

## ROYAL MIGRANTS

By Aimee Beal Church



Before beginning their metamorphosis, monarch caterpillars fasten themselves to milkweed or other plants, becoming motionless in a “J” shape.

Deep in the rugged, forested mountains north of Mexico City, a butterfly has just taken flight. Not just any butterfly, not just any flight—this large, graceful, and intricately-marked creature is a monarch butterfly leaving Mexico’s Monarch Butterfly Biosphere Reserve, where it has lived all winter since it flew here from Mount Desert Island, Maine, last fall. It is beginning a journey that should bring its children or grandchildren back to summer breeding grounds—perhaps even back to Maine. Will its progeny survive the 2,500-mile trip? Will there be milkweed—the only plant monarch caterpillars can eat—to grow this year’s butterflies until the autumn generation makes the return trip to Mexico?

Monarch butterflies have likely graced the fields and shorelines of Maine for many years. Earliest reports in Acadia National Park date back to the mid-1930s, when they were reported on two different and creditable occasions, according to ANP biologist Bruce Connery. Monarchs are getting a lot of press these days, for unfortunate reasons. The 200-square-mile Biosphere Reserve that used to harbor up to a billion adult monarch butterflies each winter—the insects clustering so thickly on treetops that they would break branches and paint the mountainsides orange—has seen dramatic declines in monarch numbers in recent years. Here in

the north, biologists and citizen-scientists who track the monarch migration have seen a parallel decline.

Ann Judd at the Charlotte Rhoades Park and Butterfly Garden in Southwest Harbor has for some years now recorded when the first monarchs arrive in the garden—usually the last ten days in June. But few and possibly no monarchs have arrived for the past two summers. She recalls, “Last year we were jumping up and down in the butterfly garden in July. I took a picture but it had the wrong markings—one extra line.” It was a viceroy butterfly, which mimics the monarch’s markings but is smaller and does not make the two-way migration that gives the monarch its claim to fame.

Another special quality of the monarch is its graceful appearance in flight. Says Judd, “the monarchs have a beautiful flight pattern. They glide like birds. They swoop and they play, and are very easy to watch and photograph.” Smaller butterflies have a rapid, fluttery flight, Judd says, which makes them very hard to follow with your eyes.

The monarch caterpillar’s diet is also distinctive. The milkweed leaves that they eat exude a toxic white sap, which renders the caterpillars themselves toxic to predators such as birds, lizards, and frogs. Adult monarchs sip flower nectar but retain the toxicity. But if the caterpillars’ limited diet offers unique protection, it also makes them uniquely vulnerable. No milkweed, no monarchs—and the plant, especially the common varieties that grow best in croplands, pastures, and roadsides, has greatly declined due to increased herbicide use (especially glyphosate, which is used heavily on crops genetically modified to resist it), development of former agricultural lands, and frequent roadside mowing.

Milkweed is found across Maine, but only one species, common milkweed or *Asclepias syriaca*, is thought to be native to Mount Desert Island. Only one specimen exists in Acadia National Park’s herbarium collection,

collected from Bar Island in 1977. Other patches are found in at least a half dozen other locations in the park, although their health and whether they are used by monarch butterflies are unknowns. *A. syriaca* is planted at the Wild Gardens not only because of its importance to monarchs, but also because it is valuable for stabilizing disturbed areas and open woodlands and for promoting insect communities. Wild Gardens of Acadia Head Gardener Geneva Langley is helping the park search historic documents to learn if the species was reported at other times over the last hundred years.

Today, private and public gardens across MDI are stepping up to plant milkweed, establishing “Monarch Waystations” with help from experts like Ann Judd and the nonprofit Monarch Watch ([monarchwatch.org](http://monarchwatch.org)), which offers instructions and sells seed kits. Ann Judd has worked with several MDI garden centers to stock the three types of milkweed native to Maine: *A. syriaca*, *A. incarnata* (swamp milkweed), and *A. tuberosa* (butterflyweed). Each has different habits and needs: common milkweed, a rhizomatous spreader, is hardy and will take over once established, so should be segregated from an ornamental garden; swamp milkweed is a well-behaved garden plant that works in a sunny and moist spot; and butterflyweed likes a warm, sunny spot but might need to be replanted from year to year.

