Diversity of Useful Plants in Cabo Verde Islands: A Biogeographic and Conservation Perspective

Maria Cristina Duarte 1,*, Isildo Gomes 2, Silvia Catarino 3,4, Miguel Brilhante 3, Samuel Gomes 2, Aline Rendall 2, Ângela Moreno 2, Arlindo Rodrigues Fortes 5,6, Vladmir Silves Ferreira 5, Isaurinda Baptista 5, Herculano Dinis 7 and Maria Manuel Romeiras 1,3

1 Centre for Ecology, Evolution and Environmental Changes (cE3c) & Global Change and Sustainability Institute (CHANGE), Faculdade de Ciências, Universidade de Lisboa, 1749-016 Lisbon, Portugal; mmromeiras@isa.ulisboa.pt
2 Instituto Nacional de Investigação e Desenvolvimento Agrário (INIDA), São Jorge dos Órgãos, Praia CP 84, Cape Verde; isildo.gomes@inida.gov.cv (I.G.); samuel.gomes@inida.gov.cv (S.G.); aline.rendall@inida.gov.cv (A.R.); aveigamoreno@gmail.com (Â.M.)
3 Linking Landscape, Environment, Agriculture and Food (LEAP) Research Center & Associated Laboratory TERRA, Instituto Superior de Agronomia (ISA), Universidade de Lisboa, Tapada da Ajuda, 1349-017 Lisbon, Portugal; scatarino@isa.ulisboa.pt (S.C.); miguelbrilhante131@hotmail.com (M.B.)
4 Forest Research Center (CEF), Instituto Superior de Agronomia (ISA), Universidade de Lisboa, Tapada da Ajuda, 1349-017 Lisbon, Portugal
5 Escola Superior de Ciências Agrárias e Ambientais, Universidade de Cabo Verde, Praia CP 84, Cape Verde; arlindo.fortes@docente.univc.edu.cv (A.R.F.); vladimir.ferreira@adm.univc.edu.cv (V.S.F.); isaurinda.baptista@adm.univc.edu.cv (I.B.)
6 Centre for African and Development Studies (CESA), Lisbon School of Economics and Management, Universidade de Lisboa, 1249-078 Lisbon, Portugal
7 Associação Projeto Viti, Xaguate, Sao Filipe CP 47, Cape Verde; herculanodinis86@hotmail.com
* Correspondence: mcduarte@fc.ul.pt

Abstract: Cabo Verde’s biodiversity is threatened by activities that meet human needs. To counteract this, an integration of scientific and indigenous knowledge is required, but no comprehensive list of the useful local plants is available. Thus, in this work, we assess (1) their diversity and phytogeography; (2) the role of geophysical, historical, and socio-economic factors on species distribution and uses; and (3) potentially relevant species for sustainable development. Data were obtained from flora, scientific publications, historical documents, herbarium specimens and field work. Many species were introduced since the 15th century to support settlement and commercial interests. We identified 518 useful taxa, of which 145 are native, 38 endemic and 44 endangered. The number of useful taxa is correlated with altitude and agricultural area, as well as with rural population indicators, but not with total population or socio-economic indicators such as gross domestic product. Native taxa are mostly used for fuelwood, forage and utilitarian purposes. Agrobiodiversity and traditional practices seem crucial to cope with recurrent droughts and ensure food security. Most of the introduced species do not present conservation problems, contrasting with the overuse of some native taxa. The safeguarding of native populations will ensure the sustainable exploitation of these resources and benefit the local economy.

Keywords: food security; historical perspective; Macaronesia islands; native plants; sustainable exploitation of natural resources; traditional uses

1. Introduction

A sixth mass extinction of life on Earth is under way, and habitat loss is among the most important anthropogenic threats, followed by over-exploitation, introduced species and climate change, leading to a loss of species and ecosystems [1]. Although island and mainland regions have undergone equivalent past habitat loss, projections indicate
that land-use-driven changes to islands might be stronger in the future. Given their conservation risks, smaller land areas and high levels of endemism richness, islands may offer particularly high returns for species conservation efforts and therefore warrant a high priority in global biodiversity conservation [2].

In the north-eastern Atlantic Ocean, the Macaronesian archipelagos (i.e., Azores, Madeira, Selvagens, Canary Islands and Cabo Verde) are an outstanding center of biodiversity but also one of the most threatened areas, mainly by human activity. These islands show a strong climatic gradient from an oceanic temperate climate in the Azores to a warm arid climate in Cabo Verde [3]. Cabo Verde is vulnerable to natural disasters, and particularly rural populations are dependent on natural resources and on agriculture-based economy [4,5]. Therefore, the need to integrate local indigenous knowledge for sustainable management and conservation of natural resources is increasingly recognized. Recently, some studies have focused on important plant families widely used as food and forage sources (e.g., pulses (Fabaceae) [6] and millets (Poaceae) [7]). In addition, the possible economic benefits, especially from medicinal species [8] or native forest products [9], have been emphasized as particularly attractive approaches for economically weak countries such as Cabo Verde. However, there is limited knowledge of useful species in this and other Macaronesian archipelagos, and only a few complementary initiatives have been undertaken, such as the Spanish network of autochthonous plant genetic resources and wild plant (Red Española de Bancos de Germoplasma de Plantas Silvestres y Fitorrecursos Autóctonos, REDBAG).

The use of plant species is a common ancestral practice and has been an invaluable resource since the colonization of Cabo Verde islands [10]. Whether native or introduced, several species are particularly important as sources of food, forage, medicines, building materials, fiber and fuel, among others, especially for local communities [11], providing not only economic income, particularly relevant in natural resource-poor regions, as is the case of Cabo Verde, but also playing important social and cultural roles for local people. The progressive abandonment of centuries-old uses and practices, together with land use shifts, particularly the extensive forestation [12,13] or the development of tourism [14], justifies an urgent assessment of the plants traditionally used in Cabo Verde. Previous works (e.g., [11,15–17]) pinpoint the importance of such resources for population subsistence and wellbeing. However, knowledge about such plants is incomplete, and no exhaustive approach has been conducted so far.

To enhance the livelihoods of local communities, and in line with global efforts (e.g., Aichi Biodiversity Target 18, concerning the safeguarding of the traditional knowledge), we aimed to gather the available traditional knowledge and practices about useful plants from Cabo Verde, using an integrative approach (i.e., biological, ecological and historical), to provide crucial data not only with scientific purposes but also for local government policies with respect to agriculture and the conservation of plant genetic resources. This information is essential to assess the socio-economic value of the archipelago’s flora as a provider of widely diverse ecological services such as supplying food and other goods for human use, forage to feed livestock and control of soil erosion, while serving as a basis to assess the potential risks of these uses to their sustainability and conservation in Cabo Verde.

Thus, this work aims to (1) assess the taxonomic diversity and phytogeographic distribution of the useful plants in Cabo Verde; (2) establish the role of geophysical characteristics of the islands, as well as of the demographic, historical, economic and socio-cultural factors driving the distribution patterns of the species and their uses; and (3) identify relevant species, particularly native ones, with a future relevant role in the sustainable development of the archipelago.
2. Results

2.1. The First Reported Useful Species—A Brief Historical Note

Cabo Verde was uninhabited until 1456, when it was discovered by the Portuguese, and the species introduced by the settlers can be retrieved from the known historical documents. Sugarcane, figs, grapes and melons, among other fruits largely used in mainland Portugal, are referenced as early as 1506 by Valentim Fernandes (in Monod et al. [18]). By 1545, the accounts of Piloto Anônimo (in Sauvageot [19]) include citruses (such as oranges, lemons and citrons), pomegranates, coconuts and vegetables. By the end of the 16th century, Gaspar Frutuoso (in Frutuoso [20]) also mentions cotton, bananas, beans, pumpkins and “Milho branco e grado de maçaroca e milho miúdo”, probably referring to small grain millets and sorghum [21] used in West Africa. Already in the 18th century, the British sailor George Roberts, who stayed for two years (1722–1724) in the archipelago, reported maize (*Zea mays*) and cassava (*Manihot esculenta*), two American crops introduced into Africa in the 16th century, as well as beans, guinea millets (possibly referring to species of the genus *Urochloa*), pumpkins (*Cucurbita pepo*), fruit trees such as lemons (*Citrus × limon*), sweet and sour oranges (*Citrus × aurantium*), limes (*Citrus × aurantifolia*), cidron (*Citrus medica*), guavas (*Psidium* spp.), sugar-apples (*Annona* spp.), tamarinds (*Tamarindus indica*), coconuts (*Cocos nucifera*), pineapple (*Ananas comosus*), plantains (*Musa* spp.), sweet potatoes (*Ipomoea batatas*), watermelons (*Citrullus lanatus*) and melons (*Cucumis melo*) [22]. In addition, cotton (*Gossypium* spp.) and indigo (*Indigofera tinctoria*) were mainly reported from Boavista, Maio and Santo Antão, as well as sugarcane plantations (*Saccharum officinarum*) and vineyards (*Vitis vinifera*) in Santiago, Fogo and São Nicolau.

In 1772, the botanist Johann Forster was in Santiago, and in his short list of collected species, most of them already mentioned by George Roberts, he included several tropical American species, such as papaya (*Carica papaya*), *Vachellia farnesiana* and *Caesalpinia pulcherrima*, a beautiful ornamental tree, and Asian basil (*Ocimum basilicum*) [23].

By the end of the 18th century, João da Silva Feijô, a Portuguese naturalist taking part in the “Philosophical Journeys” under the patronage of the Portuguese Crown, made an extensive work in Cabo Verde and provided the inventory of natural productions of the islands. Between 1783 and 1789, he collected hundreds of species, reported in his manuscripts (e.g., in Feijô [24]; for details see Gardère [25]). The lists, including both native and exotic species, show that more than 50 economically relevant species from all over the world were already established in the archipelago by then. Adding to those reported by previous explorers, species are mentioned such as the African *Adansonia digitata*, *Coffee arabica*, *Hibiscus sabdariffa*, and *Ricinus communis*; the American *Annona squamosa*, *Arachis hypogaea*, *Capsicum frutescens*, *Furcraea foetida*, *Gossypium hirsutum*, *Jatropha curcas*, *Mammea americana*, *Nicotiana tabacum*, *Opuntia ficus-indica*, *Physalis peruviana*, and *Spondias mombin*; the Asiatic *Abelmoschus esculentus*, *Cassia fistula* and *Rhaphiolepis bibas*, or the European *Ceratonia siliqua*, *Cydonia oblonga*, *Malus domestica*, *Ficus carica* and *Pyrus communis*, to mention only some examples.

The list of exotic species with economic interest present in Cabo Verde did not cease to grow in the following centuries (e.g., [26–28]), and most of them still occur in the archipelago. The introduction of new food species is continuous, as shown with the recent introduction of the American dragon fruit (epiphytic cacti of the genus *Selenicereus*) or the star fruit (*Averrhoa carambola*).

