DOES PLANT INVASION ALWAYS AFFECT THE ECOSYSTEM NEGATIVELY?

Inoka Piyasinghe

Board of Study in Earth Sciences

Intentional and unintentional introduction of plants to areas outside their natural range can become invasive with time. With time, these invasive alien plant species (IAPS) can establish and become naturalize in their introduced range. Once integrated into native communities they can disrupt biodiversity and ecosystem functions [1, 2]. The impacts of invasive plants received much attention during the last decade due to their devastating effects such as suppress or eliminate native species, biodiversity losses, alterations of ecosystem structure and functions [3, 4]. Moreover, they cause huge economic impacts in sectors like agriculture, forestry, fisheries and health [5-7]. The IAPS seems to possess superior competitive ability over other plants such as higher growth rates [8–10], allelopathic effects [11, 12], higher litter quality and litter loading [13, 14] which eventually leading to their success in introduced range.

Impacts on Biodiversity conservation

Many research outcomes so far have highlighted the negative impacts of IAPS and are confined few plant species in restricted regions and environments [17]. However, a little is known about their positive impacts on their invaded habitats [12,15]. The positive impacts of AIPS are possibly underestimated and often perception biased [16]. Plant invasion may support the establishment of native communities in disturbed or degraded ecosystems such as landslide areas, abandoned plantations, lands integrated with anthropogenic activities (lands prone to Fire, chena cultivation) [17,18]. A meta-analysis revealed that invasive plants facilitate the establishment of native plants on highly degraded habitats thereby providing nursing effect to emerging seedlings through enhanced micro-habitat conditions [19]. A study conducted in a degraded grassland in the Knuckles Conservation Area of Sri Lanka revealed a higher abundance of forest tree seedlings under the canopy of the invasive shrub, *Austroeupatorium inulifolium* compared to that of a less-invaded grassland indicating a facilitative effect of *Austroeupatorium* invasion on the forest re-establishment of these grasslands [20]. They suggest that *Austroeupatorium* has improved micro-climatic and edaphic conditions on these highly degraded grasslands thereby enhancing the chances of forest tree establishment. Furthermore, plant invasion could significantly enhance C and N pools through higher quality litter production, thereby increasing the soil nutrient availability in invaded landscape [21]. Alteration of soil nutrient status may facilitate the sapling growth of native communities [22,23]. A study conducted in north eastern Australia shows that initially grasses out-compete rainforest seedlings, but once they established, tree seedlings can out-compete the grasses [24]. They suggested that understanding nature of interactions between plant groups is critical in practical applications in restoration trials to achieve rapid reforestation on degraded agricultural lands [24]. The information suggests that the plant invasions have positive outcomes especially on degraded ecosystems. However, these positive outcomes depend on the species involved and the habitat concerned. Such positive outcomes can be used in restoration interventions in degraded landscape with caution to avoid any repercussion in the future.
References


