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Laura Berríos ortiz, J. Pablo Morales-Payan

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Authors: Berríos ortiz, Laura, and Morales-Payan, J. Pablo

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Edible Weeds of the Caribbean: Agroecology and Use

LAURA BERRÍOS ORTIZ¹ AND J. PABLO MORALES-PAYAN²

¹Department of Land Resources and Environmental Sciences, Montana State University, Bozeman, Montana, U. S. A; laura.berriosortiz@student.montana.edu; ORCID 0009-0001-4484-514X

²Department of Agro-Environmental Sciences, University of Puerto Rico, Mayagüez, Puerto Rico; morales.payan@upr.edu; ORCID 0009-0009-2454-0064

ABSTRACT—The Caribbean is a vital contributor to global ecosystem services. Also, the region is a major exporter of tropical products like coffee (*Coffea arabica* L.), sugar from cane (*Saccharum officinarum* L.), cacao (*Theobroma cacao* L.), banana (*Musa* spp.), and others. Climate change and economic interests threaten the agricultural production of the region, its food security, and its ecological balance. Promoting the use of edible non-crops, or “edible weeds,” serves as a strategy to mitigate environmental hazards, enhance agrobiodiversity, and increase Caribbean food sovereignty. A number of plants usually considered weeds when growing alongside major crops can be a valuable food source, but research on those species has focused mainly on their management as undesirable plants competing with crops. This article showcases the agroecological practices and uses of edible weeds in the Antilles. If species considered weedy, or marginally useful to humans, become more widely used, there is an opportunity to further explore their potential, integrating them into diverse agricultural systems as plants with economic value and as available food resources.

RESUMEN—La región del Caribe coopera vitalmente a los servicios ecosistémicos globales. Además, es importante exportadora de productos tropicales como café (*Coffea arabica* L.), azúcar de caña (*Saccharum officinarum* L.), cacao (*Theobroma cacao* L.), guineos (*Musa* spp.) y otros. El cambio climático y los intereses económicos amenazan la producción agrícola de la región, su seguridad alimentaria y su equilibrio ecológico. Promover el uso de plantas comestibles no cultivadas o “malezas comestibles” sirve como estrategia para mitigar los riesgos ambientales, mejorar la agrobiodiversidad y aumentar la soberanía alimentaria del Caribe. Varias plantas que suelen considerarse malezas cuando crecen junto a los principales cultivos pueden ser una valiosa fuente de alimentos. Sin embargo, la investigación sobre esas especies se ha enfocado principalmente en su rol como plantas indeseables que compiten con los cultivos. Este artículo muestra las prácticas agroecológicas y los usos de las malezas comestibles en las Antillas. Si las especies consideradas malezas o marginalmente útiles para los humanos se utilizan más ampliamente, existe la oportunidad de explorar más su potencial, integrándolas en diversos sistemas agrícolas como plantas con valor ecológico, económico y como recursos alimentarios disponibles.

In the eastern part of Central America and southwest of the Atlantic Ocean, the Caribbean basin is a global biodiversity hotspot characterized by high species endemicity, elevated population density, and fragmented landscapes (Brokaw et al. 2012). Despite its small size, the Caribbean plays a crucial role in global ecosystem services, specifically carbon storage (Lugo and Brown 1993; Shayka et al. 2023). Caribbean vulnerability to natural disasters and climate change is evident (Gould et al. 2020). Projected rising temperatures and decreased precipitation pose threats to its ecosystems, especially tropical dry forests. Tropical forests provide

genetic resources and biodiversity, which are integral to agriculture (Borna et al. 2022). Threats to tropical forests adjacent to high-value agricultural areas, generally used for horticultural production, raise concerns for local food security (Beckford and Rhiney 2016; Plis-coff 2023). Moreover, some islands face water resource competition due to the absence of permanent flowing streams. Limited freshwater access and soil degradation further jeopardize food production (Scalley 2012).

Predominant conventional monocropping farming in the Caribbean contributes to environmental degradation, declining soil health, and land abandonment

(Benites et al. 2022). Soil erosion, particularly in steep terrains, is a pervasive issue (Comerma et al. 2015). Additionally, over the past decades, market liberalization, globalization, and an economic shift toward tourism have heightened the islands' dependence on food imports, placing additional pressure on local food production (Rhiney 2016). Revisiting and promoting local agrobiodiversity as a resilient and sustainable strategy addresses the dual exposure of Caribbean agriculture to vulnerabilities arising from climate change and economic liberalization (Barker 2012).

Enhancing agrobiodiversity emerges as a valuable strategy for mitigating agricultural and environmental risks and recovering food sovereignty across the Caribbean (Williams 2020; Snapp et al. 2023). This includes practices like using edible non-crops or "edible weeds." Historically, weeds are undesired due to their competition with crops, some are hosts to crops pests and diseases, some may be harmful to animals and overall decreased profitability (Blanco Valdes 2016). However, some weed species can also have benefits such as contributing to soil health, as primary material, genetic resource, medicine, and food source (Blanco Valdes 2016). In a list of food plants in Puerto Rico from 1925, Barrett (1925) includes species such as erect dayflower (*Commelina erecta* L.), bitter-melon (*Momordica charantia* L.), purslane (*Portulaca oleracea* L.), ground cherry (*Physalis* spp.), black nightshade (*Solanum nigrum* L.), and cat's tail (*Typha angustifolia* L.) that are now considered weeds. This showcases how perceptions about species known to be edible changed from placing plants in the food category to placing them in the undesirable plants (weeds) category.

