

# Pitcher's Thistle (*Cirsium pitcheri*) Monitoring Activities in Michigan

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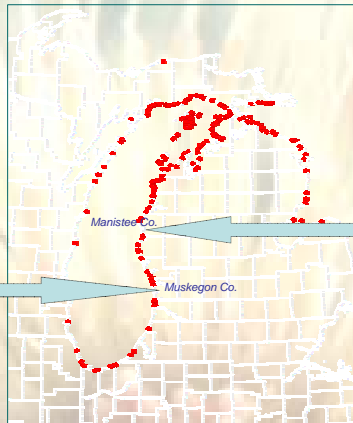
The Pitcher's thistle became federally listed as threatened under the Endangered Species Act of 1973, as amended, in July 1988. It is endemic to the unforested dune systems of the western Great Lakes and requires active sand dune processes to maintain its early to mid-successional habitat. Shoreline development, recreation, dune stabilization, and invasive plants and insects are primary threats to the species. The Pitcher's thistle was monitored at eight sites in 1993, 1996 and 2001 in the Manistee National Forest (MNF) and at P.J. Hoffmaster State Park (Hoffmaster) in 2004 and 2006.



## P.J. Hoffmaster State Park

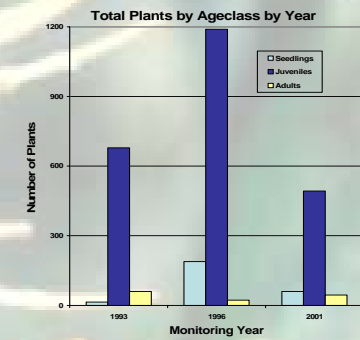
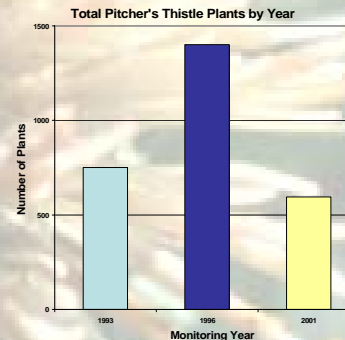
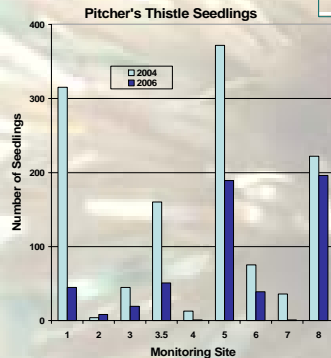
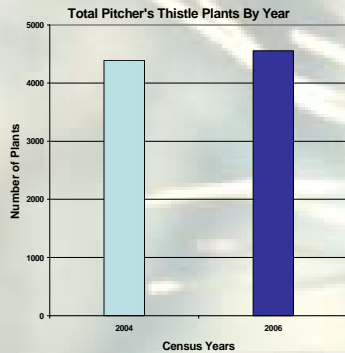
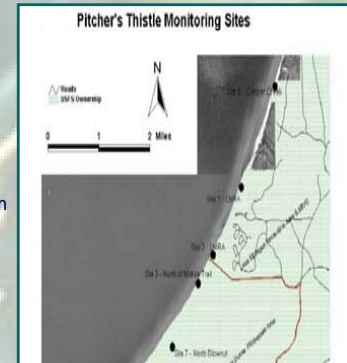


USFWS counted and recorded each Pitcher's thistle plant according to an unofficial age class (seedling, small juvenile, large juvenile, adult) designation within 9 sites at the park. Further counts are required to determine any population changes.



## Manistee National Forest

USFS monitored Pitcher's thistle at 8 sites within the Cadillac-Manistee Ranger District of the Manistee National Forest. Eight permanent baseline transects were established with randomly placed transects at each site. Contiguous 5m x 5m sampling plots were placed along the random transects to assess population trends, associated plant species and threats.



The overall total amount of plants for both years were similar. However, there was a significant decrease in seedling numbers from 2004 to 2006 ( $p=0.04$ ), which could be attributed to low recruitment, possibly resulting from weather conditions or other causes. Numbers within the other age-classes did not differ significantly.

The total population in the Manistee NF increased from 751 to 1401 from 1993 to 1996 and decreased to 596 in 2001. Seedlings and juveniles increased in number in 1996 and decreased in 2001, while adult plant numbers displayed the opposite effect. Dominant and associated plant species did not change between sampling periods. The average amount of bare ground at all sites ranged from 44% to 76%. Lombardy poplar (*Populus nigra*) and spotted knapweed (*Centaurea maculosa*) were the most prevalent invasive species.

**Summary:** Additional monitoring and censuses for Pitcher's thistle will need to persist for several years to be able to better interpret the information on population trends and potential threats. Because this species occurs along the shoreline, it may continue to be in direct conflict with many human activities, such as recreation, home construction and shoreline stabilization projects. Both study sites are recreation areas and as such, foot traffic associated with high recreational use may cause a decrease in survivorship and reproduction, and seedbed destabilization. Furthermore, the introduction of Invasive species and their encroachment may stabilize the dunes and alters dune building processes, resulting in decreased habitat available for Pitcher's thistle. These threats and other disturbances should continue to be documented, analyzed, managed for, and minimized. Educating the public of the ecological value of our fragile dune system and its natural communities should be an important feature of any Great Lakes coastal area management plan.

