

Communities and Citizen Science

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earthwatch
EUROPE

Community Action powered by Citizen Science

- **NBN Conference:** Nature as National Resilience: turning biodiversity data into action for people, place and a changing climate.

- **Community Action powered by Citizen Science:** Exploring how Citizen Science support community action, through exploring Earthwatch's Naturehood and Tiny Forest programmes.



About Earthwatch Europe

Earthwatch Europe works to create a world where we live in balance with nature.

We are powered by science. We help communities to protect the nature around them. We build meaningful nature connections and give people the tools they need to fight for our planet.

Citizen science provides an opportunity for people from all walks of life to connect with nature and contribute to our scientific research.



Naturehood: Aims & Objectives

- Response to State of Nature report in 2016
- Using Citizen Science to better connect communities to nature
- ‘Naturehoods’ - where neighbours work together to create and nurture a network of wildlife rich green spaces.
- Communities use data collected through Citizen Science to advocate for change in their neighbourhoods, to monitor external impacts of climate change, pollution and biodiversity loss and be the advocates of change on the ground.





2017-2020

- Oxford and Swindon
  HLF funded



2020-2022

- Birmingham
  NERC Funded



2022-2024

- Oxford
  Lottery Funded

Phase 1:Oxford and Swindon

- Enhance awareness & understanding of local wildlife and its needs amongst adults and young people.
- Create a community-based programme (online and offline), with local wildlife at its heart, which builds and strengthens local networks
- Conduct and disseminate scientific research on the impact of scale and other environmental factors on the effectiveness of garden wildlife interventions
- Encourage action to monitor and help local wildlife in gardens, school grounds and public spaces
- Create a partnership that brings together and enhances skills and expertise for the benefit of people and wildlife.

OUR IMPACT

32
Community drop in sessions

86
Nature based workshops, nature walks and school activities

242
Actions for wildlife taken and recorded

2,200+
Community members engaged

Phase 2: Birmingham

- Wider NERC programme remit: Support and build the capacity of diverse communities.
- Deliver an inclusive Naturehood programme in Birmingham which focuses on the areas of Lozells and Stirchley: Listening Campaign, stakeholder mapping, within the context of covid.
- Communities of Stirchley and Lozells actively engaged in Naturehood Birmingham: Establish and support community green hubs, providing practical engagement activities and citizen science monitoring
- Develop best practice to improve other Earthwatch community engagement activities.

OUR IMPACT

5

Community Green Hubs established

13

Citizen Science project ideas developed by volunteers

198

Active volunteers

2,300+

Hours spent at green hubs, improving space for wildlife

Phase 3: Oxford

Within 5 identified Naturehood communities:

- Develop a sense of shared space with greater equity to green spaces
- Bring communities together through collective action
- Improve the physical environment that people live in
- Improve mental and physical well being
- Recruit and support community representatives and develop leadership and advocacy skills

OUR IMPACT

87
Community events

249
Actions for Nature and Citizen Science recordings

2,100+
Community members engaged

6,400+
Hours of volunteering / spending time in nature

Lessons Learned

- Being where the community is, is key to building trust
- Building relationships comes before Citizen Science
- Co-design of CitSci projects builds greater buy in
- Most people want to know what impact their actions are having – regular communications is important to a sense of ownership
- Communities know what green spaces are important to them and why
- CitSci and nature are part of wider community needs
- Building and supporting leadership within communities supports long term impact
- Never underestimate the impact of small pots of money
- Most CitSci projects work for adults and young people – just need to explain the why and the how.



Biodiversity loss: Nature in cities – Tiny Forest

Impact: Help nature in our towns and cities by improving access to and connection with nature in urban areas lacking green spaces.

Scientific Goal: Evidence the socio-environmental benefits of nature-based solutions like Tiny Forest.

Policy Goal: Integrate nature-based solutions into planning policy and outdoor learning into education policy.



