How do you steal a hair from a mouse, without seeing a mouse? I tried with a well thought out hair trap and was successful. Hair trapping can be very easy way to identify mammals; by extracting the DNA, we can see what species have been through the trap. If we can come up with an effective method for hair collection it will make animal distribution easier to keep up to date.

According to the article All for One and One for Small, information for small mammals in Wisconsin hasn't been updated since 1952. Small mammals play a major role for the Wisconsin food web, and being able to know population sizes will allow us to manage them easier. Loren Ayers says, "Expense is one reason small mammals are not studied as often as research biologists would like." Hair trapping doesn't cost as much as some other forms of trapping if you build the traps yourself. Another advantage of catching a hair rather than a mouse is you don't have to check your traps every hour. Hair traps can be left out all day and you maybe need to check them once or twice to see if there's any bait left or if they need new tape.

My class mates and I have been working on different designs to see what will catch the most hair. Our first traps were real prototypes and were made of Tupperware, PVC piping, and held to gather with hot glue. We have used all different kinds of hair catching material from wire bristles from a brush to the supper sticky mouse catchers (picture 1). What really seemed to work great was the Scotch Double Sided tape, it's sticky but not so sticky the critters can't get away. Using the PVC piping as a run lined with double sided tape worked alright to pull hair, but to apply the tape and retrieve the hair was not easy (picture 2, 3, 4).

Picture 1   Picture 2

Picture 3   Picture 4
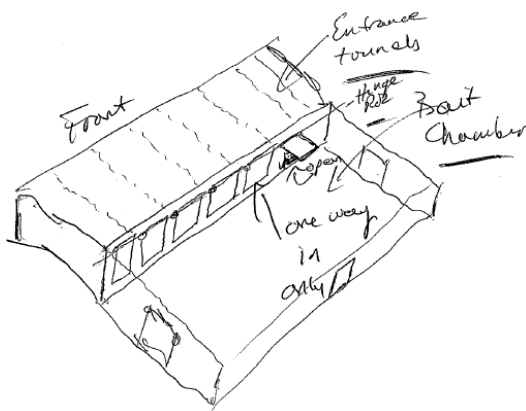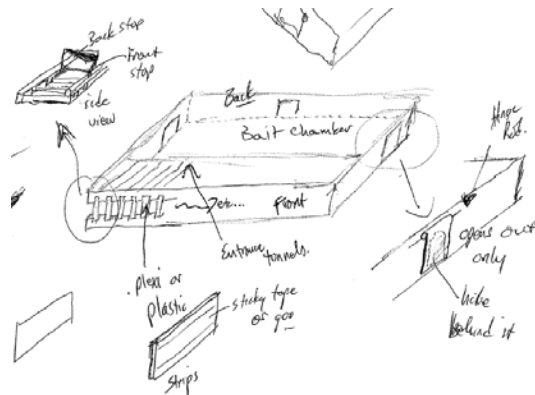

Figure 1   Figure 2

After having a difficult time with the first style of traps it was time to come up with a new plan for catching hair (figure 1, 2). We needed something that we could easily apply tape and retrieve hair from. One of our first ideas was removable slides to put tape on to. The trap also needed to be able to be entered from one way, but exited from another. This would require having two parts to the trap, an entrance box and an exit box (picture 5). When the critter first enters the trap they would have to pass through the slides where the hair is caught by the tape. Once the critter gets passed the tape there's a flip door that lets them into the exit box but not back out from where they came. The exit box is where the bait is found (picture 5). I use a mix of peanut butter and seeds for bait because the peanut butter smells good and the seeds make it not so messy. After the critter is full they can leave the trap from one of three doors on the outer walls (picture 7, 8). These doors also won't let the critters into the trap, only out. The only way into the trap is from the front. Using the table saw and scraps we put together this wooden hair trap.
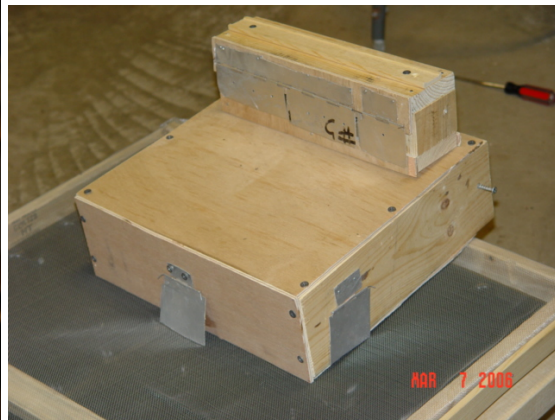
Picture 5
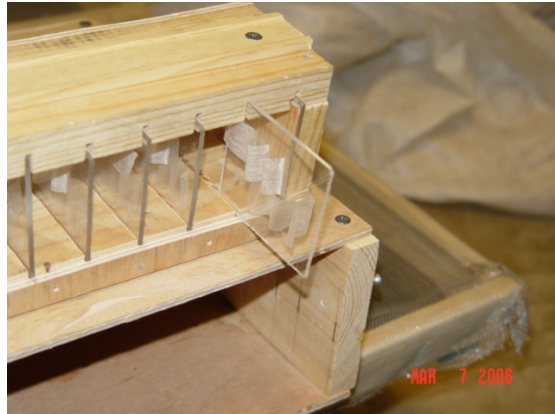
Picture 6
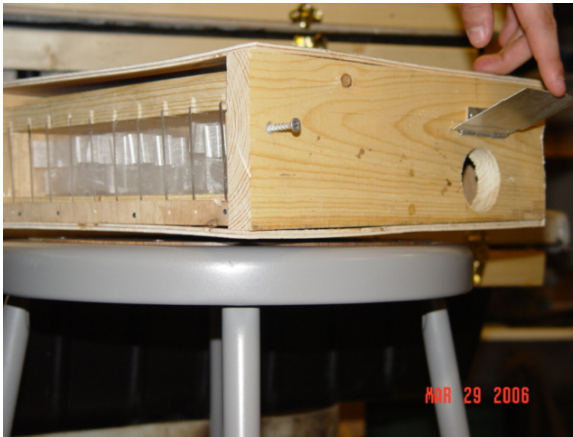
Picture 7

