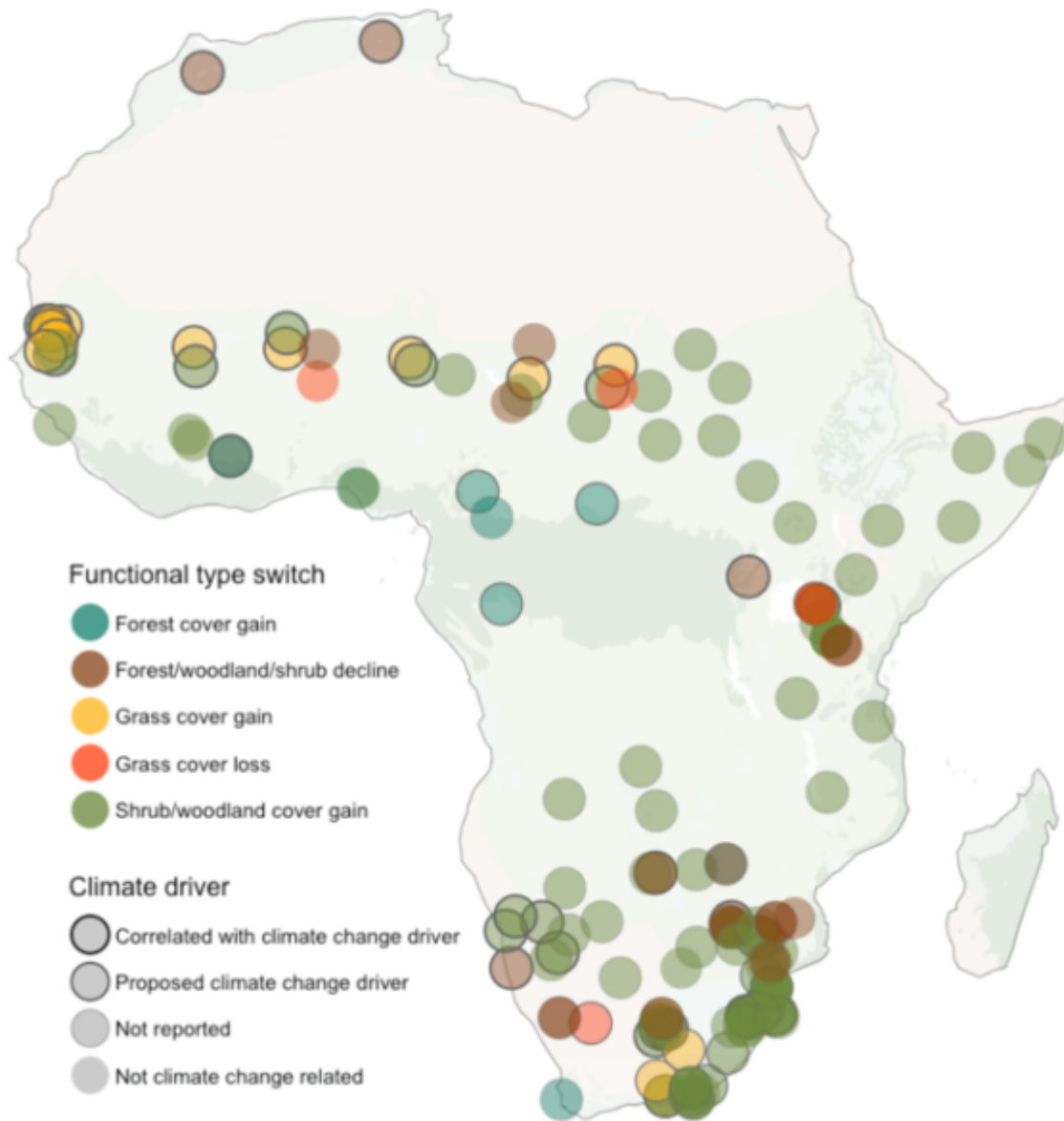


Terrestrial vegetation



9.6.1 Observed Impacts of Climate Change on African Biodiversity and Ecosystem Services

9.6.1.1 Terrestrial Ecosystems

The overall continental trend is woody plant expansion, particularly in grasslands and savannas, with woody plant cover increasing at a rate of 2.4% per decade (Stevens et al., 2017; Axelsson and Hanan, 2018) (Figure 9.17). There is also increased grass cover in arid regions in southwestern Africa (Masubelele et al., 2014). There is high agreement that this is attributable to increased CO₂, warmer and wetter climates, declines in burned area and release from herbivore browsing pressure, but the relative importance of these interacting drivers remains uncertain (O'Connor et al., 2014; Stevens et al., 2016; García Criado et al., 2020). Woody encroachment is the dominant trend in the western and central Sahel, occurring over 24% of the region, driven primarily by shifts in rainfall timing and recovery from drought (Anchang et al., 2019; Brandt et al., 2019). Remote sensing studies demonstrate greening in southern Africa and forest expansion into water-limited savannas in Central and West Africa (Baccini et al., 2017; Aleman et al., 2018; Piao et al., 2020), with increases in precipitation and atmospheric CO₂ the likely determinants of change (Venter et al., 2018; Brandt et al., 2019; Zhang et al., 2019). These trends of greening and woody plant expansion stand in contrast to the desertification and contraction of vegetated areas highlighted in AR5 (Niang et al., 2014), but are based on multiple studies and longer time series of observations. Reported cases of desertification and vegetation loss, for example, in the Sahel, appear transitory and localised rather than widespread and permanent (Dardel et al., 2014; Pandit et al., 2018; Sterk and Stoorvogel, 2020).

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