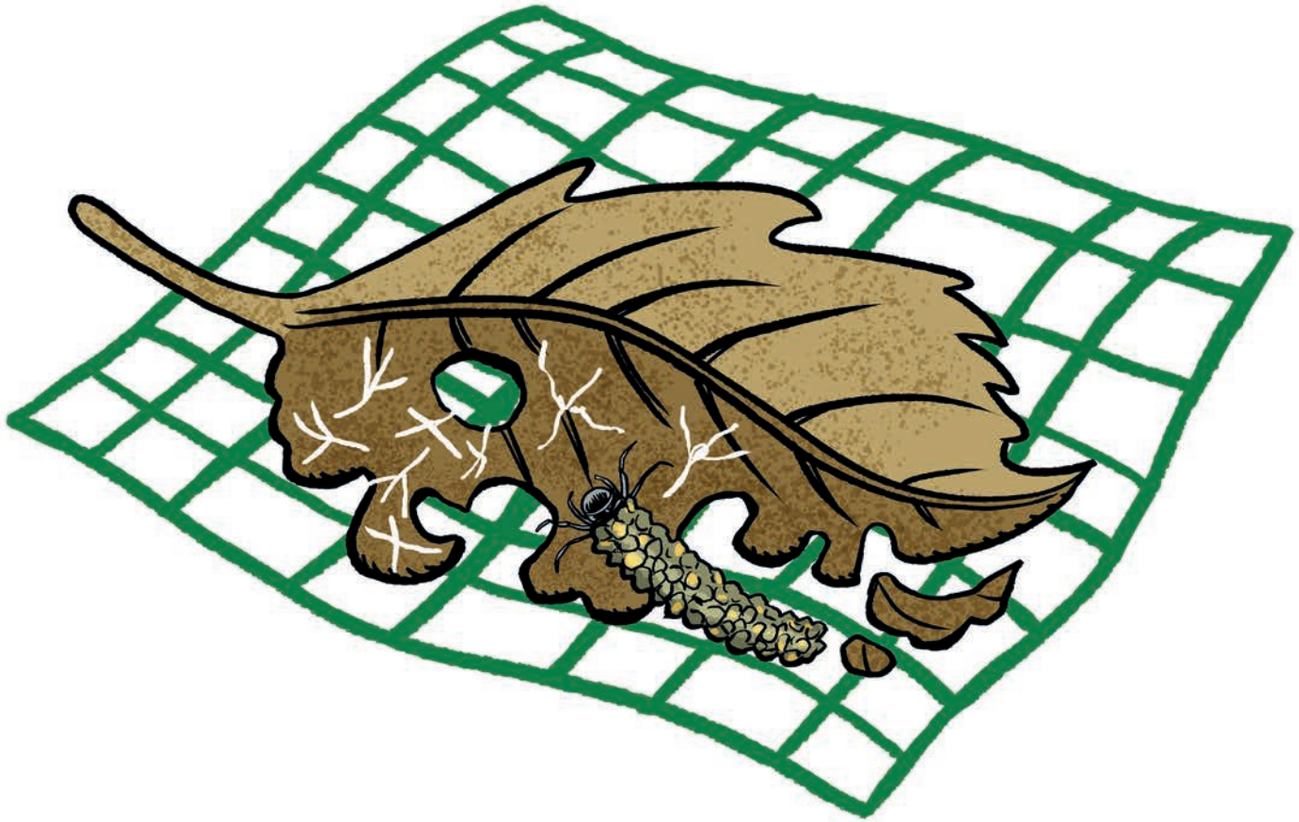
LIVING RIVER

GRASPING THE STREAM WITH A LITTER BAG

By Cristina Canhoto & Ana Lúcia Gonçalves

Illustrations by André Caetano



