**SINGAPORE’S RESPONSE TO THE QUESTIONS BY THE SPECIAL RAPPORTEUR ON HUMAN RIGHTS AND THE ENVIRONMENT FOR HIS THEMATIC REPORT ON HEALTHY ECOSYSTEMS AND HUMAN RIGHTS**

Singapore is one of the most densely populated countries in the world. Nonetheless, we are home to a large variety of animal and plant species, and remain committed to the long-term sustainability of our ecosystems, particularly our forests and vegetated areas. In this regard, we have safeguarded more than 7,800 hectares of green spaces, consisting of four nature reserves, nature areas, over 350 parks, and an extensive network of streetscape greenery. These green spaces serve as habitats for biodiversity, and are also used for recreational and educational purposes. We will continue to protect these habitats and enhance them for biodiversity through sustainable management and nature conservation.

Singapore’s green policies began with the vision of transforming Singapore into a Garden City in the 1960s. We have since evolved into a biophilic City in a Garden, in which greenery pervades our urban landscape. We have increased our green spaces, intensified multi-layered roadside planting, and mandated new developments in areas with high footfall to incorporate minimum greenery replacement. As the next bound of our urban planning, we will transform Singapore into a City in Nature to build a sustainable and distinctive Singapore that provides a high-quality living environment for our people. To do so, we will continue to safeguard and enhance our natural habitats, as well as promote ecological connectivity between our green spaces. This approach will ensure that the greening of the city increases even as we develop. At the same time, we will protect native species by implementing species recovery programmes. These efforts are supported by robust research and monitoring programmes. Collectively, they will allow us to effectively enhance the resilience of our natural ecosystems, protecting our natural heritage.

Safeguarding Singapore’s Natural Habitats

Singapore’s natural ecosystems are conserved within our four legally gazetted nature reserves, which are home to a variety of native habitats and are core biodiversity hotspots. Some 350 ha of forested areas around the nature reserves have been converted into nature parks to serve as buffers which safeguard our nature reserves against the impact of urbanisation and human activities. The nature parks also provide complementary habitats for Singapore’s native flora and fauna to thrive beyond the nature reserves. We will continue to grow our nature park network, and aim to have an additional 200 ha of nature parks by 2030. In addition, we conduct habitat enhancement and restoration in our nature reserves and nature parks through programmes like the Forest Restoration Action Plan (FRAP). The FRAP aims to plant 250,000 native trees and shrubs across the nature parks and nature reserves by 2029, with the goal of promoting habitat regeneration and increasing the overall resilience of the ecosystems in these areas.[[1]](#footnote-1)

Singapore has also taken steps to restore natural habitats even in the middle of the city. For example, we have converted concrete canals and drains into naturalised waterways by using natural materials to shore up the river bank and allowing the watercourse to meander. One such park with a naturalised waterway, Bishan-Ang Mo Kio Park, has been very successful at restoring biodiversity within the city, with otters and a large variety of native birds spotted visiting the park’s river. Similarly, we will be curating the landscapes in gardens and parks to make them more natural, which will provide new habitats for both native flora and fauna.

We have also launched the One Million Trees movement, which aims to plant a million trees in Singapore by 2030, along streets and park connectors, and in gardens, parks, nature reserves and nature parks (including those planted under FRAP). By helping restore nature across the island, this effort underpins our efforts to make Singapore a City in Nature. While we may lose some streetscape greenery due to development, we will plant back what is lost and more. The movement will actively involve the community through initiatives such as Community in Nature (CIN). CIN connects and engages different groups in the community (e.g. families, schools, volunteers, conservation groups) to help conserve Singapore’s natural heritage. This encourages Singaporeans to bond over, and with, nature.

Singapore also actively protects and conserves marine habitats, in addition to terrestrial ones. One such effort to protect and conserve our marine biodiversity was the establishment of the Sisters’ Islands Marine Park in 2014, as Singapore’s first Marine Park. The Marine Park spans 40 ha, covering a variety of habitats including coral reefs, sandy shores and seagrass areas, and is home to endangered species of marine life. The Marine Park also serves as a platform for outreach, educational, and research activities related to our native marine biodiversity. Since 2018, the Marine Park has also been home to Singapore’s largest artificial reef habitat, which consists of eight purpose-built reef structures that have been lowered onto the seabed. These structures are expected to contribute about 1,000 sqm of additional reef area by 2030, and will complement our existing reef enhancement efforts. Healthy coral reefs can benefit Singapore in many ways, including protecting our shores against erosion, sustaining marine fisheries, and serving as an important source of novel compounds from which biomedical projects can be developed.