Engaging communities: Tiny Forests

- Planted using the **Miyawaki** method
- **600 trees** planted in a tennis court sized space
- Trees **grow faster** than when planted using conventional methods
- We use Tiny Forest to engage communities and collect citizen science monitoring data
- **300** Tiny Forests across the UK

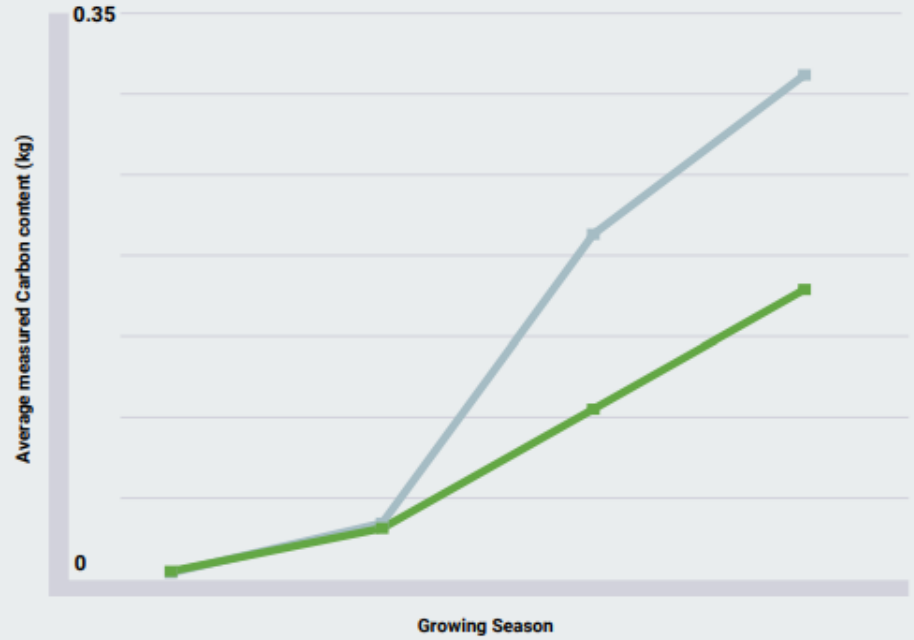


Figure 13. Tree growth rate in Tiny Forests prepped to 0.5m and 1m

Tiny Forests

Key findings

In 2025, Earthwatch Europe ran 40 monitoring events at 44 Tiny Forests, training 2,271 citizen scientists across the UK. Thanks to these volunteers we have found:

In 2025, citizen scientists carried out:

- 212 ground dweller surveys across 64 forests;
- 97 pollinator timed counts across 55 forests;
- 56 butterfly timed counts across 43 forests;
- 29 butterfly species list survey across 25 forests;
- An incredible 6,439 minutes of mindful minutes spent watching wildlife - the equivalent of watching around 55 feature films!

Biodiversity support

As Tiny Forests age, the **diversity of different ground-dwelling invertebrates increases**.

Flood mitigation

Infiltration rates inside Tiny Forests are on average **28% faster compared to the surrounding area**; thanks, in part to the 38% lower soil compaction inside a Tiny Forest compared to outside.

Carbon storage

Tiny Forests **store exponentially more carbon as they grow.** We estimate that, all together, Earthwatch's Tiny Forests are currently storing about 35,000 kg of above ground Carbon, not counting the roots! This equates to 128 metric tonnes of CO_2.

Thermal comfort

Forty-four percent of visitors reported feeling very or moderately comfortable inside the forest compared to 33% of people in the surrounding open area.

Social benefits

Participation in Discovery Days increases attendees' environmental and social connectedness—feeling 8% more connected to nature, 5% more connected to their local community, and 3% more responsible for their local environment.