To our knowledge, this is the first compendium of edible weed species across Caribbean nations. With this we want to answer: Which weedy species found in the region have evidence of use whether as food sources or otherwise?; and, what is the current knowledge on edible weed species in the Antilles? Answers to these questions provide a framework to ponder on our agroecosystems as part of the overall landscape and how we can manage them to promote biodiversity but also sustainable food production.

EDIBLE WEEDS OF THE CARIBBEAN

Plant species that are considered weeds in some regions of the world, are considered edible wild plants or even edible companions of crops tolerated or cared

for in other areas (Gonzalez et al. 2003). Here, we define edible weeds as described by Ebel et al. (2024), as edible plants that are not cultivated, are sometimes found growing in fields, and which some people consider weeds. Edible weeds are somewhat unheard of in agricultural research, where weeds are pests meant to be controlled. Notwithstanding potential economic challenges due to increased crop-weed competition and multitrophic pest compounds (Dentika et al. 2021), incorporating edible weeds into food systems can help protect agricultural land in the Caribbean, for example, by minimizing soil disturbance, maintaining soil cover, and promoting agrobiodiversity (Febles González 2016). Intercropping is an approach to increasing soil cover and diversity in farms, but this technique can cause competition between crops producing yield loss (O'Hallorans et al. 2012). Maximizing productivity and environmental services by considering neutral weed communities (Esposito et al. 2023) as part of management efforts can be applied through selective weeding.

A diverse production can simulate a natural community that maximizes the use of natural resources toward agroecosystem sustainability (Caporali and Campiglia 2000). Allowing certain weed species with crops may have a similar effect as intercropping. For example, adapting multiple weed management strategies in perennial crops like coffee (*Coffea* spp.) increases the profitability and protects the soil (Resende Fontes et al. 2022). Edible weeds, when integrated into broader agroecological efforts, such as increasing biodiversity and reducing off-farm inputs, can offer a range of ecosystem and food security benefits in the Caribbean.

To understand edible weeds agroecology, we must understand their habitat given that plant communities mostly depend on precipitation, evaporation, and temperature (Holdridge 1947, 1967; Holdridge et al. 1971; Newsom and Wing 2004). The Caribbean climate depends on wind currents from the Atlantic Ocean, the northeast sides of the islands tend to receive moist air while the southwestern areas tend to be drier. There is minimal temperature variation throughout the year, but rainy and dry seasons occur (Newsom and Wing 2004). Today's Caribbean agroecosystems can be categorized based on the areas where their production is most common, distinguishing between high-land and low-land, a distinction that applies for almost all regional islands. Some crops commonly grown in high-lands include cit-

rus fruits (*Citrus* spp.) and coffee, while typical crops of coastal agroecosystems include sugarcane (*Saccharum officinarum* L.), cassava (*Manihot esculenta* Crantz), and forage plants. Crops common in low- and high-lands include bananas (*Musa* spp.), various root crops, and many vegetable varieties.

In addition to location (low-land versus high-land agroecosystems), crop phenologies further characterize the abundance of certain species and the composition of weed communities (Gunton et al. 2011; Adeux et al. 2023). While there may be occasional overlap, commercial farms in the region tend to cultivate either perennial or annual crops. Typical perennial crops include coffee, citrus fruits, cacao (*Theobroma cacao* L.), coconuts (*Cocos nucifera* L.), ornamental plants, and fruit trees, whereas common annual crops include cereals, legumes, green fodder, industrial crops, medicinal plants, aromatic plants, oilseeds, root crops, sugarcane, textile crops, tobacco (*Nicotiana tabacum* L.), and diverse vegetables (Lernoud et al. 2019). Some edible weed species that are perennial, such as climbing dayflower (*Commelina diffusa* Burm. f.) and purple nut-sedge (*Cyperus rotundus* L.), may be associated with perennial crops (Blanco Valdes 2016).

The most common edible weed species in the Caribbean grow in both low-land and high-land agroecosystems, but some are specialists. For example, studies in Puerto Rico on yams (*Dioscorea* spp.) found differences in high-land and low-land weed species (Beale et al. 1988; Lugo et al. 1998). Another study found amaranths (*Amaranthus* spp.) were more common in coastal sites, while climbing dayflower was often found in mountainous environments, and purslane was commonly found in both areas. Although Berríos-Ortiz (2018) offered insights into weed abundance on specific organic farms in Puerto Rico, further research is imperative to comprehensively examine the interactions of edible weeds with their environment in the Caribbean. Also of importance here is further understanding of biodiversity and environmental services in agroecosystems.

While the list of species (Appendix 1) is diverse, it is non exhaustive. Appendix 1 lists countries or territories where the species are used, but these may be present in other regions and may be used there but unreported. There are many other edible weed species that can be found in the Caribbean, but they are not listed as they may not be related to a specific crop. The majority

of this information is derived from weed management or ethnobotany studies, with a significant body of research originating from the 20th century and local studies. Evidence presented here is based on sources such as peer-reviewed journals, university publications, specialists, and official government documents. Plenty of current information on edible weeds in the Caribbean can also be found in mainstream media. Hence, a notable research gap exists regarding the study of the agroecology of edible weeds in the Caribbean, overlooking their potential as valuable food sources.

EXPLORATION OF THE USES OF EDIBLE WEEDS IN THE CARIBBEAN

It is plausible that local consumption of edible weeds is more prevalent in most of the Caribbean than currently documented in the existing scientific literature. Archaeologists have found that purslane and desert horse purslane, species considered weeds today, were used as food sources during Archaic ages in the Caribbean (Newsom and Wing 2004). The bulk of evidence regarding the abundance and ecology of edible weeds, though not necessarily their uses, is concentrated in the Dominican Republic, Cuba, Jamaica, and Puerto Rico. Below, we provide a summary of the evidence found for these countries regarding edible weed species and their agroecology.

