Oryx

When protection pays off: Aldabra’s thriving red-footed boobies

By Michelle Risi, Christopher Jones & Nancy Bunbury, 27th November 2025

Surveying seabirds on one of the world’s most remote atolls is never routine. When the tide is your timekeeper, every day starts and ends on its own rhythm. Some mornings we were on the water before sunrise, gliding across the lagoon in the half-light; other days we returned as the sky turned a deep gold behind the mangroves. One late afternoon, as we waited at our remote camp for the tide to rise, a sudden tropical downpour sent one of our teammates dashing outside for a rain shower, laughter echoing across the lagoon. Moments like this reminded us just how special it is to work in a place so rarely visited by people, where the sound of waves and the calls of birds are the loudest things you hear, and roaring city traffic noise seems like a distant memory.

Our mission was to update population estimates of the red-footed booby *Sula sula*, a striking and (as the name suggests) red-footed seabird whose colonies light up the mangroves of Aldabra Atoll in the Indian Ocean, one of the largest raised coral reefs in the world. Located more than 400 km north-west of Madagascar and over 600 km east of mainland Africa, Aldabra is one of the outer islands of the Seychelles. It is special not only because of its size, consisting of numerous coral islands surrounding a shallow lagoon, but also for harbouring many endemic species and providing a breeding ground for thousands of seabirds. Back in 1969, around 6,500 pairs of the charming red-footed booby were estimated to breed on Aldabra; by 2000, this number had increased to roughly 10,000. But with the last comprehensive survey having been conducted more than 20 years ago, nobody knew how the birds had fared since.

Top: Scanning the lagoon by boat. From left: skipper Alain Bouchary, Michelle Risi mapping and counting, and Christopher Jones counting nesting RFB. Photo: Christopher Jones. Bottom: A lovely wind-still afternoon in the Aldabra lagoon. Chris and Michelle count and map red-footed booby nests while skipper Alain safely navigates the narrow channels. Photo: Christopher Jones.

In 2022 and 2023, we carried out the first atoll-wide survey in decades. And for the first time, we combined traditional boat-based nest counts along the lagoon margins with new technologies, using an unmanned aerial vehicle (UAV) to observe mangrove areas inaccessible by boat. Two teams worked simultaneously around Aldabra's extensive lagoon coastline, timing every count to the tides. Each evening we would meet to tally our totals, and soon realized something extraordinary: our numbers were soaring well beyond anything we could have expected based on the previous counts. By the end of our survey, we concluded that well over 45,000 breeding pairs of red-footed boobies now nested on Aldabra, confirming it as the largest known colony in the Indian Ocean, and possibly one of the largest in the world.

Drone Pilot Caulvyn Bristol (left) and Aldabra Science Coordinator Christopher Jones (right) pose behind the WingtraOne drone. Photo: Michelle Risi.

Adult red-footed booby (white plumage) and juvenile red-footed booby (brown plumage) soaring overhead.

Photo: Christopher Jones.

With such a marked increase in the population since the last counts—numbers having apparently more than quadrupled in just over 20 years—we wanted to understand the mechanism behind this seemingly sudden profusion. To examine whether this increase could have resulted from intrinsic growth of the Aldabra population, or whether immigration from other areas may have played a role, we built a simple population model, using population growth rates obtained from studies of similar tropical seabirds. The results showed that the growth of the Aldabra population since the 1960s could well have been solely due to natural population increase, and that the most recent surveys in 2000 had probably underestimated the population size. In other words, Aldabra's red-footed boobies really are thriving and numbers are not necessarily rising through birds immigrating from elsewhere. However, not every corner of the atoll told the same story: breeding success of red-footed boobies was lower in areas shared with frigatebirds (both the great frigatebird *Fregata minor* and the lesser frigatebird *Fregata ariel* occur on Aldabra) or where feral cats still occur. Yet the overall picture is one of abundance: a thriving seabird population in a protected ecosystem.

A red-footed booby nesting amongst the mangroves. Photo: Christopher Jones.

One of our key aims was to test how well drones could assist in seabird monitoring across large areas of complex habitat. Flying a UAV over Aldabra's dense mangroves revealed extensive inland colonies that had never been recorded before, with thousands of nests invisible from the shoreline. These flights didn't just fill data gaps; they revolutionized how we could observe and quantify red-

footed booby colonies. The aerial imagery closely matched our boat-based counts for colonies close to the shoreline, but also captured areas we could never have reached by boat, adding more than 5,000 nests to the total during the wet-season survey alone. Drones also reduced field effort, improved count accuracy, and left us with a permanent visual record for future comparisons.

A red-footed booby pair at their nest. Males and females share incubation and foraging duties. Photo: Christopher Jones.

Adult red-footed booby standing atop Pemphis vegetation. Photo: Christopher Jones.

Working on Aldabra always requires patience and careful planning. Coordinating two survey teams, ensuring sufficient food and fuel for our remote camp, and completing the full-atoll survey within narrow tidal windows was a daily logistical puzzle. But our efforts were repaid most generously, with an almost magical scenery that felt like we had gone back in time, many millennia ago. Perhaps the greatest reward was realizing that decades of protection and careful management have paid off, allowing Aldabra's wildlife to flourish. While so many seabird populations worldwide are declining, here the red-footed boobies have multiplied nearly tenfold since the 1960s, a rare conservation success story that underscores why safeguarding intact ecosystems matters. For us, this discovery was both humbling and inspiring. Each drone flight and boat survey revealed just how vibrant this UNESCO World Heritage Site remains. Aldabra's story reminds us that given time and enduring protection, nature can not only recover but thrive to exceed all expectations.

Non-breeding adult red-footed boobies at a roost site, with one juvenile (brown plumage) amongst them. Photo: Christopher Jones.

When juvenile RFBs start flying, large flocks of them gather in the lagoon. They’re still dependent on their

parents for most meals, but they spend this time practising their flying. Photo: Christopher Jones.

A celebration on the lagoon as the two counting teams meet up after completing the final boat-based counts. From left: Megan O'Brien (seated), Nikita Pothin, Sebastian Cowin, Alain Bouchary, Michelle Risi, and Christopher Jones. Photo: Christopher Jones.

The article 'Red-footed booby population thriving at globally significant Aldabra Atoll: insights from unmanned aerial vehicle surveys' is available open access in *Oryx—The International Journal of Conservation.*

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