Unique habitats at one northeastern Illinois park create an Illinois biological "hot spot" for plants and animals.

Coastal Property

Pitcher's thistle (*Cirsium pitcheri*)

(Photo courtesy Mike Redmer.)

Some of Illinois' newest real estate—sand deposited by wind and wave action only a few hundred years ago—lies along the shoreline of Lake Michigan.

Tucked within the dry beach ridges and wet swales at Adeline Jay Geo-Karis Illinois Beach State Park are 14 distinct plant communities supporting more than 40 state threatened and endangered plant and animal species: beach, foredune, sand prairie, coastal sand savanna, fen, sedge meadow, marsh—and a globally rare wet swale community called panne.

Subtle elevational, moisture and soil gradients (sometimes only a few feet apart) are largely responsible for the variety of plant communities. Desert-like conditions exist along dry ridges where sand prairie and black oak sand savanna communities support plants such as prickly pear cactus (*Opuntia* sp.) and downy yellow paintbrush (*Castilleja sessiliflora*).

Wet and peaty habitats between the ridges support rare sedges, bog arrow grass (*Triglochin* spp.), a variety of orchids and two carnivorous wetland plants—bladderwort (*Utricularia cornuta*) and sundew (*Drosera rotundifolia*). Red root (*Carex inops* subsp. *heliophila*) is found in the sand savanna. Horizontal juniper (*Juniperus horizontalis*) and bearberry (*Arctostaphylos uva-uris*) are adapted to the dry conditions of the open stable foredunes and beach ridges. Kalm's St. Johnswort (*Hypericum kalmianum*) is found in the moist calcareous sand of the zone between the dry ridges and wet swales. Dynamic sand movement provides open foredune habitat for the successful reintroduction of the federally threatened Pitcher's thistle (*Cirsium pitcheri*) in the southern part of the park.

A multitude of rare insects also are found at the site, many of which are dependent on a particular plant species as a food source during a part of their life cycle. When the plant's habitat is rare, the plant is rare. When the plant is rare, the dependent insect species also is rare. The primary food source for the caterpillar of the Hoary elfin butterfly (*Incisalia polios*) is bearberry, and since little undisturbed dune habitat remains to support bearberry, both species are rare in Illinois.

Some of these species are rare in Illinois because they are at the south edge of their range and are biological treasure troves of genetic diversity that could allow for species' adaptations to changing climate. But the biggest threat to most rare species is the loss of suitable habitat. Shoreline development and artificial methods of erosion control threaten these sand habitats and remnants of Illinois' biological heritage.

—**Debra Nelson**, Natural Heritage Biologist, DNR Division of Natural Heritage, Spring Grove

Hoary elfin butterfly (*Incisalia polios*)

(Photo courtesy Tom Peterson.)

(Photo courtesy Adele Hodde.)