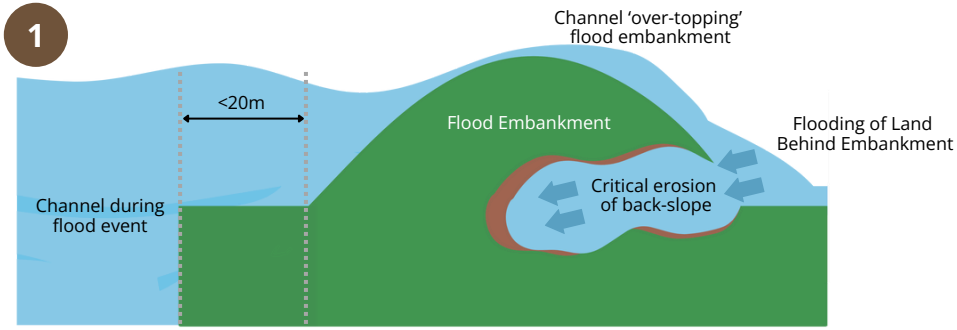
Beaver Burrowing and Flood Embankments

SCOTTISH WILD BEAVER GROUP

#ClimateNotCastor

1



Flood embankments <20m from the water's edge are most at risk of collapse due to water rising over the bank and quickly eroding its back-slope, known as 'over-topping'. **Of 228 breaches between 1990 to 1998 in the Tay catchment, 97% were due to 'over-topping'.**

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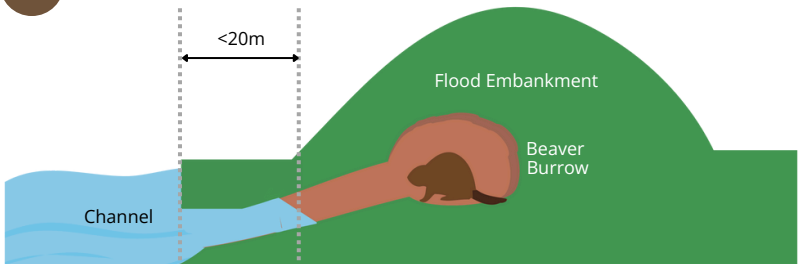

'Weakening' originating from wildlife burrows, such as those created by beavers, are a minor cause of embankment collapse. **A beaver burrow on its own is also unlikely to be large enough to destabilise an embankment causing it to collapse.**

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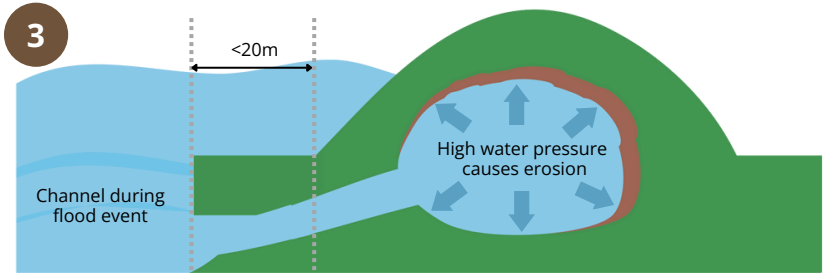

During flood events, beavers vacate as water levels rise. The high water pressure within the flooded burrow causes erosion.

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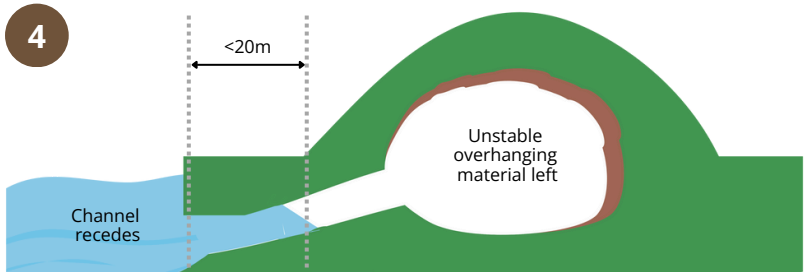

When the water level recedes the vacated beaver burrow is enlarged, 'weakening' the embankment leaving overhanging bank material.

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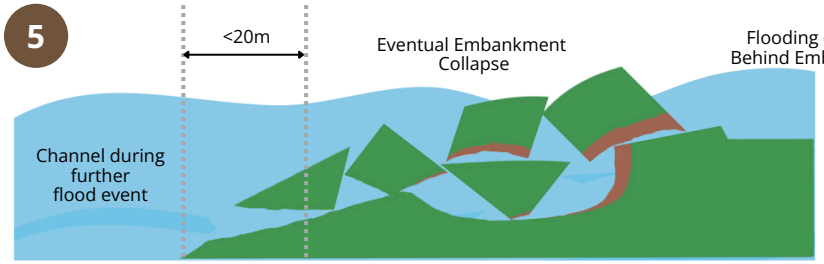

The overhanging bank material continues to be eroded during repeated flood events, **which are becoming increasingly common due to climate change**, and the ever growing burden of overhanging material eventually leads to the collapse of the embankment.

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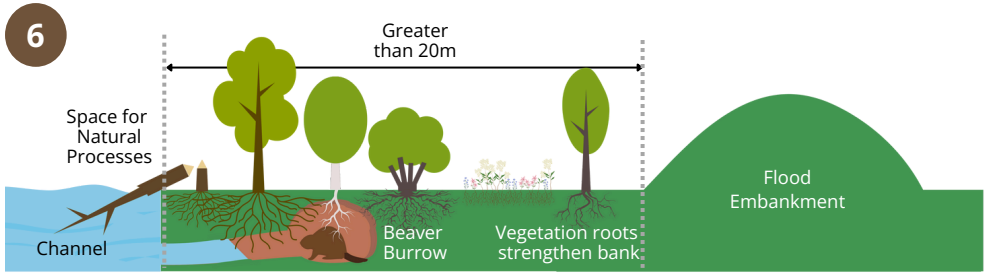

The only viable long-term solution is for the Scottish Government to fund/incentivise practical setting back of embankments, creating space for wildlife, natural processes, and the establishment or regeneration of riparian buffer zones. This will prevent the collapse of flood embankments from 'over-topping' or 'weakening' and provide space for natural flood management and other benefits.

Sources: 'Flood-induced embankment failures on the River Tay: implications of climatically induced hydrological change in Scotland' Gilvear, D.J. and Black, A.R. (1999), 'Mitigation options for reducing beaver burrowing impacts on agricultural land in the River Isla Catchment, Scotland', June 2022, commissioned by NatureScot, produced by the River Restoration Centre.