Dominican Republic

The Dominican Republic leads certified organic production in the Caribbean, with 8.8% share of total agricultural land (Lernoud et al. 2019). Here, the economically most significant crops are sugarcane, rice (*Oryza sativa* L.), and bananas and plantains (*Musa* spp.) (DEAE 2023). Despite extensive research conducted on weed management and agroecosystems in the Dominican Republic (Morales-Payan et al. 1997a, 1997b; Romero and Camilo 2019; MMARN 2022) our findings reveal no evidence of widespread human consumption of weed species. Nevertheless, it is noteworthy that edible weed species are prevalent in local agroecosystems and have been for centuries. Processes of diet changes have been reported for many developing countries as a result of “modernization” and urbanization/rural displacement (Moya Pons 1998; Bermudez and Tucker 2003). It is apparent that in the Dominican Republic, traditional leafy green/edible weeds such as amaranths, purslane, and broadleaf purslane, among

others, underwent a process of falling out of favor as food during the 20th century, as the country became increasingly urbanized and as there was easy and affordable access to other food sources considered of a higher status for their consumers, such as lettuce and cabbage. However, in the Dominican Republic most of the traditional species retained their status as condiments or as medicinal, melliferous, and/or ornamental plants.

Purslane and various *Amaranthus* spp. are frequently reported (edible) weeds in solanaceous crops in the Dominican Republic. Despite their edibility, Dominican growers predominantly perceive amaranths as one of the most problematic weeds in their plots (Morales-Payan et al. 1997a). The spiny amaranth (*Amaranthus spinosus* L.), not included in Appendix 1 due to being a physical threat to field workers (Sellers et al. 2017), is nonetheless edible. Field research conducted with low-land potato (*Solanum tuberosum* L.) in the Dominican Republic indicates that, at a weed density of five plants per square meter, competition with edible amaranth results in a substantial 50% yield loss. In this region, the critical period for effective smooth pigweed (*Amaranthus hybridus* L.) and management of other weeds to significantly mitigate yield losses in solanaceous crops spans the initial three to four months after crop emergence or transplanting (Morales-Payan and Stall 2002; Karimmojeni et al. 2014). Therefore, growers who choose to tolerate amaranths and other species in potato plots should suppress weeds during this period to avert significant crop yield losses. Additionally, in the Dominican high-land regions, the edible weedy species yellow nutsedge (*Cyperus esculentus* L.) is considered not only associated, but troublesome in potato fields (Morales-Payan et al. 1997a).

Purslane, on the other hand, is not perceived as a challenging weed in solanaceous crops in the Dominican Republic, and it is possible it could be tolerated as an edible companion plant if markets justified purslane production for consumption (Morales-Payan et al. 1997a). Research showed that the interference of purslane at densities of up to seven plants/m² did not result in yield loss in potatoes in the low-lands of the Dominican Republic, even when the edible weed grew alongside the crop season-long. This may be due to solanaceous crops being taller than purslane and casting a shadow on it, which reduces its competitive ability with the crops (Morales-Payan et al. 1997b). Therefore,

apart from selective weeding and harvesting of purslane, it may be possible to grow purslane together with potato at controlled densities, using it as a companion crop that would use resources to the detriment of other species considered weedy in this system.

Selective weeding is practiced in coffee cultivation in the Dominican Republic, where plots are often on steep slopes. The edible weed climbing day-flower is considered a “noble” weed in coffee plantations, and is used as a living soil cover (MMARN 2022). A common strategy involves cutting down a substantial portion of the aboveground biomass of weeds, while allowing the roots and a segment of the shoot to persist. This approach serves the dual purpose of retaining soil integrity and minimizing erosion. Moreover, the biomass obtained from the removed shoots is a valuable source of organic matter, enriching the soil and contributing to its fertility (Romero Camilo 2019). Edible weed species can be allowed in a system and simultaneously serve as food source and as a living soil cover.

Puerto Rico

Food sovereignty is precarious across Puerto Rico, with a substantial 85% dependency on imported goods for consumption (Félix 2023). The prevailing mode of food production in the region adheres to conventional practices, while the emergence of a Puerto Rican agroecological movement serves as a grassroots resistance movement (Félix 2023). Rooted in the 1980s, this movement relies heavily on voluntary initiatives, aiming to counteract the challenges posed by conventional approaches. Central to its mission is the dissemination of traditional ecological knowledge and the establishment of “support brigades,” as detailed by Avilés-Vázquez et al. (2023). Despite ongoing efforts to integrate an agroecological perspective into public policies and education, the research landscape in Puerto Rico continues to prioritize herbicide use.

Within the agroecological and smallholder communities, consensus prevails on the imperative to focus on weed management practices within the agroecological framework, thereby fortifying the resilience and self-sufficiency of Puerto Rico’s food system. In this context, the exploration of edible weeds in Puerto Rico has garnered significant interest, both within scientific circles and the broader community (Ebel et al. 2024). A study conducted at small organic farms in Puerto Rico identified 53 distinct edible weed species across eleven

organic farms spanning the entire island (Berríos-Ortiz 2018). The management of weeds on these farms is primarily manual, which allows for selective weeding and harvesting. Notably, purslane, typically perceived as a weed by farmers, is accepted as a companion crop of tomatoes on certain farms in the mountainous regions of Puerto Rico (Berríos-Ortiz, pers. observ.). Sensorial tests performed at the University of Puerto Rico found that 85% of people who tried purslane and 80% of those that tried amaranths accepted them as palatable greens (Berríos-Ortiz 2018).

