November 26, 2021
Sekisui House, Ltd.

Working with Customers for 20 Years to Conserve Urban Biodiversity with the *Gohon no ki* Indigenous Landscaping Concept

—Opening the Way to Financial Evaluation of Biodiversity with Publication of Nature-Positive Methodology—

Sekisui House, Ltd. has been pursuing the conservation of biodiversity since 2001 by creating green networks in urban residential districts under its *Gohon no ki* ("five trees") indigenous landscaping concept. Together with the University of the Ryukyus[1], the company has analyzed the outcome of the *Gohon no ki* Project that it has implemented with 1 million customer households[2] over the space of 20 years, and has designed the world's first mechanism for quantitatively evaluating urban biodiversity. It has published this qualitative evaluation mechanism today as a nature-positive methodology for promoting the conservation of biodiversity.

■ The *Gohon no ki* Project

Since the 1970s, incessant urban development has dramatically reduced the amount of habitat available for flora and fauna in our cities. Sekisui House launched its *Gohon no ki* Project in 2001 as an initiative to conserve biodiversity through the eco-friendly landscaping and greening of the gardens of its customers. Based on the concept of planting five locally native trees, three for birds and two for butterflies, the *Gohon no ki* Project proposes greening gardens and local communities with native tree species suited to the local climate and benevolent to birds, butterflies, and other local fauna. The project takes its lead from garden landscaping modeled on traditional Japanese *satoyama* (which translates roughly as "village woodland").

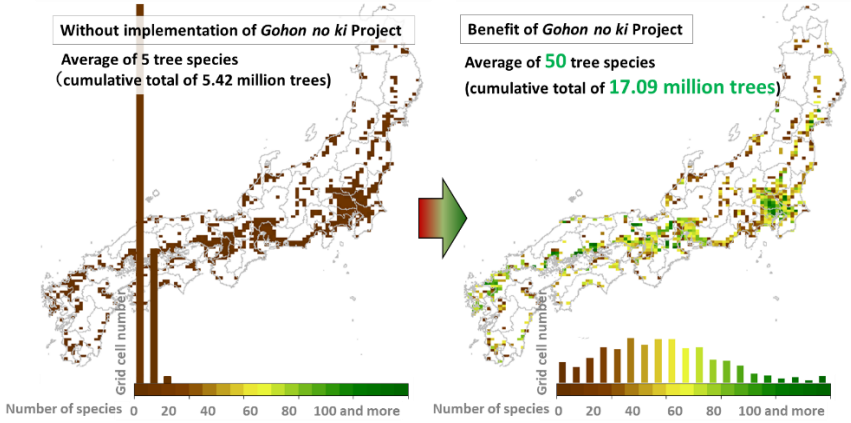
In the 20 years from 2001 up to 2020, more than 17 million trees have been planted under the project. The company has also promoted urban greening throughout Japan by incorporating the *Gohon no ki* concept into its planning of green spaces in its condominium and community development initiatives.

■ Quantitative evaluation of biodiversity

Sekisui House has since 2019 been working with the Kubota Laboratory, Faculty of Science, University of the Ryukyus, and Think Nature Inc. to quantitatively evaluate the contribution of this network-type greening to urban biodiversity. Based on the Japan Biodiversity Mapping Project (J-BMP)[3] managed and operated by Think Nature Inc., a company established by Professor Yasuhiro Kubota, the partners have analyzed the data on tree number, species, and location accumulated over the 20 years of the Sekisui House *Gohon no ki* Project to quantitatively evaluate the effectiveness of the project in conserving and restoring biodiversity.

