Climate change and natural disturbances are transforming the forests of the High Tatras

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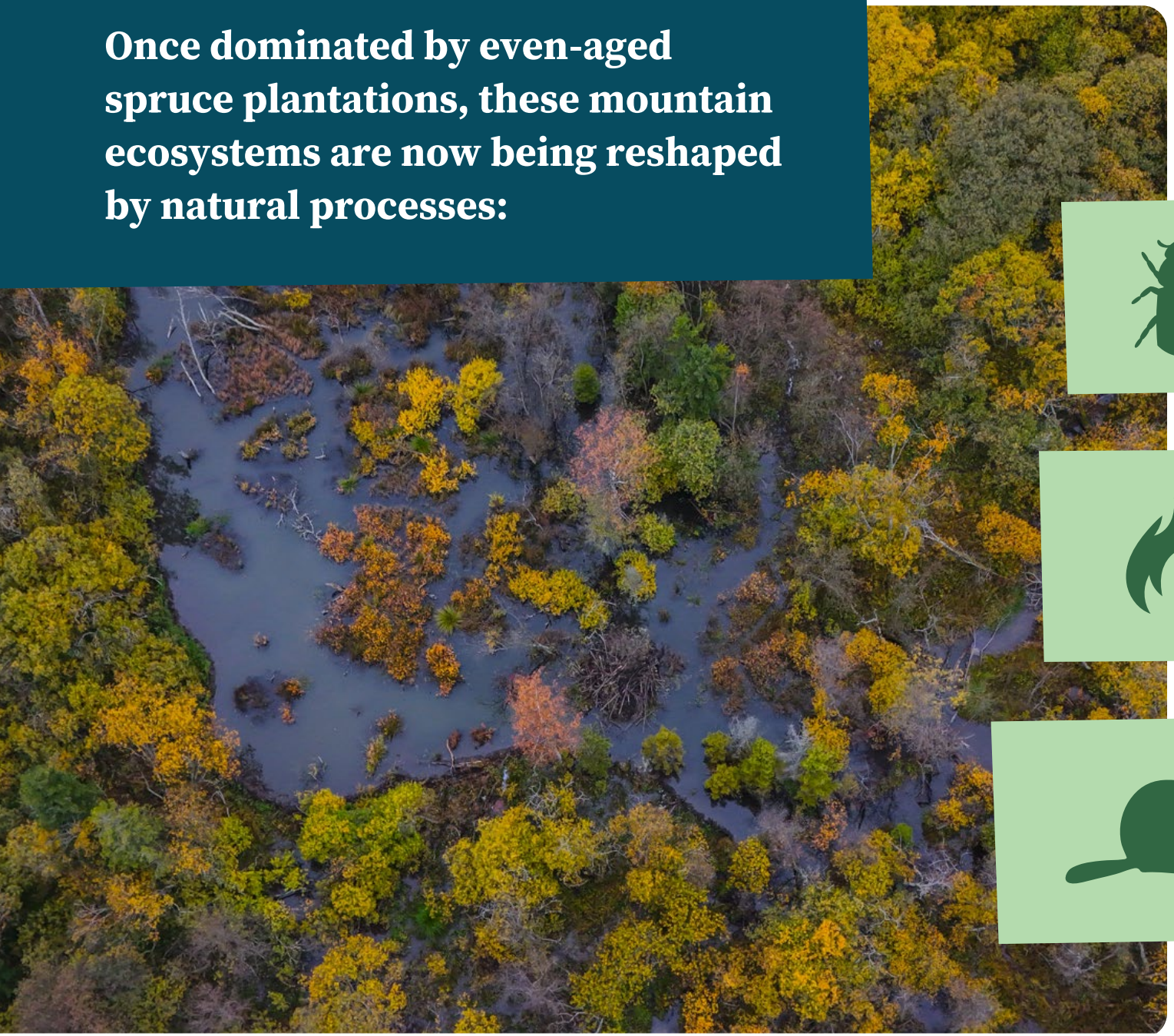
Once dominated by even-aged spruce plantations, these mountain ecosystems are now being reshaped by natural processes:



bark beetle outbreaks,

wildfires,

and the return of the Eurasian beaver.

What might appear as destruction is, in reality, ecological renewal.

Dead trees, open canopies, and beaver-created wetlands provide new habitats, enhance biodiversity, and help the landscape store more water and carbon.

