

First insight into the spatial pattern of macroplastic storage in a mountain river

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Mountain River



Sharing is
encouraged



Photo by M. Liro

Mountain River



Sharing is
encouraged



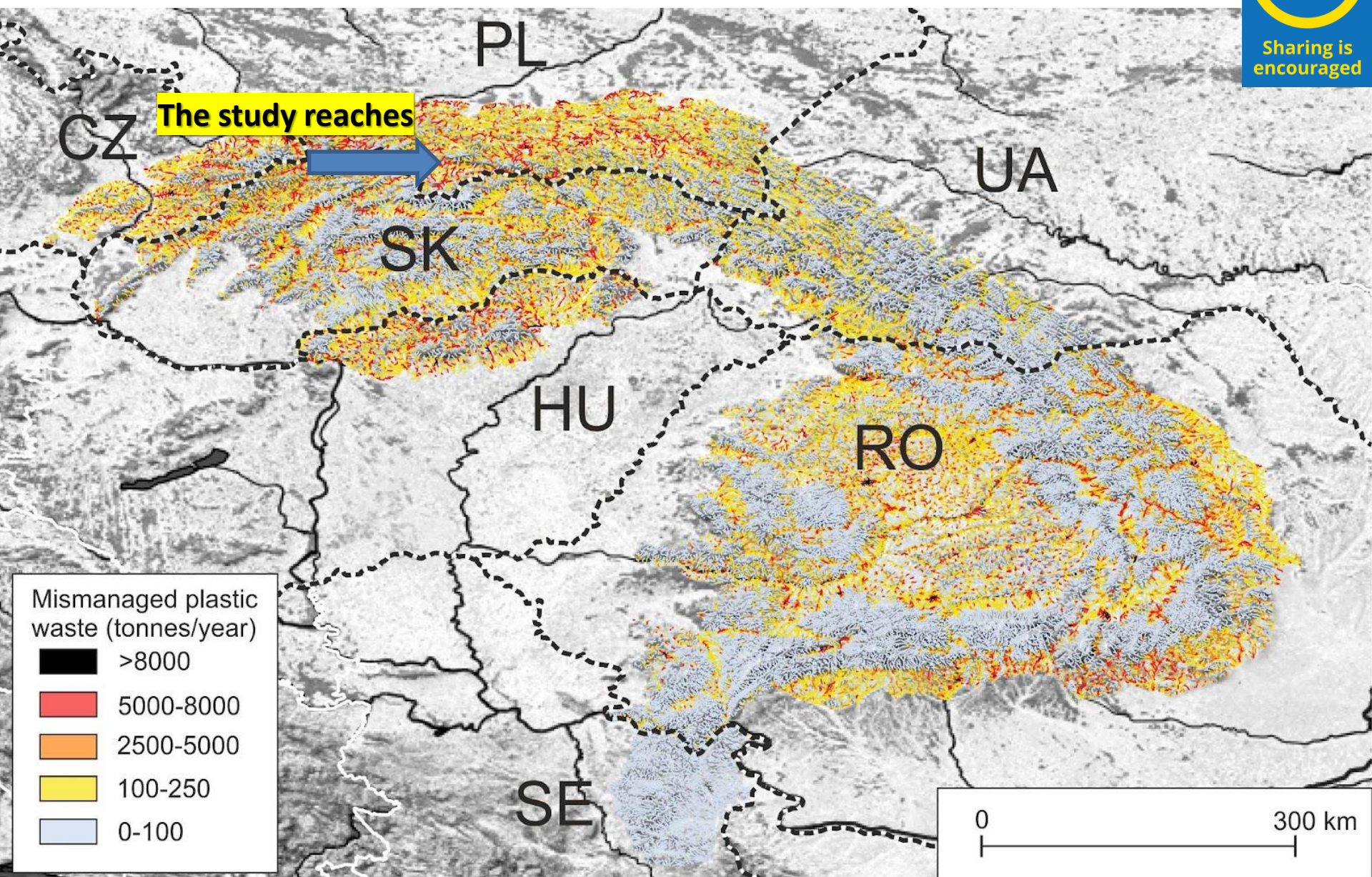
Photo by M. Liro

Riparian dumping site



...waiting for a flood...

