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Red Knot *rufa* in the Mingan Archipelago National Park Reserve

Stopping to Refuel on a Global Migration

Monitoring the Red Knot *rufa* in the Mingan Archipelago National Park Reserve

The Mingan Archipelago National Park Reserve of Canada protects a spectacular group of limestone and granite islands and islets on the Gulf of St Lawrence's North Shore. But perhaps its most amazing sight comes several weeks each year, when flocks of migrating Red Knots (*rufa* subspecies) stop to refuel on a dramatic continental migration between the Arctic and Argentina. Given the unique opportunity to observe and monitor this endangered shorebird, it attracts researchers and educators from all over the Americas who are passionate about this truly intrepid traveller.



Juvenile wearing coloured flag

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A tiny athlete on the move

There are six subspecies of Red Knots, of which three occur in Canada. Each follows a long-distance flyway, or migratory route, between their breeding and wintering grounds each year. The *rufa* subspecies (*Calidris canutus rufa*) winters in Terra del Fuego, the very tip of Argentina. Every Spring, they begin an arduous migration to the Canadian Arctic, where they reproduce in early June – a journey of 10,000 kilometers!

But there are many risks for a species whose survival depends on finding food and shelter on so long a journey. The *rufa* must contend with residential and industrial development in many parts of its South American wintering range. It also faces challenges on its northward migration, such as in Delaware Bay in the United States. There, the horseshoe crabs whose eggs the *rufa* depends upon to fuel up are in decline.

Due to these and other pressures, current estimates suggest that the *rufa* population has fallen by almost 70%, from a high of 50,000 individuals in 2000 to less than 15,000 birds. As a result, the Red Knot *rufa* was listed as endangered by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) in 2007 and has been protected by the federal Species at Risk Act since July 2012.



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International researchers in the Mingan Archipelago National Park Reserve

The perfect pitstop

Mingan Archipelago, with its rich abundance of food, is the perfect stopover for the weary travellers. The flats of the islands, rife with invertebrates such as periwinkles and tiny mussels, provide ideal fuel for Red Knots, while the park reserve's protected status – leaving it largely free of development pressures – is a welcome haven.

But this is no ordinary pitstop. The Red Knot goes through a truly amazing transformation during their time in Mingan. As they gorge on Mingan's irresistible all-you-can-eat tidal buffet, the *rufa* can double its weight in two to three short weeks, building the fat stores needed for the long flight ahead.

To do so, they literally turn into eating machines. Their breast, back and heart muscles atrophy so that the body parts most needed to fuel up quickly (such as the muscles supporting the gizzard, which crush the shells of the mussels it eats) can take over. After they've refueled, the transformation is reversed, until they are ready to fly high once again.

Enriching our understanding

This stopover in the Mingan Archipelago provides scientists with a unique opportunity to study Red Knots. In particular, it is the only place along the entire migration route where juveniles can be observed the same summer they are born.

In order to better understand the *rufa* and monitor the population's overall health, Canadian Wildlife Service and international partners capture individuals using nets, and perform a series of tests to determine their sex, growth, and fat stores. The birds are then tagged using rings and coloured flags that can be seen from the ground with a telescope.

Researchers from all parts of the *rufa*'s range keep their eyes out for these tagged birds and share news of them when they are sighted. One particular popular visitor is the male wearing flag B95 – at least twenty years old, he has been sighted several times, including, in August 2013, in Mingan. Most recently, in January 2014, he was spotted in Rio Grande, Argentina. Nicknamed "Moonbird", this tiny bird has become a real media sensation!



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Mingan Archipelago, an important protected area for limicoles



Red Knot *rufa* migratory trajectory

Looking to the future

Because of their amazing life history, the *rufa* captures the imagination of visitors both young and old. And Parks Canada has created a series of unique public outreach tools to help raise awareness of this amazing bird and the struggles it faces.

For example, Parks Canada has developed [an animated video about the Red Knot *rufa*](#) offered in three languages (English, French, and Spanish). This video has now been watched almost 5,000 times on Youtube alone! Other interpretation centres throughout the *rufa*'s range are now beginning to use the video, reaching an even wider audience.

In addition, Parks Canada has developed targeted [educational materials](#) that teachers can use to teach about both ecology broadly and the Red Knot *rufa* in particular. In so doing, they hope to inspire the next generation of scientists, volunteers, and visitors to the Mingan Archipelago.



Inspired by the story of B95 in the book *Moonbird*, this Chicago couple travels to Mingan to participate in the Red Knot capture

And inspire they do – this story of migration and transformation amazes all who encounter it, making the *rufa* the perfect ambassador for conservation at a continental scale.

For more information, contact: Marie-Andr e Vaillancourt, Public Outreach Officer, Mingan Archipelago National Park Reserve of Canada at: marie-andree.vaillancourt@pc.gc.ca