

# The Behemoth and the Butterfly

Experience the awe of mass migrations

By Jim Cornfield

Every winter Mexico hosts a pair of extraordinary migrations. One, a round-trip of 3,000 miles, brings the gaudy monarch butterfly from the northern U.S. and southern Canada to its winter refuge in the south-central state of Michoacán. There shafts of morning sunlight pierce the forest as millions of silent visitors, each weighing less than a tenth of an ounce, cling to branches everywhere.

Seven hundred miles to the northwest, the 36-ton gray whale completes the southward leg of a journey from Alaska's Bering and Chukchi seas to lagoons along the central shores of the Baja Califor-

nia peninsula. This pilgrimage, outbound and return, skirts 12,000 miles of coastline—a feat generally accepted as the longest known mammal migration.

Each of these passages has created its own minor travel industry; the layover sites for these vastly different creatures have become increasingly serious venues for responsible tourism. They offer naturalists and ecotourists serene beauty, a window into the marvel of long-distance migrations, and a glimpse at the stresses that impact two of the planet's magnificent and endangered citizens.

## Kingdom of the Colorful Monarch Butterfly Migration

One of the earth's enduring mysteries is the invisible process that ushers millions of monarchs from throughout North America to the protective woodlands of Mexico's 217-square-mile reserve called Santuario Mariposa Monarca. The flight south occurs from August through the end of October.

Because the journey exceeds the less-than-two-month life span of the "summer" generation of the butterfly, no individual completes more than part of the trek. The monarch's chromosomal navigational codes are somehow passed to

offspring that take up successive phases of the journey. The winter generation may live up to seven months, however, and reproduces only after it starts heading back north during the Mexican spring. Subsequent, short-lived generations then string together the rest of the journey.

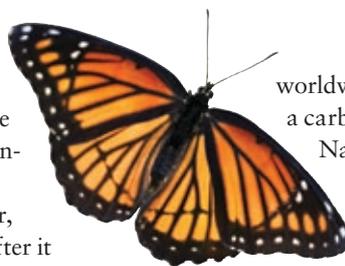
The intricacies of this creature's genetic profile may be lost on many tourists who make their own winter trip to Michoacán, but no matter. "It's more a spiritual experience," says Fern Malowitz, a psychologist in Jacksonville, Fla. She describes her first steep hike in the hills of the popular El Rosario sanctuary, one of the reserve's three refuges. "We were in dense forest, every inch of foliage literally blanketed in bright orange, like a huge, living tapestry." The butterflies hang in near-motionless hibernation during December and January.

Malowitz and her husband first visited this kingdom of the butterfly as clients of Colorado-based Natural Habitat Ad-

ventures, a provider of ecosensitive tours worldwide that also claims to be a carbon-neutral travel company.

Natural Habitat's catalogue describes the sensory impression of monarchs taking flight in February and March, when they set off again to the north: "As the sun warms their black and orange wings, the butterflies fill the air, illuminating the entire area.... Mexico's sanctuaries are the only places in the world where you can actually hear butterflies' wings beating."

Although monarchs also flutter in Russia, the Azores, Sweden, New Zealand and elsewhere, they enjoy the greatest celebrity status in Mexico. Ancient Aztecs believed the butterflies were the souls of ancestors returning to the earth, cloaked as warriors. But the migration plays a serious role in the infrastructure of central Mexico, too. Numerous tour operators from the nearby village of Angangueo and cities such as Morelia and Mexico City provide excursions by truck, on foot and on horseback to the sanctuary's three public areas: El Rosario, Sierra Chincua and Cerro Pelón.





**Monarch butterflies**

hang in the El Rosario reserve in winter (*top*), then prepare for their spring migration north (*bottom*).



**Want to Go?**

**Best time:** December and January for hibernation; February and March for takeoff to the north.

**Maps, directions, public transportation and rules for visitors:** [www.wwf.org.mx/wwfmex/ecot\\_mm\\_en.php](http://www.wwf.org.mx/wwfmex/ecot_mm_en.php)

**Tours:** The pueblo of Angangueo, Michoacán, is close to the Santuario. Admission to the refuge is \$3.50, but hire a tour guide near the entrance or in town.

For a luxury, guided adventure, consider ecotour operator Natural Habitat Adventures. A six-day excursion from Mexico City (group size limited to 14) is \$2,895 (airfare not included): [www.nathab.com/latinamerica/monarchs-of-mexico](http://www.nathab.com/latinamerica/monarchs-of-mexico)

Lower-priced trips are available from companies such as S&S Tours; four-, five- and six-day excursions from Morelia start at \$820: [www.ss-tours.com/guad\\_fits.htm](http://www.ss-tours.com/guad_fits.htm)

**Butterfly facts:** [www.monarchwatch.org](http://www.monarchwatch.org)



LUIS CASTANEDA/Getty Images (top); KEITH DANNEMILLER/Corbis (bottom)

The World Wildlife Fund and other conservation groups have expressed concern about the migration, with good reason. Although potential predators are few—the monarch is unpalatable and even poisonous to most would-be attackers—its fragile morphology and complicated life cycle make the insect vulnerable to fluctuations in temperature and food supply. A 2002 migration was ambushed by a winter storm that killed about 80 percent of its population. And needless to say, human habitation, development and commerce have added stress. Pesticides, ecology’s most prevalent

ogres, decimate milkweed plants—the exclusive diet of monarch larvae—with predictable efficiency.

