The Beach Bums

The Beach Bums are the largest and most intensely studied population of Island mice, likely due to their sociable nature and accessible habitats on Darlost's Island's largest and flattest eastern coastal plain, which occupies approximately 50 percent of the Island. In 1865, Chuck Darlost described the Beach Bums as the "most amicable and outgoing" population of Island mice, "a population that enjoys sun, sand, and the unexpected company of a sad, lonely biologist stranded on a deserted island" (Darlost 1865, p. 165). Current research on Darlost's Island has focused on the Beach Bums, and the population is often used as a surrogate for other Island mouse populations that have less data or that are more difficult to study.

In 1865, Darlost estimated that there were at least 500 Beach Bums and the population remained relatively stable during his 20 years on the Island, although Darlost recorded that fewer mice returned to the southern coast in the spring after the Beach Bums overwintered on the warmer, northwest coast. Island mice that returned to the southern coast in the spring, usually by May 1, were "haggard and exhausted from their journey across Darlost's Desert, but ready to breed within several weeks after relaxing and feeding on dune beetles" (Darlost 1865, p. 221).

Like all Island mice, the Beach Bums feed almost exclusively on dune beetles (Order Coleoptera) and the seeds and stalks of live beachgrass (*Ammophila* spp.), which they clip with their front incisors. If available in the Paradise Palms, Island mice will also feed opportunistically on the flesh of cracked coconuts. During the breeding season, approximately June through September, male Beach Bums hunt for dune beetles on the sandy beaches and bring their prey back to the maternal nests to feed the nursing females and the young (pups). The breeding pair constructs the maternal nests in the grassy uplands adjacent to the coastal beaches, weaving fresh clippings of beach grass into ovular, enclosed nests. Nests are typically placed at the base of dense patches of beach grass or other vegetation to provide shelter from predators, primarily Jack's sparrow. Pirate rats will rarely prey on Island mouse nests, as their wooden legs limit their ability to walk on sand and they are confined to the coastal beaches.

The Beach Bums are the only population of Island mice that migrate long distances every year. The cold trade winds begin to blow from the northeast in early November, forcing the Beach Bums to migrate approximately 20 miles (32 kilometers) across Darlost's Desert to warmer coastal habitats on the Island's northwest coast. The trade winds not only cause ambient temperatures to drop below 80° F (27 ° C), but the winds dry the beachgrass that provides food, cover from predators, and nesting material, and coincide with the last die-off of dune beetles before winter. Prior to the beach grasses and dune beetle die-off, the Beach Bums accumulate fat (hyperphagia) by consuming large volumes of dune beetles. The Beach Bums begin their migration in mid-to-late October and arrive on their northern wintering grounds by early November.

Beach Bums that do not migrate north typically die from exposure to cold temperatures and from a lack of food and cover, although some stragglers have been known to seek refuge in the palms of the Dead Man's Dunes located to the west. It's unclear how many Beach Bums emigrate to the Dead Man's Dunes instead of migrate, although approximately 30 juveniles from the Dead Man's Dunes are enticed by a seemingly carefree, beach lifestyle and become Beach Bums every year.

During both the winter and spring migrations in November and May respectively, approximately 50 percent of the Beach Bum population is lost to exposure in Darlost's Desert. Darlost's Desert is hot and dry, ambient temperatures often exceed 100° F (38° C), and the sandy dunes provide little cover or food for migrating Island mice. The 20-mile journey takes roughly two weeks, and the Beach Bums arrive by late November. During the winter, some Beach Bums breed and nest, although less than 10 percent of the young born during the winter survive the springtime migration south because they have not fully matured prior to the migration. Additionally, some Island mice from the neighboring Realm of Spirits join the Beach Bums, although the impact of this emigration on population size is unknown, although totals are likely similar to emigration from the Dead Man's Dunes population. Despite migration losses, recent survey data collected over the last five years indicates that over-migration mortality has dropped from 50 percent annually, to less than 25 percent annually. It's unclear why the population losses during migration have decreased, although the decrease coincides with an increase in tourism on the southern coast and an increase in the number of anecdotal reports that Island mice carry discarded cocktail umbrellas.

Annual mark-recapture trapping surveys have been conducted on the Beach Bums since 1995. Based on these trapping surveys, there were approximately 500 Beach Bums in 2015, and the population size has remained relatively constant since then, with a slight increase over the last five years. In 2002, the Beach Bum population alarmingly dropped to 100 individuals following a loud and forceful hurricane that washed away beach habitats and increased rates of fatal cardiac arrest. The population recovered to 500 individuals within two years, largely as a result of an explosion of dune beetles which thrive on excess moisture. Scientists use the long-term data set on the Beach Bums to estimate that in general, the minimum viable population size for Island mice is 100 individuals, and the maximum recorded size is 500 individuals.

Development of the resort, with buildings and a landing strip, could reduce and fragment habitats and increase predation by Jack's sparrow.

Survey Year	1995	1996	1997	1998	1999-2001	2002	2003	2004	2005-2011	2012	2013	2014	2015
# of Individuals	300	350	400	425	450	100	300	400	425	450	475	500	500

CLIMATE CHANGE

Under high emission scenarios, the expected shift of the cold winter trade winds to the southeast could have strong implications for the Beach Bums in the next 50 years. Experts agree that if the cold winter trade winds prevail from the southeast, the Beach Bums will be unable to escape the cold during the winter by migration and population losses could approach 99 percent.