OPEN CALL FOR RESEARCH

Nature-Based Solutions at Terra, Expo City Dubai

A call for academic researchers and institutions to partner with us in studying real-world NbS interventions at one of the world's most ambitious urban sustainability sites.

About This Call

Terra, Expo City Dubai is inviting academic researchers, postdoctoral fellows, faculty members, and research institutions to apply for access to the Terra Gardens for the purpose of studying our Nature-Based Solutions (NbS) infrastructure.

Terra's gardens are purpose-designed living laboratories — integrating ecological innovation, arid-climate design, and sustainability education at urban scale. This open call is focused specifically on research that advances our understanding of how NbS interventions function, perform, and can be scaled across the UAE, the Gulf, and arid regions globally.

We are particularly interested in research where findings have a clear applied use — informing policy, design, management, or public engagement at Terra and beyond. Accordingly, open-source access to data is encouraged.

Our Nature-Based Solutions: Research Sites

The following NbS features are constructed and functioning daily at Terra and open to researchers. Each presents distinct scientific and applied research opportunities:

1. Reed Bed Wetland

A constructed wetland system processing up to 50,000 litres of Terra's blackwater per day using common reed (Phragmites australis) designed to demonstrate water purification, biodiversity support, and microclimate regulation in an arid urban setting. Research questions of interest include:

- How effectively does the reed bed filter and treat water in an arid-climate urban context?
- What invertebrate, amphibian, and avian species does the system attract and support over time?
- How does the wetland contribute to localised cooling and humidity regulation?
- What are the maintenance and water efficiency trade-offs compared to conventional water features?

2. Green Roof & Managed Grazing (Goats)

Terra operates an intensive green roof system alongside a managed grazing programme using goats — a traditional, low-input landscape management practice being trialed in an urban sustainability context. Research questions of interest include:

- How does managed grazing compare with mechanical or chemical maintenance in terms of soil health, plant diversity, and cost-effectiveness?
- What are the thermal performance and insulation benefits of the green roof in an extreme heat environment?
- How does green roof vegetation respond to seasonal heat stress, and which species perform best?
- What are the cultural and visitor engagement dimensions of traditional grazing in an urban park setting?

3. Pocket Forest (Miyawaki Mini Forest)

A dense, mixed-species native planting following the Miyawaki method — designed to rapidly establish a functioning urban woodland in a small footprint. This site is subject to an internal monitoring programme (soil health, water use, surface temperature, biomass, and fauna), and researchers are invited to complement or build on this work. Research questions of interest include:

- How does species composition and canopy structure evolve in an arid-climate pocket forest over time?
- What mycorrhizal and soil microbial communities establish in and around the pocket forest?
- How does the pocket forest perform against conventional landscaping on biodiversity, temperature, and water indicators?
- Can the pocket forest serve as a replicable model for other urban sites in the UAE?

4. The Terra Garden & Dr. Jane Goodall Pollinator Garden

The Terra Garden and the adjoining Dr. Jane Goodall Pollinator Garden together form a richly planted living laboratory showcasing UAE native and adaptive species. The gardens are designed to support pollinators and urban wildlife, demonstrate sustainable landscaping, and provide a platform for citizen science and public ecological education.

A key feature of the gardens is their collection of native tree species — including Ghaf (Prosopis cineraria), Sidr (Ziziphus spina-christi), and other regionally significant trees — which play a vital role in mitigating the urban heat island effect through shade provision, evapotranspiration, and microclimate regulation. Research questions of interest include:

- What cooling and microclimate effects do native tree species provide in an urban arid setting, and how do these compare with non-native ornamental planting?
- How can spatially explicit species inventory data be used to quantify plant diversity indices and landscape configuration metrics? What do these metrics reveal about the ecological complexity and habitat heterogeneity of designed urban green spaces in arid environments?
- How can native tree canopy be used as a measurable indicator of urban heat island mitigation across Expo City Dubai and comparable UAE urban sites?
- Which pollinator and invertebrate species are supported by the gardens' native planting schemes, and how does species composition change seasonally?
- How does the Dr. Jane Goodall Pollinator Garden function as a refuge and corridor for pollinators within an urban landscape?

- How can citizen science tools such as iNaturalist be used to establish a scalable biodiversity baseline for UAE urban green spaces?
- What ethnobotanical and cultural knowledge connects UAE communities to the native plant species represented in the gardens?
- How does visitor engagement with the gardens influence ecological literacy and pro-environmental attitudes?

5. The Wadi (Freshwater Pond & Constructed Wadi Ecosystem)

Terra's constructed wadi and freshwater pond system is designed to replicate the ecology of UAE's ephemeral desert water systems — among the most threatened and least-studied habitats in the region. Research questions of interest include:

- What species colonise the constructed wadi over time, and how do these compare with natural freshwater sites in the UAE?
- How does the wadi system function as a conservation refuge for freshwater-dependent species in an urban environment?
- What design and management interventions optimise the ecological value of constructed wadi systems?
- How can monitoring protocols be developed that are replicable across similar constructed habitats in the UAE?

Who Should Apply

This call is open to:

- Masters and PhD students undertaking thesis or dissertation research
- Postdoctoral researchers and academic faculty
- Research institutions, universities, and NGOs
- Interdisciplinary teams working across ecology, engineering, social science, design, or public health

We particularly welcome proposals from UAE-based institutions and researchers from across the MENA region, as well as international collaborators with a clear focus on arid-climate or Gulf urban contexts.

What Terra Offers

Approved researchers will receive:

- Access to the Terra Gardens during operating hours for observational or (with approval) experimental research
- Liaison support from the Terra Impact team and relevant subject matter experts
- Access to existing biodiversity and environmental datasets where applicable

- Opportunities to present findings at Terra events, workshops, and symposia
- Potential connection to Terra's citizen science and education programmes
- Acknowledgement in any relevant publications or communications

Research proposals will be reviewed by the Terra Impact team and the IUCN SSC Centre for Species Survival Fungi (where relevant). Decisions communicated within approximately four weeks of submission.

How to Apply

Interested researchers should complete the Research Proposal Application form. The form covers the sections below and is reviewed by the Terra Impact team on a monthly rolling basis. There are currently no fees for research access, although data collected should remain open source.

Submit your application: LINK

Or if you have questions prior to submitting, please contact the Terra Impact team:
Sheena.khan@expocitydubai.ae
