

The impact of buffer zones on the water quality of East Mediterranean streams

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The effect of three most commonly practiced vegetative buffer zones along the reconstructed Jordan stream and drainage canals on landscape biodiversity and water and ecosystem quality was examined. The buffer zone habitats included low harvested grasses, high perennial mixed- reeds (*Phragmites australis*), and perennial grasses with woody species. The shallow groundwater at each buffer zone was sampled at 3 different sites and analyzed for their salinity content, total P, total dissolved P, soluble reactive P, chlorite, nitrate and sulfate. The flora biodiversity was determined by field survey along a 10 m transect parallel to the stream and canals. A total of 37 species were recorded at all sites where most of the species were defined as low grasses or forbs, with an average cover of 57%. The average cover of high perennial species was 38% and 5% of trees. The six dominant species that covered 80% of the area were *Cynodon dactylon*, *Phragmites australis*, *Sorghum halepense*, *Nerium oleander*, *Malva nicaeensis* and *Conyza albida*. The woody habitat exhibited greater number of species compared with the other buffer zones ($P = 0.05$). No significant differences were found in nutrient concentrations of groundwater draining the fields and water samples taken within the buffer zones. These results suggest that the buffer zones serve mainly as enriching habitats for nesting birds and small mammals and are important for thriving ecotourism industry in this area but they do not serve as an affective hydrochemical barrier between farm lands and waterways.