This story illustrates how rewilding — allowing natural dynamics to operate — can restore complexity, resilience, and self-regulation to mountain forests. The High Tatras are not declining; they are evolving into a richer, more diverse ecosystem shaped by disturbance, recovery, and the quiet work of nature itself.

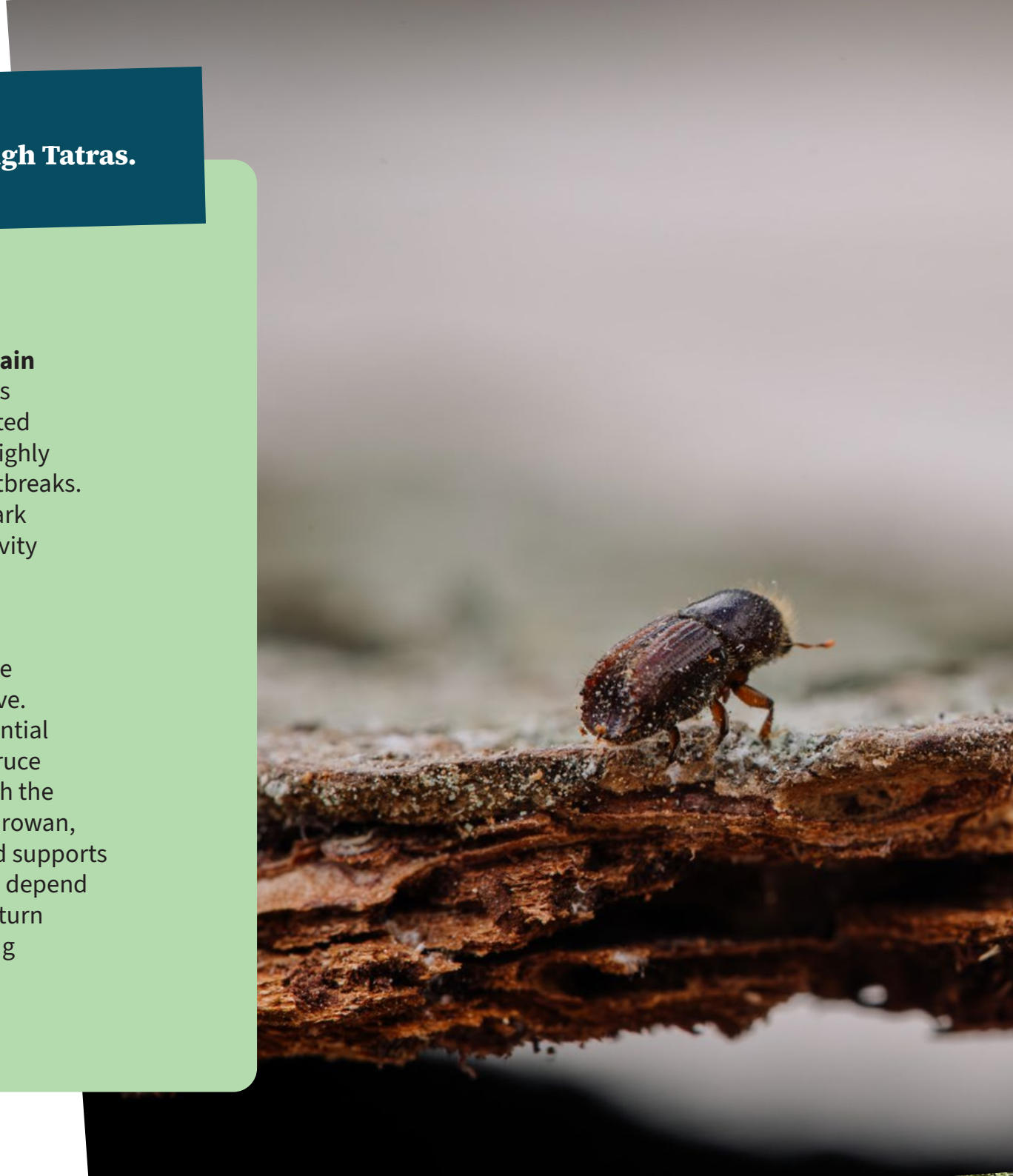
Rewilding the High Tatras

Natural Disturbances and Forest Renewal

Climate change is reshaping the High Tatras.

Warmer winters, reduced snow cover, and longer dry periods are altering how mountain forests function. For decades, the region was dominated by even-aged spruce forests planted after earlier disturbances. These stands are highly vulnerable to drought, storms, and insect outbreaks. Today, however, natural processes such as bark beetle infestations, wildfires, and beaver activity are contributing to the creation of more diverse and resilient ecosystems.