Promoting Ecological Connectivity

In addition to safeguarding our natural habitats, Singapore is actively promoting ecological connectivity between our green spaces. Ecological connectivity is a key aspect of ecosystem resilience, through the provision of more areas in which organisms can access resources and mix with other populations of their species. Singapore has developed an extensive network of park connectors (our national Park Connector Network) to link parks and natural areas to each other as well as to residential areas. We have also developed dedicated ecological corridors exclusively for nature’s use. For example, we constructed an “Eco-Link” bridge to connect the Bukit Timah and Central Catchment Nature Reserves, which are divided at ground level by an expressway. The bridge provides a forested ecological corridor between the reserves, which is not accessible to the public. Monitoring programmes are ongoing that will enable us to better understand how well the bridge enhances ecological connectivity over time for both fauna and flora. We have also set up aerial canopy rope ladder bridges to facilitate the safe movement of arboreal animals between key conservation sites. Multiple sightings have been recorded of critically endangered Raffles’ banded langurs (*Presbytis femoralis femoralis*) using these rope ladder bridges to cross safely between forest habitats on either side.

Singapore is also implementing the Nature Ways programme to enable our roads to serve as ecological corridors, by carefully choosing the plant species planted along the roads so as to mimic the natural structure of our forests. The provision of these ecological corridors encourages fauna to move between green areas, promoting ecosystem resilience. In the long term, we aim for every road to be a Nature Way.

Species Conservation Efforts

Beyond safeguarding natural habitats and ensuring ecological connectivity, Singapore also conducts species recovery programmes to prevent vulnerable species from going extinct locally. These aim to facilitate the growth or re-establishment of self-sustaining populations of the selected species, for example by reintroducing them to appropriate habitats or conducting targeted habitat enhancement to enable them to be introduced. Endemic species, critically endangered species with small geographic distributions, and rediscovered species that were presumed to be nationally extinct are prioritised for these programmes.[[2]](#footnote-2)

Research and Monitoring

In addition, applied research in conservation biology and planning will support our biodiversity conservation efforts. Such research efforts include comprehensive surveys and long-term monitoring of ecosystems and species, integrating disciplines, research and operations. Examples include comprehensive surveys of Singapore’s Central Catchment Nature Reserve and Southern Islands, monitoring of coral spawning, and the National Parks Board’s (NParks) ongoing bird ringing efforts. In-depth and regular monitoring of Singapore’s environment and biodiversity provides scientific data which facilitates sustainable habitat management and nature conservation. Research capabilities will be strengthened through the use of technology to collect and analyse data (e.g. through SGBioAtlas, a citizen science-based mobile application that the public can use to share their biodiversity sightings with NParks), data analytic tools, and the application of ecological modelling to facilitate science-based decision-making.

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1. The FRAP will achieve this through sustained planting of three groups of plants: primary rainforest species, nitrogen-fixing plants which facilitate soil nutrient cycling, and riparian plants which are key components of healthy stream ecosystems. The FRAP will also implement removal of non-native weed species. [↑](#footnote-ref-1)
2. Since 2016, Singapore has announced a total of 94 species of flora and fauna species recovery programmes, including for critically endangered species such as the Sunda pangolin (*Manis javanica*). Already, successful increases in population numbers of numerous orchid species (e.g. *Grammatophyllum speciosum,* the tiger orchid), as well as the oriental pied hornbill (*Anthracoceros albirostris*) have been recorded. We also successfully produced and translocated captive-born crablets of the endemic Singapore freshwater crab (*Johora singaporensis*). A turtle hatchery established in Sisters’ Island Marine Park to provide a safe space for incubating turtle eggs laid along Singapore’s coast has also seen success. Since the establishment of the hatchery in 2018, about 150 baby turtles have been hatched and released in the waters off the marine park. [↑](#footnote-ref-2)