Thuja Garden in Northeast Harbor planted a certified Monarch Waystation last year, releasing purchased adult monarchs into it in July (caterpillars can also be purchased online). As at Charlotte Rhoades, these adults produced caterpillars that went on to metamorphose in the garden and emerge as butterflies. Charlotte Rhoades gardeners tagged about 300 monarchs that were raised there last summer. It is believed that a successful summer population will produce a migrating generation that will find its way to Mexico in the fall.

Fortunately, there is a way to find out. Adults can be tagged in the fall with a sticker bearing a unique code, registered with Monarch Watch. Researchers in Mexico look for these tags on dead butterflies—which they find by the hundreds of thousands after winter storms—and work through the Monarch Watch database to determine who tagged it, and where. At the same time, anybody finding a tag on a dead butterfly along the migration routes can send the information to Monarch Watch (the tag includes instructions). The database thus gives a picture of the butterflies' migration and allows studies on topics like monarch orientation and navigation.

Other MDI entities getting involved with this effort are schools and libraries. Both Charlotte Rhoades and Thuya have worked with local students to raise and release monarch butterflies and plant monarch-friendly gardens. Beth Brown, until last year a K–2 teacher at Pemetec Elementary in Southwest Harbor, would bring her class on a field trip to the butterfly garden, then Ann Judd would provide monarch chrysalides for the kids to hatch. They would sticker the adults before releasing them. Brown recalls "...the joy on children's faces to see the metamorphosis take place," adding, "they were so enthralled in the process. Even though they would do it three years in a row, the kids never lost interest." The school eventually planted a butterfly bush and some milkweed outside Beth Brown's classroom, and the kids would release their butterflies there.

Northeast Harbor Library's children's librarian, Eileen MacLean, started raising monarchs in the library in 2009, when several summer residents came to her at the end of the season with chrysalides they had been raising. They asked if she would finish raising the butterflies in the library. Since then she has had butterflies in the library almost every summer. Each summer Ann Judd provides some caterpillars to get her started; when MacLean sees butterflies outside she will also search the library's butterfly garden for caterpillars and chrysalides to bring inside. She says she hesitated over disturbing those "wild" butterflies, but "knowing how threatened the monarchs are, I'm concerned about natural predators and want to give every butterfly whatever extra help I can." Kids at the library love watching the new butter-

flies hatch. It takes four to five hours for a new butterfly to open its wings and dry out; MacLean will invite kids back to help her sticker and release the adults after that time. She will also help anybody to sticker monarchs they have raised at home, as will Kate Pickup-McMullin at the Southwest Harbor Public Library. Pickup-McMullin raises butterflies in the library and releases them at Charlotte Rhoades, "dragging along" any patrons she can finagle each time she has one to bring over.

Some of these local organizations have been looking into a collaboration with Acadia National Park to benefit monarchs, as part of Acadia's centennial celebration next year. Park managers have recently learned that they are likely to have a small initial project funded by the National Park Service. Should the funding come through, the park will start by identifying locations inside and outside the park where stands of milkweed exist or have existed. Interested organizations and individuals will be able to help identify such locations outside park boundaries. Native milkweed will

then be planted in disturbed or identified recovery areas. Follow-up surveys from June through October will document caterpillars, adults, eggs, and chrysalides in new and established milkweed stands.

Meanwhile, ANP staff and volunteers will document sightings of adult monarchs through the summer and early fall. Findings will be used to create educational materials and programs, to build awareness and encourage stewardship for monarch butterflies. Bruce Connery notes that monarchs are one of the many migratory species that both make up and depend upon the complex environments and ecological communities found in Acadia and the surrounding coastal regions. "By monitoring their status and that of the physical and biological conditions upon which they and other species depend, we can identify and apply protective measures for their conservation across Acadia's many landscapes." 🍄

AIMÉE BEAL CHURCH is the communications and outreach coordinator at Friends of Acadia.



Ann Judd

*A tagged monarch butterfly at the Charlotte Rhoades Butterfly Garden in Southwest Harbor.*