

Dear Mr. Mike Thompson, Natural resources region program manager:

We have reviewed the Environmental Impact Report (Project No. 193703078; proposed Golf Course-Town of Wilson -Kohler Co.) for its approach to impacts to the Federal listed Pitcher's thistle (*Cirsium pitcheri*). The report's assessment of potential impacts on Pitcher's thistle, and proposed solutions are not adequate. The species is addressed twice, as follows:

Section 3.2.1 (Terrestrial Habitat) indicates:

spp.). Areas of unstabilized sand provide habitat for annual dune species, including the Federal listed threatened pitcher's thistle (*Cirsium pitcheri*). These populations are found along the Kohler Property lakeshore.

Section 3.2.5 (Threatened, Endangered, and Rare Species) indicates:

Populations of dune thistle (*Cirsium pitcheri*, State and Federally Threatened plant), thickspike (*Elymus lanceolatus* ssp. *Psammophilus*, WI-threatened), sand reed grass (*Calamovilfa longifolia* var. *magna*, WI-threatened), American sea-rocket (*Cakile lacustris*, WI-special concern), and seaside spurge (*Chamaesyce polygonifolia*, WI-special concern) were observed on the Kohler Property with the vast majority occurring in areas outside of proposed development. The potential for minor impacts from the project exists. Although State threatened, endangered, and special concern plants are not protected on private property, Kohler will work with the WDNR to develop mitigation, such as transplanting individual plants to suitable habitat or establishing new populations in suitable areas.

As indicated in the attached February 11, 2015 letter, this information does not address Pitcher's thistle population size nor potential environmental impacts requirements to the population. It also does not address the presence of additional plants in the adjacent Kohler-Andre State Park and potential impacts to this population. It also implies that transplanting will be used to mitigate impact.

Our work with this species has shown that populations require shoreline ecological processes maintained by natural sand dune ecosystems. We have also found that populations with close proximity may rely on gene exchange through pollinators and seed dispersal for population maintenance. We have also found that transplanted plants have relatively low potential for survival and seed production, and thus reduced input to population maintenance.

These issues need to be addressed and expanded in the EIS. Critical questions include 1) what are the size, structure, and dynamics of the Pitcher's thistle populations on property adjacent to the proposed golf course (this includes populations on adjacent dunes and in the adjacent state park)? 2) What environment processes maintain these populations and how do the populations interact (do they comprise a single population), 3) what is the potential for golf course construction and maintenance to alter ecological and bio-chemical processes that maintain these thistle populations and their habitats, including impacts to adjacent habitats (e.g., sand loss or deposition in the state park). 4) what are potential mitigation efforts?

Marlin Bowles
Plant Conservation Biologist
The Morton Arboretum

Timothy Bell
Professor of Botany
Chicago State University

cc: Kathy Pollack, US Fish & Wildlife Service