Tiny Forests Ground-dwellers

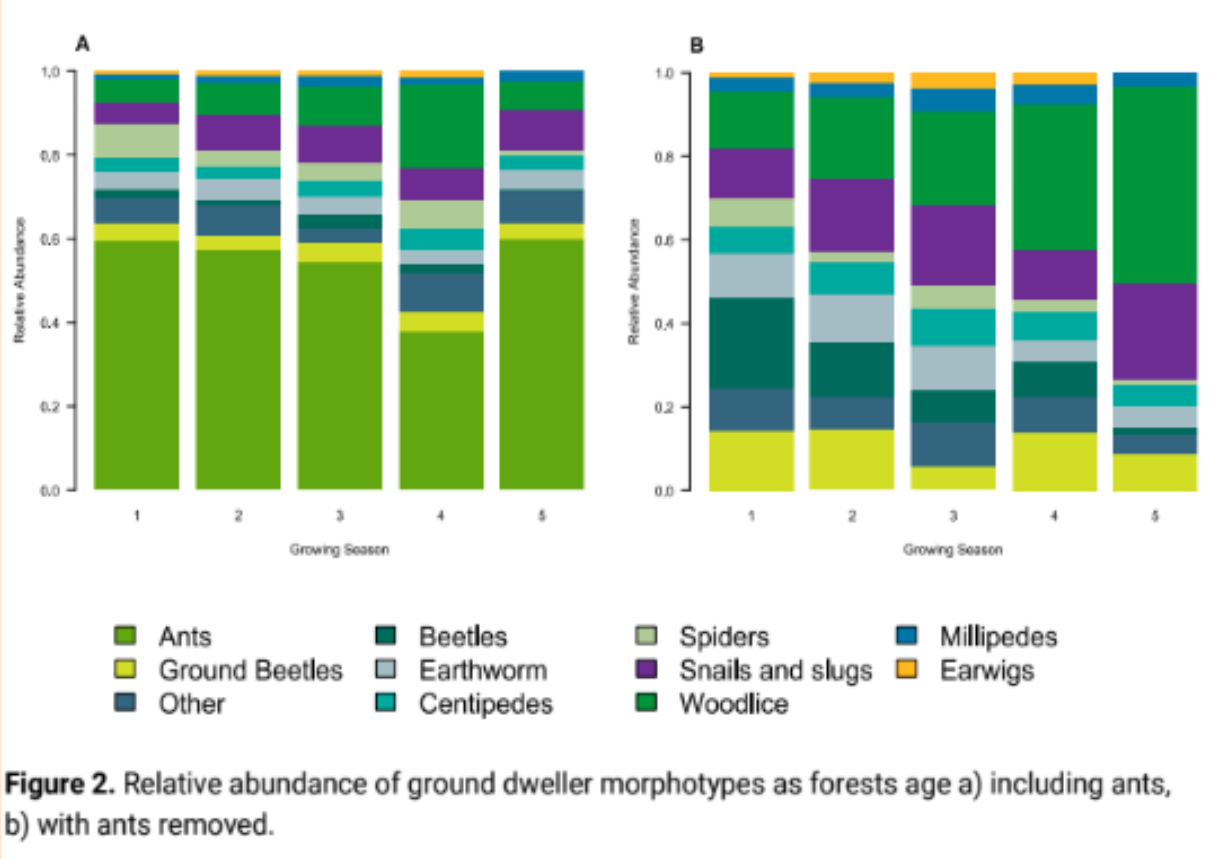


Figure 2. Relative abundance of ground dweller morphotypes as forests age a) including ants, b) with ants removed.

Key findings

In 2025: 212 Surveys were carried out at 64 Forests

Biodiversity:

Tiny Forests consistently support a diverse composition of ground dweller and pollinator morphotypes, and provide homes to less commonly observed urban species such as newts, solitary bees and slow worms.



