Hectored by flies, whooping cranes still struggling in Wisconsin

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A swarm of black flies at the Necedah National Wildlife Refuge appears to be the best explanation for why endangered whooping cranes are abandoning their nests, but the pesky insects might not be the only reason the birds are struggling in Wisconsin.

Black flies are especially prevalent at Necedah, northeast of Tomah, where whooping cranes were reintroduced in 2001 in the hope they would once again inhabit - and potentially flourish in - the eastern United States.

The bird's story over the past decade features a multimillion-dollar investment of public and private funds, a collaboration of government and citizen groups, and bands of dedicated crane devotees who track the whoopers' every movement.

There have been triumphs along the way. Five chicks have hatched and joined the wild population. Ultralight aircraft have successfully guided young birds south for the fall migration while other young whooping cranes have followed older cranes and made successful migrations south and north.

But the work hasn't yet produced a self-sustaining flock.

The population today stands at 106 migrating whooping cranes in the eastern U.S., numbers that have been built up by release each spring of chicks born in captivity.

Most of the 600 or so whooping cranes in existence are part of the only other migrating population, which winters along the Texas Gulf Coast and spends summers at Wood Buffalo National Park in northern Alberta, Canada.

The cranes in Texas have faced drought in recent years and the threat of hurricanes but are faring relatively well, experts say.

In the east, "we would have hoped that we would have a trajectory by now where they were well on their way to a sustainable population," said Jeb Barzen, director of field ecology for the Baraboo-based International Crane Foundation.

The foundation is the leading organization to protect cranes around the world. It is part of the Whooping Crane Eastern Partnership, an amalgamation of groups that was formed in 1999 to lead recovery efforts.

The partnership would have liked to see more progress by now, but Barzen said there has never been a successful crane reintroduction of any species starting from scratch anywhere in the world.

Historically, the 5-foot-tall cranes, the tallest birds in North America, were frequent targets of unregulated hunting. In 1941, 15 migrating whooping cranes existed in the world.

When the partnership sought to reintroduce cranes in the eastern U.S., it selected Necedah, once a swamp that was homesteaded and is now a mosaic of savanna, prairie, wetlands and pine-oak forest.

As young cranes reached sexual maturity, biologists and a retinue of crane watchers observed birds pairing off, building nests and producing eggs.

Then the birds would abruptly leave their nests.

The leading hypothesis pointed to black flies - hordes of them that would cover the birds and their eggs and generally appear to make life on the marshes unbearable.

As an experiment in 2011 and 2012, biologists with the partnership treated two rivers near the refuge with a soil bacterium - Bacillus thuringiensis israelensis, also known as Bti, an alternative to chemical pesticides - to control the insects.

Black fly numbers fell significantly.

In 2011, four chicks were hatched but eventually died.

In 2012, five nests produced one chick each and one nest produced two hatches of chicks. In a second try at nesting, two additional chicks hatched.

In the end, two chicks survived.

This spring, Bti treatments were not used and the black flies returned.

So far, 18 nests have been abandoned - most this month. Dense clouds of black flies were observed in and around the nests.

No chicks have hatched this year.

While insect infestation appears to be the problem, "if we focused only on black flies, we could blow it," Barzen said.

The picture is more complex, Barzen said.

Other factors are:

The role of predators, such as wolves. Necedah is the home of the southern range of the gray wolf in Wisconsin. Are wolves and other predators taking a toll on the cranes?

The quality of wetland habitat. Is there enough food available for the birds?

Whether adult whoopers have sufficient fat and energy stores to mate and raise chicks after migrating back to Wisconsin.

Cranes are slow to mature. Have they gained enough experience at nesting and parenting? In some cases, parents have left their nests for as long as three days, delaying or ending incubation.

Whether cranes raised in the wild are better suited as parents than those raised in captivity. There is some evidence to support this, based on observations of a small nonmigratory population of whooping cranes in Florida.

With the struggles at Necedah, starting in 2011, the partnership released whooping cranes in the Horicon Marsh near Waupun and the White River Marsh State Wildlife Area near Berlin in Green Lake and Marquette counties. Conditions are different there.

As young cranes return and begin breeding at Horicon and White River, conditions might be better, Barzen said.

There are no black flies. There are no wolves and there are fewer other predators, such as otters and bobcats. The soil is also richer than the sand country of Necedah, which could mean better habitat for cranes to find food.

"Each of these factors throws different management strategies into the mix," Barzen said.

"That's the journey we've been on. This has been kind of a pivotal year.

"Our hope is that in another five to 10 years, we will know what it takes to make it work."