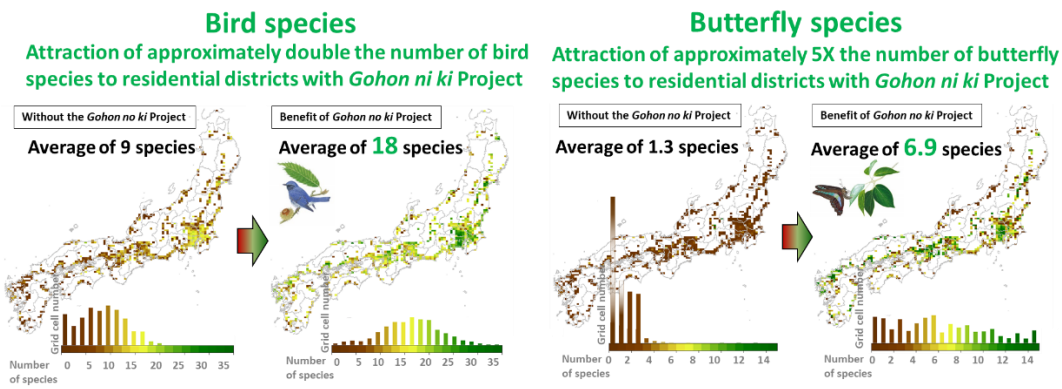
Big data analysis result: 10-fold increase in number of trees

→ Stronger biodiversity foundation



Results of quantitative evaluation analysis (1)

Big data analysis result: 2-fold increase in bird species
5-fold increase in butterfly species



Results of quantitative evaluation analysis (2)

This quantitative evaluation revealed the following benefits for biodiversity from planting native tree species in line with the *Gohon no ki* Project as opposed to planting conventional horticultural and exotic species in gardens in urban areas where biodiversity has declined significantly (Japan's three major metropolitan areas).[4]

- The number of native tree species in each region—the foundation of regional biodiversity—has increased tenfold.
- The number of bird species that residential districts can attract has doubled.
- The number of butterfly species that residential districts can attract has increased fivefold.
- Biodiversity in the three metropolitan areas has recovered to 30% of the level of 1977 for which the first trustworthy biodiversity related data exists.

This is the world's first mechanism for quantitatively evaluating urban biodiversity and its application to an actual case. The disclosure of numerical data enables biodiversity to be expressed in terms of financial value, thereby providing a means for visualizing private sector contribution to biodiversity.

■ Nature-positive methodology

In recent years, increasing efforts are being made to conserve biodiversity. In June of this year, the Taskforce on Nature-related Financial Disclosures (TNFD) was launched, and in October, the 15th

Conference of the Parties to the Convention on Biological Diversity (COP15) was held. In Japan too, discussion has begun in earnest on other effective area-based conservation measures (OECMs) for enlisting the support of the private sector to drive urban greening.