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Tiny Forests Pollinators

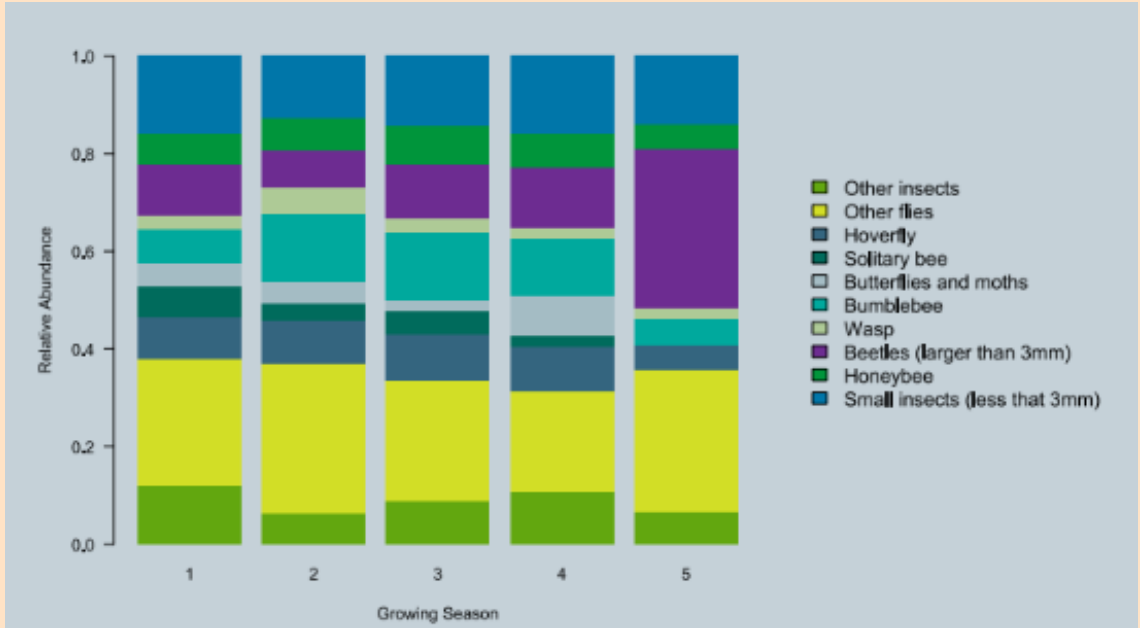


Figure 4. Relative pollinator morphotype abundance as forests age.



Key findings

In 2025:
97 pollinator timed counts at 55 forests, identifying 1071 pollinators

Biodiversity:

Tiny Forests consistently support a diverse composition of ground dweller and pollinator morphotypes, and provide homes to less commonly observed urban species such as newts, solitary bees and slow worms.