In Cabo Verde, the association of different crops is a common practice. Already indicated in historical texts, this may be related to the restricted availability of suitable land for agricultural activities (e.g., watered valleys, well-exposed slopes), leading to the concentration of a wide diversity of crops in small areas. Currently, these practices are one of the ways in which farmers minimize the risks both of pests and diseases and of climatic irregularity, seeking to ensure the success of at least some of the productions. Thus, it is common to find maize, cabbage (*Brassica oleracea*), potatoes, pumpkins (*Cucurbita* spp.), beans and fruit trees such as bananas (*Musa* spp.), avocado (*Persea americana*), guava
(Psidium guajava) and lemon as well as sugarcane, tomato (Solanum lycopersicum), carrot (Daucus carota), papaya and mango (Mangifera indica) [29] growing together in small fields.

2.2. Taxonomic Diversity

The complete lists of plants used in Cabo Verde, with common names and respective uses, are presented in Table 1 (endemic and non-endemic native taxa) and in Table 2 (introduced taxa); species for which there is information on their historical use (until the end of the 18th century) are also indicated.

Table 1. Native useful taxa occurring in Cabo Verde, including information on family, common names (mostly in creole), main uses (Fd, food; Fr, forage; Ml, melliferous; P, poison; S, social uses; Fu, fuelwood; T, timber; U, utilitarian uses; Mt, materials; O, ornamental; E, environmental use; for details, see Materials and Methods), and historical use (Hist.). Taxonomic authorities according to Plants of the World Online [30].

| Taxa                      | Common Names          | Uses   | Hist. |
|---------------------------|-----------------------|--------|-------|
| Acanthaceae               |                       |        |       |
| Dicliptera verticillata   | Joelho, orelha-de-rato, rapazinho | Fr     |       |
| Aizoaceae                 |                       |        |       |
| Zalega pentandra          | Erva-de-rapé          | S,O    |       |
| Amaranthaceae             |                       |        |       |
| Aerva javanica            |                       |        |       |
| Amaranthus graecizans subsp. graecizans | Bredo, bredo-femba | Fr     |       |
| Arthrocaulon franzii      |                       |        |       |
| Celosia trigyna           |                       |        |       |
| Patellifolia procumbens   |                       |        |       |
| Apiaceae                  |                       |        |       |
| *Tornabenea annua [a]      | Funcho, funtcho, futcho-bravo | Fr     |       |
| *Tornabenea tenuissima [a] | Aipo, funtcho         | Fr     |       |
| *Tornabenea bischoffi [a]  | Funcho                | Fr     |       |
| Apocynaceae               |                       |        |       |
| Calotropis procera        |                       |        |       |
| *Periploca chevalieri     |                       |        |       |
| Asteraceae                |                       |        |       |
| *Artemisia gorgonum       | Losna                 |        | P     |
| *Asteriscus daltontii subsp. vogelii | Macela, marcela, marcela-lenha | P     |       |
| Blainvillea gayana        |                       |        |       |
| *Conyza fae [c]           | Losna-brava, marcela, marcelinha, mato-contrário, palha-santa | Fr     |       |
| Launaea arborescens       | Carqueja, craquejo    | Fu     |       |
| Launaea intybaca          |                       |        |       |
| *Launaea picridioides     | Marê-tope, serragem, serralha, tortolhinha, tortolhinho | Fr     |       |
| *Launaea thalassica       | Serralha, tortolhinha | Fr     |       |
| Pseudoconyza viscosa      | Butra, talga, vampiro | Fr     |       |
| *Pulicaria diffusa        | Losna                 |        | P     |
| *Sonchus daltontii        | Coroa-de-rei          | Fr     |       |
| Sonchus oleraceus         | Algodoá-de-graça, leituga, palha-leite, sarralha, serralha | Fr     |       |
| Vernonia colorata         | Catchića              |        | Fr    |
Table 1. Cont.

| Taxa                             | Common Names                                      | Uses                          | Hist. |
|----------------------------------|---------------------------------------------------|-------------------------------|-------|
| **Boraginaceae**                 |                                                   |                               |       |
| *Echium hypertropicum*           | Língua-de-vaca, língua-di-baca                    | Fr, Fu                        |       |
| *Echium stenosiphon subsp. glabrescens* | Língua-de-vaca                                  | Fr                            |       |
| *Echium stenosiphon subsp. lindbergii* | Língua-de-vaca                                 | Fr                            |       |
| *Echium stenosiphon subsp. stenosiphon* | Língua-de-vaca                                | Fr                            |       |
| *Echium vulcanorum*              | Língua-de-vaca, alfavaca-da-achada, erva-das-sete-sangrias, furtaragem, mama-de-bitcho, tchero-fede, três-marias | Fr                            |       |
| Heliotropium ramosissimum        |                                                   |                               |       |
| **Brassicaceae**                 |                                                   |                               |       |
| *Diplotaxis glauca*             | Matona, mostarda, mostarda-braba                 | Fr                            |       |
| *Diplotaxis varia*              | Mostarda-braba                                   | MI                            |       |
| *Lobularia canariensis subsp. spatulata* | Sempre-noivinha                                | MI,O                          |       |
| **Caryophyllaceae**             |                                                   |                               |       |
| *Polygala gayi*                 | Cidreira-de-rocha, mato-branco, palha-bidão, palha-de-bidion, talim, talinho, telim | U                             |       |
| **Cistaceae**                   |                                                   |                               |       |
| *Helianthemum gorgoneum*        | Matinho, piorno-de-flor-amarela                   | Fr                            |       |
| **Commelinaceae**               |                                                   |                               |       |
| Commelina benghalensis           | Grande-rato, orelha-de-rato, palha-de-água       | Fr                            |       |
| **Convolvulaceae**              |                                                   |                               |       |
| Distimake aegyptius              | Maragana, n’onhen’onhe, palha-corda              | Fr                            |       |
| Ipomoea eriocarpa                | Cordinha, jeje-calabaceira, lagaço-cozinho, legação-cabecinho, monhe-monhe, monho-monho | Fr |       |
| Ipomoea pes-caprae subsp. brasiliensis | Lacacã, lacacã-grande, lacacan-de-vaca, legação-de-rocha | E |       |
| **Crassulaceae**                |                                                   |                               |       |
| *Aeonium gorgoneum*             | Ceilão, mata-sede, saíão, seilão, sião           | O                             |       |
| **Cucurbitaceae**               |                                                   |                               |       |
| Citrullus colocynthis            | Balancia-brabo, melancia-brava, melão-bravo, olho-de-boi, olho-de-vaca | Fr |       |
| Momordica charantia              | Aboboreira-de-são-caetano, banana-rato, erva-de-são-caetano, palha-de-são-caetano, sancaetano, são caetano | Fd,MI,Mt |       |
| **Cyperaceae**                  |                                                   |                               |       |
| Bulbostylis barbata              | Soldinha                                         | Fr, MI                         |       |
| Cyperus alternifolius subsp. flabellifornis* | Chapeudisol, goia, junco | Fr, U |       |
| Cyperus articulatus              | Goia, junco                                       | Fr, U                          |       |
| Cyperus esculentus               | Djunça, junça, vista                             | Fd, Fr                         |       |
| Cyperus hortensis                |                                             | Fd, U                          |       |
| Cyperus rotundus                 | Grama, guel, injunça, junça, junco               | Fd, Fr                         |       |
| Fimbristylis ferruginea          | Junco, junquinho                                 | Fr                             |       |
| **Equisetaceae**                |                                                   |                               |       |
| Equisetum ramosissimum           | Carsim, cavalinha, talim                         | S                             |       |
| **Euphorbiaceae**               |                                                   |                               |       |
| *Euphorbia tuckeyana*           | Tira-olho, tortilho, tortodjo                    | Fu, Mt                         |       |
| Taxa                  | Common Names                      | Uses               | Hist. |
|----------------------|-----------------------------------|--------------------|-------|
| **Fabaceae**         |                                   |                    |       |
| *Abrus precatorius*  | Jequeriti, santa-clara             | Fr,U               |       |
| *Acacia cavaneriana* | Espinheiro-branco, neu-neu (fruits)| Fr, Fu, E          | •     |
| Alsyicarpus ovatifolius |                                   | Fr                 |       |
| Clitoria ternatea    |                                   | Fr                 |       |
| Crotalaria senegalensis | Ovos-de-rato, ovos-de-rato-pequeno | Fr                 |       |
| Desmodium spirostelum | Crioulinha                        | Fr                 |       |
| Dichrostachys cinerea | Espinheiro, espinheiro-branco, espinho-cachupa, espigão-cachupa | Fu                 |       |
| Genista stenopetala  | Marachinga, marquinha              | E                  |       |
| Lablab purpureus      | Crecia, feijão-branco-de-vagem-branca, feijão-caqui, feijão-careca, feijão-cutelinho, feijão-pedra, feijão-pedra-bombone, feijão-vaca | Fd, Fr             | •     |
| *Lotus brunneri*     | Cabritagem, cafetalha, cafetagem, piorno-amarelo, piorno-preto | Fr, P              |       |
| *Lotus jacobus*      | Piorno, piorno-preto               | Fr                 |       |
| *Lotus purpureus*    | Piorno, piorno-amarelo             | Fr                 |       |
| Macrotyloma daltonii | Corda-lopes, cordeirinha-preta, favalinha, feijoeiro-de-lagartiga | Fr                 |       |
| Rhynchosia minima var. memnonia | Feijoeiro-de-lagartixa | Fr |       |
| Sesbania pachycarpa  | Acácia-sizianthe, sesianthe, ticome-se | Fr |       |
| Stylosanthes fruticosa |                                | Fr                 |       |
| Tephrosia linearis   | Tephrosia purpurea                 | Mt                 |       |
| Teramnus labialis    | Caransaqui, corda-lopes-pequena, cordeirinha-branca | Fr |       |
| Vachellia nilotica subsp. adstringens | Acácia                                      | MI, O, E |       |
| Vigna unguiculata subsp. unguiculata | Bongolon-d’angola, feijão-bezugo, feijão-bongolon, feijão-bongolon-amarelo, feijão-bongolon-com-boca-preta, feijão-congo | Fd, Fr             | •     |
| **Frankeniaceae**    |                                   |                    |       |
| *Frankenia cavaneriana* [b] | Mato-de-engodo, mato-de-sargaço, palha-engodo | U |       |
| **Lamiaceae**        |                                   |                    |       |
| Lavandula coronopifolia | Marmulano-da-terra, risque, risque | Fr |       |
| *Lavandula rotundifolia* | Aipo, alfazema-brava, gilbon          | Fr                 |       |
| Ocimum americanum    |                                   | Fd                 |       |
| Salvia aegyptiaca    | Alfazema, alfazema-da-terra, bálsamo-de-pastor, ermodafassa, malfazema, marcelina, rosmarinho | Fr |       |
| **Malvaceae**        |                                   |                    |       |
| Grewia villosa       | Balneda, barnadeiro, barnedo, barnelos, barnelo | Fd, MI, U          |       |
| Melhania ovata       | Lolo-branco, mato-branco, salva-vidas | Fd |       |
| Sida rhombifolia     | Lolo, loulo, loulo-preto-grande    | Fr,U               |       |
| Urena lobata         | Bassago                           | U                  |       |
| **Moraceae**         |                                   |                    |       |
| Ficus sur            | Figueira, figueira-brava, figueira-preta | Fd, Fr, T          | •     |
| Ficus sycomorus      | Figueira-branca, figueira-brava, figueira-de-figos-grandes | Fd, Fr, T, E | •     |
| **Nyctaginaceae**    |                                   |                    |       |
| Boerhavia coccinea   | Albeza, batata-de-asno, batata-de-burro, batata-de-ove, cordeira, costa-branca, costa-branca-fémea, mato-branco | Fr |       |
| Boerhavia diffusa    | Albeza, batata-de-burro, costa-branca, costa-branca-fémea | Fr, MI              |       |
| Boerhavia repens     | Costa-branca, costa-branca-fina, costa-branca-miuída, folha-branca, palha-branca, palha-costa, palha-seca | Fr |       |
| Commicarpus helenae  | Albeça-branca, albeça-branco, butra, costa-branca, costa-branca-bastarda, folha-branca, mato-branco, mato-lagarto | Fr |       |
| **Plantaginaceae**   |                                   |                    |       |
| *Globularia amygdalifolia* | Argueiro, mato-botão, medronho  | Fr |       |
Table 1. Cont.

