GREEN CRISIS IN GARDEN CITY

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List of protected areas in GBA limits

Forest	Area	
	Acre	Gunta
Jarakabande Sandal Reserve	444	12
Govindapura plantation	48	-
Kallupalya SF	107	25
Madappanahalli plantation	153	39
Jarakabande A-Block	371	-
Jarakabande B-Block	123	-
Peenya & Jalahalli Plantation	599	-
Machohalli	145	12
Turahalli MF	597	19
Turahalli SF	514	29
BM Kaval	1,382	18
Sulikere SF	525	2
Basavanatara	1,417	-
Kenchenahalli	77	-
Nagarabhavi Extension Plantation	234	1
Nagarabhavi Plantation	250	-
Doresanipalaya Lac Reserve	137	3
Uttarahalli Manavarthe Kaval	167	15
Marasandra	855	10
Yelahanka Kodigehalli	353	-
Yelahanka Bettahalli-A	304	-
Yelahanka Bettahalli-B	48	-
Kaggalipura Sunkadakatte	218	13
Kaggalipura Chinnakurchi	245	15
Kaggalipura Nettigere	225	15
Total	**9,543**	**7**

Preserving biodiversity: City lacks a solid plan

The city has no valid master plan, and no official, documented list of flora and fauna. What is the plan to protect the city's biodiversity?

SHREE D N
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The award of a biodiversity heritage tag to the railway land in Bengaluru's Cantonment area has brought back the issue of human-nature conflict in the city. While the land in question might be protected from new constructions, the garden city is struggling to protect its other existing green spaces.

Many questions remain: How much biodiversity remains in the city, burgeoning with humans and vehicles, who has to preserve biodiversity and what is happening on the ground level.

The management of biodiversity in the city is divided among three bodies: the Karnataka Forest Department, the Karnataka Biodiversity Board, and the local municipality (BBMP until now, and the five municipalities thereafter).

The mandate to have a local biodiversity management committee under every municipality resulted in Bengaluru having such a committee in 2020. This Biodiversity Management Committee (BMC) functioned under the BBMP, with the chief of the BBMP forest cell acting as the nodal officer.

The committee had experts, including biologists, ecologists, environmentalists, and local government officials, who collaborate to identify, protect, and restore natural habitats, species, and ecosystems.

The BMC collaborated with communities and NGOs to raise awareness and promote sustainable practices that help to preserve biodiversity. The campaign to award biodiversity heritage status to the railway land in the Cantonment area was spearheaded by the citizen groups, with active support from BMC, says Vijay Nishanth, a member of the Bengaluru BMC. The last meeting of this committee was held on 25 August, just before the Greater Bengaluru Authority (GBA) came into existence and the BBMP was divided. While the decisions taken so far will remain effective, the committee is no longer valid after this administrative change, as BBMP no longer exists.

Now each municipality has to form its own board, says Sudarshan Reddy, the BBMP Deputy Conservator of Forests and was a nodal officer to the BMC until now.

What biodiversity does the city have?

There is no accurate, complete documentation of biodiversity in the city done by the government as of now.

The City Biodiversity Index, released in 2024 by Bengaluru Sustainability Forum, offers clues. It lists 389 bird species, of which 231 are native. It listed 604 types of flowering trees, out of which only 309 are native, and 26 were identified as invasive species. The rest were categorised as "introduced" species.

The biodiversity index report shows that Bengaluru has 14.78% of tree cover, including Cubbon Park, Lal Bagh and some reserve forests.

"Most of the remnant green spaces in the city are inaccessible or only partially accessible, walled up in institutional areas like university campuses, military and defence establishments. The green spaces in some of these areas are poor in diversity," the report observes.

Green spaces in Bengaluru (in hectares)

2,693.00 Open scrub	2,286.42 Natural vegetation	2,282.30 Lake	2,243.79 Institutional green cover
2,171.81 Mixed cultivation	1,599.25 Marshes	1,223.12 Paddy/vegetable cultivation	977.49 Open green space
804.06 Open ground	675.27 Sparse vegetation	363.43 River	210.89 Riverine vegetation

Total 17,815.49

The report suggests planting healthy avenue trees, not limited to ornamental species. "Planting can be augmented with native species that also have broad canopies, such as Ficus sp., Azadirachta indica, Mimusops elengi, Holoptelea integrifolia, Terminalia arjuna and so on. Neighbourhoods and colonies should also be targeted for planting of native species, especially at the park level," it adds.