Tiny Forests: Tree growth & carbon storage

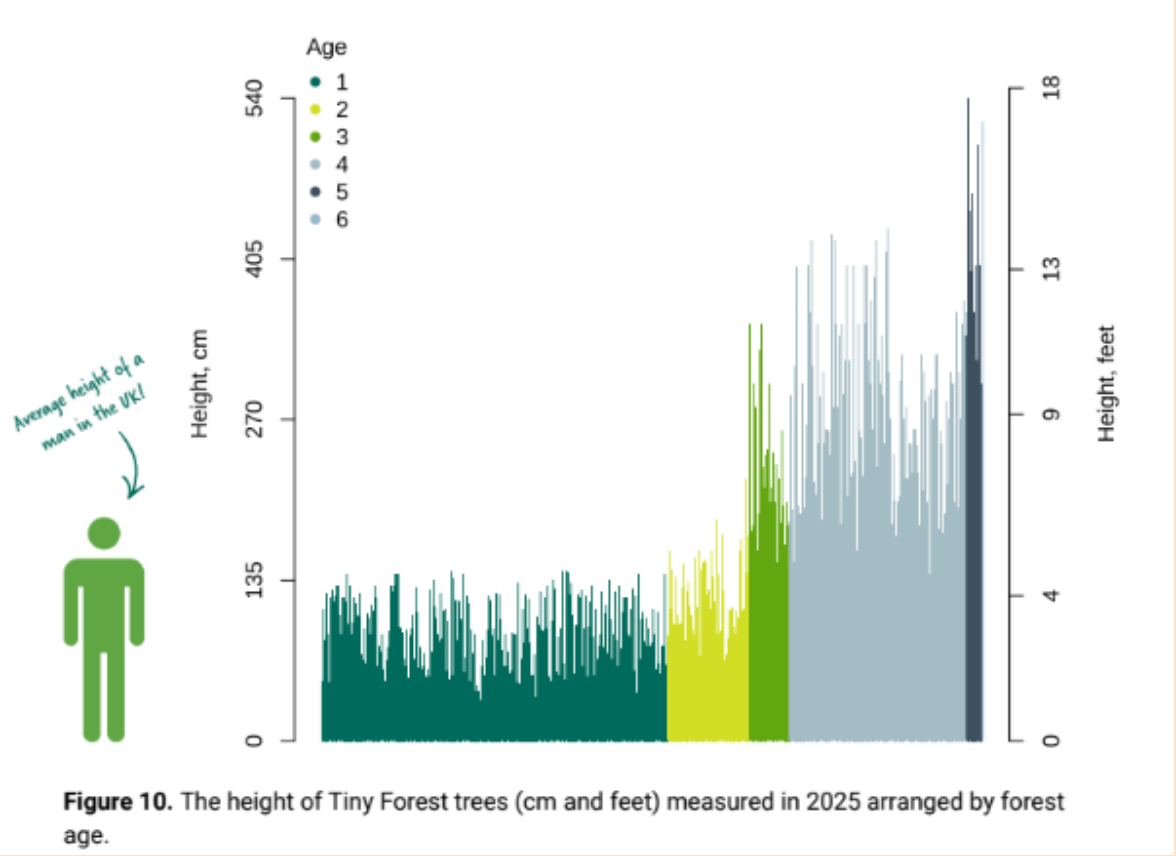


Figure 10. The height of Tiny Forest trees (cm and feet) measured in 2025 arranged by forest age.

Key findings

In 2025 almost 3,000 trees were measured. The tallest is a 4 year old wild Cherry in Hammersmith Park at 540cm.
Wild cherry trees normally grow at 30-60 cm per year – this one has been growing at over 100cm per year!

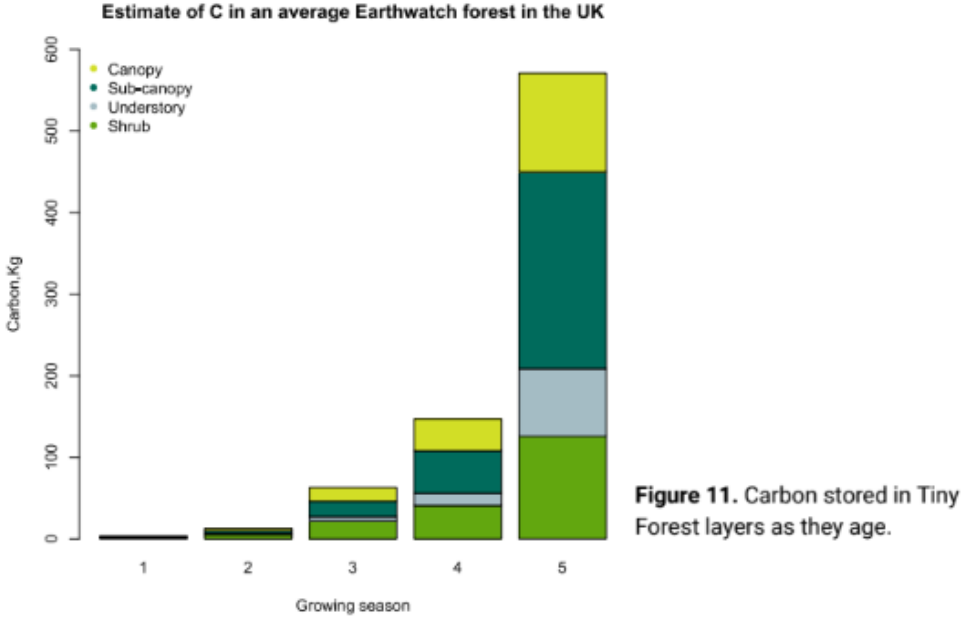


Figure 11. Carbon stored in Tiny Forest layers as they age.

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Tiny Forests
Flood mitigation

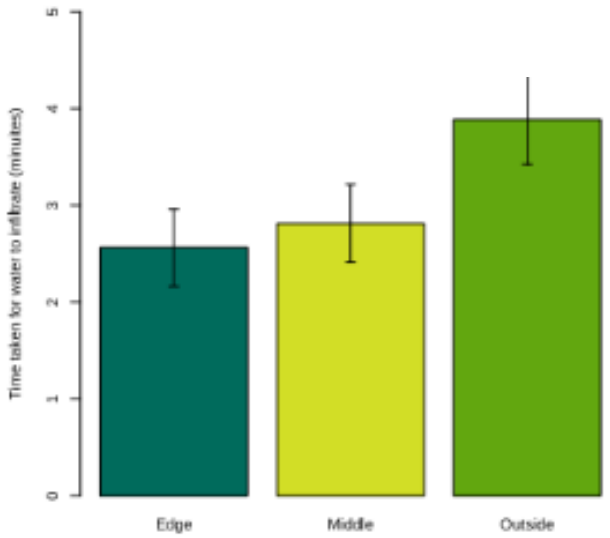


Figure 6. Infiltration rate at Tiny Forests are 28% faster inside the forest than outside.

