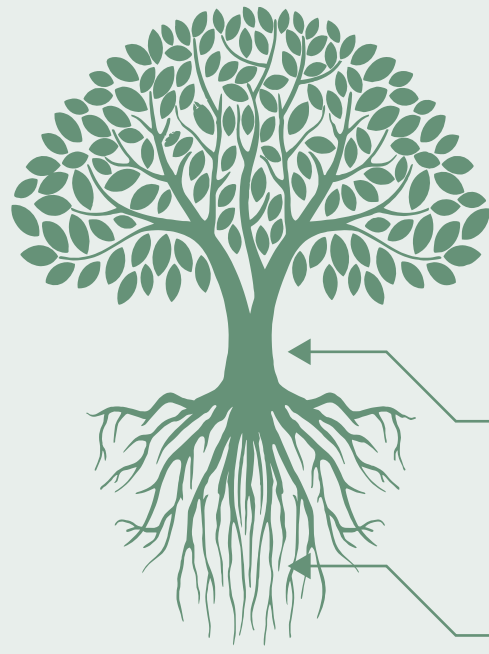


IN MEXICO, FOUR SPECIES PREDOMINATE:

Rhizophora mangle (red mangrove)
Laguncularia racemosa (white mangrove)
Avicennia germinans (black mangrove)
Conocarpus erectus (buttonwood mangrove)



ECOSYSTEM SERVICES

- 1 Protection against hurricanes, tsunamis, and storms; erosion control.
- 2 Carbon sequestration.
- 3 Refuge and feeding zone for fish, birds, mammals, and reptiles.
- 4 Water purification and filtration; nutrient cycling.

MANGROVE DEFORESTATION

Mangrove forests are threatened by human activities and are disappearing at an alarming rate.



MANGROVES LIVE IN INTERTIDAL ZONES

905,086 hectares mangrove coverage in Mexico (2020)

ha USD \$126,069 annual value per hectare

\$ USD \$28.4 BILLION annual value of services on a global level

SOURCES:
• CONABIO. (2021). Sistema de Monitoreo de Manglares de México. Extensión y distribución de manglares. <https://www.biodiversidad.gob.mx/monitoreo/smmm/extensionDist>
• Costanza, R., et al. (2014). Changes in the global value of ecosystem services. *Global Environmental Change*. Vol. 26: 152-158. doi:10.1016/j.gloenvcha.2014.04.002.
• Salem, M.E. y Mercer, D.E. (2012). The Economic Value of Mangroves: A Meta-Analysis. *Sustainability*. 4(3), 359-383. <https://doi.org/10.3390/su4030359>

FISH PRODUCERS

Mangrove forests provide refuge and food for several species during their initial and juvenile stages of life.

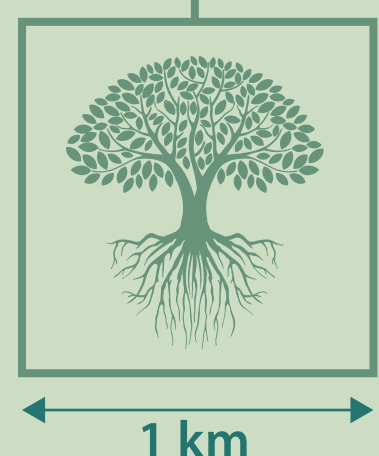
Studies in the Gulf of California reveal important contributions for regional fisheries.



FISHERIES AND BLUE CRAB
US\$25,000-\$50,000
Annual fishing ground productivity from 1 hectare of mangrove fringe.

67,000 juvenile Yellow snappers (*Lutjanus argentiventris*) exported from mangroves

