

Feral goats shape the Caribbean drylands

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Goats were introduced to the Caribbean islands almost five centuries ago resulting in direct and indirect changes in terrestrial and surrounding marine ecosystems. We conducted remote sensing, field surveys and field experiments to quantify the top-down effects of feral goats on the vegetation structure and composition of semiarid Aruba and Bonaire. Goats have shaped the vegetation dramatically. Temporal comparisons of vegetation maps indicate an increasing dominance of thorny shrubs. Long-term (8 year) goat exclosures reveal strong limitation of tree recruitment by goat browsing as no seedlings and saplings of late successional hardwood tree species grow outside the exclosures. Feral goats also browse on the three columnar cacti species limiting the establishment of new individuals and reducing adult fecundity thereby shifting population structure towards the dominance of adult cacti. Positive interactions between cacti and other thorny plant species seem unable to significantly reduce the negative effects of current levels of herbivore pressure. On the other hand, goats seem to facilitate the dispersal of small stem-succulent *Opuntia* cacti in the understory of current thorny shrublands. Our results suggest that the vegetation of these islands may be shifting from dry forests and columnar cacti towards an increasing dominance of thorny shrublands. These strong top-down effects of a novel herbivore on the terrestrial plant communities may exacerbate water runoff and soil erosion with deleterious impacts to the marine ecosystems.