| Taxa                               | Common Names                                      | Uses       | Hist. |
|------------------------------------|---------------------------------------------------|------------|-------|
| Poaceae                            |                                                    |            |       |
| Andropogon gayanus var. tridentatus| Palha-ladeira, touça, touça-fêmea                  | Fr         |       |
| Bothriochloa bladhii               | Touça, touça-macho, palha-cavalo                  | Fr,E       |       |
| Cenchrus ciliaris                  | Balanco, palha-branca, palha-grossa, rabo-de-gato | Fr         |       |
| Cenchrus pedicellatus subsp. pedicellatus | Balanco-branco                                        | Fr         |       |
| Cenchrus pedicellatus subsp. unispiculus | Balanco-branco                                               | Fr         |       |
| Chloris gayana                     |                                                   | Fr         |       |
| Chloris pilosa                     |                                                   | Fr         |       |
| Dactyloctenium aegyptium           | Djinguilano, jé-jé-juigulam, palha-de-boi-fraca, pé-de-galinha | Fd,Fr       |       |
| Dichanthium annulatum              | Palha-soca, soca, touça-fêmea                      | Fr,U       | Fr    |
| Dichanthium feoelatum              | Palha-fina, palha-minha, palha-sisuda, sisuda      | Fr         |       |
| Digitaria ciliaris                 | Djé-djé-cinha, djé-djé-pequeno, djeiezinho         | Fr         |       |
| Digitaria horizontalis             | Gé-gé, jéjézinho                                   | Fr         |       |
| Digitaria nodosa                   | Palha-carriço, palha-grossa                        | Fr         |       |
| Echinochloa colonorum              | Djé-djé-pequeno                                    | Fr         |       |
| Eletusine indica subsp. indica     | Barba-de-bode, palha-boi, palha-grossa             | Fr         |       |
| Eragrostis cilianensis             | Djé-djézinho                                       | Fr         |       |
| Eragrostis ciliaris                | Padja-do-menino-jesus, palhinha                    | Fr,U       | Fr    |
| Eragrostis minor                   |                                                   | Fr         |       |
| Hackelochloa granularis            |                                                   | Fr         |       |
| Heteropogon contortus              | Azagaia, rabo-de-asno, soca-mansa, touça-mansa, toussa-matcho | Fr,E       | Fr    |
| Heteropogon melanocharpus          | Zagaia                                            | Fr         |       |
| *Hyparrhenia caboverdeana [b]      | Palha-de-guiné, palha-negra, touça, touça-fêmea    | Fr         |       |
| Imperata cylindrica                | Palha-carga                                        | Fr,U       | Fr    |
| Melinis minutiflora                | Palha-governo, palha-mafe, palha-mafó              | Fr         |       |
| Paspalum scrobiculatum             | Patacho                                            | Fr         |       |
| Polypogon viridis                  | Graminho                                          | Fr         |       |
| Rottboelia cochinichinensis        | Palha-grossa                                       | Fr         |       |
| Schizachyrium brevifolium          |                                                   | Fr         |       |
| Setaria barbata                    | Djé-djé-palha-de-água, jéjé                        | Fd,Fr       |       |
| Setaria pumila                     | Gé-gé-pequeno                                      | Fr         |       |
| Setaria verticillata               | Pega-saia                                         | Fr         |       |
| Tricholaena teneriffae             | Palha-branca, palha-de-vassoura                    | Fr         |       |
| *Urochloa caboverdiana              | Dje-dje, jé-jé                                   | Fd,Fr       |       |
| Urochloa ramosa                    | Dje-djé, jé-jé, jé-jé-folha-larga                  | Fd,Fr       |       |
| Urochloa sanfiloleuca              | Dje-djé                                           | Fr         |       |
| Portulacaceae                      |                                                    |            |       |
| Portulaca oleracea                 | Beldroega, bordulega, brêdo-fêmea, sangue-sangria | Fd,Fr,Fr    | Fr    |
| Pteridaceae                        |                                                    |            |       |
| Adiantum capillus-veneris          | Aibenca, avenca                                   | O          |       |
| Resedaceae                         |                                                    |            |       |
| Caylusea hexagyna                  | Campa, laca-laca, laga-laga, palha-lagada, piorno | Fr,Fr       | Fr    |
| Rhamnaceae                         |                                                    |            |       |
| Ziziphus mauritiana                | Simbrom, zimbrão, zimbreiro-da-india              | Fd,Fr,Fr,Ml | Fr    |
| Rubiaceae                          |                                                    |            |       |
| Oldenlandia corymbosa var. corymbosa|                                                   |            | Fr    |
| Sapindaceae                        |                                                    |            |       |
| Cardiospermum halicacabum          | Conta-de-cavalho                                  | O          |       |
| Dodonaea viscosa                   |                                                   | O          |       |
| Sapotaceae                         |                                                    |            |       |
| *Sideroxylon marginatum            | Figueira-de-macaco, marmulano, marmolano           | Fd,Fr,Fu    | Fr    |
| Solanaceae                         |                                                    |            |       |
| Solanum nigrum                     | Malagueta-de-galinha, uva-catchorro, uva-de-santa-maria | Fd         | Fr    |
| Solanum scabrum                    |                                                   | Fd         | Fr    |
Table 1. Cont.

| Taxa                      | Common Names                      | Uses       | Hist. |
|---------------------------|-----------------------------------|------------|-------|
| **Tamaricaceae**          |                                   |            |       |
| *Tamarix senegalensis*    | Tarafe, tarrafe, tamargueira      | Fu, O, E   |       |
| **Typhaceae**             |                                   |            |       |
| *Typha domingensis*       | Palha-das-esteiras, tabúa         | U          |       |
| **Urticaceae**            |                                   |            |       |
| *Forsskaulea procidifolia| Língua-de-vaca-branca, mato-gonçalo, ortiga, palha-renda, pega-saia, rafa-saia, rapa-saia, urtiga | Fr         |       |
| **Zygophyllaceae**        |                                   |            |       |
| *Fagonia cretica*         | Arroz-de-pardal, cabritaia-do-campo, matinho-de-agulhas | Fr, P      |       |
| *Fagonia latifolia [c]*   | Cabaceira, matinho                | Fr         |       |
| *Tetraena gaetula [c]*    | Acelga-de-agua, bidion, fuminga, morraça-branca, morraça  | P, Fu, E   |       |
| *Tetraena vicentina*      |                                   | E          |       |

[a] In the absence of a comprehensive review of all the endemic Apiaceae occurring in Cabo Verde, we follow Brochmann et al. [31] and Romeiras et al. [32]. [b] According to Rivas-Martínez et al. [33]. [c] According to World Flora Online [34]. * Endemic taxa. • Taxa with reported historical use.

Table 2. Introduced useful taxa occurring in Cabo Verde, including information on family, common names (mostly in creole), main uses (Fd, food; Fr, forage; Ml, melliferous; P, poison; S, social uses; Fu, fuelwood; T, timber; U, utilitarian uses; Mt, materials; O, ornamental; E, environmental use; for details, see Materials and Methods), and historical use (Hist.). Taxonomic authorities according to Plants of the World Online [30].

| Taxa                      | Common Names                      | Uses       | Hist. |
|---------------------------|-----------------------------------|------------|-------|
| **Acanthaceae**           |                                   |            |       |
| *Eranthemum pulchellum*   | flor-viuva                         | O          |       |
| *Pseuderanthemum maculatum| Dakarensê                          |            |       |
| **Aizoaceae**             |                                   |            |       |
| *Carpobrotus edulis*      | Bálsamo                            | O, E       |       |
| *Tetragonia tetrogonioides*| Espinafre-da-nova-zelândia         | Fd         |       |
| **Amaranthaceae**         |                                   |            |       |
| *Alternanthera sessilis*  | Abri-olho, abrodojo, arre-porória, mãe-na-pé, mon-na-pé | Fr, O      |       |
| *Amaranthus blitum*       | Bredo                              | Fd         |       |
| *Amaranthus caudatus*     | Bredo-macho                        | Fd, Fr, O  |       |
| *Amaranthus cruentus*     | Crista-de-peru                     | Fd, Fr     |       |
| *Amaranthus hybridus subsp. hybridus* | Bredo-macho, rabo-de-galo | Fr |       |
| *Amaranthus spinosus*     | Bredo, bredo-com-espínos, bredo-espíñoso, bredo-macho | Fd |       |
| *Amaranthus tortuosus*    | Bredo, bredo-macho                 | Fr         |       |
| *Amaranthus viridis*      | Bredo-sem-espínos                  | Fd, Fr     |       |
| *Hymenocallis littoralis* | Lírio                              | MI, O      |       |
| **Amaryllidaceae**        |                                   |            |       |
| *Allium ampeloprasum*     | Alho-frances                        | Fd         |       |
| *Allium ascalonicum*      | Chalota                             | Fd         |       |
| *Allium cepa*             | Cebola                              | Fd         |       |
| *Allium fistulosum*       | Cebolinha                          | Fd         |       |
| *Allium sativum*          | Alho                                | Fd         |       |
| *Allium schoenoprasum*    | Cebolinha-miúda                    | Fd         |       |
| *Scadoxus multiflorus*    |                                     | O          |       |