Outbreaks of the European spruce bark beetle (Ips typographus) are often seen as destructive. Yet, in natural forest cycles, they play an essential ecological role. When bark beetles kill old spruce trees, the opened canopy allows light to reach the forest floor. This triggers the growth of birch, rowan, and willow, increases structural diversity, and supports many species of birds, fungi, and insects that depend on dead wood. Over time, the affected areas turn into mosaics of young and old trees, providing a richer habitat than before.



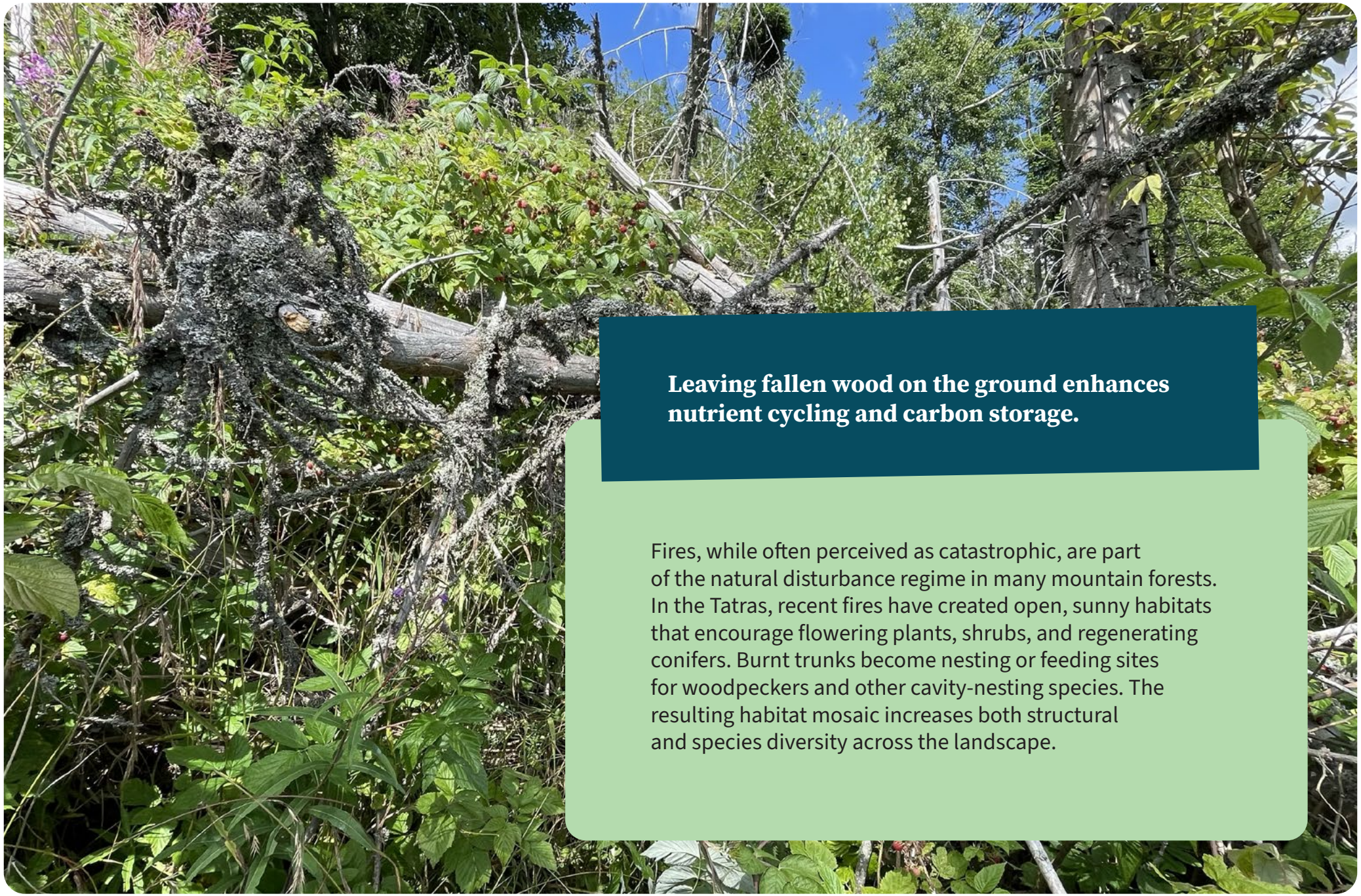
Natural regeneration following disturbances is key to forest resilience.