Picture 8

Picture 9

Picture 10

Once we built the new hair trap it took a few tests to get a good hair sample (picture 10). When we test our traps we use live critters that were trapped or donated to us. The first time we tested the trap I put a strip of tape on both sides of the slides and used one red back vole. Right away the critter would walk around the trap and smell the new area. After some time had passed the vole seemed to get bored and would just sit in one spot and not move.

The next time I tested the trap with the same set up, but with two red back vole's time. With two critters they seem to interact with each other. On the second test one of the

voles stuck its head in the entrance of the trap and instantly pulled its head out when his whiskers touched the tape. When the critter found out that he won't get stuck to the tape, entering the trap was no problem. Once inside it seemed he couldn't find the way out of the trap, but eventually the vole came out. After the one vole came out of the trap the other started to chase him, and he went right back in to the trap through the same run. The second vole was hesitant to follow at first but sure enough he went in right behind the first one.

Using just a strip of tape on both sides of the slides wasn't catching hair because their bodies wouldn't touch the tape. To solve this problem we tried putting the tape into loops so that it stuck out further into the run. However this didn't work because the way the tape was placed the critters could slip by without leaving a hair. What really worked well was a strip of tape on the right top half and a loop on the left top half and it's reverse on the bottom half. If the trap is set up like this and a critter passes threw they will definitely leave a hair behind.