As for non-horticultural crops, it has been observed that edible weed species like spleen amaranth (*Amaranthus dubius* Mart. ex Thell.) may not exert a detrimental impact on crop yields. For instance, safeguarding pigeon peas (*Cajanus cajan* (L.) Huth) from weed interference in the initial 20–30 days post-seeding is imperative to prevent yield loss. Spleen amaranth typically emerges around 40 days after planting the crop, thus it may be tolerated without causing economic losses to pigeon pea (Díaz-Rivera et al. 1985). Similarly, in sweet potato (*Ipomoea batatas* (L.) Lam.) it is essential to maintain a weed-free environment for the initial six weeks after planting or until the canopy achieves closure. This approach is crucial for optimizing sweet potato yields and allows for harvesting edible weeds such as spleen amaranth, jungle rice grass (*Echinochloa colona* (L.) Link), purple nutsedge, and climbing dayflower (Lugo-Torres Díaz 2007).

Lugo et al. (2012) evaluated weeds found in high-land and low-land grown cassava. Of the weed species found in the high-land grown crop, edible weeds included purple nutsedge and wood sorrel (*Oxalis* spp.) are common. However, in low-land grown cassava, purple nutsedge and spleen amaranth were the most common edible weeds (Lugo et al. 2002). Amidst the limited evidence of making use of edible weeds in Puerto Rico, they present promising opportunities for increasing food resilience and self-sufficiency on the archipelago, as evidenced by their presence across crops and cultivation practices.

Cuba

Cuba is recognized as an exemplar of institutionalized agroecology and sustainable food systems in the agroecological community (Sabourin et al. 2018; Félix 2023). By 2018, the total agro-ecological production accounted for 65% of agricultural products in Cuba,

unlike other Caribbean countries where it is considered dispersed (Sabourin et al. 2018). Cuba actively promotes the use of edible weeds through official channels, publishing a catalog of edible wild plants that includes various weed species (Dirección de Víveres 1987; Nelson et al. 2009). However, despite these official policies, the reality seems to be different. Common edible weeds such as purslane, Virginia pepperweed (*Lepidium virginicum* L.), beggar-ticks (*Bidens pilosa* L.), bitter melon, erect dayflower, and spleen amaranth, are now suspected of being glyphosate-resistant in Cuban citrus orchards, signaling a widespread use of synthetic herbicides in Cuba (Otero-Pujol and De Prado-Amián 2015). Likewise, little evidence exists on Cuban farmers and consumers using edible weeds as food sources.

Jamaica

Jamaica offers one of the best examples of an edible weed in the region. Callaloo or green amaranth (*Amaranthus viridis* L.) is both a weed and a crop in the Caribbean. In Jamaica, this species holds significant agricultural, cultural, and dietary importance, being cultivated on small, diversified peri-urban farms (Lawrence et al. 2005). Jamaica stands out as the primary producer of callaloo in the Caribbean, but despite the rich diversity of landraces, they are infrequently assigned specific names, reflecting persisting traditional, non-commercial practices (McGlashan et al. 2018). Callaloo grows fast regardless of soil health and can be ready to harvest in six weeks, these weedy growth traits contributed to its popularity (Higman 2007; Vandebroek and Voeks 2018).

Edible weed species in other Caribbean Nations

Virgin Islands herbalists, also called *weed women* due to the majority of them being female, historically used a variety of edible weeds species as medicinal herbal remedies such as balsam-apple and purslane (Oakes and Morris 1958). The consumption of callaloo is common here, but a study made in the suitability of this species as a crop compared to local spleen amaranth consider it a specialty vegetable (Palada and Crossman 1999).

One strategy proposed in Guadeloupe to maintain diversity in tropical crop yam (*Dioscorea alata* L.) is to selectively control weed species that are known hosts to yam diseases (Dentika et al. 2021). While this yam study does not focus on edible weed species, further

research on this technique can provide input on local strategies. Selective weeding may be applicable to other crops, allowing the growth of edible weeds and other plants with ecological value as well as excluding disease hosts. Similar to coffee plantations management in the Dominican Republic, in Guadeloupe, research has studied the use of climbing day-flower as part of weed management plans for high-land crops. Farmers intercalate plantains with other cash crops creating crop mixtures, and they can also allow in their fields' edible weedy plants like climbing day-flower (Bezard et al. 2023).

In St. Vincent and the Grenadines, a study on the selective weeding of climbing day-flower found that controlling this perennial species favored annual weed species in the community (Isaac et al. 2007). Another study found that managing climbing dayflower in banana fields changes seed recruitment showing how population dynamics of edible weed species are affected by management (Isaac et al. 2012).