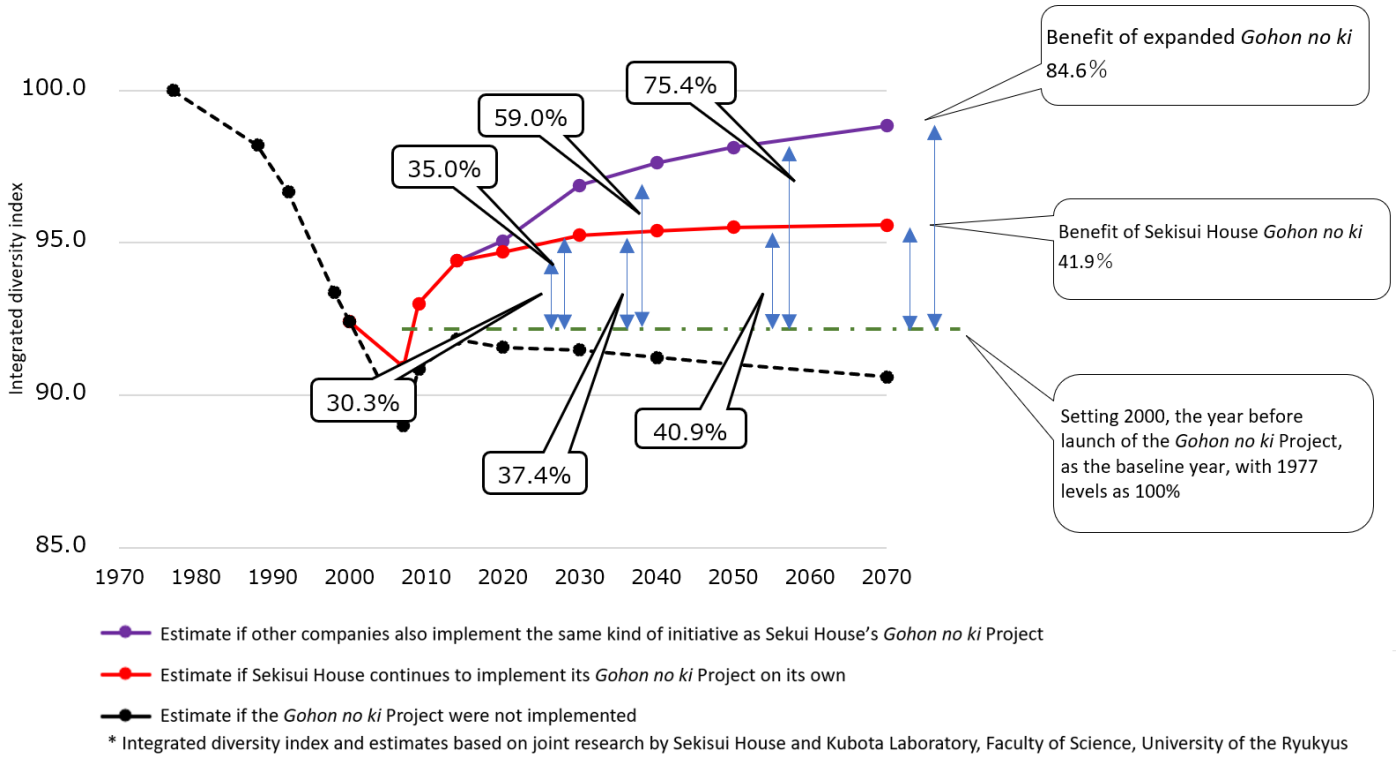
In this societal context, Sekisui House is making its 20-year biodiversity conservation initiative available to the public as a nature-positive methodology. The *Gohon no ki* Project's nature-positive methodology represents a means for expressing urban biodiversity. Sekisui House is making this methodology available to the general public with the aim of raising awareness and enabling its store of knowledge and expertise to be utilized by others to promote greening and contribute to the conservation of biodiversity.

Nature-positive methodology website
https://www.sekisuihouse.co.jp/gohon_sp/method/

■ Predicted benefits

Based on joint review of available data, Sekisui House and its partners set the number of tree, bird, and butterfly species, diversity index, and number of individual trees, birds, and butterflies in 1977 as 100%, and using 2000, the year before the *Gohon no ki* Project was launched, as the base year, simulated change up to 2070 in Japan's three largest metropolitan areas (Kanto, Kinki and Chukyo) that have suffered the greatest decline in biodiversity. This simulation indicated that planting native tree species that are likely to benefit local fauna (the *Gohon no ki* concept) compared to 2000, the year before the launch of the *Gohon no ki* Project, would enable biodiversity to recover to 37.4% of 1977 levels by 2030 (target year for conservation of biodiversity internationally), 40.9% by 2050, and 41.9% by 2070.

If the *Gohon no ki* concept of planting native trees were applied to 30% of all newly constructed properties in Japan moving forward, urban biodiversity is predicted to rise to 84.6% of 1977 levels. Sekisui House believes that this indicates that if the private sector works with the general public, the decline in biodiversity can be reversed to achieve the goal of post-2020 biodiversity recovery that is the theme of COP15, and that its *Gohon no ki* concept can contribute to this goal.