Where management allows nature to take its course, early successional species quickly establish. These new growth phases support

pollinators,

small mammals,

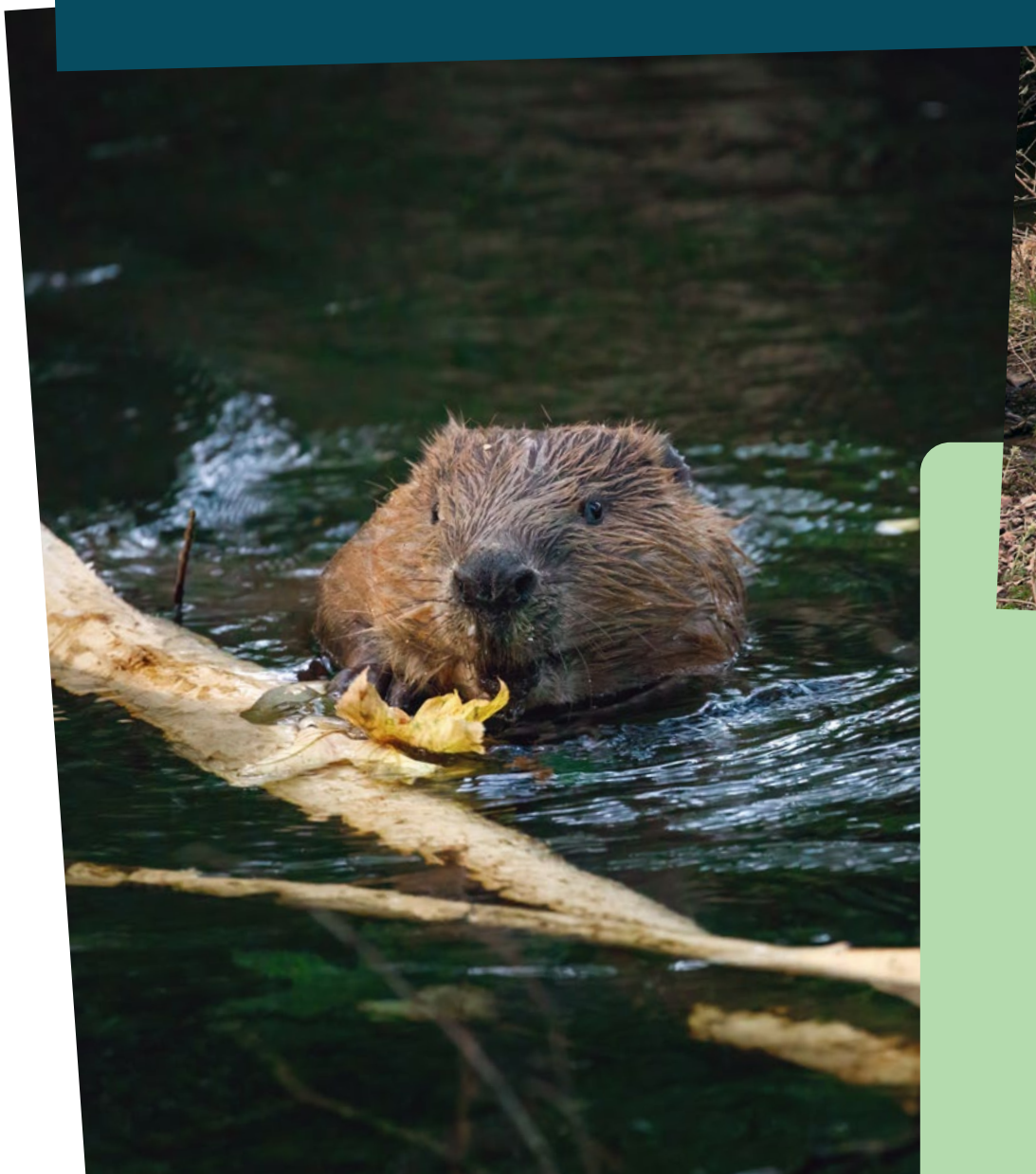
and herbivores, and they stabilize soil and microclimate conditions