OUTLOOK

The contemporary challenges confronting Caribbean agriculture, including natural disasters, a high exportation rate, while simultaneously depending essentially on food imports, exacerbated by climate change and economic liberalization, necessitate intervention. Over 80% of Caribbean farms are under five hectares in size (Lowder et al. 2016) and most of these are under two hectares (FAO and CBD 2019). Considering the average farm size in the Caribbean is essential to strategically use agroecological concepts. Understanding and using ecological principles in agriculture seems effective to enhance the resilience and sustainability of the Caribbean food systems (Barker 2012; Febles González 2016; Williams 2020; Dittmer et al. 2023; Félix 2023; Snapp et al. 2023). In this context, utilizing the diversity of edible weeds, alongside sustainable weed management practices, presents a promising approach. While economic and technical challenges exist in using edible weeds, their benefits in ecosystem services, mentioned above, are noteworthy. Examining the limited evidence of specific studies of edible weed uses (or potential for such uses) in the Dominican Republic, Puerto Rico, Cuba, and Jamaica, we provided insights into the diverse contexts and potentials related to edible weed utilization. Despite the abundance of edible weeds, a notable research gap exists in understanding

their presence, agroecology, and use in the Caribbean. For this we formulate the following questions: What are the trade-offs of allowing edible weed species in agroecosystems?; What are the processes that lead toward neutral weed communities in high-land and low-land Caribbean crops?; What are the effects of increasing biodiversity in Caribbean through selective weeding on other organisms such as soil microbiome, arthropods, and phytopathogens?; and, How does reducing inputs change economic tradeoffs in Caribbean food production and systems? Looking at weeds from a different perspective and using weeds as food sources provides an opportunity for researchers, agroecologists, farmers, and food producers to enhance food security and sovereignty in the Caribbean.

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- APPENDIX 1. Non-exhaustive list of selected edible weeds in the Caribbean, the typical agroecosystems in which they are found, services provided, and associated crops based on the literature. Latin names verified with GRIN and NMNH-SI. While these species may have other ecological functions, this list includes those that have been documented in the Caribbean. N/A indicates that the information found does not specify. Countries or territories listed relate to the referenced literature, this does not indicate that the species is not present elsewhere. Although some species listed may not be directly associated with a particular crop, given that the information may not be present in the literature, all species listed are considered weeds based on Más and Lugo (2013). An asterisk (*) indicates studies done outside of the Caribbean region.
- Amaranthus dubius* Mart. ex Thell. (Amaranthaceae)
 English common names: Spleen amaranth
 Spanish and other languages common names: Bledo, blero, bleo blanco, amaranto
 Country or territory commonly used in: Cuba, Dominican Republic, Haiti
 Services: Edible, phytoremediation*
 Negative impacts: Plant parasitic nematodes
 Typical agroecosystems/frequently associated crops: Highlands and lowlands/Cassava, legumes, pigeon pea, sweet potato, pepper, tomatoes, citrus, yam
 References: Liu et al. 1984, 1985; Díaz-Rivera et al. 1985; Semidey et al. 1987; Beale et al. 1988; Faciola 1990; Jean-Baptiste 1994; Lugo et al. 1998; Queneherve et al. 2006; Shankar et al. 2011*; Otero-Pujol and De Prado-Amián 2015; Vargas-Batis et al. 2020; Ramírez et al. 2021
- Amaranthus* spp. (Amaranthaceae)
 English common names: Spinach bhaji
 Spanish and other languages common names: Amarantho, bleo, bhaji
 Country or territory commonly used in: Cuba, Dominican Republic, Haiti, Puerto Rico, Trinidad, Virgin Islands
 Services: Edible, soil health indicator, melliferous
 Negative impacts: Difficult management
 Typical agroecosystems/frequently associated crops: Low-land/Potato, eggplant*, pepper, sugarcane*
 References: Hammerton 1981; Dirección de Víveres 1987; Palada et al. 1996; Morales-Payan et al. 2004; Firehun and Tamado 2006*; Blanco Valdes 2016; Ramdwar et al. 2017; Berríos Ortiz 2018; Vandebroek and Voeks 2018; Marcano 2023

Amaranthus viridis L. (Amaranthaceae)

English common names: Callaloo, green amaranth, pigweed

Spanish and other languages common names: Bledo blanco

Country or territory commonly used in: Cuba, Jamaica, Puerto Rico, Virgin Islands

Services: Edible, medicinal

Negative impacts: N/A

Typical agroecosystems/frequently associated crops: Unreported/Citrus*, corn

References: Núñez Meléndez 1982; Palada and Crossman 1999; Higman 2007; Labaut López et al. 2018; Vandebroek and Voeks 2018; Alcántara de la Cruz et al. 2020*; Cruz et al. 2023

Bidens pilosa L. (Asteraceae)

English common names: Railway daisy, rabbit grass, needle grass, beggar-ticks, black jack

Spanish and other languages common names: Margarita silvestre

Country or territory commonly used in: Cuba, Puerto Rico, Trinidad

Services: Edible, soil health indicator, medicinal, pollen source, beneficial insect host

Negative impacts: Allelopathic*, plant parasitic nematode host*

Typical agroecosystems/frequently associated crops: Low-land and high-land/Citrus, ornamental*

References: Núñez Meléndez 1982; Inserra et al. 1989*; Clement et al. 2015; Otero-Pujol and De Prado-Amián 2015; Blanco Valdes 2016; Berrios Ortiz 2018; Alonso-Amaro et al. 2019; Maldonado Cepeda 2022; Kato-Noguchi and Kurniadie, 2024*

Emilia sonchifolia (L.) DC. (Asteraceae)

English common names: Cupid's shaving brush, emilia

Spanish and other languages common names: Clavel chino, huye que te cojo, yerba socialista

Country or territory commonly used in: Cuba, Dominica

Services: Edible, medicinal, pollen source

Negative impacts: Disease host

Typical agroecosystems/frequently associated crops: High-land/Citrus, beans, yam

References: Núñez Meléndez 1982; Dirección de Viveres 1987; Beale et al. 1988; Nicolson 1988; Rodríguez et al. 1991; Otero-Pujol and De Prado-Amián 2015; Berrios Ortiz 2018; Labaut López et al. 2018; Maldonado Cepeda 2022

do-Amián 2015; Berrios Ortiz 2018; Labaut López et al. 2018; Puentes et al. 2019; Maldonado Cepeda 2022