### Table 2. Cont.

| Taxa                  | Common Names                     | Uses    | Hist. |
|-----------------------|----------------------------------|---------|-------|
| **Anacardiaceae**     |                                  |         |       |
| Anacardium occidentale| Cadju, cajueiro, cajuleiro       | Fd,MI,T,E |       |
| Mangifera indica      | Mangue, manguera                 | Fd,Fr,MI|       |
| Schinus molle          | Pimenteira, pimenteira-bastarda, pimenta-rosa | Fd,P,O,E |       |
| Schinus terebinthifolia| Pimenteira                       | O       |       |
| Sclerocarya birrea subsp. caffra | Ocanho            |         |       |
| Spondias mombin       | Mamipreiro, maniolo              | Fd,MI   |       |
| **Annonaceae**        |                                  |         |       |
| Annona cherimola      | Cherimolia                        | Fd      |       |
| Annona muriata        | Pinha, pinhão, pinhão-azedo, sap-sap | Fd,O    |       |
| Annona reticulata     | Anoneira, coração-de-boi          | Fd,O    |       |
| Annona squamosa       | Pinha, pinho                      | Fd      |       |
| **Apiaceae**          |                                  |         |       |
| Anethum graveolens    | Endro, ente, entro, erva-doce     | Fd,Fr   |       |
| Apium graveolens      | Aipo                              | Fd      |       |
| Coriandrum sativum    | Coentro, cuento                   | Fd      |       |
| Daucus carota         | Cenoura                           | Fd      |       |
| Foeniculum vulgare    | Eerva-doce, funcho, funcho-gomado | Fd      |       |
| Petroselinum crispum  | Salsa                             | Fd      |       |
| **Apocynaceae**       |                                  |         |       |
| Asclepias curassavica | Cravo, pitchula-de-leite          | MI,O    |       |
| Cascabela thevetia     | Chapéu-de-napoleão, mundium      | MI,O    |       |
| Catharanthus roseus    | Bigalo, flor-de-anjo, flor-de-finado, sempre-noiva | MI,O |       |
| Nerium oleander       | Cevadilha, loendro, loureiro-rosa, rosa, rosa-loira, roseira-branca-singela, sempre-noiva-branca, sevadilha | P,O |       |
| **Araceae**           |                                  |         |       |
| Caladium bicolor      | O                                 |         |       |
| Colocasia esculenta   | Inhame, mafafa, malanca, muncoco  | Fd      |       |
| Xanthosoma sagittifolium| Inhame, mafafa-preta, malanca, mincoco | Fd |       |
| **Arecaceae**         |                                  |         |       |
| Borassus flabellifer  | Cibe                              | O       |       |
| Cocos nucifera        | Coqueiro                          | Fd,MI,O,E |       |
| Elaeis guineensis     | Coconote, dem-dem, palmeira-do-azeite | MI,O |       |
| Phoenix canariensis   |                                   | O       |       |
| Phoenix dactylifera   | Palmeira-do-saará, tamareira, tamareira-do-saará | Fd,O,E |       |
| Washingtonia filifera | Palmeira-leque                    | O       |       |
| **Aristolochiaceae**  |                                  |         |       |
| Aristolochia littoralis|                                 | O       |       |
| **Asparagaceae**      |                                  |         |       |
| Agave americana       |                                   | MI      |       |
| Agave sisalana        | Carapate-mania, carrapato-de-lisboa, pita, sisal | P,U,O   |       |
| Asparagus officinalis  | Espargo                           | MI      |       |
| Dracaena hยiscinoides |                                   | O       |       |
| Furcraea foetida      | Carapate, carrapato, carrapato-da-terra, piteira-de-cabo-verde | P,U,O,E |       |
| **Asphodelaceae**     |                                  |         |       |
| Aloe vera             | Aloés, babosa                     | MI,S,O,E|       |
Table 2. Cont.

| Taxa            | Common Names                      | Uses    | Hist. |
|-----------------|-----------------------------------|---------|-------|
| **Asteraceae**  |                                   |         |       |
| Bidens bipinnata| Guía, seta, seta-branca, seta-preta | Ml      |       |
| Bidens pilosa   | Agulha, gua, palha-agulha, seta, seta-preta, setinha | Fr,Ml   |       |
| Calendula arvensis |                               | O       |       |
| Cichorium endivia |                              | Endivia |       |
| Cichorium intybus |                           | Chicória | S,O   |
| Helianthus annuus |                               | Girassol | Ml    |
| Lactuca sativa  |                                 | Alface  | Fd    |
| Synedrella nodiflora |                        | Targa   | Fr,Ml |
| Tágetes erecta  | Cravo, cravo-branco, cravo-de-burro | Ml,O   |       |
| Tanacetum parthenium |                      | Altamires | O    |       |
| Urospermum pictoides |                                | Palha-leite, palha-leite-amarga, raposade, serralha | Fr,Ml |
| Zinnia peruviana | Cravo, cravo-branco, zinha, zinia | Fr,O   |       |
| **Basellaceae** |                                   |         |       |
| Anredera cordifolia |                               | Tinta-de-macaca, tinta-de-macaco | O    |
| Basella alba    |                                 | Mt,O    |       |
| **Bignoniaceae**|                                   |         |       |
| Crescentia cujete |                                 | Cabaceira, calabaceira | U    |
| Dolichandra unguis-cati |                        | Unha-de-gato | O    |       |
| Handroanthus impetiginosus |                  | Pau-d’arco | S,Fu,Mt,O |
| Jacaranda mimosifolia |                            | Jacandráo | O,E   |
| Kigelia africana subsp. africana | | | |
| Spathodea campanulata |                        | Árvore-da-chama, tulipeira-do-gabão, tulipa-do-gabão | O    |
| Tabebuia rosea   | Farroba                          | O,E     |       |
| Tecoma stans     | Ervilha-de-flor                 | O       |       |
| **Boraginaceae**|                                   |         |       |
| Cordia sebestena |                                 | Baunilha, baunilha-de-cheiro | O    |
| Heliotropium arborescens |                     |         | O     |
| **Brassicaceae**|                                   |         |       |
| Barbarea verna   | Agrião-de-terra                  | Fd      |       |
| Brassica juncea  | Mostarda                         | Fd      |       |
| Brassica nigra   | Mostarda, mostarda-branca, mostarda-brava, mostarda-preta | Fd,MI  |       |
| Brassica oleracea | Couve                           | Fd,Fr   |       |
| Brassica rapa    | Couve-chinesa, nabo              | Fd      |       |
| Eruca vesicaria  | Rúcula                           | Fd      |       |
| Lobularia martima |                               | Sempre-noiva | O    |
| Matthiola maderensis |                           |         | O     |
| Nasturtium officinale |                        | Agrião, agrião-de-água, agrião-vulgar | Fd    |
| Raphanus raphanistrum subsp. sativus | Rábano, rabanete | Fd     |       |
| **Bromeliaceae**|                                   |         |       |
| Ananas comosus   | Ananaseiro                       | Fd      |       |
| **Cactaceae**    |                                   |         |       |
| Opuntia ficus-indica |                                 | Figueira-da-india, figueira-do-inferno, tabaibo | Fd,Fr,Ml,O |
| Pereskia aculeata |                               | Barse, pilahayo | O    |
| Selenicereus undatus |                           |         | Fd,O |
| **Calophyllaceae**|                                   |         |       |
| Mammeea americana |                                 | Abricó-do-pará, mamão, mamoeiro | Fd    |
| **Cannaceae**    |                                   |         |       |
| Canna indica     |                                 | Cana-da-india, coqueirinho, coqueirinho-de-jardim, lirio | O    |
| **Caprifoliaceae**|                                   |         |       |
| Lonicera confusa |                                 | Madressilva, madressilva-de-cheiro | O    |
| **Caricaceae**   |                                   |         |       |
| Carica papaya    | Bijagó-preta, papaeira           | Fd      |       |
Table 2. Cont.

