



Urquhart Butterfly Garden
Dundas, Ontario, Canada

**A Natural, Outdoor Setting
For Conservation, Enjoyment and Study**

Frederick Urquhart—A Short Biography

From an early age, Frederick A. Urquhart was fascinated by insects. Books and papers at school and the library spurred his interest and led him to ask the question which would later take him to Mexico, the South Pacific, and around the world: where do monarch butterflies go in the winter?

In 1931, Fred Urquhart enrolled in biology at the University of Toronto. He graduated at the top of his class in 1935 and was offered a B. A. Bensley Fellowship to undertake graduate studies in the field of entomology. Fred maintained his interest in the monarch butterfly while at university. Very little was known about monarch migration except that thousands headed south each September. The challenge lay ready for the taking, and in 1937 Fred first attempted to follow the monarch by marking individual butterflies.

The Monarch Team

Frederick Urquhart and Norah Patterson were married July 21, 1945 and the monarch team was born. At their Toronto home, the Urquharts reared monarchs by the thousands, studying them to help ensure their survival. At this time, Fred occupied the position of Curator of Insects at the Royal Ontario Museum, while maintaining a cross-appointment to the University of Toronto. In 1950, he was appointed Director of Zoology and Paleontology at the Royal Ontario Museum. Fred and Norah joined the faculty of the University of Toronto in 1961, gaining much-needed access to a laboratory and equipment for their research on butterfly migration.

Alar Tagging Method

The Urquharts set out to track the monarch on its autumn migration by marking and releasing individuals, then plotting the distances and directions where the marked individuals were later sighted.

Several years were spent experimenting with various tagging methods before a successful system was found. A friend suggested they try a pressure-sensitive adhesive label, such as that used for sticking price tags on glass surfaces. The tags, which remained adhesive even in damp conditions, were easily applied by gently squeezing them to the wing after removing a few scales. This was named the alar tagging method, from the Latin *ala*, a wing. The tags were tiny, measuring approximately 6 mm by 12 mm, and labelled with "Send to Zoology University Toronto Canada". Little boxes began to arrive from all over Canada and the United States with tagged monarchs. Here was proof that the little creatures did in fact travel hundreds of kilometres!

Thousands More Join the Team

In 1952, Norah Urquhart had written a magazine article titled "Marked Monarchs" which contained an appeal for volunteers to assist in the tagging program. Initially, twelve people responded, launching the International Migration Association. The Urquharts supplied the volunteers with tags and instructions for tagging, and monarchs were soon being caught, tagged and released by butterfly lovers of all ages across the continent. By 1971, the Association had grown to include six hundred volunteers with thousands more participating.

Hundreds of thousands of monarchs were tagged by this team of volunteers and the Urquharts soon amassed a wealth of information. They discovered that not all monarchs are migrants, that monarchs never fly at night, do not fly over open water, and can fly up to 130 kilometres a day.

A directional pattern appeared: northeast to southwest. The Urquharts undertook a number of field expeditions searching for the overwintering site. Their travels took them from the New England states to the Californian coast and from southern Canada to the Gulf of Mexico.

In 1972, Norah wrote to newspapers in Mexico about the project and asked for volunteers to report sightings and help with tagging. A young American engineer, Ken Brugger, responded from Mexico City. Though Ken knew little about monarch butterflies, he was an amateur naturalist eager to help, and spent the next year driving around the mountains of Mexico. In 1974, Ken married Cathy, a butterfly lover herself, and together they continued the search. They came closer and closer, finding tattered monarch remains along the roads of a certain area. Showing a few specimens to some Mexican loggers, Ken and Cathy were told that there was a place up in the mountains where many such butterflies could be found.

Success at Last

The call came on January 9, 1975. "We have found them—millions of monarchs!" was Ken's excited news. About 240 miles from Mexico City, in the Neovolcanic Plateau, millions of monarch butterflies carpet the ground and trees every winter. Here was the destination of the eastern migrants. Early in 1976, Fred and Norah Urquhart, then in their sixties, climbed the "Mountain of Butterflies" to view the spectacular reward for forty years of research. While staring in wonder at the fluttering multitudes, a pine branch broke from the weight of the butterflies and crashed to the ground at their feet. In the cluster of spilled monarchs, the Urquharts found one bearing a white tag. The butterfly had been tagged in Minnesota before setting off on its long trek to Mexico.

After the Discovery: The Work Continues

Large monarch congregations have been found at 13 overwintering sites spread over five mountains. These sites are now ecological reserves, protected by the government of Mexico in cooperation with local communities. Current efforts are aimed at protecting monarchs in their breeding areas across the United States and eastern Canada, where urban sprawl and widespread herbicide use are eliminating much of their natural habitat.

See Also

Order of Canada citations for [Frederick Albert Urquhart](#) and [Norah Roden Urquhart](#) (1998)

Alex Shoumatoff's 1999 *Vanity Fair* article [Flight of the Monarchs](#)