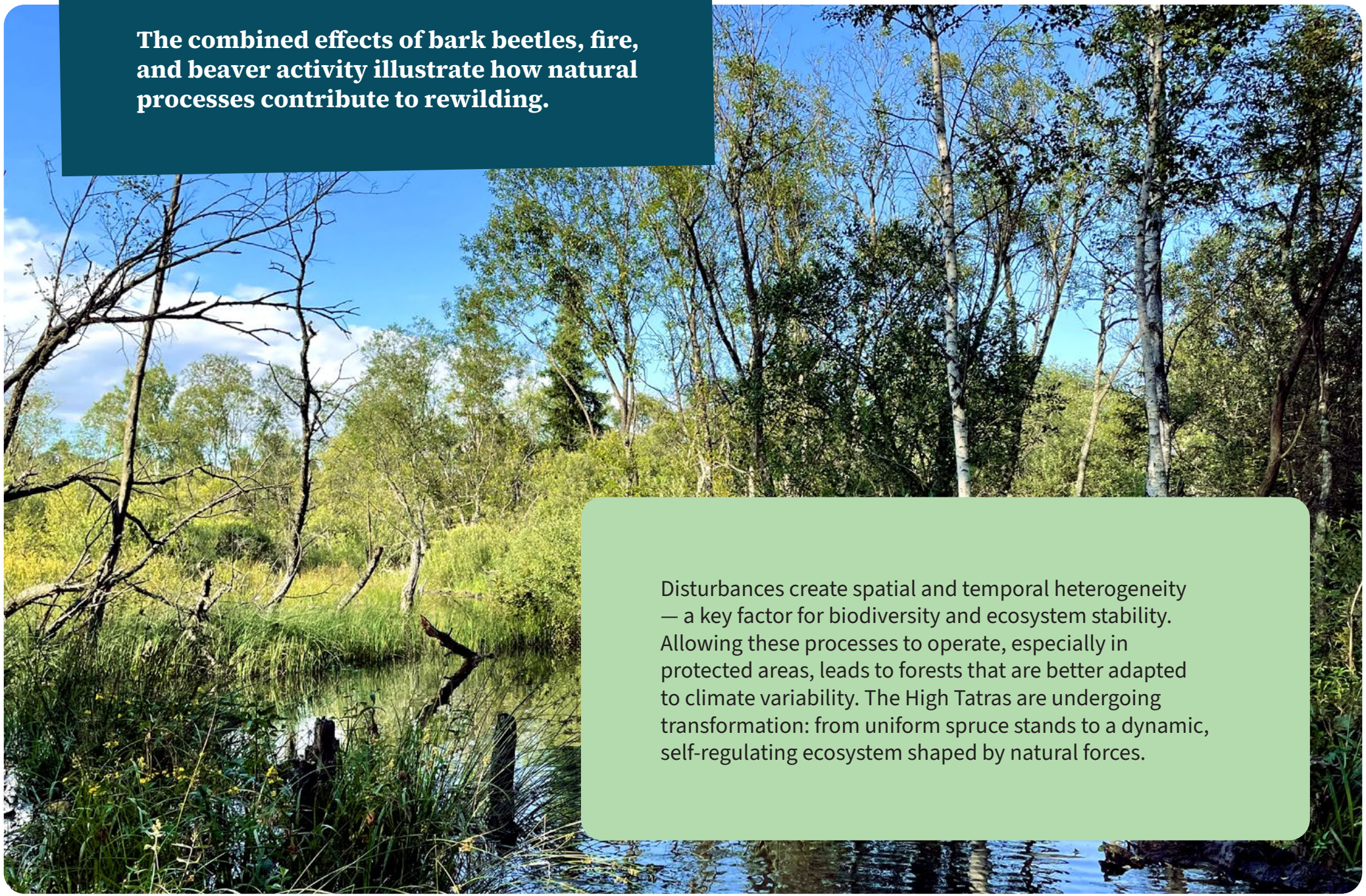
Leaving fallen wood on the ground enhances nutrient cycling and carbon storage.

Fires, while often perceived as catastrophic, are part of the natural disturbance regime in many mountain forests. In the Tatras, recent fires have created open, sunny habitats that encourage flowering plants, shrubs, and regenerating conifers. Burnt trunks become nesting or feeding sites for woodpeckers and other cavity-nesting species. The resulting habitat mosaic increases both structural and species diversity across the landscape.

In the valleys below, the Eurasian beaver (Castor fiber) is returning as a keystone species.