Photo by M. Liro



Source: Liro et al., in preparation

Macroplastic storage in a mountain river



Photo by M. Liro

Motivations

- Amounts of macroplastic debris stored on different elements of mountain rivers are unknown

Which element of a mountain river is most suitable for river cleaning ?



Photo by M. Liro

Methods

- Hand-collection, to determine (items numer/m², gramm/m²) on:

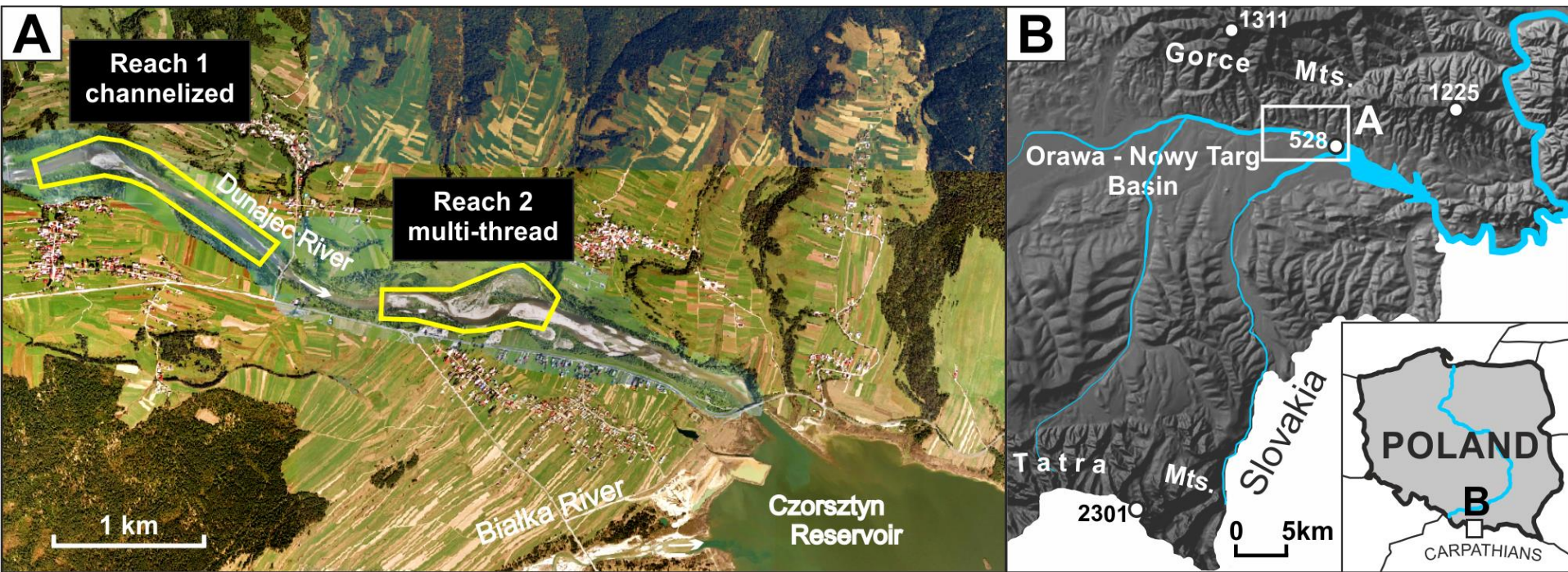


Channelized

Multi-thread

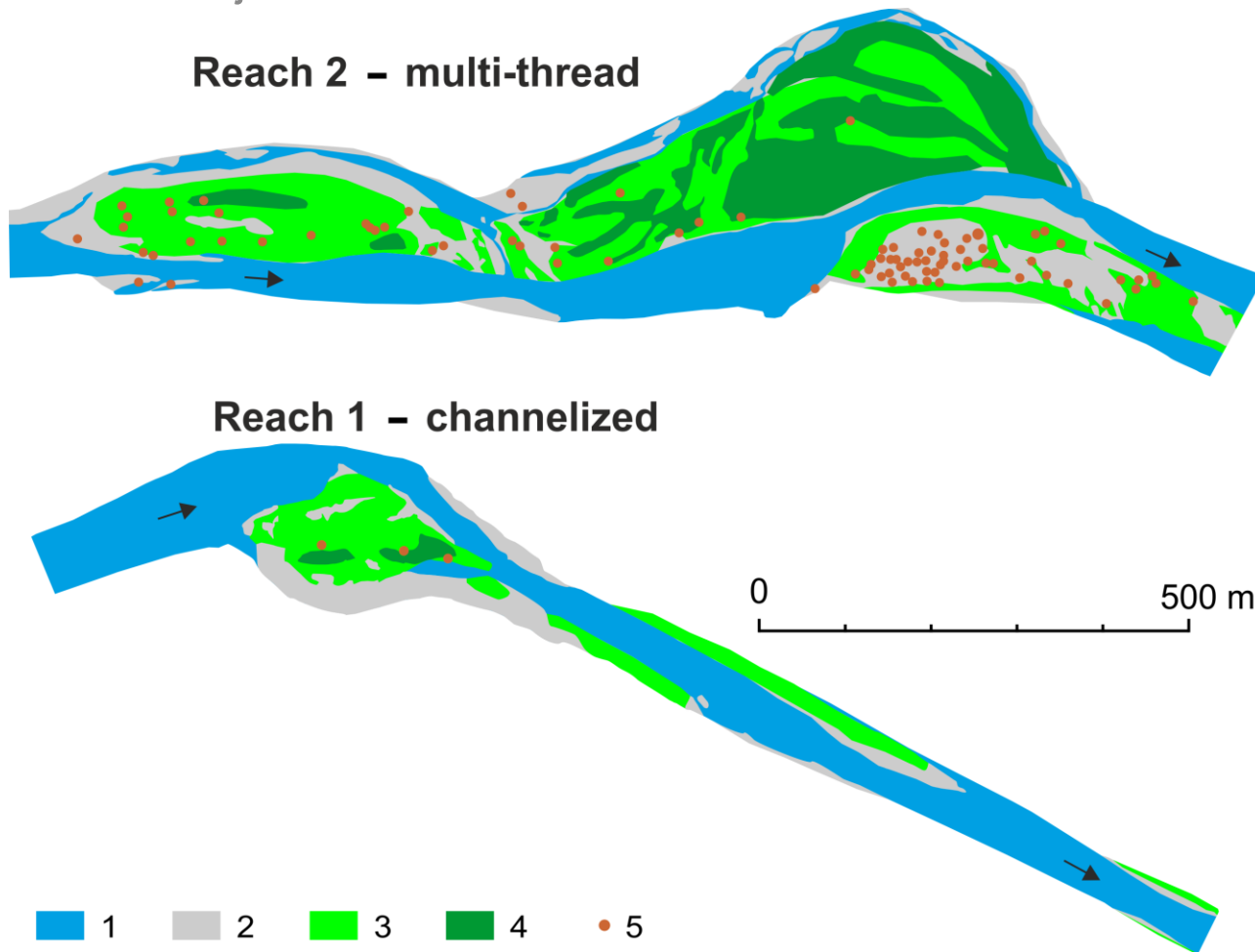
Study area

- The gravel-bed Dunajec River S Poland



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Hypothesis



Photo by M. Liro

- Unmanaged, multi-thread reach will retain more macroplastic debris than the channelized one.