🐟 = 1,000

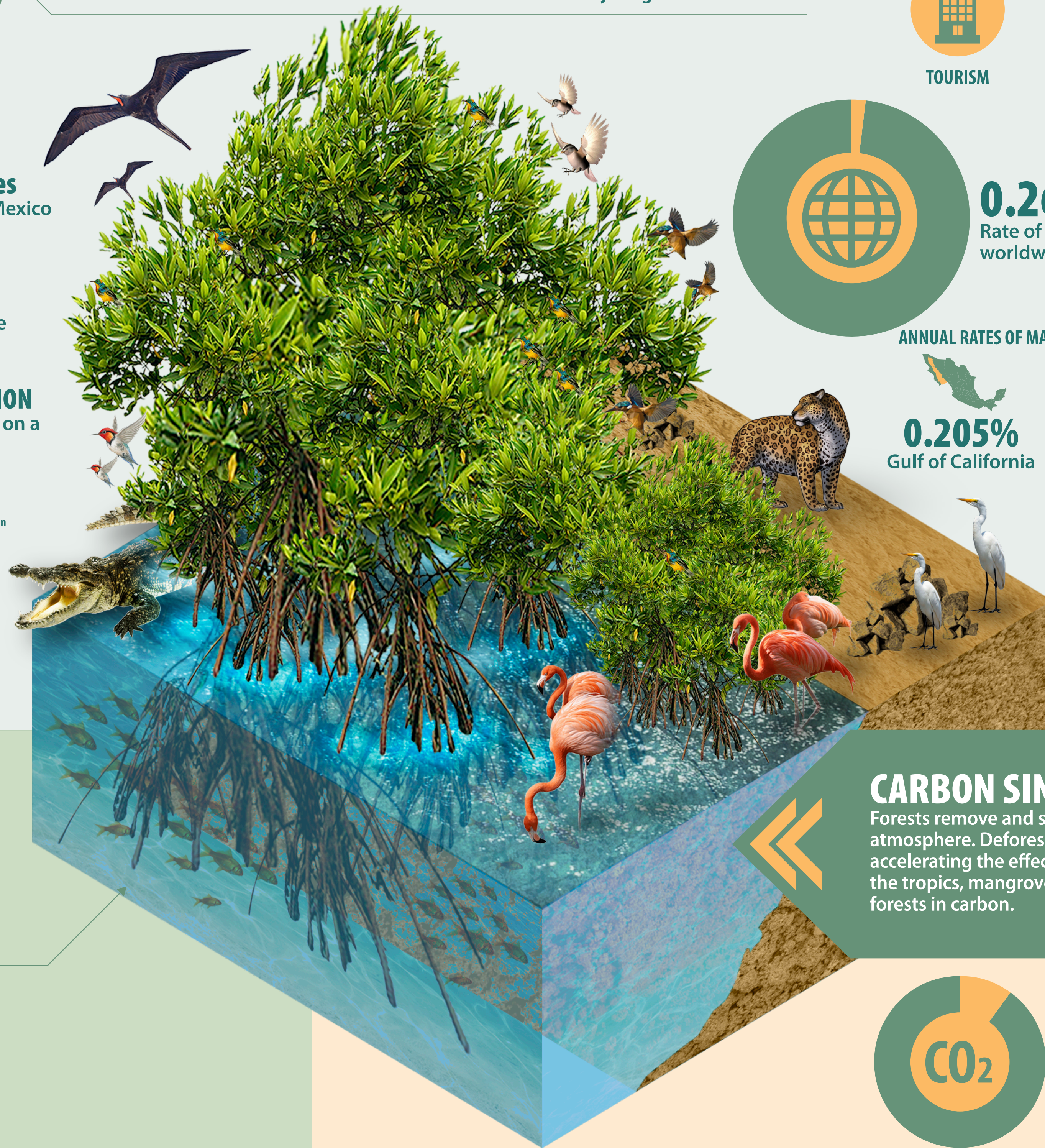


2,000 juveniles per km² of a coastal mangrove fringe

SOURCES: Aburto-Oropeza, O. et al. (2008). Mangroves in the Gulf of California increase fishery yields. *105* (30): 10456-10459. <https://doi.org/10.1073/pnas.0804601105>
Costa, M.T. et al. (2015). Los manglares son productores de pargos. *DataMares. Interactive Resource*. <http://dx.doi.org/10.13022/M3F30F>

PRESENTS

MANGROVES



0.26% - 0.66%
Rate of disappearance worldwide.

ANNUAL RATES OF MANGROVE LOSS IN MEXICO:

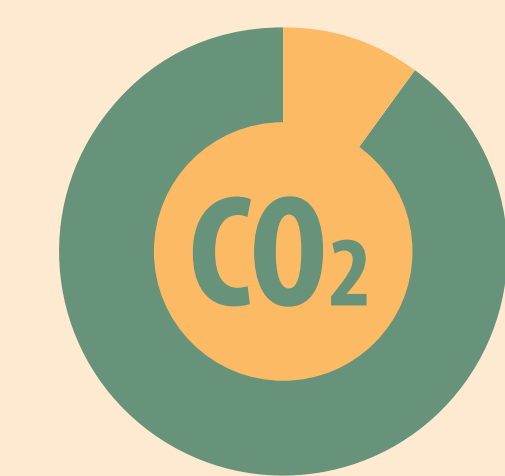
0.205%
Gulf of California

0.419%
Pacific coast

Source:
• Hamilton, S.E. y Casey, D. (2016). Creation of a high spatio-temporal resolution global database of continuous mangrove forest cover for the 21st century (CGMFC-21). *Global Ecology and Biogeography*. 25: 729-738.
• Kumagai, J.A., et al. (2020). Prioritizing mangrove conservation across Mexico to facilitate 2020 NDC ambition. *Ambio* 49: 1992-2002. <https://doi.org/10.1007/s13280-020-01334-8>

CARBON SINKS

Forests remove and store carbon from the atmosphere. Deforestation releases CO₂, accelerating the effects of climate change. In the tropics, mangroves are among the richest forests in carbon.