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LIVINGRIVER
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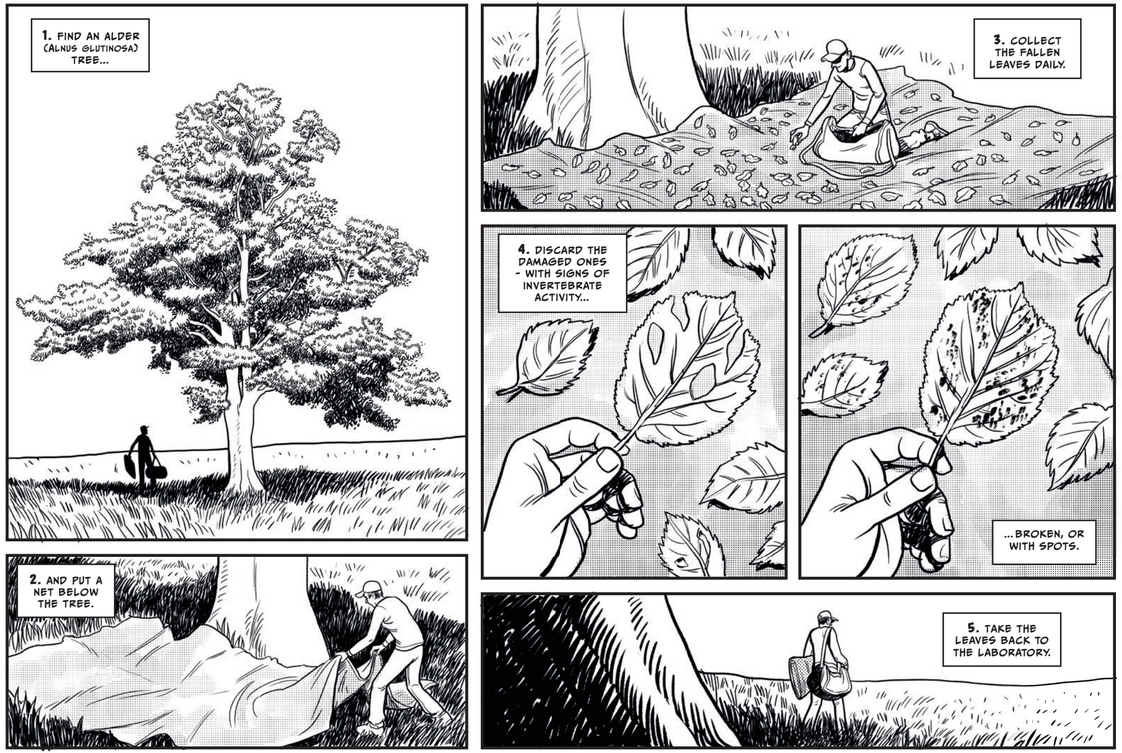