| Taxa                        | Common Names                                      | Uses  | Hist. |
|-----------------------------|---------------------------------------------------|-------|-------|
| Caryophyllaceae             |                                                   |       |       |
| Dianthus caryophyllus       |                                                   |       |       |
| Casuarinaceae               |                                                   |       |       |
| Allocasuarina verticillata  |                                                   |       |       |
| Casuarina equisetifolia     | Casuarina                                         |       |       |
| Combretaceae                |                                                   |       |       |
| Terminalia catappa          | Amendoeira, amendoeira-da-índia                   | Fd,T,O|       |
| Commelinaceae               |                                                   |       |       |
| Tradescantia zebrina        |                                                   |       |       |
| Convolvulaceae              |                                                   |       |       |
| Argyreia nervosa            |                                                   |       |       |
| Ipomoea batatas             | Batata, batata-belém, batata-doce, batata-doce-preta, batata-malevinho, batata-quarenta-dias, corda-copo, cordinha, giginha-muralha, nhá-júlia, pau-de-vinho, quirino, temerosa |       |   •  |
| Ipomoea carnea              |                                                   |       |       |
| Ipomoea muricata            | Calabaceira                                       |       |       |
| Ipomoea tuberculata         | Rosas-de-madeira                                  | Fr,O  |       |
| Crassulaceae                |                                                   |       |       |
| Kalanchoe daigremontiana    | Básamo                                            |       |       |
| Kalanchoe pinnata           | Básamo, figueirinha                               |       |       |
| Cucurbitaceae               |                                                   |       |       |
| Citrullus lanatus           | Melancia                                          | Fr    |       |
| Cucumis anguria             | Pepino-bravo, pepino-de-macaco, pepino-sanjo, pepino-santcho |       |   •  |
| Cucumis melo                | Melão                                             | Fd    |       |
| Cucumis sativus             | Pepino                                            |       |       |
| Cucurbita maxima            | Abóbora-roca, aboboreira, roca                     | Fd,Ml |       |
| Cucurbita moschata          | Abóbora-de-sequeiro-de-porco, abóbora-jarda, aboboreira | Fd,Ml |   •  |
| Cucurbita pepo              | Aboboreira, aboboreira-vulgar                      | Fd,Ml |       |
| Lagernaria siceraria        | Abobreira-de-cabaça, buli, cabeça, cabaceira     | Fd,U  |       |
| Luffa acyg required         | Bobra                                             |       |       |
| Cupressaceae                |                                                   |       |       |
| Cupressus sempervirens      | Cupressus                                         | Fu,E  |       |
| Hesperocyparis arizonica    |                                                   | E     |       |
| Hesperocyparis lasianica    | Cedro-português, cedro-do-buçaco                  | Fu,E  |       |
| Hesperocyparis macrocarpa   |                                                   | E     |       |
| Dioscoreaceae               |                                                   |       |       |
| Dioscorea japonica          |                                                   |       |       |
| Euphorbiaceae               |                                                   |       |       |
| Acalypha vilkensis          |                                                   |       |       |
| Bregnia disticha            | Groselhinha                                       |       |       |
| Euphorbia chamaesyce        | Solda-inglesa                                     | Fr,P  |       |
| Euphorbia heterophylla      | Travador                                          | MI    |       |
| Euphorbia hirta             | Desfamador, erva-santa-luzia, itervina, marcelinha, marcelintra, palha-pico, solda-inglesa, solda-inglesa-grande | Fr,Ml |       |
| Euphorbia hyssopifolia      | Padja-lete, palha-leite, palha-soda, solda-inglesa | Fr    |       |
| Euphorbia mili              | Coroa-de-cristo                                   | MI    |       |
| Euphorbia pulcherrima       |                                                   |       |       |
| Euphorbia splendens         |                                                   |       |       |
| Euphorbia tircalli          |                                                   |       |       |
| Euphorbia tithymaloides     |                                                   |       |       |
| Jatropha curcas             | Purga, purgueira                                  | Mt,E  |       |
| Jatropha gossypifolia       | Chagas-velhas, purgueira, purgueira-da-guiné      | Fr    |       |
| Jatropha multifida          | Purgueira-da-guiné                                | O     |       |
| Manihot carthagrensis subsp. glaziovii | Borracheira, mandioqueira-borracha       | Mt,O  |       |
| Taxa                   | Common Names                                                                 | Uses   | Hist. |
|-----------------------|------------------------------------------------------------------------------|--------|-------|
| Manihot esculenta     | Mandioca, mandioca-borracha, mandioca-branca, mandioca-brasil, mandioca-mulata, mandioca-pau-de-terra | Fd,Fr,MI | ●     |
| Ricinus communis      | Bafureira, djague, djague-djague, jag-jag, mamona, ricino                    | Fr,MI  | ●     |
| **Fabaceae**          |                                                                              |        |       |
| Acacia bivenosa       |                                                                               | E      |       |
| Acacia brachystachya  |                                                                               | E      |       |
| Acacia cyclops        |                                                                               | E      |       |
| Acacia holosericea    | Alosericia, oredjona                                                          | MI,E   |       |
| Acacia longifolia     |                                                                               | E      |       |
| Acacia mearnsii       |                                                                               | E      |       |
| Acacia pycnantha      |                                                                               | E      |       |
| Acacia salicina       |                                                                               | E      |       |
| Acacia saligna        |                                                                               | E      |       |
| Acacia victoriae      |                                                                               | E      |       |
| Adenanthera pavonina  | Coral                                                                        | O      |       |
| Albizia lebbeck       | Pau-feijão                                                                    | MI,O,E | ●     |
| Arachis hypogaea      | Amendoim, mancarrra                                                          | Fd,Fr  | ●     |
| Bauhinia galpinii     |                                                                               | O      |       |
| Bauhinia monandra     |                                                                               | O      |       |
| Caesalpinia pulcherrima | Barrosa-de-barata, brinco-de-princesa                                      | O      | ●     |
| Cajanus cajan         | Congo, feijão-congo, feijão-ervilha, feijão-figueira                         | Fd,Fr  | ●     |
| Canavalia ensiformis  | Fava-rica                                                                     | Fd,Fr  | ●     |
| Cassia fistula        | Canafistula, canafrista, jardim                                              | O      | ●     |
| Ceratonia silqua      | Alfarrobeira                                                                  | Fd,Fr,E| ●     |
| Chamaecytisus prolifer |                                                                               | Fr     |       |
| Colophospermum mopane |                                                                               | O      |       |
| Crotalaria retusa var. retusa | Bons-dias, flor-de-lagartixa, gaivé, ovos-de-rato | Fr     |       |
| Delonix regia         | Acâcia-rubra                                                                  | MI,O   |       |
| Desmanthus virgatus   | Bencaiumba, bom-de-caimbra, caiumbra, quintinha, sementinha                  | Fr,MI  |       |
| Desmodium tortuosum   | Crioula, crioula-fina, crioula-pequena, marquinha                           | Fr     |       |
| Erythrina variegata   |                                                                               | O      | ●     |
| Erythrina velutina    | Fabatera                                                                      | O      |       |
| Erythrostemon gilliesii | Barrosa-de-barata                                                           | MI,O   |       |
| Gliricidia sepium     |                                                                               | Fr,O   |       |
| Guilandina bonduc     | Ouri, uri, uriseira                                                          | U      |       |
| Indigofera tinctoria  | Tinta                                                                         | Mt     | ●     |
| Leucaena leucocephala | Acácia, acácia-leucena, linhaça, linhacho, sementinha-da-terra               | Fr,MI  |       |
| Libidibia coriaria    | Crisalpina                                                                    | Mt,O   |       |
| Lonchorcus sericoides |                                                                               | O      |       |
| Medicago sativa       | Anafe, luzerna                                                                | Fr     |       |
| Millettia thomonkingii|                                                                               | O      |       |
| Mucuna pruriens       | Canhoma, feijão-de-bitcho, feijão-de-lagartixa, ganhoma                      | Fr     |       |
| Parkia biglobosa      | Alfarroba-da-guiné                                                            | O      |       |
| Parkinsonia aculeata  | Acácia, acácia-espinheiro, acácia-martins, espinho-branco                   | Fr,MI,E|       |
| Phaseolus lunatus     | Banjona, bonjinho, fava, fava-terra, favona, feijão, feijão-bombone-branco, feijão-bonge, feijão-espadinha, feijão-fava | Fd     | ●     |
| Phaseolus vulgaris    | Bonje, favona, feijão, sapatinha                                             | Fd,O   |       |
| Ptelecellobium dulce  | Mampisa, roseira                                                              | Fd,Fr  |       |
| Prosopis chilensis    |                                                                               | E      |       |
| Prosopis juliflora    | Acacia-americana, algaroba                                                    | Fr,MI,O,E|       |
| Prosopis pallida      |                                                                               | E      |       |
| Prosopis tamarugo     |                                                                               | E      |       |
| Samanea saman         | Pau-feijão                                                                    | Fd,Fr  |       |
### Table 2. Cont.

| Taxa                          | Common Names                  | Uses       | Hist. |
|-------------------------------|-------------------------------|------------|-------|
| Senegalia senegal             |                               | E          |       |
| Senna artemisioides nothosubsp. sturtii |                               | E          |       |
| Senna bicapsularis            | Beijinho, canafistula, flor, jardim, jardineira | O          |       |
| Senna corymbosa               |                               | O          |       |
| Senna obtusifolia             |                               | O          |       |
| Senna occidentalis            | Baguinha, canafista, empincheira, fedegosa, munhanóca, pincheira, trincheira | MI,S       |       |
| Senega septemtrionalis        |                               | O          |       |
| Senna siamea                  |                               | O          |       |
| Sesbania grandiflora          | Cacía-japónica                | Fd,MI,O    |       |
| Tamarindus indica             | Tamarindeiro, tamarindo, tambarindo, tambarino | Fd,Fr,Of,E |       |
| Tara spinosa                  | Tara-do-chile                 | O          |       |
| Tipuana tipu                  |                               | O          |       |
| Trifolium glomeratum          | Bonança, trevo                | Fr         |       |
| Vachellia farnesiana          | Acácia-esponja, aroma, espinheiro-branco, espinheiro-preto, espinho-branco, espinho-preto, esponjeira, imbulda, perfume | MI,Mt,O,E  |       |
| Vachellia nilotica subsp. indica | Acácia, espinheira, espinheiro-preto, espinho-preto | Fr,Fr,Mt,O,E |       |
| Vachellia seyal               |                               | E          |       |
| Vachellia tortilis            |                               | E          |       |

### Geraniaceae

| Pelargonium × hybridum        |                               | O          |       |
| Pelargonium inquinans         |                               | O          |       |
| Pelargonium zonale            | Malva-sardinheira             | O          |       |

### Iridaceae

| Iris florentina               | Lírio-branco, tulipa-branca   | O          |       |

### Lamiaceae

| Clerodendrum speciosissimum   | Rosaqina, rosa-quina          | O          |       |
| Clerodendrum umbellatum       |                               | O          |       |
| Lavandula dentata            | Rosmaninho                   | O          |       |
| Leonurus sibiricus           |                               | O          |       |
| Mentha × wirtgeniana         | Bergamota, hortoló, hortelâ  | Fd         |       |
| Mentha pulegium              | Poeijos                      | Fd         |       |
| Mentha x pipertia            | Ortelâ-pimenta               | Fd         |       |
| Ocimum basilicum             | Mangeríciao, mangerona, mangirão, mangirona | Fd         |       |
| Ocimum gratissimum           |                               | Fd         |       |
| Origanum vulgare             | Mangerona-selvagem           | Fd         |       |
| Salvia coccinea              | Trepadeira-de-lisboa         | O          |       |
| Salvia eriocalyx             | Salva                        | O          |       |
| Salvia leucantha             |                               | O          |       |
| Salvia rosmarinus            | Alecrim, alecrim-de-portugal | Fd         |       |
| Tectona grandis              | Teca                         | T          |       |
| Volkameria aculeata          |                               | O          |       |

### Lauraceae

| Cinnamomum burmanni           | Caneleira                     | Fd         |       |
| Cinnamomum camphora           | Arvore-de-cânfora, canforeira | O          |       |
| Cinnamomum verum              | Caneleira                     | Fd,O       |       |
| Laurus nobilis                | Loureiro                      | Fd,P       |       |
| Persea americana              | Abacate, abacateiro          | Fd,MI      |       |

### Loasaceae

| Mentzelia aspera              | Lapadeira, pega-saia, rapo-tchapo, rato-tchapo | MI          |       |

### Lythraceae

| Funica granatum               | Romã, romangeira, romanzeira, româzeira        | Fd,Mt,O     |       |
Table 2. Cont.

| Taxa              | Common Names                  | Uses   | Hist. |
|-------------------|-------------------------------|--------|-------|
| **Malvaceae**     |                               |        |       |
| Abelmoschus esculentus | Quiabo                        | Fd     |       |
| Abutilon grandifolium | Vara-de-lobo                 | Mt     |       |
| Adansonia digitata | Calabaceira, caxabuceira, imbondeiro | Fd, Ml |       |
| Ceiba pentandra   | Puilão, polon                | Fd, Ml, U, E |       |
| Cola lateritia    | Amoreira, maria-cujá, moreira | Fd, O  |       |
| Gossypium hirsutum | Algodão, algodoeiro, algodoeiro-vulgar | U |       |
| Hibiscus cannabinus | Malva-brava                  | Fd, U  |       |
| Hibiscus rosa-sinensis | Cardeal, cardiais            | Fr, Ml, O |       |
| Hibiscus sabdariffa | Bissap                       | Fd     |       |
| Hibiscus surattensis |                            |        |       |
| Sida salvifolia   | Lol-branco, lôlo-preto      | Fr, U  |       |
| Thebesia populnea | Bela-sombra                 | O      |       |
| **Meliaceae**     |                               |        |       |
| Azadirachta indica | Primo-de-morôdjo           | P, E   |       |
| Khaya senegalensis | Mogno                        | Ml, E  |       |
| Melia azedarach   | Intendente, tendente, tindint, viúva | T, U, O, E |       |
| Trichilia emetica | Masureira, mafurreira, mafurreira | Fd, O |       |
| **Moraceae**      |                               |        |       |
| Artocarpus altis | Fruta-pão                        | Fd     |       |
| Artocarpus heterophyllus | Jaqueira                  | Fd     |       |
| Artocarpus integer | Jaqueira                    | Fd     |       |
| Ficus benjamina   | Figueira-brava-da-india      | O      |       |
| Ficus carica      | Figueira, figueira-de-portugal | Fd     |       |
| Ficus elastica    | Borracheira                 | O      |       |
| Ficus leonensis   |                            | O      |       |
| Ficus letia       | Lembra-lembra               | O      |       |
| Ficus religiosa   | Figueira-de-goa, figueira-da-india | O |       |
| Ficus thonningei  |                            | Fr, O  |       |
| Morus nigra       | Amoreira, morreira          | Fd     |       |
| **Moringaceae**   |                               |        |       |
| Moringa oleifera  | Acácia-branco, acácia-branca, moringa | Fd, Fr, Ml, O |       |
| **Musaceae**      |                               |        |       |
| Musa × paradisiaca | Banana-pão, bananeira      | Fd, Ml |       |
| **Myrtaceae**     |                               |        |       |
| Corymbia citriodora |                            |        |       |
| Eucalyptus camaldulensis subsp. camaldulensis | Calipe, calipo, calipto, eucalipto | Ml, O, E |       |
| Eucalyptus globulus | Calipe, calipo, calipto, eucalipto | P, O  |       |
| Eucalyptus gomphoecephala | Calipe, calipo, calipto, eucalipto | E     |       |
| Eucalyptus pruinosa | Calipe, calipo, calipto, eucalipto | O     |       |
| Eucalyptus tereticornis | Calipe, calipo, calipto, eucalipto | E     |       |
| Eucalyptus viminalis | Calipe, calipo, calipto, eucalipto | O     |       |
| Eugenia uniflora | Pitangueira                  | Fd     |       |
| Psidium cattleyanum | Araçá, goiavinha            | Fd     |       |
| Psidium guajava   | Goiabeira                    | Fd, Fr |       |
| Syzygium jambos   | Jamboeiro, jambre            | Fd, O  |       |
| **Nyctaginaceae** |                               |        |       |
| Bougainvillea glabra | Bougainvilia, buganvilea | O      |       |
| Bougainvillea spectabilis | Buganvill, buganvilea, buganvilea, mungavi | Ml, O |       |
| Mirabilis jalapa  | Batata-de-burro, batata-de-porco, gasimi, jesimi, maravilhas | Fr, O |       |
| **Olacaceae**     |                               |        |       |
| Ximenia americana | Ameixeira, ameixeira-brava   | Fd     |       |
Table 2. Cont.