Launaea intybacea (Jacq.) Beauverd (Asteraceae)

English common names: Chicorie, lasigne

Spanish and other languages common names: Achicoria azul, lechugilla

Country or territory commonly used in: Puerto Rico, Dominican Republic

Services: Edible, medicinal

Negative impacts: N/A

Typical agroecosystems/frequently associated crops: High-land/Sugarcane*

References: Núñez Meléndez 1982; Firehun and Tamado 2006*; Peguero and Clase 2015; Berrios Ortiz 2018

Lepidium virginicum L. (Brassicaceae)

English common names: Virginia pepperweed, peppergrass

Spanish and other languages common names: Mastuerzo, perejil de tierra, cresón, lentejilla

Country or territory commonly used in: Dominican Republic, Cuba, Puerto Rico

Services: Edible, medicinal

Negative impacts: Pest host

Typical agroecosystems/frequently associated crops: High-land/Citrus, cabbage, yam

References: Alam 1982; Núñez Meléndez 1982; Rorsch 1997; Lugo et al. 1998; Volpato and Godínez 2006; Otero-Pujol and De Prado-Amián 2015; Labaut López et al. 2018; Vargas-Batis et al. 2020

Gynandropsis gynandra (L.) Briq. (Previously reported as *Cleome viscosa*) (Capparaceae)

English common names: African spider-flower

Spanish and other languages common names: Jazmín de río

Country or territory commonly used in: Cuba, Dominican Republic, Jamaica, Puerto Rico

Services: Edible, medicinal

Negative impacts: Pest host

Typical agroecosystems/frequently associated crops: Cabbage

References: Núñez Meléndez 1982; Volpato and Godínez 2006; Lozano et al. 2013

Commelina diffusa Burm. f. (Commelinaceae)

English common names: Climbing dayflower,

creeping-spiderwort

Spanish and other languages common names: Cohitre

Country or territory commonly used in: Puerto Rico

Services: Ground cover, medicinal, pollen source, beneficial insect host

Negative impacts: Plant parasitic nematode host

Typical agroecosystems/frequently associated crops: High-land/Avocado, bananas, corn, ornamental*, plantain, sweet potato, coffee, yam

References: Núñez Meléndez 1982; Beale et al. 1988; Inserra et al. 1989; Queneherve et al. 2006; Rojas Chavarria and Rodriguez Muñoz 2013; Alonso-Amaro et al. 2019; Maldonado Cepeda 2022; MMARN 2022; Cruz et al. 2023

Commelina erecta L. (Commelinaceae)

English common names: Watergrass, erect day-flower

Spanish and other languages common names: Canutillo, cohitre

Country or territory commonly used in: Dominican Republic, Cuba, Puerto Rico, Trinidad

Services: Edible, medicinal, natural groundcover

Negative impacts: Pest host*

Typical agroecosystems/frequently associated crops: Citrus

References: Barrett 1925; Fenoglio and Salvo 2009*; Clement et al. 2015; Otero-Pujol and De Prado-Amián 2015; Labaut López et al. 2018; Romero and Camilo 2019

Commelina spp. (Commelinaceae)

English common names: N/A

Spanish and other languages common names: Canutillo, cucaracha

Country or territory commonly used in: Cuba

Services: Edible, ornamental

Negative impacts: Virus host, difficult management, herbicide resistant

Typical agroecosystems/frequently associated crops: Bananas, plantains

References: Hammerton 1981; Dirección de Viveres 1987; Blanco Valdes 2016; Lockhart 2011

Momordica balsamina L. (Cucurbitaceae)

English common names: Balsam-apple

Spanish and other languages common names: Cundeamor

Country or territory commonly used in: Dominican Republic, Cuba, Puerto Rico

Services: Edible

Negative impacts: N/A

Typical agroecosystems/frequently associated crops: Citrus*

References: Morton 1967*; Dirección de Viveres 1987; Ososki et al. 2007; Labaut López et al. 2018

Momordica charantia L. (Cucurbitaceae)

English common names: Bitter-melon, balsam-apple

Spanish and other languages common names: Caraille, cundeamor, koukouli

Country or territory commonly used in: Cuba, Dominica, Dominican Republic, Puerto Rico, Trinidad, Virgin Islands

Services: Edible, medicinal, melliferous, genetic resources

Negative impacts: N/A

Typical agroecosystems/frequently associated crops: High-land/Citrus, yam

References: Barrett 1925; Oakes and Morris 1958; Morton 1967*; Núñez Meléndez 1982; Dirección de Viveres 1987; Beale et al. 1988; Palada et al. 1996; Quinlan and Quinlan 2007; Efrid et al. 2014; Clement et al. 2015; Otero-Pujol and De Prado-Amián 2015; Berrios Ortiz 2018; Labaut López et al. 2018; Díaz-Vergara et al. 2020; Vargas-Batis et al. 2020; Marcano 2023

Cyperus esculentus L. (Cyperaceae)

English common names: Yellow nutsedge

Spanish and other languages common names: Cebollin, coquí, coquí amarillo

Country or territory commonly used in: Dominican Republic, Cuba, Puerto Rico

Services: Edible, wild fauna feed

Negative impacts: Allelopathic, plant parasitic nematode host

Typical agroecosystems/frequently associated crops: Rice, peppers, potato, tomatoes, tobacco, bananas, mainly in wet and/or cool-temperature areas