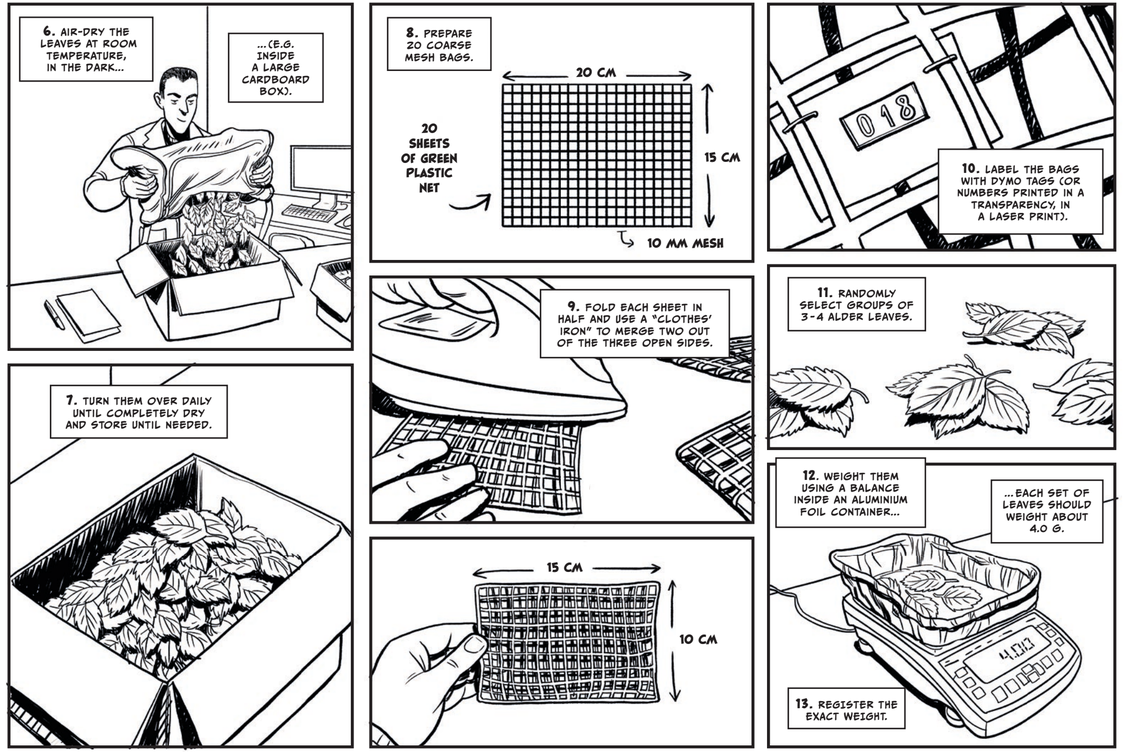
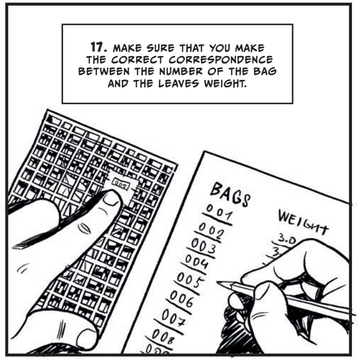
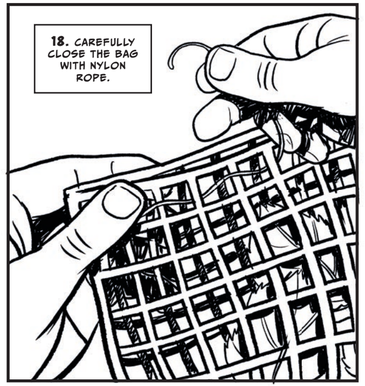
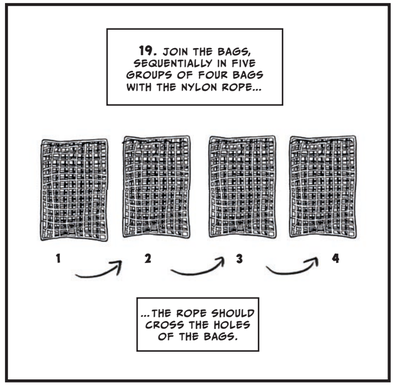
FREE FRESHWATER ECOLOGY LAB

