



Dec. 11, 2017

PART SEVEN IN A SERIES

What happens to a population when the gene pool severely shrinks? Let take a look at the wolves on Isle Royale in Lake Superior, which researchers have observed for years and which are now in dire straits.

In the particularly harsh winter of 1947, an ice bridge formed between Ontario and Isle Royale, a 45-mile-long, nine-mile island in Lake Superior. A breeding pair of wolves took the

chance and followed the 15 miles of ice to the island, where they found a herd of moose that had been there since the early 1900s when some swam to the island. The ice bridge collapsed that spring, completely isolating the wolves and moose. It created the perfect situation to study small population genetics.

Researchers began to study the Isle Royale dynamics in 1958. The isolated wilderness park was a rare setting for predator and prey to interact with minimal human contact. What researchers expected was that the two species would settle into a balance of about 25 wolves and 1,500 moose, based on past observations of supply and demand. It didn't happen. The moose initially had enough numbers for a relatively healthy gene pool. The wolves suffered from severe inbreeding from the start. In 1995, the moose herd reached its highest numbers, 2,450.

The wolf packs topped out at 50 wolves in 1980. That was the year that the canine parvovirus somehow got introduced to the pack, decimating it. In 1996, while the wolves were struggling to recover, a harsh winter hit, cutting the moose population to only 500 animals. The drop in the food supply made it look like the end for the Isle Royale wolves.

Then in 1997, a healthy new male called Old Grey Guy by the observers took advantage of ice that formed that winter and crossed over to Isle Royale. He was especially vigorous and territorial. M93, as he was officially designated, injected new health and fertility into the wolves. They thrived and spread to four packs.

But instead of being a godsend, M93's genes quickly dominated the gene pool. Soon, 60 percent of all Isle Royale wolves carried

his genes. Packs began to fail. Their young were born with genetic disorders and it became harder for the wolves to reproduce due to the inbreeding. By 2011, there was only a single pack of nine wolves left on the island. By 2016, they were down to two, a father and daughter. They were spotted with a small, deformed pup that winter, but it disappeared.

A shrunken gene pool and unavoidable inbreeding have led to the probable extinction of wolves on Isle Royale.

It's a grim, sad story, but what's it got to do with Irish wolfhounds? A Swedish author, veterinarian and geneticist who also happens to be an enthusiast for the breed says the same thing could be happening to our beloved hounds today. Dr. Silvan Urfer reported in a study in 2013 that a genetic bottleneck that began to develop in the early 1990s is now taking effect.

There are more wolfhounds today than ever, but a genetic bottleneck isn't about the number of members in a population, it's about their genetic diversity, the dominance of a breed by a few popular sires and their genetic material.

Next time we'll take an in-depth look at Urfer's study and what he recommends breeders do to put the breed on solid ground again, genetically.

The time is now or never. Irish wolfhounds have all the cancers, heart disease and other maladies that have always plagued the breed, but there's something new — a spike in juvenile genetic disorders and anomalies, a real red flag that there's trouble just ahead for the breed.