

## **Temperate Grasslands.**

José M. Paruelo

Temperate grasslands have been the biome most affected by one of the main dimensions of the global change: land cover modification. The replacement of grasslands by agricultural fields have local, regional, and global consequences, including loss of soil fertility, soil erosion, reduction of biological diversity, hydrological changes, climate alteration and modification of atmospheric composition. Field and laboratory experiments are beginning to show a positive response, both in total biomass production and water use efficiency for the dominant species of temperate grasslands to the increase of atmospheric carbon dioxide (CO<sub>2</sub>). Simulation analyses indicated that climate change by itself increased net primary production in most of the grassland regions of the world and reduced soil carbon stocks everywhere. The combined effect of climate change and elevated CO<sub>2</sub> increased net primary production in all the sites studied and reduced carbon losses by half.