It observes the lack of canopy cover in comparison to the built-up area in many parts of the city, such as Krishnarajapuram, Kalyan Nagar, Hebbal, Banaswadi, Banashankari, Kothnur and Haralur, and suggests greening activities.

Almost every time, the lack of willpower from the government results in projects being junked or gathering dust. For example, in 2022, the Environmental Management & Policy Research Institute (EMPRI) identified 12 firefly hotspots in the city. It also proposed a firefly park in Bengaluru to be implemented in two years, funded by the government.

Three years later, no firefly park has taken shape yet. "It is being planned in the Bannerghatta zoo campus. It will take two more years, as funds have not come through," Says A K Chakravarthy, principal researcher with EMPRI.

'Birds stressed by heat'

Obviously, extreme urbanisation has taken a toll on the city's ecology. Various organisations have documented the loss of tree cover, but there is a lack of focus on urban wildlife. Even the tree plantation activity is human-centric, thereby leading to insufficient planting of fruiting trees that nurture wildlife, birds, and insects.

A study by researchers in the Indian Institute of Human Settlements, titled 'Effects of heat stress and green cover on urban birds in the megacity of Bengaluru', mapped heat islands, cooling potential, and the bird diversity of green spaces in Bengaluru to identify areas of conservation value that also help mitigate heat stress for citizens.

It showed that all bird species they analysed avoided hotter areas in the city. The bird diversity was found to be the highest in cooler and greener parts of the city, which overlapped with major campuses, parks, and forest patches.

Some declining bird species in India (like house sparrow, common kestrel, sirkeer malkoha, and Egyptian vulture) were still present in Bengaluru, mainly in large green spaces. Distribution patterns differed even among closely related species. For example, jungle myna favoured greener areas, while common myna thrived in urbanised zones.

The study revealed distinct patterns among birds of prey. Kestrels and black-shouldered kites preferred city outskirts with open spaces. Shikra adapted well to city centres by preying on small urban species. Scavenger kites such as the black kite and the Brahminy kite thrived in central areas due to anthropogenic food sources.

'Master plan needed'

The study identified approximately 60 km² of Bengaluru's urban area as having strong conservation potential, as it supported bird diversity while also offering cooling benefits to humans.

The only solution is to increase greenery in the city, which is difficult because the idea of green and open spaces is always at loggerheads with human-centric and commercial interests. More vehicles, more people, and a growing need for housing—all translate into a requirement for additional space.

Thus, the heat island effect in the city can adversely affect biodiversity. Dattatreya T Devare, a trustee of Bangalore Environment Trust, says that the city not having a master plan is a big problem in enforcing the rules for parks, greenery and open spaces. The city is in the process of developing a new master plan, while older ones have lapsed, and the court has rejected new efforts due to procedural lapses.

"Master plan plans for both vehicles and greenery, without planned development, it is difficult to strike a balance," he says.

'Past helped, but the present is bleak'

Yashaswini Sharma, a Bengaluru-based architect, says that the city's success in supporting an increased population comes from the deliberate interventions that occurred over atleast one and a half millennia, which include rainwater harvesting via the construction of connected tank bunds and wells.

"These, in turn, supported agriculture and settlements. The Pete was designed as a mixed-use mercantile town where work, life and play were supported sustainably. The city was greened with deliberate action, turning the terrain into a garden city, further enhancing the already comforting weather," she explains.

"Today, the city is constantly losing its green cover and water bodies, in turn affecting the avian fauna and human health. We need to take a step back and diversify development beyond Bengaluru as a first step," she advocates.

She gives an example of a mindless development practice. "Most of the lake rejuvenation projects focus on beautification without due thought and process. Lake bunds are concretised, which makes the boundary impermeable, and vegetation is destroyed, turning the lake into a soup bowl. This also destroys nesting needs for migratory and native birds, and makes the area uninhabitable for smaller fauna," she explains. What needs to be changed? "All buildings need not be high rises. Smaller residences can be built using traditional architecture, which is healthier and cooler," she adds.

"The construction methodology must be suitable and tailored to the local geology and climate. Herein, traditional building methods with regional variations can offer solutions. A one-size-fits-all approach can be catastrophic," she warns.

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