| Taxa            | Common Names                     | Uses          | Hist. |
|-----------------|----------------------------------|---------------|-------|
| Oleaceae        |                                  |               |       |
| Jasminum officinale |                                | O             |       |
| Jasminum sambac | Jasmineiro                       | O             |       |
| Olea europaea subsp. europaea | Oliveira, oliveira-brava, zambujeiro, zambujo | O             |       |
| Oxalidaceae     |                                  |               |       |
| Averrhoa bilimbi |                                  | Fd            |       |
| Oxalis debilis |                                  | O             |       |
| Oxalis latifolia | Azedinha                         | O             |       |
| Papaveraceae    |                                  |               |       |
| Argemone mexicana |                                | ML,MT         | •     |
| Passifloraceae  |                                  |               |       |
| Passiflora edulis |                                | Fd            |       |
| Passiflora quadrangularis | Maracujá-pequeno         | Fd            |       |
| Petiveriaceae   |                                  |               |       |
| Rivina humilis | Uva-de-macaco                    | Mt            |       |
| Phyllanthaceae  |                                  |               |       |
| Phyllanthus acidus |                                | Fd,O          |       |
| Phytolaccaceae  |                                  |               |       |
| Phytolacca americana | Capa-rosa, uva-macaco      | Fd            |       |
| Phytolacca dioica | Bela-sombra                    | O,E           |       |
| Pinaceae        |                                  |               |       |
| Pinus canariensis |                                | Fu,E          |       |
| Pinus halepensis |                                | Fu,E          |       |
| Pinus pinaster  |                                | Fu,E          |       |
| Pinus radiata   |                                | Fu,E          |       |
| Plantaginaceae  |                                  |               |       |
| Antirrhinum majus | Boca-de-lobo-pequena, boca-dilobo, mataquim | ML           |       |
| Cymbalaria muralis |                                | O             |       |
| Plantago major  | Fedegosa, tanchagem, tantchas  | Fr            |       |
| Plumbaginaceae  |                                  |               |       |
| Plumbago zeylanica |                                | O             |       |
| Poaceae         |                                  |               |       |
| Arundo donax    | Caniço, cariço                  | U             |       |
| Avena sativa    | Palha-de-trigo                  | Fr            |       |
| Bambusa vulgaris | Bambu-grande, carisso-da-guiné | U             |       |
| Coix lacryma-jobi |                                | O             |       |
| Cymbopogon citratus |                             | Fd            |       |
| Eragrostis tenella |                                | Fr            |       |
| Paspalum vaginatum |                              | Fr,O          |       |
| Saccharum officinarum |                              | Fd,Fr         | •     |
| Setaria parviflora | Balanco, gógó, rabo-de-gato, rabo-de-raposã | Fr           |       |
| Sorghum bicolor | Bimberim, sorgo                | Fd,Fr,MI      | •     |
| Sorghum halepense | Achada-carreira, sololo        | Fr,U          |       |
| Stenotaphrum secundatum |                          | Fr,O          |       |
| Zea mays        | Midjo, milho, milho-de-capa-preta | Fd,Fr,MI      | •     |
| Polygonaceae    |                                  |               |       |
| Antigonon leptopus | Fátima, rosa-di-campo, rosa-di-fátima, trepadeira-de-fátima | ML,O         |       |
| Coccoloba uvifera | Bela-sombra, mogno              | O             |       |
| Proteaceae      |                                  |               |       |
| Grevillea robusta |                                | ML,T,O,E      |       |
| Taxa              | Common Names                                      | Uses | Hist. |
|------------------|---------------------------------------------------|------|-------|
| Rosaceae         |                                                   |      |       |
| *Cydonia oblonga*| Gamboeiro, marmeleiro                             | Fd   |       |
| *Fragaria × ananassa*| Morangueiro                                      | Fd   |       |
| *Malus domestica*| Macieira                                          | Fd   |       |
| *Prunus persica* | Pessegueiro                                       | Fd, O|       |
| *Pyrus communis* | Pereira, pereira-mansa                            | Fd   |       |
| *Rhaphiolepis bibas*| Nespereira, nespereira-do-japô                  | Fd   |       |
| *Rosa × centifolia*| Roseira                                          | O    |       |
| *Rosa moschata*  | Roseira                                           | O    |       |
| *Rosa sempervirens*| Roseira                                          | O    |       |
| Rubiaceae        |                                                   |      |       |
| *Cinchona pubescens*| Quineira                                         | O    |       |
| *Coffea arabica* | Caleeiro, cafezeiro                               | Fd,S |       |
| *Mitracarpus hirtus*| Beitece, beio-teso, beiteso, locotém             | Fr,P |       |
| *Morinda citrifolia*| Noni                                             | Fd   |       |
| *Spermacoce verticillata*| Bedjo-teso, biteso, lactane, locotane, locotano, velho-teso | Fr  |       |
| Rutaceae         |                                                   |      |       |
| *Chloroxylon swietenia*| Pau-setim                                        | O    |       |
| *Citrus × aurantium*| Laranjeira, laranjeira-azeda, laranjeira-doce     | Fd, M|       |
| *Citrus × limon var. bergamia* [a] | Bergamo, bergamota                              | Fd   |       |
| *Citrus × limon var. limon* | Limoeiro                                         | Fd, M|       |
| *Citrus maxima*  | Toranjeira                                        | Fd   |       |
| *Citrus medica*  | Cidreira, limoeiro                               | Fd   |       |
| *Citrus × aurantifolia*| Limeira, limeira-azeda, limeiro-pequeno        | Fd   |       |
| *Ruta chalepensis*| Arruda, aruda                                     | M, S |       |
| *Triphasia trifolia*|                                                 | O    |       |
| Salicaceae       |                                                   |      |       |
| *Salix × fragilis*|                                                   | O    |       |
| Sapindaceae      |                                                   |      |       |
| *Melicoccus bijugatus*| Aveleira, aveloa, avelon, boa-madeira, saboeira, sapodilha | P, T, M|       |
| *Sapindus saponaria*|                                                 | P    |       |
| Sapotaceae       |                                                   |      |       |
| *Manilkara zapota*| Nispere                                           | Fd   |       |
| Scrophulariaceae  |                                                   |      |       |
| *Simmondsia tenuifolia*|                                                 | O    |       |
| Simmondsiaceae   |                                                   |      |       |
| *Simmondsia chinensis*|                                               | Mt   |       |
| Solanaceae       |                                                   |      |       |
| *Alkekengi officinarum*|                                               | Fd   |       |
| *Capsicum annuum*| Malagueta, malagueta-arredondada, malaguetaona, pimentão | Fd   |       |
| *Capsicum baccatum*| Pimento                                        | Fd, O|       |
| *Capsicum frutescens*| Malagueta, malagueta-pretiaguda, malaguethina, piripiri | Fd, P|       |
| *Datura innoxia* | Barbicaca-preta, barbicaca-preti, barbicaca, berbiaca, berbicalha, burbilhaca, cardo-preto, padia-fede, palha-fede | M, O|       |
| *Nicotiana glauca*| Chaluteiro, charroteira, charuteiro, tabaco-bravo, tabamqueira | O    |       |
| *Nicotiana tabacum*| Erba, erva-brava, erva-santa, tabaco               | S, O |       |
| *Petunia axillaris*| Petunia                                           | O    |       |
| *Physalis persiciana*| Capucha, caputcha, uva-caneca, uva-canela, uva-madeira  | Fd   |       |
| *Solanum betaceum*| Tomate-arbóreo                                    | Fd   |       |
| *Solanum lycopersicum*| Camacho, tomate, tomatheiro, tomatinho         | Fd   |       |
| *Solanum melongena*| Beringela, beringela, bringela                    | Fd   |       |
| *Solanum tuberosum*| Batata, batata-inglesa, batateira                | Fd   |       |
| Talinaceae       |                                                   |      |       |
| *Talinum paniculatum*| Laranjeirinha, limãozinho                        | Fd, O|       |
**Table 2. Cont.**

| Taxa               | Common Names                        | Uses | Hist. |
|--------------------|-------------------------------------|------|-------|
| Tamaricaceae       | **Tamarix canariensis**              |      | E     |
| Tropaeolaceae      | **Tropaeolum majus**                |      | O     |
| Verbenaceae        | **Aloysia citrodora**               |      | O     |
|                    | **Lantana camara**                  |      | Fr, O, E |
|                    | **Verbena officinalis**             |      | Fd    |
|                    | **Verbena tweedieana**              |      | O     |
| Vitaceae           | **Vitis vinifera**                  |      | Fd    |
| Zingiberaceae      | **Etlingera elatior**               |      | O     |
|                    | **Hedychium gardnerianum**          |      | O     |
|                    | **Zingiber officinale**             |      | Fd    |
| Zygophyllaceae     | **Balanites aegyptiaca**            |      | E     |
|                    | **Tribulus cistoides**              |      | Fr, Ml|

[a] According to Kalita et al. [35]. • Taxa with reported historical use.

We identified 518 taxa belonging to 338 genera and 88 families (Supplementary Materials Table S1). The best represented families are the Fabaceae, with 87 taxa (four endemics); the Poaceae, with 48 taxa (two endemics); the Asteraceae, with 25 taxa (seven endemics); and the Lamiaceae, with 20 taxa (one endemic) (Figure 1A). With 11 taxa, *Acacia* is the most diverse genus, followed by *Euphorbia* (10), *Ficus* (9), *Amaranthus* (8) and *Senna* (7) (Figure 1B).