But the major challenge to the monarch's Mexican migration is the illegal logging that somehow persists in this protected refuge. Visitors can see evidence of encroaching open spaces from the trail to El Rosario. Biologist Chip Taylor, director of the educational outreach program Monarch Watch, reports that forest clear-cutting for lumber, livestock grazing and crop planting is dangerously carving back the edges of the wintering habitat. In the past few decades, Taylor says, the monarchs' woodlands have shrunk by around 50 percent, and since the 1990s the butterfly population has dropped by about 30 percent. Standing under an orange nimbus of fluttering monarchs wouldn't be the moment to ask Taylor why we should care about this ornamental creature, aside from its obvious emotional value. Taylor's answer is simple: that emotional bond *is* the reason we should care.

"The monarch's showy migratory behavior," he explains, "makes it the 'panda bear' of the insect world. One of its functions is simply to get our attention. When we see 25 million butterflies per acre, each hanging from a branch protecting the creature beneath it, we're seeing a pageant of life and death in the natural world."

That pageant, Taylor will tell you, "bears an important warning for how we treat the rest of our planet."



## Domain of the Devil Fish

### Gray Whale Migration

As with the monarch butterfly, another regular Mexican visitor has become a public relations point man for the rest of the earth's biota. The gray whale's popularity with nature buffs and tourists has earned it recognition as a member of the animal world's celebrity elite, the charismatic megafauna.

Whaling ship crews first discovered dense pods of gray whales crowding bays and narrows along the Baja California coastline during the mid-19th century. The ensuing slaughter lasted many years, until the entire population was nearly eradicated. The hunt was no free ride for whalers, however: cornered in shallows, protecting their offspring, the gray whales fought back violently, shattering boats and injuring sailors. The whaling men nicknamed their fierce quarry the "devil fish."

Since the late 1970s the grays' mating and calving grounds off the Baja peninsula

have been designated permanent places of refuge, as well as a maritime tourist zone, all part of the El Vizcaíno Biosphere Reserve. The whales can now conduct their breeding and calving rituals unmolested. They also commune, sometimes at arm's length, with hundreds of commercial ecotourists who venture out in professionally skippered *pangas* (small boats).

Laguna San Ignacio, Scammon's Lagoon (ironically named for an illustrious whaling skipper) and Magdalena Bay are the principal sanctuaries that permit such intimate access. The locales are fairly remote but reachable by car from various locations on the peninsula, such as La Paz or Loreto. To see the whales close up—these creatures can reach 50 feet in length—as they lift their enormous flukes, or "spyhop," to inspect their surroundings, is a thrill few travelers ever forget.

To Minneapolis resident Sharon Toll, a recent visitor to one of the lagoons, yesteryear's devil fish are anything but



**Gray whale** welcomes visitors along Baja California (*above*); another rises upward to look around, known as spyhopping (*left*).

fierce. She remembers her skiff making a “gentle approach” to a mother whale and calf. “We were never intrusive,” she says, “and always left contact up to the whales. The female, who could have capsized us with a flick of her tail, rubbed her back against our hull. It seemed almost affectionate.”

The impact of gray whale tourism on the native communities of Baja is largely positive. It conforms to a growing paradigm: ecotourism, properly regulated, contributes to local infrastructure, and everyone benefits—visitors, scientists, residents and especially the animals.

In Baja, marine mammal expert Lorenzo Rojas explains that the fishermen, who must limit their activities during the whale season, “understand well”

that tourism income to the community from whale watching can equal or surpass that generated by fishing. “They have adopted the gray whale as a symbol of their culture and their community,” Rojas says.

Ecologist Steven Swartz takes the view that gray whale conservation is a unique platform for studying the macro phenomena affecting the whales’ health and behavior. Recent observations of emaciated adults and calves, for example, suggest negative effects caused by climate change in the gray whales’ northern feeding grounds. As with the monarch butterfly migration, there is a warning here as well. “To me,” Swartz says, “gray whales are sort of sentinels from the sea.”

*Jim Cornfield is a veteran freelance writer and commercial photographer based in Malibu Canyon, Calif.*

## Want to Go?

**Best time:** January and February.

**Most accessible:** Laguna San Ignacio and Scammon’s Lagoon (Ojo de Liebre).

**Tours:** Scammon’s is reached by car from Guerrero Negro. Malarrimo Eco-Tours has four-hour guided boat tours of the lagoon for \$49: [www.malarrimo.com](http://www.malarrimo.com)

For Laguna San Ignacio, the plush choice is Natural Habitat Adventures. A six-day excursion features a desert coach ride across the Baja peninsula, beach accommodations and three days of guided whale tours. \$2,495 (airfare extra): [www.nathab.com/latinamerica/whales-of-baja](http://www.nathab.com/latinamerica/whales-of-baja)

For more modest options, consult Kuyima, a local ecological cooperative. Four- and five-day whale excursions from \$495 to \$965: [www.kuyima.com/whales/index.html](http://www.kuyima.com/whales/index.html)

**Whale information:** [www.acsonline.org/factpack/graywhl.htm](http://www.acsonline.org/factpack/graywhl.htm)

## The Urge to Travel

Animal migration is a mystery yet to be unlocked. Wildebeests, whooping cranes, some sharks, many insects, songbirds, even a strain of the humble slime mold are repeatedly driven to travel at some phase of their life cycle.

Migration is an adaptive trait, hard-wired into a species’ DNA and vital to its survival. The origins of migration seem basic enough: mass movement in response to seasonal fluctuations in climate and food supply or to population pressure. But understanding the actual mechanisms of the behavior is tricky. Scientists have examined the sensory apparatus that allows a population to detect en masse the moment of equinox for beginning a long trek (as monarch butterflies do) or to process complex navigational problems using landmarks, moon phases, odor, magnetic fields and celestial clues. One bird, the indigo bunting (*right*), uses a single star, Betelgeuse, as a reference point. Much more remains to be learned. —J.C.

