

Table S1. Definition of the seven morphological types.

Type	Definition
Core	Large patches that can provide desirable habitats for the species.
Edge	Outer transition areas between cores and other patches.
Perforation	Inner transition areas between cores and other patches.
Bridge	Corridors connecting different cores.
Loop	Corridors connecting the same core.
Branch	Narrow areas where only one end is connected to cores.
Islet	Isolated and small patches

Table S2. Real-world examples of the conflicts between conservation and human activities.

Region	Major issue	Source
Shenzhen	<p>The conservation plan had an adverse impact on economic development. The loss of rent caused by the conservation areas was more than 500 million Chinese Yuan per year in one community.</p>	<p>https://news.ifeng.com/c/7fZ2wtMvGQG</p>
Wuhan	<p>There existed contradiction between the conservation plan and the original urban development plans. Many projects within the conservation areas had legal land development permission, and it was very difficult to relocate them.</p>	<p>http://www.whrd.gov.cn/html/gzjs/2016/0714/11366.shtml</p>
Xiamen	<p>There were many urban development plans, and they could not completely coordinate with the conservation plan or even contradict with each other.</p>	<p>https://news.fznews.com.cn/dsxw/20161212/584dff0e3c2ea.shtml</p>
Kenya	<p>The majority of the local people around protected areas have negative feelings about state policies and conservation programs.</p>	<p>Wildlife-community conflicts in conservation areas in Kenya</p>
Global	<p>Globally, one-third of all protected areas are under intense human pressure. Over six million square km of protected land face pressure from agriculture, encroaching human settlement, roads, light pollution, rail, and infrastructure development on waterways</p>	<p>https://earth.org/protected-areas-the-past-present-and-future-of-conservation</p>

Table S3. Real-world examples of the importance of ecological corridors in conservation planning.

Region	Highlight	Source
Europe	<p>We must maintain and restore ecological connectivity to ensure biological diversity. Everyone on this planet depends on biodiversity for freshwater, food, climate regulation and pollination, underlining the importance of a strong network of green spaces throughout Europe. Additionally, green corridors will give species the opportunity to migrate, allowing them to adapt to climate change.</p>	<p>https://www.europarc.org/news/2020/07/iucn-guidelines-for-ecological-corridors</p>
United States	<p>Connectivity and corridors are not only relevant to the actions of natural resource management agencies, but also to numerous agencies whose actions, including project authorizations and/or funding and planning, siting, operation, and maintenance of investments, may impact habitat intactness and the ability of organisms and ecological processes to move or occur freely.</p>	<p>https://www.whitehouse.gov/wp-content/uploads/2023/03/230318-Corridors-connectivity-guidance-memo-final-draft-formatted.pdf</p>
Canada	<p>The National Program for Ecological Corridors will support the conservation of ecological corridors in key areas across Canada. Parks Canada will seek to collaborate with other levels of government, partners, experts, and stakeholders to achieve the objectives of the program. This will include working with Indigenous partners to ensure that the program provides land</p>	<p>https://parks.canada.ca/nature/science/conservation/corridors-ecologiques-ecological-corridors</p>

stewardship and connection
opportunities, and is informed by
Indigenous knowledge.