Key findings

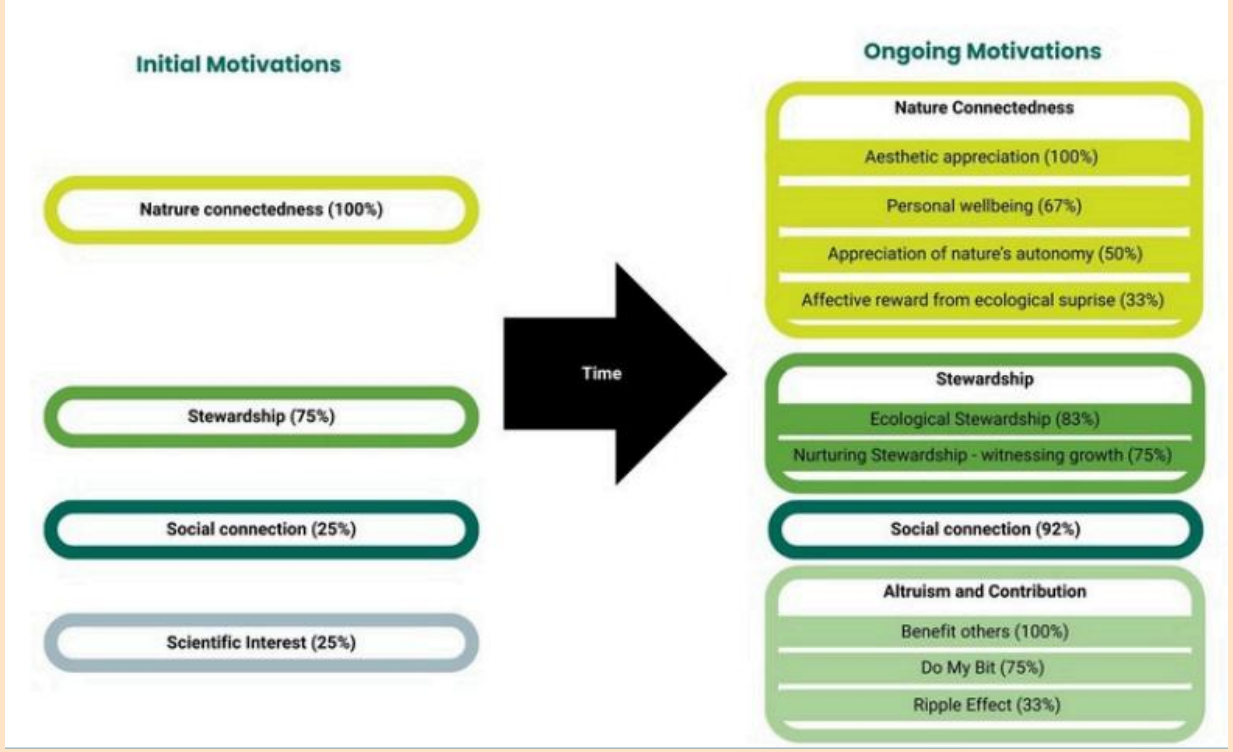
In 2025 citizen scientists assessed how Tiny Forests can provide flood mitigation benefits by measuring the colour, compaction, texture and infiltration rate of the soil in the middle, edge and outside of Tiny Forests – 131 times across 48 Tiny Forests.
Across forests of all ages infiltration rates inside Tiny Forests are 28% faster than the surrounding area.



Flood mitigation:

Tiny Forests
Nature connection

Tree Keeper Engagement



Key findings

In 2025 Earthwatch ran 40 monitoring events at 44 Tiny Forests, training 2271 citizen scientists across the UK

In a subset of these events, PhD Student Babette van Gerwan carried out surveys to explore the nature connection benefits of participation:
81% wanted to contribute to conservation
74% sought to spend more time outdoors.



Social benefits:

Participating in Tiny Forest events significantly benefitted participants self-reported feelings of connection to nature

Lessons Learned

- Co-creation and community buy in from the start
- Citizen Science as a form of activism to protect green space
- Different motivations will determine what citizen science activities people do
- Creating physical nature spaces supports mental well-being and community focus



Thank you

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