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CURRENT STATUS AND FUTURE PERSPECTIVES FOR PEATLAND EXTRACTION SITE RECULTIVATION IN LATVIA

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Introduction

Peatlands cover approximately 10% (640 000 ha) of Latvia's territory, of which ~51 000 ha are officially classified as degraded. Using combined published and unpublished project data together with literature sources and updated licence records, two restoration scenarios were modelled: (1) a baseline, licence-expiry scenario, where extraction continues until existing permits end, and (2) an accelerated "immediate-stop-peat-mining" scenario, achieving full restoration by 2050.

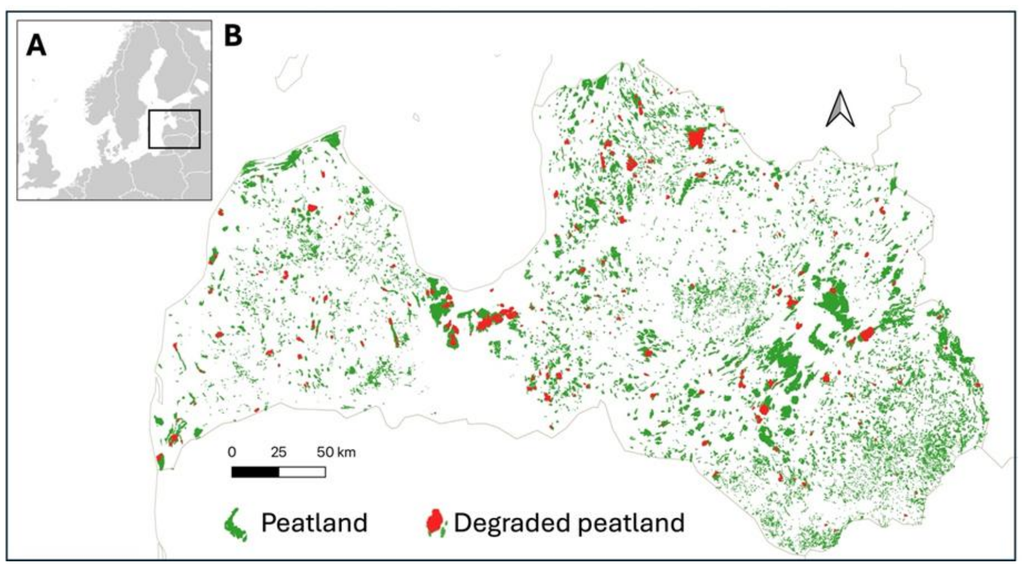

Figure 1. Location of Latvia in Northeastern Europe (A) (LVGMC PROJECT reference), and distribution of all peatlands and degraded peatlands in Latvia (B) according to the LIFE Restore data (LIFE Restore reference).

Materials and Methods

Study area - Latvia (between 55 and 58˚ N and 20 – 28˚ E) is located in the boreo-nemoral vegetation zone of northern Europe (Fig.1). Territory encompasses both oceanic-continental and lowland-upland settings. Climate is predominantly humid continental, characterised by warm (occasionally hot) summers and cold (occasionally severe) winters. For the 1991–2020 climatic normal, the average annual air temperature in Latvia is +6.8 ˚C. The average annual precipitation amounts to 679 mm, with peak rainfall during the summer and autumn months.