* Integrated diversity index and estimates based on joint research by Sekisui House and Kubota Laboratory, Faculty of Science, University of the Ryukyus

■ Endorsements of Sekisui House's initiatives and publication of its nature-positive methodology

- Mr. Makoto Haraguchi, Fellow, MS & AD InterRisk Research Institute and Sustainability Section SVP for TNFD, MS & AD Insurance Group Holdings
  Mr. Makoto Haraguchi, a member of the MS&AD Group engaged in research and consulting on corporate greening as an interface between business and biodiversity, and a leader in global biodiversity conservation as the only Japanese member of the Taskforce on Nature-related Financial Disclosures (TNFD), has provided the following endorsement.

  "I welcome the publication of the primary data of the 20-year *Gohon no ki* Project in this way as a tool for evaluating and predicting the benefits of greening for biodiversity. We are at a major turning point in our attempt to create a nature-positive world leading up to 2050. The planning and management of densely populated cities will continue to be key to the success of this transition. This cannot be done, however, just through government provisioning of parks and such like. Most land in cities is privately owned, which means that private sector measures are also indispensable. Residential sector initiatives in particular need to be strategically implemented because of their importance in cultivating a nature-positive mindset and getting people at all levels of society involved. Requiring house owners to comply with housing energy conservation standards and encouraging them to consciously change their consumption habits and lifestyles would go a long way to making Japanese cities more resilient and sustainable. Sekisui House's nature-positive methodology also promises to be a useful tool to the urban development and construction sectors that are obliged to disclose information to ESG investors."

- Mr. Teppei Dohke, Executive Secretary General of the Japan Committee for the International Union for Conservation of Nature
  Mr. Teppei Dohke has long been involved in promoting biodiversity conservation in Japan by attending international IUCN and Convention on Biological Diversity conferences, working with overseas NGOs, and gathering and analyzing international data. In this capacity and also as someone with specialist knowledge in OECMs, he has provided the following endorsement.

  "The 196 countries that are signatories to the Convention on Biological Diversity are currently negotiating ambitious biodiversity goals and indicators for what could be called a Paris Agreement for biodiversity with the aim of having it ready for adoption in May next year.

  "The topics being discussed include securing urban green spaces designed for biodiversity, expanding protected areas and other areas for promoting coexistence with nature (OECM), and investing corporate management with a core biodiversity perspective, and Sekisui House's tool and this verification of the feasibility of quantitatively evaluating biodiversity could well provide a major boost to the reaching of international agreement on ambitious numerical targets. The *Gohon no ki* approach is also noteworthy for the way it provides a means for ordinary people to choose to support biodiversity at the private housing level of urban development."

- Ms. Mariko Kawaguchi, Specially Appointed Professor, Rikkyo University / Executive Advisor to CEO, Fuji Oil Holdings Inc.
  Ms. Mariko Kawaguchi, a leading sustainability management expert active in advising stakeholders (companies, financial service providers, consumers) on SDG issues, has provided the following endorsement.

  "The COP26 UN Climate Change Conference has ended. Although the world has made little progress toward achieving the goal of limiting temperature rise to 1.5°C, moves are afoot to leverage the financial system to tackle climate change. Like climate change, declining

biodiversity also poses a threat to humanity's sustainability, but initiatives to reverse this decline have been very slow to get off the ground owing to the difficulty of understanding the issues involved, quantifying biodiversity, and formulating appropriate actions.

"The quantification of biodiversity is key to motivating society to conserve biodiversity. This evaluation of the effectiveness of the *Gohon no ki* Project is a landmark initiative that has achieved the long-awaited goal of quantifying biodiversity by surveying garden tree planting at the individual level to quantitatively evaluate biodiversity at the national level.
It is also an excellent example of successful partnership between science, industry, and private individuals that will likely serve as a model for future sustainability initiatives. Another noteworthy aspect is the way this initiative can open the eyes of city-dwellers, who tend to think of networks of diverse ecosystems as being about distant countryside and oceans, to the fact that biodiversity is actually very much part of their world, and something that they themselves can nurture in their own gardens.