Most of the useful plants found in Cabo Verde were introduced (373 taxa, representing 72%) (Supplementary Materials Table S1); among them, about 86% are cultivated in the country. Except for the Poaceae, most of the better-represented families are mainly composed of exotic species (Figure 1A). Exotics also predominate in the best-represented genera (e.g., *Acacia*, *Euphorbia*, *Ficus* or *Amaranthus*), with the exceptions of *Cyperus* (Cyperaceae), *Echium* (Boraginaceae), *Launaea* (Asteraceae) and *Eragrostis* and *Setaria* (Poaceae) (Figure 1B).

There are 145 native taxa, 38 of them endemic, with Asteraceae (7), Boraginaceae (4), Fabaceae (4), Brassicaceae (4), Apiaceae (3) and Poaceae (2) contributing the largest number of endemic species.

Considering the distribution of the useful species in the nine Cabo Verde islands (Santa Luzia, an uninhabited island, is not included in this analysis), there are very high positive correlations of “total useful taxa” with “altitude” \((r = 0.900)\), area occupied by agriculture \((r = 0.933)\), as well as with “total taxa number” (useful or not) present in each island \((r = 0.933)\) (Figure 2). The “rural population” and the “total number of farms” display high positive correlations as well as all the farm categories: “rainfed”, “irrigated”, and “livestock farming”. Less relevant (moderately positive) is the correlation with “forest holdings”.
No significant correlations were found between the “total useful taxa” and the variables “total population”, and indicators of other economic activities such as “tourists” or “gross domestic product” (GDP).

2.3. Main Uses of Cabo Verdean Flora

Among the 11 considered classes of use, the most frequent are ornamental, with 183 taxa (corresponding to 35.3%); forage and pasture, with 171 taxa (33%); food, with 158 taxa (30.5%); environmental, with 72 taxa (13.9%); and melliferous with 71 (13.7%). The other classes represent less than 10% each (Supplementary Materials Table S1 and Figure 3).
Figure 2. Spearman correlation coefficients between useful taxa (total number and classes of use) and geographic, demographic and economic indicators. Color-coded correlation scale is provided on the right of the plot (green represents positive correlations, and red represents negative correlations); darker color tones and larger circles represent larger correlation coefficients. Values marked with an X are not statistically significant ($p$-value > 0.05).

No significant correlations were found between the “total useful taxa” and the variables “total population”, and indicators of other economic activities such as “tourists” or “gross domestic product” (GDP).

2.3. Main Uses of Cabo Verdean Flora

Among the 11 considered classes of use, the most frequent are ornamental, with 183 taxa (corresponding to 35.3%); forage and pasture, with 171 taxa (33%); food, with 158 taxa (30.5%); environmental, with 72 taxa (13.9%); and melliferous with 71 (13.7%). The other classes represent less than 10% each (Supplementary Materials Table S1 and Figure 3).

Figure 3. Main uses of the useful taxa found in Cabo Verde and respective origin in Cabo Verde.

Some taxa are used for multiple purposes, for instance, *Vachellia nilotica* subsp. *indica* is used for ornamental purposes and for forage, fuelwood, materials, and environmental objectives, in addition to being a melliferous plant. *Moringa oleifera* is a very useful plant for alimentary, pasture, ornamental and materials purposes. In addition, the native *Ziziphus mauritiana* is used for food, forage, melliferous, fuelwood and timber. However, most
taxa (350 taxa, corresponding to 67.6%) are reported for only one use, the top three being ornamental (111), forage (89) and food (88).

Native plants (including endemic taxa) represent most of the taxa used as fuelwood (57.1%), as forage (63.2%) and for utilitarian applications (53.3%) (Figure 3). Most of the endemic taxa (26) are reported as forage, exceeding the other categories by far. Exotic species are mainly present in the other categories and are particularly well-represented as ornamentals (172 taxa, 94%).

2.4. Growth form Diversity and Uses

The useful plants of Cabo Verde present a high diversity of growing habits and life cycles. About 28.4% are trees or palms, 25.3% are shrubs or subshrubs, 23.2% are annual or biennial herbs, 16.8% are perennial herbs and 6.3% are climbers, including vines and lianas (Figure 4). Trees are the most used for environmental purposes and, as expected, timber; annuals and biennials are most commonly used for forage and human food; ornamentals are mostly trees and shrubs.

Figure 4. The chord diagram shows the relation between the uses and the habit of the taxa. The areas are proportional to the number of taxa.

The use categories encompassing the widest variety of species are forage, human food and ornamental, including all growth forms.

2.5. Distribution across Cabo Verde Archipelago

Santiago and Santo Antão are the islands with more useful taxa, at 388 and 372 taxa, respectively (Supplementary Materials Table S1, Figure 5B). Fogo, Brava and São Nicolau have 297, 243 and 234 taxa, respectively. The remaining islands have between 203 (São Vicente) and 123 taxa (Sal).
2.6. Uses vs. Biogeographic Origin

The huge biogeographic diversity of exotic species among the useful flora of Cabo Verde is remarkable.

Taxa of Afrotropical origin prevail as forage (Figure 6). That is the case for grass species such as Andropogon gayanus and Urochloa xantholeuca, reported as excellent forage, or the leguminous species from the genera Crotalaria, Desmodium, Grona, Macrotyloma, Rhynchosia, Sesbania, Tephrosia and Vigna, besides several endemic species of Lotus.
Australotropical or Oriental regions (in single or mixed classes). Of the 86 taxa that do not belong to the Apocynaceae (e.g., Asclepias curassavica; Vulnerable (VU), 23 as Endangered (EN), and 5 as Critically Endangered (CR). Fourteen genera are represented by species that are endemic to the region. 

Of the same origin are most taxa used as food (e.g., species of the genera Annona, Cucurbita, and Lamiaceae (e.g., Salvia spp.), only to mention a few examples. The Neotropical region is also the main origin of melliferous plants and of the taxa used to obtain materials and timber, however with considerably lower importance.

The Austral origin prevails in the environmental purposes category, with the well-represented genera Acacia and Eucalyptus. Most taxa (364 taxa) occur in only one biogeographic region. Overall, 432 taxa, corresponding to 83.4% of all the useful taxa, occur as native in either Afrotropical, Neotropical, Australotropical or Oriental regions (in single or mixed classes). Of the 86 taxa that do not occur in at least one of these regions, more than half (54) have an exclusively Palearctic distribution.

The taxa used for ornamental purposes are mainly of Neotropical origin, namely Apocynaceae (e.g., Asclepias curassavica, Cascabela thevetia, Plumeria rubra), Fabaceae (e.g., Caesalpinia pulcherrima), and Lamiaceae (e.g., Salvia spp.), only to mention a few examples.

Figure 6. Relationship between taxa uses and biogeographic origin. The areas of the polygons are proportional to the number of taxa. (A): Afrotropical; (B): Afrotropical and Oriental; (C): Afrotropical, Oriental and Austral (optional); (D): Austral; (E): Neotropical; (F): Neotropical, Afrotropical, Oriental and Austral (optional); (G): Oriental; (H): Oriental and Austral; (I): Palaeartic; (J): Palaeartic and Afrotropical; (K): Palaeartic, Afrotropical, Oriental, and Austral (optional); (L): Neartic; (M): Other. Notes: Afrotropical (includes Afrotropical region); Austral (includes one or more of the Neogueinean, Australotemperate and Neozelandic regions); Neotropical (includes Andean region).

The Neotropical region is also the main origin of melliferous plants and of the taxa used to obtain materials and timber, however with considerably lower importance.

The Austral origin prevails in the environmental purposes category, with the well-represented genera Acacia and Eucalyptus. Most taxa (364 taxa) occur in only one biogeographic region. Overall, 432 taxa, corresponding to 83.4% of all the useful taxa, occur as native in either Afrotropical, Neotropical, Australotropical or Oriental regions (in single or mixed classes). Of the 86 taxa that do not occur in at least one of these regions, more than half (54) have an exclusively Palearctic distribution.

2.7. Native Species Conservation

Only 202 (37.6%) of the studied taxa were assessed by the International Union for Conservation of Nature (IUCN) Red List of Threatened Species [36] and Romeiras et al. [37]. Most of them (144) are classified as Least Concern (LC), 7 as Near Threatened (NT), 9 as Vulnerable (VU), 23 as Endangered (EN), and 5 as Critically Endangered (CR). Fourteen taxa are classified as Data Deficient (DD).

Forage is the use category that includes most threatened Cabo Verdean species (about 20), and most of them occur in highlands communities [37]. Several species can be pointed...
out as examples: *Diplotaxis glauca* (CR), *Tornabenea tenuissima* (CR), *Conyza foae* (EN), *Echium stenosiphon* (EN), *Echium vulcanorum* (EN), *Globularia amygdalifolia* (EN), *Helianthemum gorgoneum* (EN), *Tornabenea annua* (EN), *Tornabenea bischoffii* (EN), *Periploca chevalieri* (EN), *Sonchus daltonii* (EN), *Launaea picridioides* (VU), *Forsskaoloe procridifolia* (NT) and *Lavandula rotundifolia* (NT). Besides these herbaceous or shrub species, also trees, such as *Phoenix atlantica* (EN), are reported as fodder (leaves). Classified as Data Deficient, several species of *Lotus* (e.g., *L. brunneri*, *L. jacobaeus*, and *L. purpureus*) are also well known for their major importance as forage.

Two Endangered endemic species are used for their edible fruits: *Phoenix atlantica* and *Sideroxylon marginatum*; and *Urochloa caboverdiana*, classified as Vulnerable, is used in times of food shortage (seeds).

The populations of several endemics, such as *Echium vulcanorum*, *E. hypertropicum* (EN), *Euphorbia tuckeyana* (NT) and *Sideroxylon marginatum*, have been depleted for firewood or charcoal. Also threatened are species once widely used for leather tanning, such as *Periploca chevalieri* (leaves), and *Euphorbia tuckeyana* (sap). *Asteriscus daltonii* subsp. *vogelii* (NT) and *Pulicaria diffusa* (EN) are reported as used in fumigations, and *Dracaena caboverdiana* (CR), produces the famous dragon’s blood, a red resin used as varnish, besides being a valuable ornamental species. Other relevant endemic ornamentals are the palm *Phoenix atlantica* and the Crassulaceae *Aeonium gorgoneum* (EN).

The use of some non-endemic native taxa is also of concern. This is the case with the use as fuelwood of *Arthrocaulon franzii*, used in lime kilns, *Tamarix senegalensis*, and *Tetraena gaetula* subsp. *waterlotii*. Some of the introduced species are also classified as threatened in their native areas of distribution (e.g., *Jacaranda mimosifolia*, *Kalanchoe daigremontiana*, or *Khaya senegalensis*). However, in most cases, the unknown origin of the introduced plants in Cabo Verde (wild populations or plant nurseries) hampers a correct evaluation of their relevance for species conservation.

