

Haack, Robert A.; Acciavatti, Robert;
Petrice, Toby; Davidson, Robert. 2000.

Changes in carabid community structure
in a dry sand prairie after removal of
the pine overstory. Newsletter of the
Michigan Entomological Society. 45(2):
15. Abstract.

Changes in Carabid Community Structure in a Dry Sand Prairie After Removal of the Pine Overstory (POSTER)

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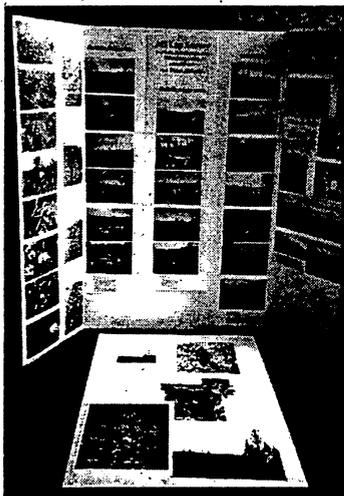
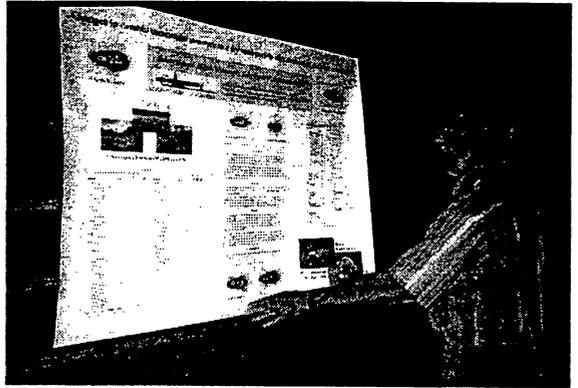
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Ground beetles (Carabidae) are often used as bioindicators in land-use studies because they are (1) diverse, (2) abundant, (3) well known taxonomically, and (4) appear highly sensitive to habitat change. In 1996, we initiated a study on the Huron-Manistee National Forests in Newaygo County, Michigan, to document changes in the carabid community structure as a result of harvesting the overstory red pine stand on more than 140 acres. Prior to planting these sites with red pine seedlings in the 1940s, they were open dry sand prairies. Surrounding the harvested sites were natural stands of white pine and oak as well as natural dry sand prairies.

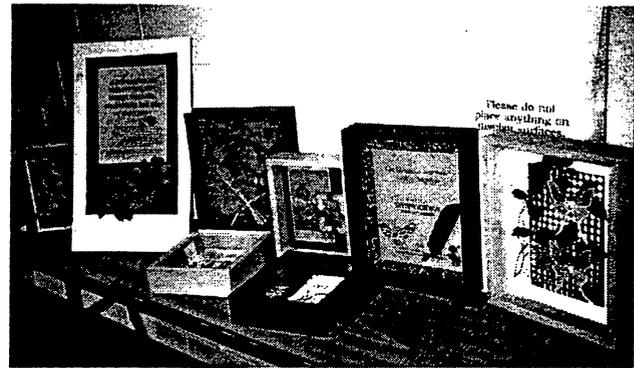
We used pitfall traps to collect carabids throughout the summers of 1996, 1997, and 1999: 1996 was the year prior to harvesting, 1997 was the first growing season post-logging, and 1999 was the third growing season post-logging. A total of 45 traps were used in 1996, 50 in 1997, and 48 in 1999. In each year, traps were placed in (a) the mature red pine stands either prior to logging or after logging; (b) nearby mature red pine stands that were never cut; (c) nearby natural stands of mixed white pine and oak; and/or (d) nearby natural dry sand prairies that had never been converted to pine plantations.

For the three years combined, more than 16,200 carabids were identified, representing 94 different species. Overall, 40 species (43%) were represented by five or fewer individuals. The five most commonly collected carabids for all habitats combined were *Harpalus pensylvanicus* (4094 individuals), *Carabus goryi* (3896), *Synuchus impunctatus* (1679), *Pterostichus pensylvanicus* (1248), and *Harpalus lewisii* (1032).

Fifty-four species (57% of all species) were found to be unique to a specific habitat (unique = 95% or more of the total 3-year catch was from a single habitat), of which 30 species were represented by five or fewer individuals (30/54 = 56%). Of the 54 species, 39 species from 10 different tribes were unique to the clear cut areas (7037 individuals); 7 species from 6 tribes were unique to the natural openings (19 individuals); 4 species from 4 tribes were unique to the red pine stands (16 individuals); and 4 species from 3 tribes were unique to the mixed white pine/oak stands (61 individuals). For 44 of the 54 carabid species, all individuals were collected within a single habitat. Of these 44 species, 29 (29/44 = 66%) were represented by five or fewer individuals. These results indicate that there are several carabid species that could serve as bioindicators of specific habitats.



Michigan Lepidoptera Survey
Owen A. Perkins, Royal Oak, MI.
Lepidoptera Survey Committee of the Michigan Entomological Society



Alternatives to traditional dry mount displays: recreating the era of "Great Discovery"
Martin J. Andree, Grand Rapids, MI



NEWSLETTER

of the
MICHIGAN ENTOMOLOGICAL SOCIETY

Volume 45, Number 2

July 2000

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A Michigan Monarch Recovered in Mexico

Adapted from *Monarch News: A Newsletter from the Monarch Butterfly Project*, Volume 1, Issue 1, 2000.

The Monarch Butterfly Project is a cooperative project between the Hiawatha National Forest of the US Forest Service and Wildlife Unlimited of Delta County, Michigan. In 1999, 58 volunteers contributed over 450 hours to monitor monarch reproduction and migration and to improve habitat for monarch butterflies near Peninsula Point, Delta County, in Michigan's upper peninsula.

The highlight of the 1999 Monarch Butterfly Project was the recovery of the monarch bearing tag number 105247. It was recovered by Dr. Lincoln Brower at El Rosario, a monarch butterfly reserve near Anganguero, Mexico, on 23 March 1999. El Rosario is over 2000 miles from Peninsula Point. This male monarch was tagged at Peninsula Point on 4 September 1998 by Ruth Gifford, a resident of Delta County. Dr. Brower, called the "Dean of Monarch Studies" by National Geographic, has been of great assistance to the Monarch Butterfly Project and his recovery of monarch #105247 makes this recovery all the more special.

More remarkable perhaps is the fact that only 88 monarchs were tagged at Peninsula Point in 1998. The chances of any of these being recovered were very slim. Monarch Watch at the University of Kansas and the Monarch Program in California are now paying rewards in Mexico for tagged monarchs. This has increased the recovery rate of tagged monarchs from less than 0.01 percent to about 1 percent.

