

Soil respiration beneath northern highbush blueberry and indigenous plants at Burns Bog

Talia Parfeniuk, Rue Badanic, and Michael Bomford, Department of Sustainable Agriculture, Kwantlen Polytechnic University



Introduction

- Peat soils are the largest terrestrial carbon sink
- Northern highbush blueberry (*Vaccinium corymbosum* L.) is invasive in local peatlands
 - Larger and more competitive than indigenous berries
 - May contribute to peat drying and decomposition
- Peat soils release carbon dioxide through soil respiration
 - Respiration by plant roots
 - Microbial decomposition of peat

Methods

- Soil respiration measured in July, September, and October, 2025
- Two sites in Burns Bog (Fig. 1)
 1. Disturbed – mined for peat ($n = 12$)
 2. Undisturbed – never mined ($n = 10$)
- Samples collected beneath
 - Northern highbush blueberry (invaded)
 - Native vegetation (uninvaded).

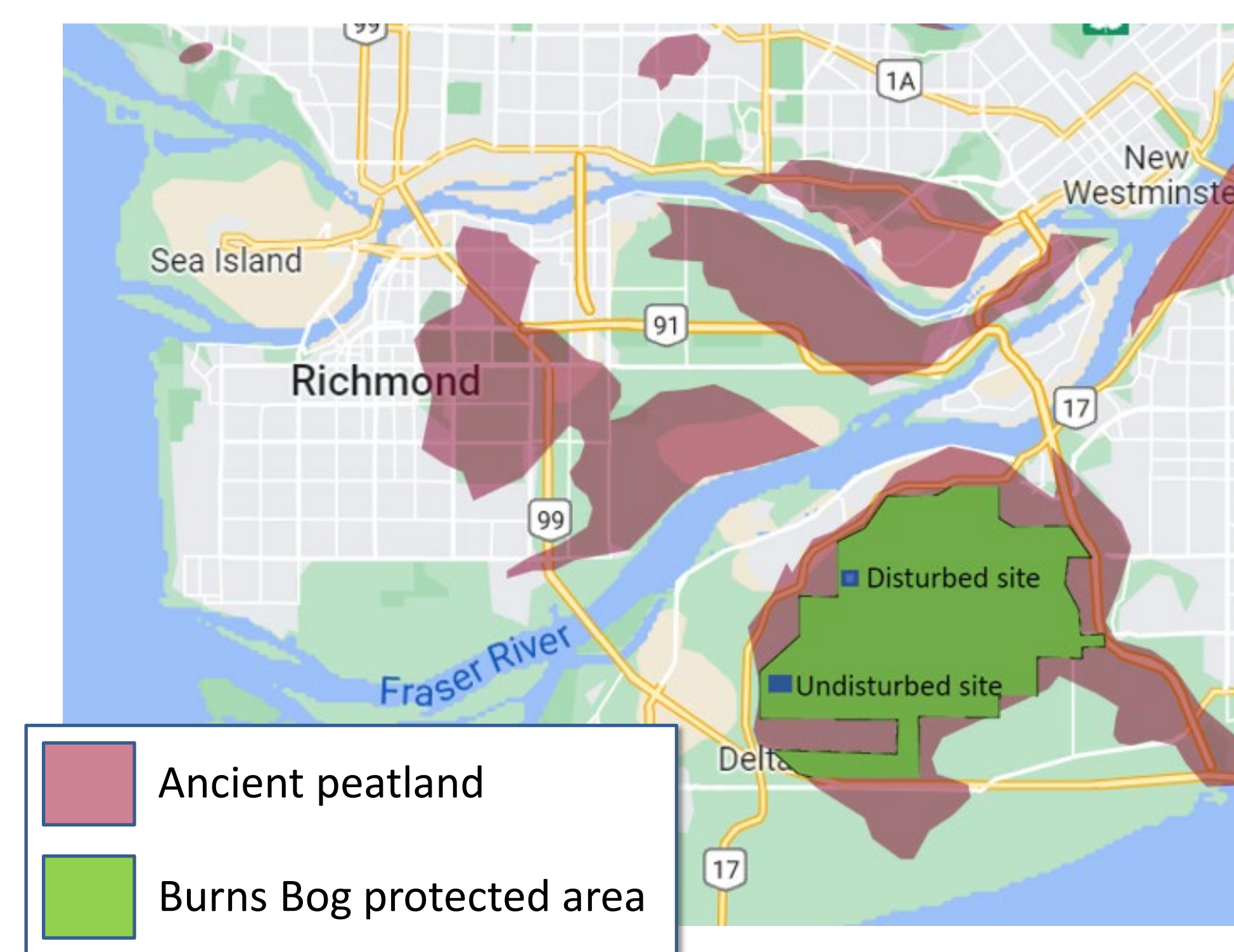


Figure 1. Location of disturbed and undisturbed study sites (blue rectangles) near the western edge of the Burns Bog protected area. Burns Bog is one of several large bogs that formed over alluvial soils near the mouth of the Fraser River.