The first field test of the hair trap was on April 21st. We had good test results because the trap worked. One visitor passed through the trap and left a good sample. The second time I put the trap only about fifty yards off from the west side of the school. This time it was left out for the weekend and checked on the following Monday. Austin, one of my fellow students went out to retrieve the trap, and brought it back with the entrance torn apart. The only thing that happened was something pulled out the slides. Now we're trying to develop a way to keep the slides from being removed while the trap is out in the field.
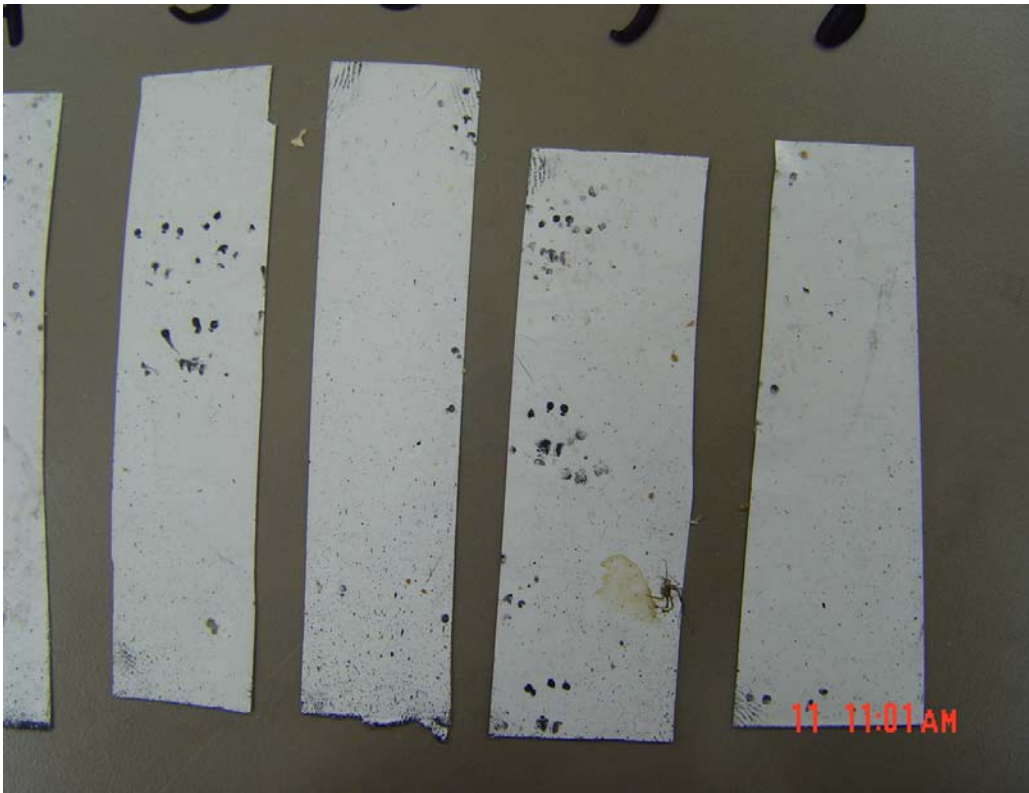
Using the same design as the last trap we built a new trap with a few new upgrades. The main thing I wanted was to have the slides not able to be removed, so a piece of wood was put in front of the slides (picture 11). Another idea was to put track strips in each run; this will allow two ways to identify what was in the trap (picture 12). We had great test results right away with lots of tracks and hair left on our first field test (picture 13). Now we're getting a record of hair and tracks for our catalog (picture 14). The one problem we have found is that the wood swells when it gets wet. Sometimes the trap won't come apart and the lock strip for the slides has to be disassembled to get the slides out. These few things could change but over all it works well.
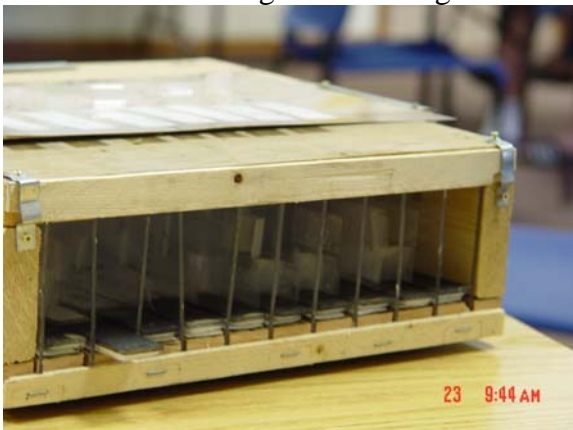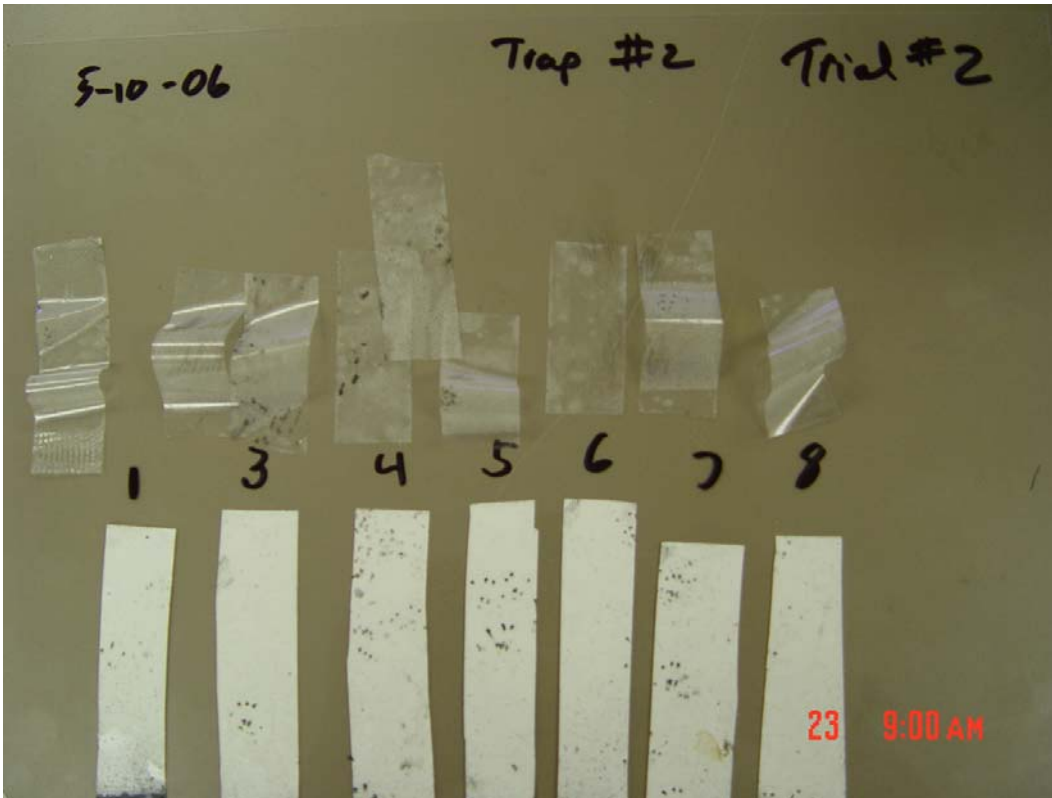

Picture 11   Picture 12

Picture 13

Picture 14