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Carbon stocks of an old-growth forest and an anthropogenic peatland in southern Chile

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The distribution of carbon in the different ecosystem stocks may change with direct human perturbation or climate change. We present a detailed description of the carbon stocks of an old-growth forest and an anthropogenic peatland (i.e., created by flooding, as a consequence of forest fires or logging). The study area was located in a private reserve in the Chiloé Island, southern Chile (41° 52' S, 73° 40' W). Sampling was done on plots separated 60 m from each other, in areas of approximately 30 ha for each ecosystem type. Total C was 1523 $\pm$ 117 Mg ha^{-1} in the forest and 130 $\pm$ 13.8 Mg ha^{-1} in the peatland, with 69.7% and 91.7% of this found belowground, respectively. In the forest, the necromass stock composed by logs and snags was high (183 Mg C ha^{-1}), compared with the live-tree stock (264 Mg C ha^{-1}) and with the C stored in the understory vegetation (14 Mg C ha^{-1}). In the peatland, most of the C was stored in the most decomposed layer of peat, deeper in the ground. Because the anthropogenic peatland is experiencing a secondary succession, there is great potential to sequester back the C lost due to the perturbation. However, in most of the area where these ecosystems are found, the moss is being harvested for horticultural purposes.