References: Bendixen and Nandihalli 1987; Dirección de Viveres 1987; Castro et al. 2009; Morales-Payan et al. 1997a; Queneherve et al.; 2006; Páez et al. 2012

Cyperus rotundus L. (Cyperaceae)

English common names: Purple nutsedge
 Spanish and other languages common names: Coquí, coquillo
 Country or territory commonly used in: Dominican Republic, Cuba, Puerto Rico
 Services: Edible, soil health indicator, medicinal
 Negative impacts: Difficult management, allelopathic, plant parasitic nematode host
 Typical agroecosystems/frequently associated crops: High-land and low-land/Cassava, cilantro*, corn, potato, sweet corn, sweet potato, onion, rice, peppers, tomatoes, tobacco, yam
 References: Singh 1975; Hammerton 1981; Núñez Meléndez 1982; Bendixen and Nandihalli 1987; Dirección de Viveres 1987; Beale et al. 1988; Morales-Payan et al. 1997a, 2000; Lugo et al. 1998; Jean-Simon et al. 2012; Páez et al. 2012; Blanco Valdes 2016; Berrios Ortiz 2018; Vargas-Batis et al. 2020; Cruz et al. 2023

Senna obtusifolia (L.) H.S. Irwin & Barneby (Fabaceae)
 English common names: Coffee seed
 Spanish and other languages common names: Dormidera, dormilona, hediondilla
 Country or territory commonly used in: Dominican Republic, Haiti, Cuba, Jamaica, Puerto Rico, Lesser Antilles.
 Services: Edible, medicinal
 Typical agroecosystems/frequently associated crops: Corn*, soybean*
 References: Núñez Meléndez 1982; Volpato and Godínez 2006; Piskackova et al. 2020*; WFO 2024

Senna occidentalis (L.) Link (Fabaceae)
 English common names: Wild coffee
 Spanish and other languages common names: Platanillo
 Country or territory commonly used in: Greater and Lesser Antilles
 Services: Edible, medicinal
 Negative impacts: N/A
 Typical agroecosystems/frequently associated crops: Cotton*, soybean*
 References: Norsworthy and Oliveira 2005*; Clement et al. 2015; Labaut López et al. 2018; WFO 2024

Sesbania grandiflora (L.) Poir. (Fabaceae)

English common names: Tropical sesbania, vegetable hummingbird
 Spanish and other languages common names: Galilito; sesbania
 Country or territory commonly used in: Dominican Republic, Cuba, Haiti, Jamaica, Puerto Rico
 Services: animal forage, edible for humans, fuel wood; medicinal; nitrogen fixation to the soil; temporary windbreaker; ornamental
 Negative impacts: N/A
 Typical agroecosystems/frequently associated crops: windbreaker for citrus, banana, coffee and other perennial crops in highlands; shade tree for nurseries of various tree crops
 References: WFO 2024

Sesbania sesban (L.) Merr. (Fabaceae)

English common names: Sesban, Egyptian sesban
 Spanish and other languages common names: Gandulillo, sesbania
 Country or territory commonly used in: Cuba, Puerto Rico
 Services: Edible, medicinal
 Negative impacts: N/A
 Typical agroecosystems/frequently associated crops: Cotton*
 References: Núñez Meléndez 1982; Volpato and Godínez 2006; Iqbal et al. 2019*

Oxalis spp. (Oxalidaceae)

English common names: Wood sorrel
 Spanish and other languages common names: Trébol
 Country or territory commonly used in: Dominican Republic, Cuba, Haiti, Jamaica, Puerto Rico
 Services: Edible
 Negative impacts: Plant parasitic nematode host
 Typical agroecosystems/frequently associated crops: High-land and low-land/Yam, bananas
 References: Beale et al. 1988; Queneherve et al. 2006; Berrios Ortiz 2018; Kew 2024

Passiflora foetida L. (Passifloraceae)

English common names: Love-in-a-mist, stinking passionflower
 Spanish and other languages common names: Tagua-tagua, flor de pasión silvestre
 Country or territory commonly used in: Dominican Republic, Cuba, Haiti, Jamaica, Puerto Rico, US

Virgin Islands, British Virgin Islands, Netherlands Antilles

Services: Edible fruit, medicinal, pest control*, pollen source*, salinity tolerant rootstock*

Negative impacts: Leaves are toxic to humans and livestock*

Typical agroecosystems/frequently associated crops: Cowpea, soybean*

References: Núñez Meléndez 1982; Radhamani et al. 1995*, Kishore et al. 2010*; Carvalho et al. 2011*; Takim et al. 2012; Van Proosdij, 2012; Berrios Ortiz 2018; deSouza et al. 2022*; WFO 2024

Plantago major L. (Plantaginaceae)

English common names: Broadleaf plantain

Spanish and other languages common names: Llantén, plante

Country or territory commonly used in: Cuba, Dominica, Dominican Republic, Haiti, Jamaica, Puerto Rico, Trinidad

Services: Edible, medicinal

Negative impacts: Allelopathic*, Plant pathogens host*

Typical agroecosystems/frequently associated crops: Coffee*, cereals*, rice*, onions*

References: Hammond 1982*; Núñez Meléndez 1982; Quinlan and Quinlan 2007; Roersch 2014; Clement et al. 2015; Kato-Noguchi et al. 2015*; Labaut López et al. 2018; WFO 2024

Echinochloa colona (L.) Link. (Poaceae)

English common names: Awnless barnyard grass, jungle ricegrass

Spanish and other languages common names: Grama, mete bravo, arrozillo, zancaraña

Country or territory commonly used in: Widespread in the Caribbean

Services: Edible

Negative impacts: Difficult management, plant parasitic nematode host; particularly aggressive in rich soils.

