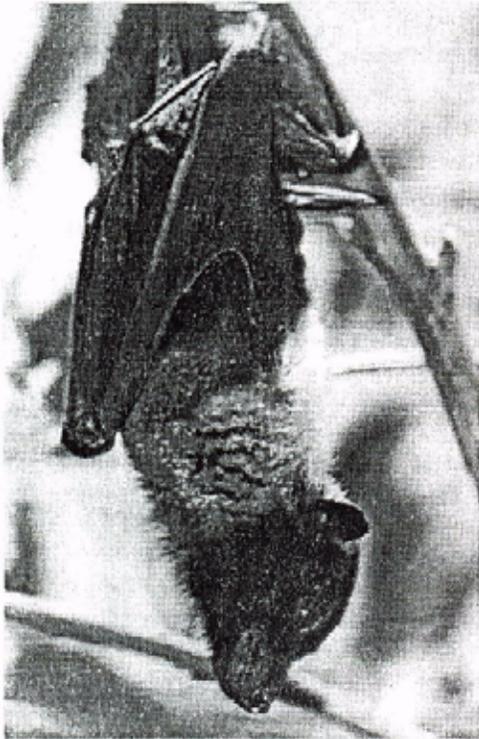
Materials required to build a grenade are easy to find and inexpensive. You'll need a rectangular sheet of 2.5 cm. x 1 cm. thin-gauge wire mesh cut 50 cm. long and 20.5 cm. wide, a hollow piece of 6 cm. PVC tubing cut 16 cm. long, several stainless steel pins 0.25 cm. in diameter and cut 8 cm.

long, small round wooden pegs equipped with screw holes, some string, and a few metal shower curtain rings.

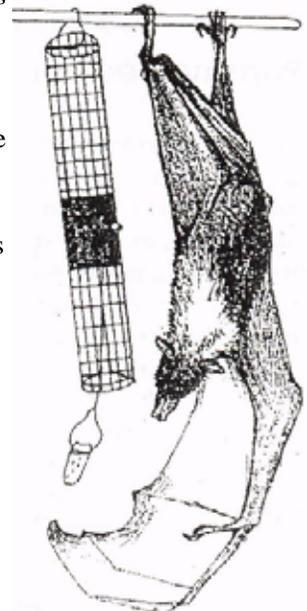
To construct the grenade, roll the wire mesh

into a long, narrow tube, which should be approximately 6 cm. in diameter. Insert the PVC snugly inside the wire-mesh tube and center it between the ends. Fasten the wire mesh tightly around the PVC, using smooth metal clamps or plastic cable ties. Drill 5 to 6 holes (0.5 cm. in diameter) completely through the PVC. These holes should each accommodate a stainless steel pin that can slip easily through one side of the PVC and directly out the other. Color the wood pegs (food dye works well). Flatten the stainless steel pins slightly on one end and insert each pin, round end first, through a wooden peg. Cut a piece of string about 60 cm. long. Tie it to the top of the mesh tube. Extend it through the center of the device and tie the other end to a metal shower curtain ring, which should dangle just below the opening at the bottom of the tube.

When the device is completed, attach a piece of chopped fruit to the shower curtain ring. Hoist the baited ring up into the tube so that it is concealed on all sides within the PVC. By inserting a wooden-headed pin through a hole in the PVC and the shower curtain ring simultaneously, you can suspend the fruit inside the tube. The pin is the



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"trigger," and when pulled, the fruit will fall to the bottom of the tube, where it suspends and is accessible to the bats.

Several other pins can be inserted, with only one trigger pin that holds the bait. Only when the right colored pin is pulled are the bats rewarded.

Showercurtain rings or plastic cable ties easily

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fasten grenades to the ceiling of the bat enclosure. More than one grenade can be offered at a time. Spreading the devices around the enclosure helps prevent

bats with defined territories from dominating the interaction time.

We use a variety of fruit to bait the grenades, including sliced honeydew melon, cantaloupe, apricots, figs, and dates. We offer this enrichment for species such as the island flying fox (*Pteropus hypomelamis*), Malayan flying fox (*P. vanipyrus*), and Rodrigues fruit bat (*P. rodricensis*).

Aside from the unusual appearance of the grenade, the smell of the fruit attracts bats to the feeder. While investigating the device, bats can look both up and down the tube, into the PVC, and see the fruit. But how do they get to it? The smell and sight of the enclosed reward inspired a remarkably substantial level of interaction.

Bats climb up and clown the grenades, pulling the pins with their teeth, thumbs, and feet. The larger species, the Malayan flying foxes, even obtain the reward by shaking the entire device until the pins fall loose. Meanwhile, the smaller species, the Rodrigues fruit bats, occasionally venture to the bottom and insert their heads up the tube, as if trying to find a way to crawl into the device.

Observations show the bats curiously tinkering with the grenades for hours at a time, in one instance, 3 grenades were offered to 15 bats at 5:00 p.m. and the last baited pin wasn't pulled until 6:20 the following morning, after a night of almost continuous interaction.

We expect future observations will show the bats demonstrating a color preference, and will also reveal that the bats can be conditioned to pull a particular colored pin first every time. We currently use green, yellow, red, and blue heads on the pins.

Please contact us for more information on this novel enrichment device and how to make your own.

**Give your fruit bats an explosion of interaction and entertainment!
Go grenades!**

