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A checklist of the vascular plants of the lowland savannas of Belize, Central America

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Abstract

Lowland savannas, covering an area of 2,342 km², form the third largest ecosystem in Belize yet are unevenly and therefore poorly represented in the country's protected area system. Based on more than 5,700 herbarium collections, a checklist of 957 species of vascular plants is presented for this ecosystem representing ca. 28% of the Belizean flora, of which 54 species are new records for the country. Of the 41 species of plants known to be endemic to Belize, 18 have been recorded within the lowland savanna, and nine species are listed in The World Conservation Union (IUCN) 2010 Red List of Threatened Species. Of the total savanna ecosystem flora, 339 species are characteristic of the open savanna, whilst 309 and 114 species are more frequent in forest and wetland areas respectively. Most species (505, 53% of the lowland savanna flora) are herbaceous. Although the lowland savanna has been relatively well collected, there are geographical biases in botanical sampling which have focused historically on the savannas in the centre and the north of the country. A brief review of the collecting history of the lowland savanna is provided, and recommendations are given on how future collecting efforts may best be focused. The lowland savanna is shown to be a significant regional centre of plant diversity.

Key words: wetland, flora, conservation, endemics

Introduction

Savannas cover over two million km² of the Neotropics (Mistry 2000), making savanna the most ecologically dominant formation of tropical America after tropical forest. However, they suffer from great anthropogenic pressure, particularly from agricultural development (Alho & de Souza Martins 1995). Within Central America and the Caribbean, extensive areas of savanna occur in Belize, Mexico, Honduras, Nicaragua, south-west Panama and central and eastern Cuba (Huber 1987).

Savannas are extensive areas of tropical vegetation usually with a ground layer of grasses and xeric herbs and a varying cover of trees. They cover great areas in the tropics that have a strong dry season and are generally subject to seasonal fires to which their native flora has resistant adaptations (e.g. thick corky bark, subterranean lignotubers). One form, the "savanna woodlands" of South America and Africa support characteristic tree floras. Their rainfall is typically between that of wet forest and desert or semi-desert biomes.

Belize is 22,965 km² in land area. It is located in the southern part of the Yucatán Peninsula and bordered to the north by the Mexican state of Quintana Roo, to the south and west the Guatemalan department of Petén and to the east, by the Caribbean Sea. Belize's climate is subtropical, 23°C (monthly mean in December) to 31°C (monthly mean in June), experiencing a marked dry season between February and May, and a hurricane season between June and November. There is a significant precipitation gradient between the north (ca. 1,200 mm/year) and the south (ca. 4,300 mm/year) with maximum rainfall occurring around Doyle's Delight in Toledo District. Belize is part of the Mesoamerican biodiversity hotspot (Conservation International 2004) which occupies less than 0.5% of the terrestrial planet which is thought to contain 17% of all terrestrial species.

Savannas comprise 2,824 km² or 12.3% of the land area of Belize and are found across the length of the country at altitudes from sea level to more than 1,000 m (Mountain Pine Ridge). They are the second largest