- Because it has more diverse hydromorphology with the higher proportion of elements having high surface roughness like wood jams and wooden islands.

Results

MACROPLASTIC AMOUNT:



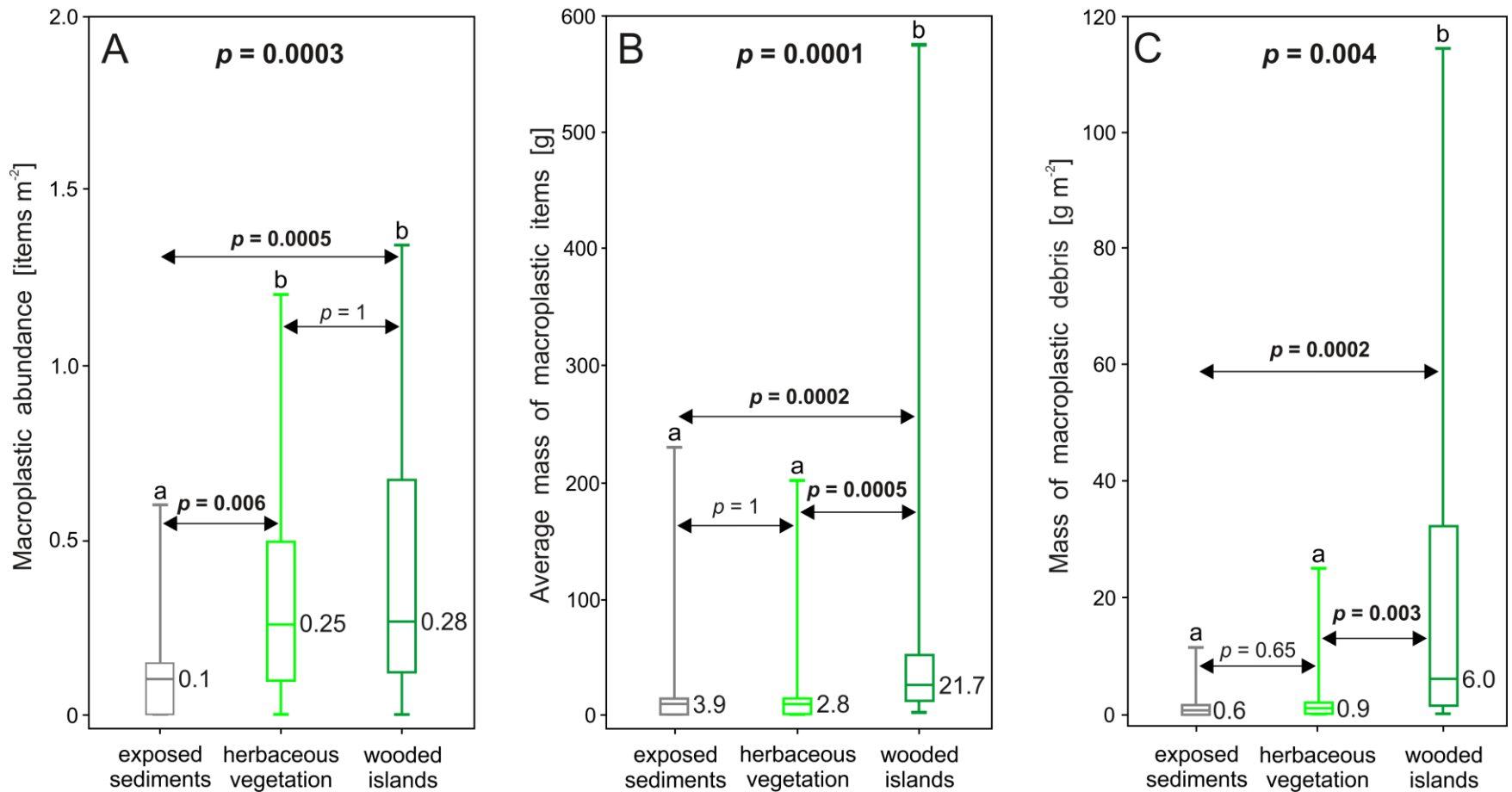
Channelized

Multi-thread

Results

MACROPLASTIC AMOUNT:

