CARBON STORAGE IN MOUNTAIN RIVERS

BACKGROUND
Published research emphasizes rapid downstream export of terrestrial carbon from headwaters, but few studies have investigated the volume of carbon storage along stream-riparian corridors.

RESEARCH
Research Activity: Recent studies are quantifying the spatial distribution of carbon pools along different valley types of headwater streams in Rocky Mountain National Park, Colorado. Findings show that low-gradient, broad valley bottoms with old-growth forest or active beaver colonies store the majority of above- and below-ground carbon. Estimates of riverine carbon storage represent a previously undocumented but important carbon sink.

Management Implications: These findings highlight the importance of headwater streams and associated riparian areas in watershed-scale carbon retention. Management to reduce the effects of climate warming on headwater river corridors is important to maintaining ecosystem services such as carbon storage in mountainous watersheds.

KEY FINDINGS
- Low-gradient, broad valley bottoms with old-growth forest or active beaver colonies store the great majority of above- and below-ground carbon.
- Estimates of riverine carbon storage represent a previously undocumented but important carbon sink.
- These results indicate that: 1) not all mountainous rivers rapidly export carbon; 2) not all valley segments are equally important in carbon storage; and 3) historical changes in riverine complexity have likely reduced carbon storage.

Further Reading
  https://www.fs.usda.gov/treesearch/pubs/42782
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Keywords: headwater stream, stream-riparian corridors, carbon pools

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