Typical agroecosystems/frequently associated crops: High-land/Cassava, sweet potato, citrus, pigeon peas, peppers, tomato, potato, eggplant, rice, yam, beans, bananas

References: Hammerton 1981; Liu et al. 1984; Díaz-Rivera et al. 1985; Beale et al. 1988; Semidey et al. 1998; Antigua 1991; Morales-Payan et al. 1997; Lugo et al. 1998; Queneherve et al. 2006;

Otero-Pujol and De Prado-Amián 2015; Labaut López et al. 2018; WFO 2024

Antigonon leptopus Hook. & Am. (Polygonaceae)

English common names: Queen's jewels, mountain-rose coralvine

Spanish and other languages common names: Bellísima, bellacima, bellosinia, coral, coralillo, coralita

Country or territory commonly used in: Dominican Republic, Haiti, Cuba, Trinidad, Jamaica

Services: Edible, medicinal, melliferous, natural enemy host*

Negative impacts: Native plant communities

Typical agroecosystems/frequently associated crops: N/A

References: Dirección de Viveres 1987; Clement et al. 2015; Ramdwar et al. 2017; Vandebroek et al. 2018; Eppinga et al. 2021; Hariyadi and Syahlan 2021*; Marcano 2023

Portulaca oleracea L. (Portulacaceae)

English common names: Purslane

Spanish and other languages common names: Koupiye, verdolaga

Country or territory commonly used in: Cuba, Dominica, Dominican Republic, Haiti, Jamaica, Puerto Rico, Virgin Islands

Services: Edible, soil health indicator, medicinal, parasitic nematode host*

Negative impacts: Difficult management, herbicide tolerant, drought tolerance

Typical agroecosystems/frequently associated crops: Low-land & high-land/Potato, pepper, tomato, citrus, ornamental plants*, sugarcane*, yam

References: Barrett 1925; Oakes and Morris 1958; Hammerton 1981; Núñez Meléndez 1982; Inserra et al. 1989; Jean-Baptiste 1994; Palada et al. 1996; Morales-Payan et al. 1997a; Lugo et al. 1998; Loigier 2000; Firehun and Tamado 2006*; Volpato and Godínez 2006; Quinlan and Quinlan 2007; Otero-Pujol and De Prado-Amián 2015; Blanco Valdes 2016; Berrios Ortiz 2018; Labaut López et al. 2018; Vargas-Batis et al. 2020; WFO, 2024

Ziziphus spp. (Rhamnaceae)

English common names: Jujube

Spanish and other languages common names: Cocuyo, malagueta, rayo de sol, bruja

Country or territory commonly used in: Dominican

Republic, Cuba, Haiti, Jamaica, Puerto Rico, Virgin Islands

Services: Edible, melliferous, wood in some species

Negative impacts: N/A

Typical agroecosystems/frequently associated crops: Domesticated fruit trees*, native pastures*

References: Barrett 1925; Johnston 1964; Dirección de Víveres 1987; Marcano 2023; O'Brien et al. 2023*

Physalis spp. (Solanaceae)

English common names: Ground cherry

Spanish and other languages common names: Poha silvestre

Country or territory commonly used in: Cuba (*Physalis* sp., *P. ignota* Britton, *P. philadelphica* Lam.), Dominican Republic (*Physalis* sp. and *P. angulata* L.), Haiti (*P. angulata* L., *Physalis* sp., *P. macrocarpa* Urb. & Eckman, *P. philadelphica* Lam.), Jamaica (*P. angulata* L., *Physalis* sp., *P. philadelphica* Lam.), Puerto Rico (*Physalis* sp. and *P. angulata* L.), Virgin Islands (*Physalis* sp. and *P. philadelphica* Lam.), Yucatan, Mexico (*Physalis* sp., *P. lagascae* Roem. & Schult., *P. maxima* Mill., *P. nicandroides* Schltdl.).

Services: Edible, genetic resources

Negative impacts: Disease host, plant parasitic nematode

Typical agroecosystems/frequently associated crops: Bananas

References: Barrett 1925; Waterfall 1967; Salati et

al. 2002; Queneherve et al. 2006; Díaz-Vergara et al. 2020

Solanum nigrum L. (Also reported as *S. Americanum* Mill.) (Solanaceae)

English common names: Black nightshade

Spanish and other languages common names: Yerba mora, mata gallina

Country or territory commonly used in: Puerto Rico, Virgin Islands (widespread distribution in the Caribbean and other tropical regions)

Services: Edible leaves

Negative impacts: Disease host, toxic berry

Typical agroecosystems/frequently associated crops: Tomatoes*

References: Barrett 1925; Dahlgreen and Standley 1944; McGiffen et al. 1992*; Díaz-Vergara et al. 2020; Salati et al. 2002; WFO 2024

Typha angustifolia L. (Typhaceae)

English common names: Cattail

Spanish and other languages common names: Enea

Country or territory commonly used in: Belize, Cuba, Dominican Republic, Puerto Rico, Yucatan (Mexico's Caribbean)

Services: Edible, wildlife food

Negative impacts: Evapotranspiration water loss*, invasive in irrigation channels and other waterways.

Typical agroecosystems/frequently associated crops: Rice*, citrus groves drainage canals*

References: Barrett 1925; Morton 1975*; Rejman-kova et al. 1995, 1996; Lim 2016