Reach 2 – multi-thread

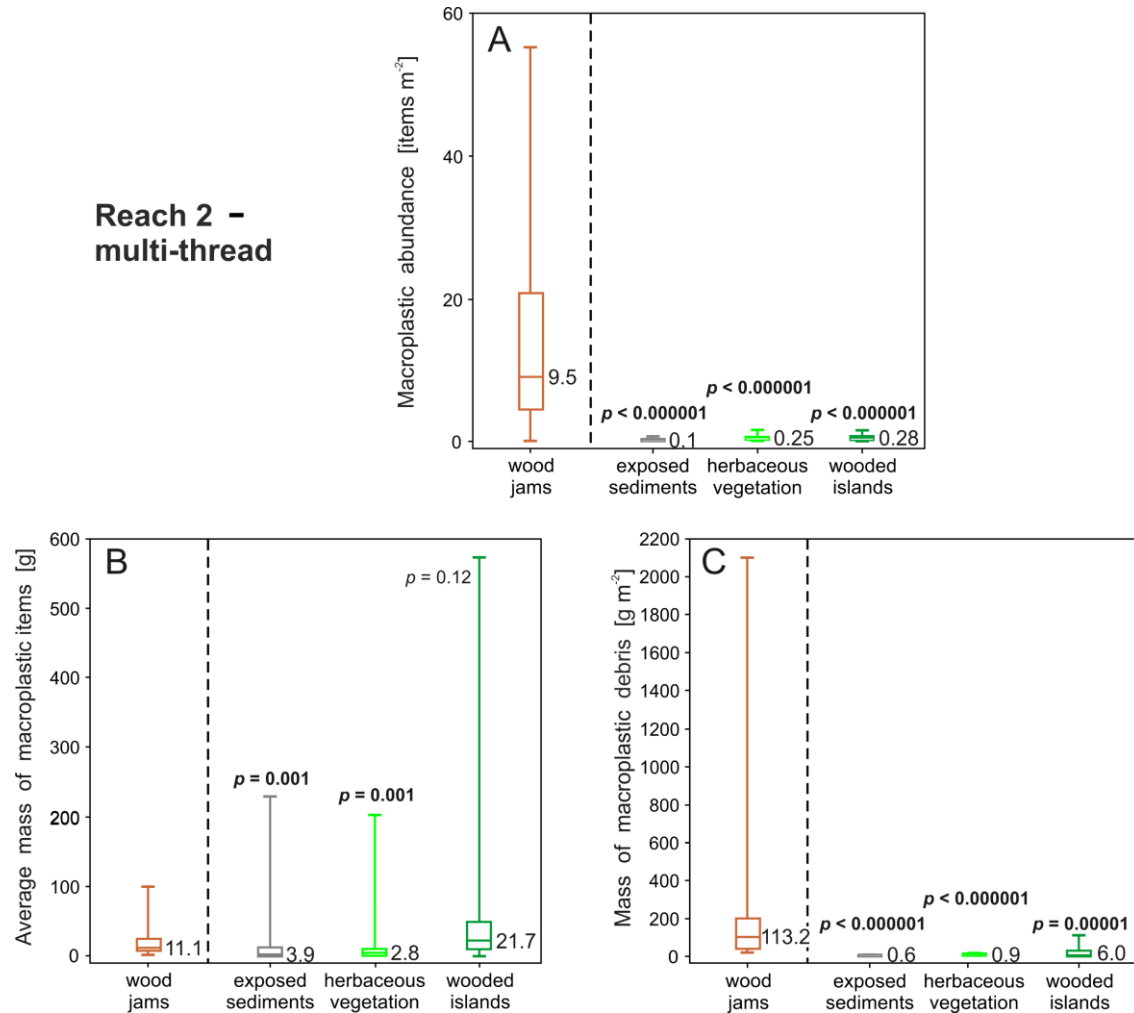


Source: Liro et al., 2022. STOTEN, under review

Results

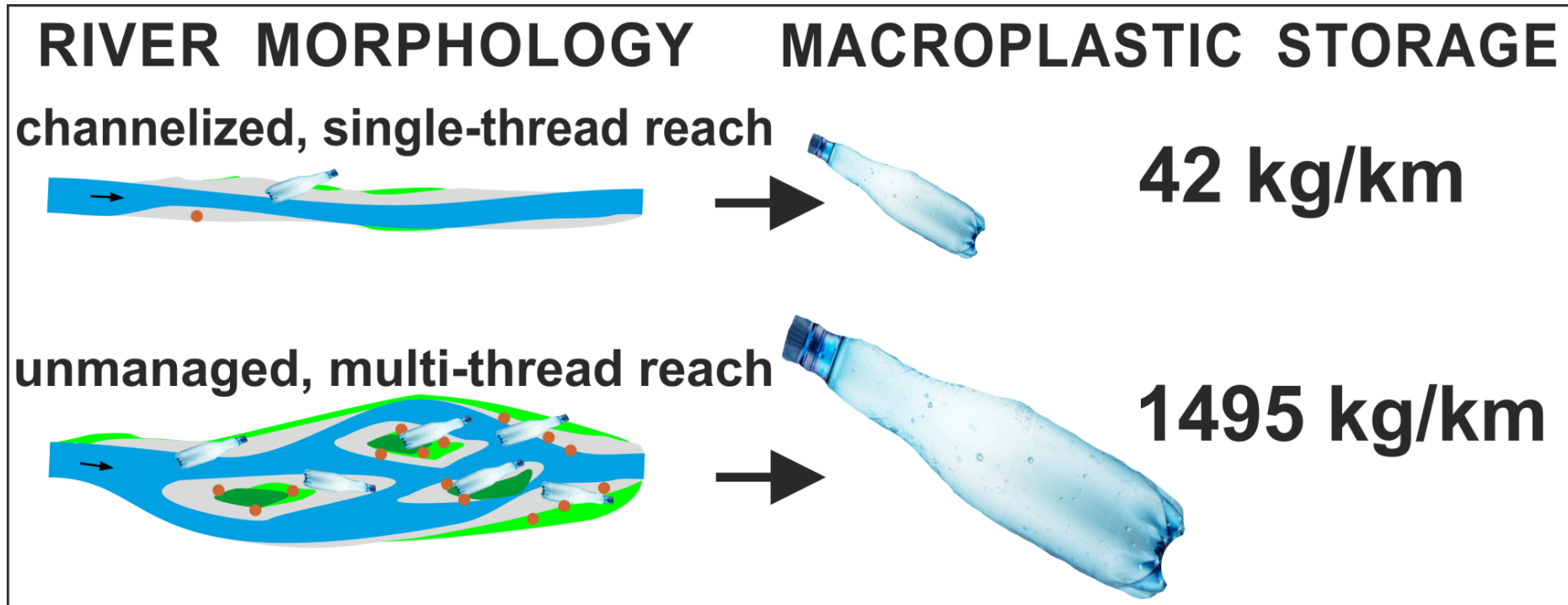
MACROPLASTIC AMOUNT:

Reach 2 -
multi-thread



Results

- Unmanaged, multi-thread reach stored 36 times more macroplastic debris than channelized one (its area was only 3.5 larger)



Practical implication

- River cleaning actions should be focused on the multi-thread reaches of mountain rivers (in the local scale, especially on wood jams and wooden islands).

- Multi-thread reaches
- Wood jams
- Wooden islands





Thank you for your attention



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