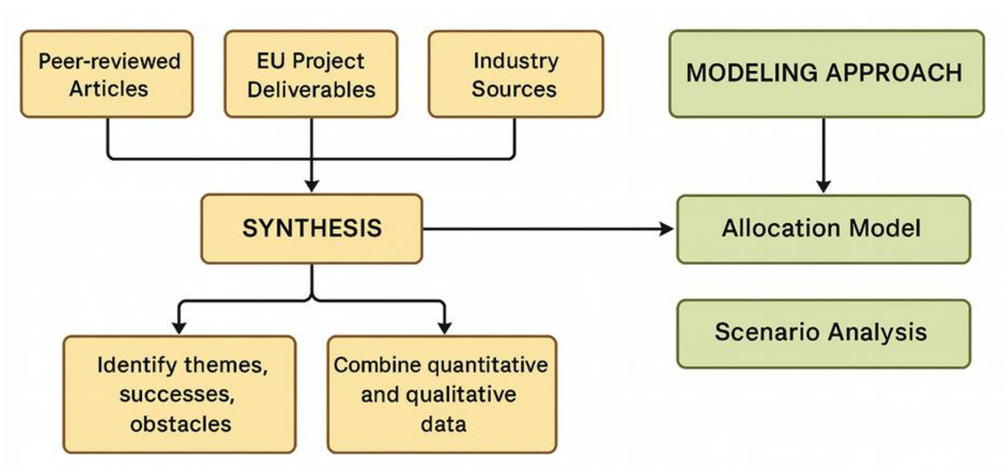

Figure 2. Principal flowchart of the materials and methods applied in this study. The schematic illustrates two main components: data sources and synthesis (brown section) and the modelling approach (green section).

This review is based on a wide range of information sources, supplement material) that provide a comprehensive overview of peat recultivation in Latvia. The principal methodological framework is illustrated in Figure 2.

Results and Discussions

Historically, Latvia has extracted both milled peat and block peat. Uses have included energy (fuel), animal bedding, composts, insulation materials, substrates, chemical processing, and medicine. In the 1970s, peat extraction reached its peak with operations in more than 100 deposits and annual production around 4.3 million tonnes (at 40% moisture). By the late 1980s extraction levels declined to about 2.5 million tonnes. In the 1990s, production dropped sharply, reaching only 209 000 tonnes by 1998. More recently, between 2019 and 2022, annual extraction has stabilised between 1.17 – 1.47 million tonnes, except for 2025 which was extremely wet year and less than 10% of average volumes were extracted. As of 2024 and 2025, there were 130 valid peat mining licences (Fig.3). According to the expiry years or termination of active peat mining, these licences are unevenly distributed in time: 2018-2031 = 25 licenses (17%), 2032-2045 = 59 (48%), 2046-2058 = 9 (4%), 2059-2072 = 12 (6%), 2073-2085 = 17 (10%), and 2086-2099 = 6 (2%). The mean termination year is 2046 (+/-19 years standard deviation), with a median of 2038. While some licenses will end soon, other extend well into the second half of the century.

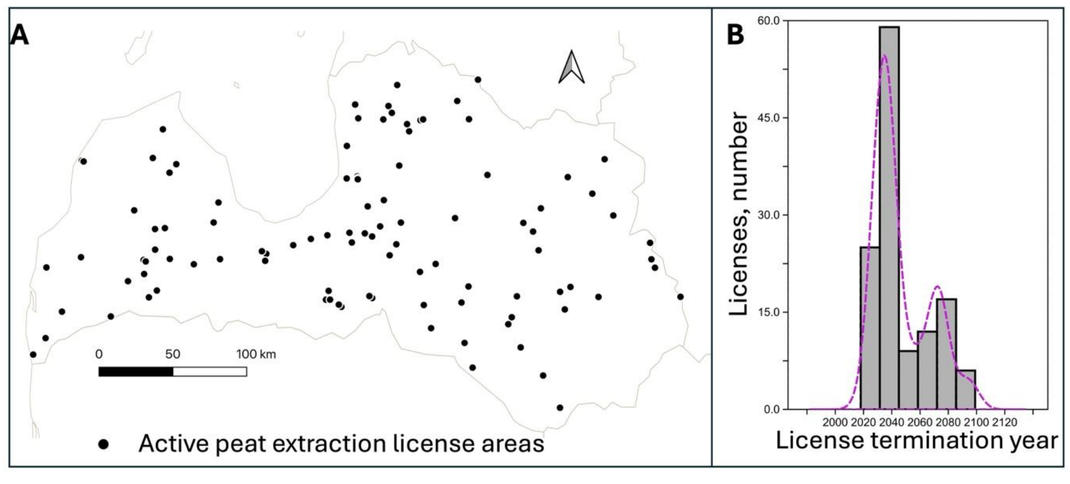

Figure 3. Distribution of active peat mining license areas (black dots) in Latvia at 2025 (A) and the number of licenses (grey bars; dashed line - Kernel density) and their termination year (B).

Conclusion

Two recultivation scenarios modelled in this study illustrate the contrasting implications of policy and management choices. Under the licence-expiry baseline scenario, gradual restoration following the termination of existing extraction permits could achieve full national recultivation by the end of the century, requiring an average restoration rate of approximately 1550 ha per year.

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