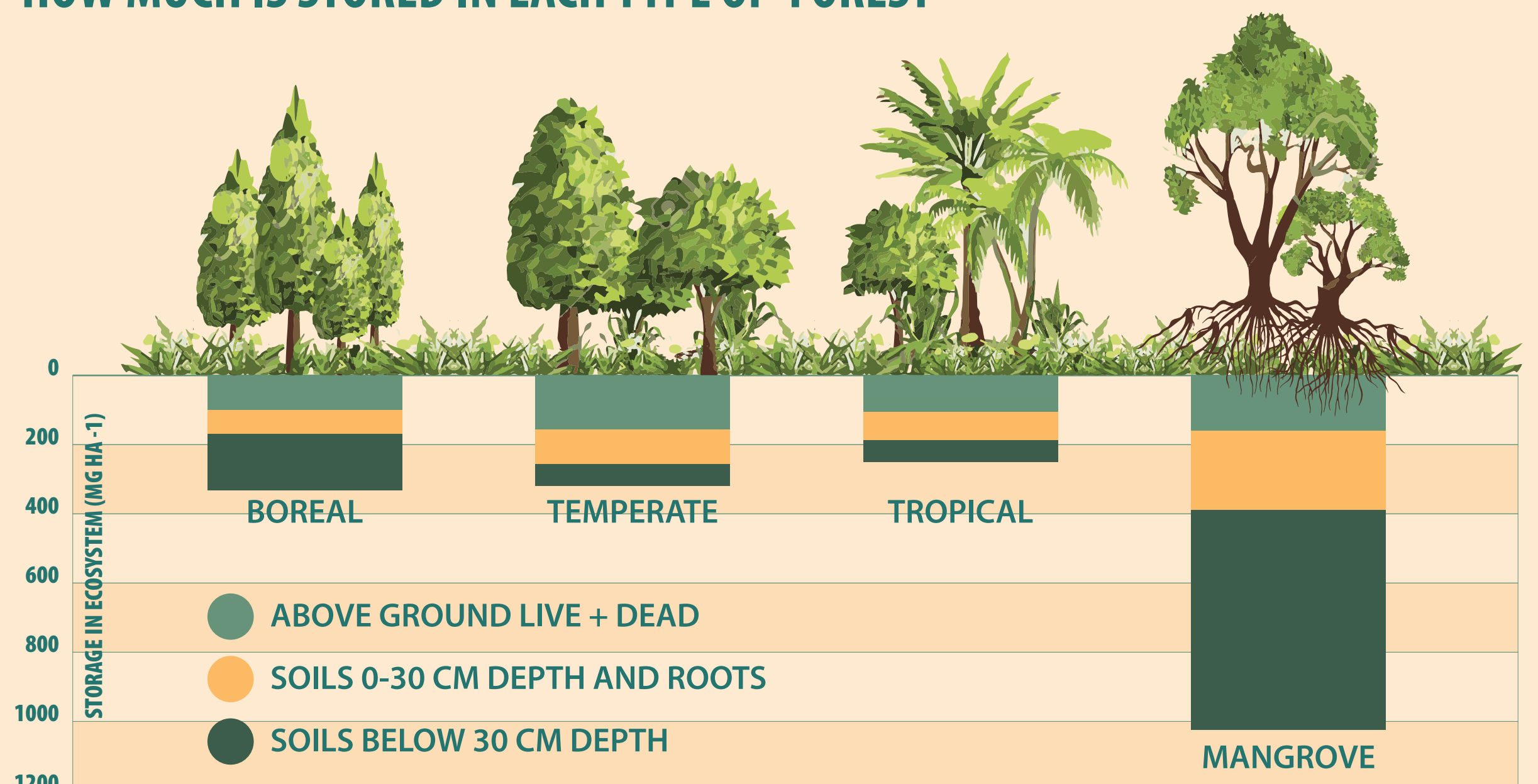


Up to 10%
of the emissions from deforestation at a global level are from cutting down mangroves.

ha 1,023 tons
of carbon are stored per hectare (global average).

900-3000 tons
of carbon/ha in desert mangroves in Baja California.

HOW MUCH IS STORED IN EACH TYPE OF FOREST



SOURCES: Donato, D.C., et al. (2011) Mangroves among the most carbon-rich forests in the tropics. *Nature Geosci* 4: 293-297. <https://doi.org/10.1038/ngeo1123>
Ezcurra, P., et al. (2016) Coastal landforms and accumulation of mangrove peat increase carbon sequestration and storage. *PNAS*. 113(16): 4404-4409. <https://doi.org/10.1073/pnas.1519774113>
Gráfica: Elaboración propia con base en Donato, D.C. et al., 2011.