An invasive blueberry does not promote soil respiration in Burns Bog



Results

- Soil respiration was low throughout the study ($4.1 \pm 0.3 \mu\text{mol CO}_2 \text{ m}^{-2} \text{ s}^{-1}$)
- Higher at undisturbed site in September only (Fig. 2a)
- No effect of northern highbush blueberry detected at either location (Fig. 2b)

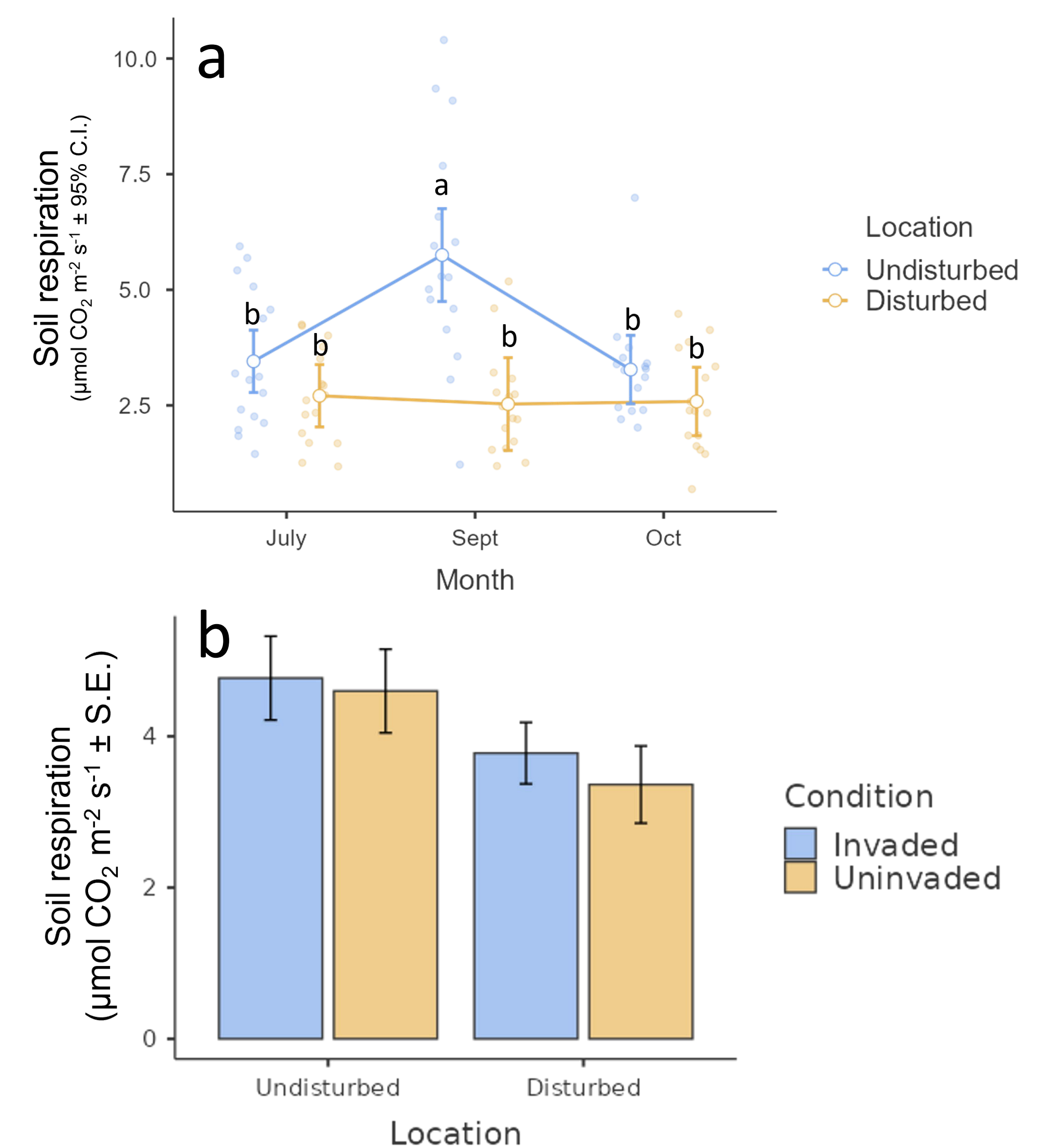


Figure 2. Soil respiration in Burns Bog by month and location (a); and by location and condition (b). The disturbed location was previously mined for peat ($n = 12$); the undisturbed location was not ($n = 10$). Invaded and uninvaded samples were taken below northern highbush blueberry plants and native vegetation, respectively.

Conclusion

- We found no evidence that northern highbush blueberry is promoting soil respiration in Burns Bog.

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