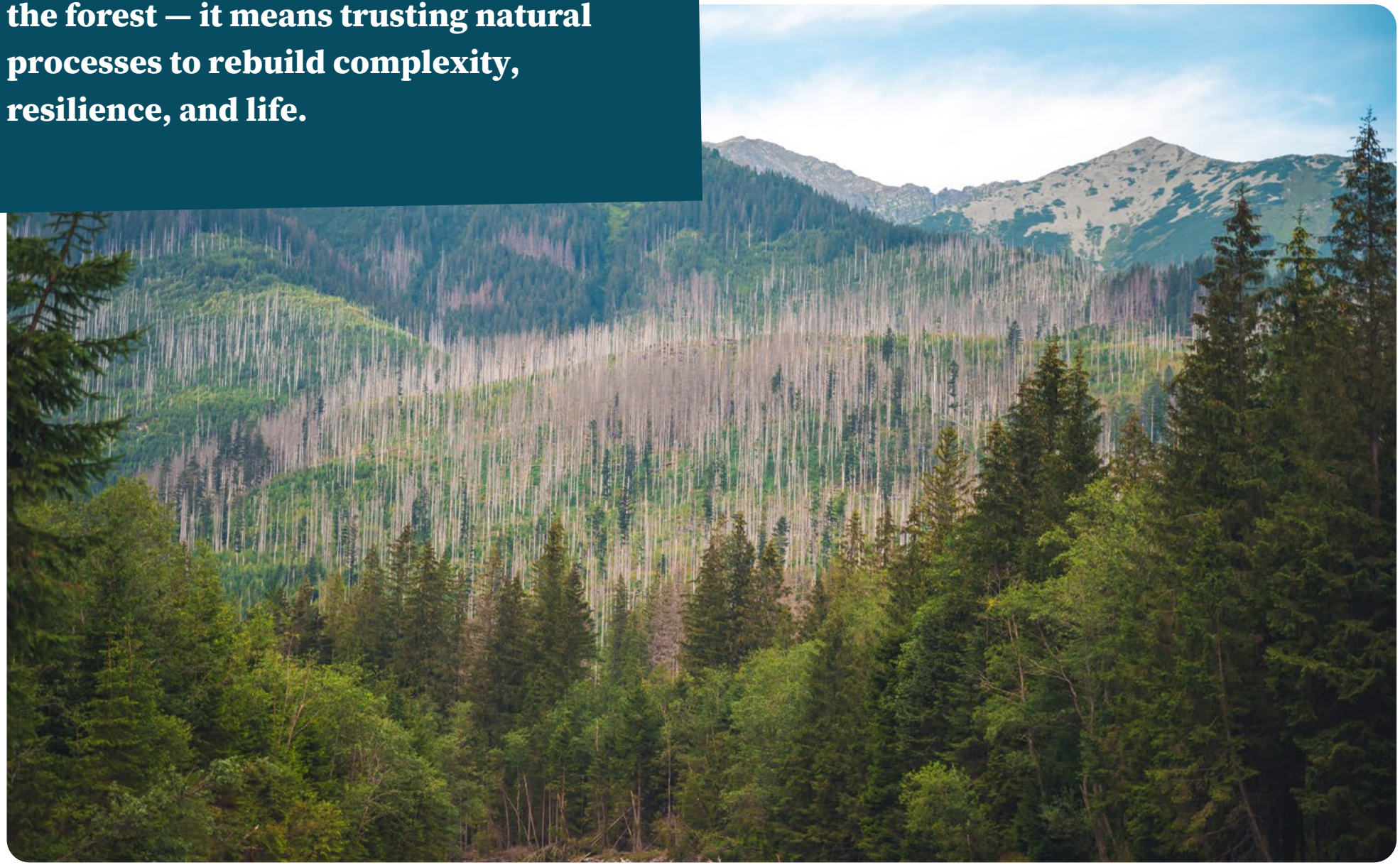
By damming streams and flooding meadows, beavers create wetlands that retain water, reduce erosion, and support amphibians, fish, birds, and invertebrates. These ponds also improve groundwater recharge and help buffer the effects of drought. Beaver activity, combined with forest disturbances uphill, links aquatic and terrestrial ecosystems and enhances overall landscape resilience.



The combined effects of bark beetles, fire, and beaver activity illustrate how natural processes contribute to rewilding.

Disturbances create spatial and temporal heterogeneity — a key factor for biodiversity and ecosystem stability. Allowing these processes to operate, especially in protected areas, leads to forests that are better adapted to climate variability. The High Tatras are undergoing transformation: from uniform spruce stands to a dynamic, self-regulating ecosystem shaped by natural forces.

Rewilding does not mean abandoning the forest — it means trusting natural processes to rebuild complexity, resilience, and life.



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