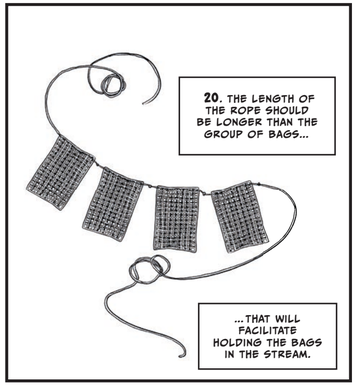


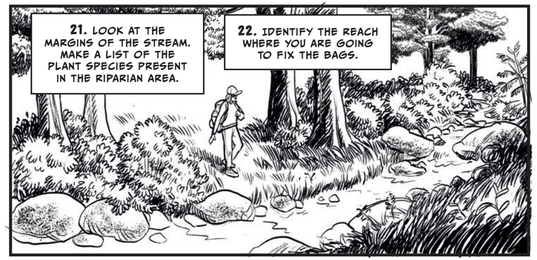


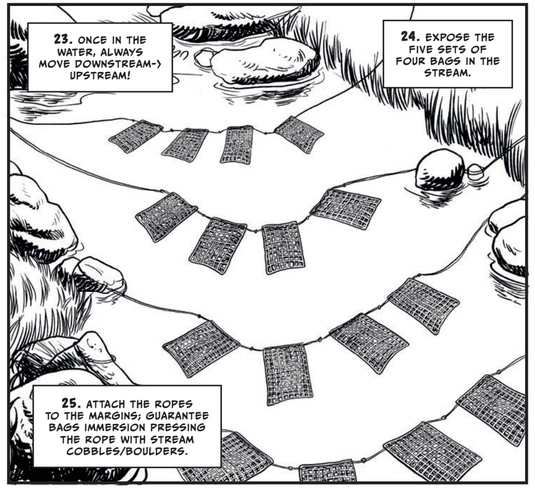


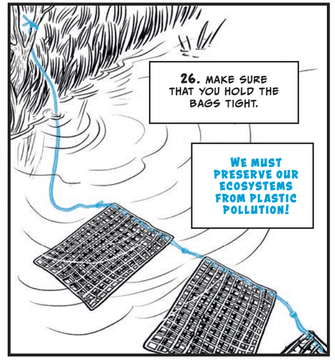


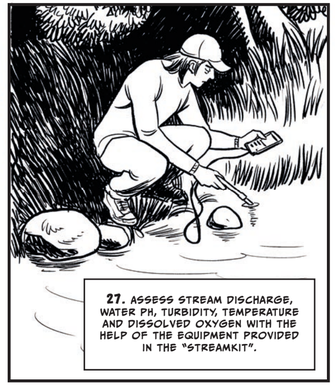












31. Once in lab, gently rinse the leaf material from each sample with distilled water into a 500 µm mesh sieve to retain invertebrates attached to the leaves.

32. Collect and preserve the invertebrates in a box filled with abrated stream water, substratum and some leaves.

Try to identify them and return them to the stream of origin.

33. Manipulate the leaves carefully! Aquatic fungi made them softer and more palatable to the invertebrates.

34. Oven-dry the remaining leaves of each bag for 72 h, at 60 °C, in pre-weighed aluminium foil containers, and weight.

35. Determine the decomposition rate (k) using the provided Excel file and sense your stream health with the help of the "score table"*.

*From Gessner & Chauvet, 2002

Also ...

36. We can even assess the relative importance of invertebrates and microorganisms inthe decomposition process using bags of different mesh sizes...

37. We can evaluate the functional impairment of degraded areas in comparison with...

... reference sites.

38. The ratio *k* alder / *k* oak can give insights on the functional impairment of the stream.

So much information provided by leaf litter mesh bags and decomposition rates...

...what's the score of your stream?

Additional Information

Chauvet, E., **et al.**, 2016. *Litter decomposition as an indicator of stream ecosystem functioning at local-to-continental scales: insights from the European RivFunction project.* Advances in Ecological Research, 55: 99-182.

Gessner, M.O. & Chauvet, E., 2002. *A case for using litter breakdown to assess functional stream integrity.* Ecological Applications, 12: 498-510.

Graça, M.A.S., Bärlocher, F. & Gessner, M.O. (eds) 2005. *Methods to Study Litter Decomposition. A Practical Guide. – Springer, the Netherlands*, pp. 329.

Hauer, F. R. & Lamberti, G. (eds) 2011. *Methods in stream ecology. – Academic Press, USA*, pp. 877.

Tachet, H., Richoux, P., Bournaud, M. & Usseglio-Polatera, F., 2000. *Invertébrés d'eau douce. Systématique, biologie, écologie.* – CNRS Editions, France, pp. 590.

Young, R.G., Mattjaei, C.D. & Towsend, C.R. , 2008 *Organic matter breakdown and ecosystem metabolism: functional indicators for assessing river ecosystem health.* Journal of the North American Benthological Society, 27: 605-625.