"Measures that make use of natural capital are needed today also to tackle climate change, and this *Gohon no ki* Project will hopefully serve as a model for initiatives that leverage partnership between science, business, and the general public to promote the conservation and restoration of biodiversity throughout the world."

- Mr. Yasuhiro Kubota, Professor, Faculty of Science, University of the Ryukyus / Representative Director, Think Nature Inc.
  Professor Yasuhiro Kubota conducts macroecological research internationally to scientifically shape appropriate conservation and utilization of biodiversity. He is currently pursuing the implementation of conservation science in society through incorporating his research team as a company specializing in big data biodiversity projects. As Sekisui House's partner in quantitatively evaluating the effectiveness of the *Gohon no ki* Project, Professor Kubota has provided the following endorsement.

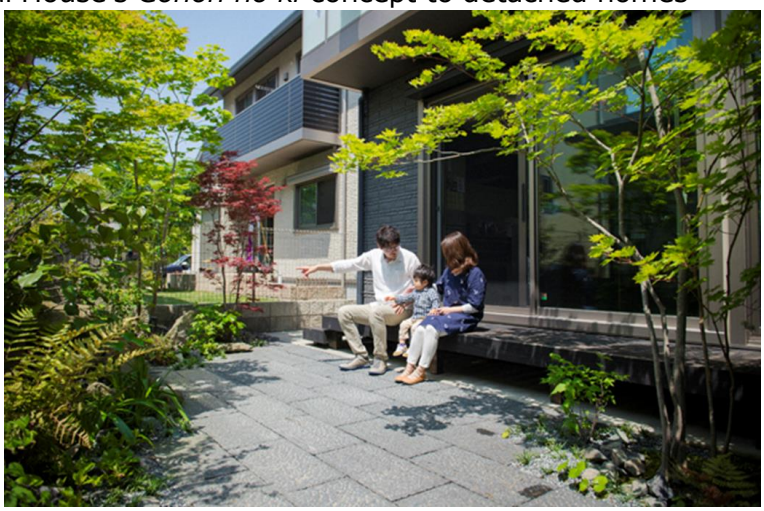
  "The Anthropocene epoch in which we now live may well become the era of the 6th mass extinction in the history of the Earth, and we are beginning to witness the turmoil in society caused by a serious decline in biodiversity. Biodiversity is the natural capital that underpins the sustainability of human society. Time is running out fast, and the business sector too needs to take effective actions to build a nature-positive world.

  "Global enterprises can turn this crisis around through their businesses by making a commitment to projects for conserving and restoring biodiversity as an international business growth strategy. As researchers, we can provide realistic and effective science-based solutions. Macroecological analysis driven by big data and machine learning (AI etc.) enables the conversion of enterprise performance in this area into KPIs and comparison of the effectiveness of various actions. Biodiversity big data, which encompasses the distribution, genomes, functions, and food chains of flora and fauna, can furnish scientific proof of the direct contribution of business activities to the conservation and restoration of natural capital, as in the case of Sekisui House.

  "Though profit-generating business activities appear to conflict with activities to conserve and restore biodiversity, they can be reconciled scientifically to drive social change and create a nature-positive world through business."

1. This is joint research with the Kubota Laboratory, Faculty of Science, University of the Ryukyus.
2. Cumulative number of households built from February 2001 to January 2021 is 1,001,977.
3. Japan Biodiversity Mapping Project (J-BMP) website: https://biodiversity-map.thinknature-japan.com
4. Comparison of continuing to plant conventional garden tree species with planting tree species in line with the *Gohon no ki* concept over the 20 years from 2001 to 2020

■ Application of Sekisui House's *Gohon no ki* concept to detached homes



■ Application of Sekisui House's *Gohon no ki* concept to a condominium setting

■ Application of Sekisui House's *Gohon no ki* concept to community development