2.8. Agrobiodiversity and Traditional Knowledge

The plants cultivated and preserved by rural communities for a long time and, as such, extremely well adapted to the diversity of bioclimatic conditions of the archipelago constitute a valuable reservoir of plant genetic resources. The cultivation of this agrobiodiversity, together with the traditional knowledge on cultural practices (selection, propagation, and conservation), is crucial to face the drought cycles that are common in Cabo Verde and to ensure food security. However, in drought years, many of these genetic resources are lost, as farmers lose their seeds when crops fail to grow due to lack of rain.

Beans are perhaps the crop with most varieties. For example, in Santo Antão, the “feijão-caqui” (a variety of *Lablab purpureus* subsp. *purpureus*), highly resistant to dryness, keeps the pods closed at the end of maturation, thus avoiding the need to collect grains from the ground [29]. Regarding corn, the selection is made by choosing the best ears (those fully filled with grains and with more “rows”), which are not threshed until the time of sowing and from which only the largest and best-formed grains are used [29].

An example of a traditional technique for propagule conservation is, in Santo Antão, the storage of potatoes (*Solanum tuberosum*) in cool places such as caves, dug out of pozzolanic rocks, which are very common in the region due to their volcanic origin [29].

In Santiago, it is documented that sweet potato (*Ipomoea batatas*) seedlings or cuttings are sold/offered to farmers in highlands, where the cooler climate allows for their conservation; during the planting season, these same plants are again sold/offered to farmers in lower areas. This is a secular practice that is used in this and also in other islands (e.g., Fogo) and also with other crops such as cassava.

To prevent the emergence of pests during storage of seeds and the serious damage they cause, namely in maize and beans, plant species that are rich in essential oils and act as biocides are traditionally used. This is the case of pink pepper leaves (*Schinus molle*), “losna” (*Artemisia gorgonum*), neem (*Azadirachta indica*), laurel (*Laurus nobilis*), leaves and
fruits of eucalyptus (*Eucalyptus globulus*) and fruits of chilli pepper (*Capsicum frutescens*). The latter seem to allow the conservation of seeds and maintain their germination ability for many years [29].

3. Discussion

In Cabo Verde, as well as worldwide, the use of plants for a variety of purposes is a common practice. The data provided in this paper improve our knowledge of the flora used by local populations in Cabo Verde and underline the high dependence of the populations on the use of plants for multiple purposes.

Our comprehensive inventory, including historical works, collected previously ignored information on particular uses of species and also drew attention to some species that are no longer used, contributing to the general knowledge of useful species, as has been done in other tropical regions, such as South America (e.g., Câmara-Leret et al. [38]), Asia (e.g., Vu and Nguyen [39]) or Africa (e.g., Nortje and van Wyk [40]; Welcome and Van Wyk [41]), where this knowledge is still insufficient.

3.1. Taxonomic Diversity

Useful plant species make a considerable portion of total Cabo Verdean flora. With 518 taxa, they are mainly represented by introduced species (72%).

Species not previously recorded for the archipelago, to the best of our knowledge, are here reported, e.g., *Tabebuia rosea* (a Bignoniaceae with several centuries-old specimens and recently used as ornamental street tree) and the Fabaceae *Gliricidia sepium*, both in Santiago Island.

Following a common worldwide pattern [42], the three most diverse families of useful plants are the Fabaceae, the Poaceae and the Asteraceae, with a high number of crops of global significance. In addition, these families are among the largest plant families, corresponding, respectively, to the first (Asteraceae), third (Fabaceae), and fifth (Poaceae) best-represented families [43].

The best represented families are mostly composed of exotic species, with Poaceae being an exception (see Figure 1A). The high dispersal ability as well as its extraordinary adaptability to dryness [44] place this family among the most successful in the archipelago.

Species diversity is closely related with altitude, with the highest islands (Santiago, Santo Antão and Fogo) presenting the highest numbers of useful species. Furthermore, the two groups highlighted on the heat map (see Figure 5A) show that altitude is responsible for a similar pattern in the distribution of the types of uses among islands. This is certainly related with the greater suitability of high-altitude islands, with better climatic conditions, for agricultural activities (consequently housing a larger rural population) and also to the presence of a richer flora [13,45]. Moreover, reinforcing the relevance, in this respect, of more traditional economic sectors, such as agriculture, forestry and livestock farming, the diversity of useful plants is neither related with touristic activities nor with the gross domestic product—two indicators that are highly correlated ($r = 0.800$; data not shown).

3.2. History behind Diversity

The archipelago was uninhabited until it was discovered by the Portuguese in 1456, and most of Cabo Verde’s inhabitants are of mixed Portuguese and African ancestry [46]. With a five century long settlement history, the combined influences of both cultures are evident in the use of plants, with many commonly used species (e.g., fruits and vegetables from Europe, cereals from West Africa). This knowledge was further enriched with the introduction of useful plants from other regions, such as the American continent (namely Brazil and Western Indies), resulting from the overseas trade of the Portuguese since as early as the 16th century [47].

In the early times, the introduced species were essential, if not decisive, for human survival. At the same time, they supported the dominant commercial interests linked to the slave trade and supply of merchant ships.
It is interesting to reference the example of the attempt of the first European settlers to maintain their eating habits in Cabo Verde. According to Torrão [48], seeds and other propagules accompanied the Portuguese colonizers, hoping that their Mediterranean crops would provide both food and a sociocultural link to their homeland. Early chroniclers such as Valentim Fernandes by 1506 (in Monod et al. [18]) reported that, in Santiago Island, some valleys were cultivated with fruit trees used in Europe (e.g., pears, apples, oranges, lemons, figs, grapes, etc.), reflecting the wish of European settlers to maintain their own traditions. However, the climatic constraints of the tropical climate seldom allowed the successful development of some of them (e.g., the cultivation of some cereals such as wheat and barley).

In addition, with the slaves from the West African coasts came the crops included in their dietary habits, namely rice (*Oryza glaberrima*), and “milho”, referring to *Sorghum* and/or *Pennisetum*, two common crops in Guinean coasts (not *Zea mays*, the maize from South America, not yet introduced in Africa, and later also named “milho” by the Portuguese) [48]. The emotional memory attached to food was certainly an important promoter of the plant diversity that is still found everywhere in these islands.

The high number of species whose use dates back to the beginning of colonisation is remarkable. Historical documents (until the end of the 18th century) report almost 70 species, not including vegetables, which are rarely mentioned (see Tables 1 and 2).

Even considering the overall climatic constraints, the orographic diversity of the archipelago accounts for a wide range of habitat types, allowing the presence of species from temperate zones, such as Northern Europe or New Zealand, as well as of those with a tropical or subtropical distribution, e.g., from Central and South America or from India. In fact, introduced species have been a constant presence in Cabo Verde since the early times of colonization.

Due to geographical and historical circumstances, this archipelago in the middle of the North Atlantic became a pivotal region between Europe, Africa and America. This excellent location fostered the introduction of a wide variety of economically valuable plants, for acclimatization and further dissemination to other regions of the world. In fact, Cidade Velha (in Santiago), the former capital of the archipelago and the first town built in the tropics by Europeans (in the late 15th century), was an essential Atlantic port of call and rapidly became a commercial hub between Europe, Africa and the New World [49,50] promoting the introduction and later diffusion of many useful plants.

Overall, species were introduced to meet the needs of local populations, and the shifts over time reflect the changing in socio-economic requirements, from the most basic needs—food, fuelwood or timber—to higher-level demands, e.g., aesthetics.

### 3.3. Plant Uses and Sustainability

Ornamental followed by forage/pasture and food purposes are the primary uses of plants in Cabo Verde. The common use of ornamental plants in this archipelago is not surprising. The same occurs worldwide, with estimates pointing to 28,000 plant species of ornamentals (including gardening and landscaping plants), while cultivated crops correspond to about 7000 species [51]. However, it is worth mentioning that more than half of the species reported as ornamentals in Cabo Verde are also used for other purposes, namely for medicinal uses (data not included in the present analysis), food or for environmental projects.

Species used as forage or pasture, the second most reported use, are mainly from the families Poaceae and Fabaceae and are very common in grasslands and savannas. Several species are reported as high-quality forages (e.g., *Desmodium tortuosum* and *Teramnus labialis*), revealing their extraordinary value to improve natural pastures for cattle raising, a main economic sector in Cabo Verde [52].

Concerning edible species, it is interesting to note the presence of several commonly overlooked fruit-trees such as the introduced *Syzygium jambos* or *Spondias mombin*, and the reference to some native species whose fruits are used for human consumption such as
Monardica charantia, Grewia villosa, Ficus sur, F. sycomorus, Solanum scabrum (leaves also used as vegetable) and the endemics Phoenix atlantica and Sideroxylon marginatum. The flour made from dry fruits of Ziziphus mauritiana is consumed by the populations living in dry areas, and, formerly, the fruits of Tamarindus indica were cooked together with meat [53]. Other native species used for food (vegetables) are Launaea intybaecea, an ingredient of the most emblematic dish in Cabo Verde (“cachupa”), Portulaca oleracea, to make soups, Celosia trigyna, and the edible tubers of Cyperus esculentus and C. rotundus. Senna occidentalis was used, until recently, as a coffee substitute.

Particularly interesting are several native species reported as being used in times of food shortages (e.g., seeds used to make flour): the Malvaceae Melanania ovata and the Poaceae Dactyloctenium aegyptium, Setaria barbata, Urochloa caboverdiana and U. ramosa.

Note that several grass species occurring in Cabo Verde are considered as millets, a group of cereal crops with small grains used for human consumption. That is the case of the Guinea millet Urochloa deflexa, or the browntop millet Urochloa ramosa. Although abandoned many years ago, the millets are now being considered valuable functional foods for their good nutritional properties [7], and their use could be relevant to improve food security in arid regions owing to their ability to withstand adverse agroecological conditions [54].

Guinea millets, together with tubers, e.g., cassava, were the food base of island populations until the introduction of maize by the end of the 15th century/early 16th century [35]. These small grain crops are now uncommon, with maize (Zea mays) and beans (Cajanus cajan, Lablab purpureus, Phaseolus lunatus, Ph. vulgaris and Vigna unguiculata) being the prime food species in Cabo Verde [6].

Currently, maize and bean are the ingredients of traditional dishes: the “xérem” and “couscous”, prepared in different ways with maize, and “cachupa”, prepared with maize, several species of beans, cabbages, cassava and sweet potato.

Besides millets, other valuable small grain crops—Amaranthus caudatus and A. cruentus—are also present in Cabo Verde. These minor crops are presently underused but are becoming increasingly relevant as alternative crops in dry and semi-dry areas where major crops do not develop well [56], representing a promising resource to support food security.

In the early centuries of the archipelago’s colonization, several plants played crucial roles in the local economic activities. That was the case of native tanning plants, such as Periplaca chevalieri and Euphorbia tuckeyana (tanned leather was one of the most reputed exports) and the orseille, Roccella spp. or Ramalina spp. (lichens, a taxonomic group not included in the present work), widely used to dye textiles (“panos da terra”) [55] and exploited in Cabo Verde since 1469 [57]. Other relevant productions were indigo (obtained from Indigofera tinctoria), extracted and used around the 16th century [58], cotton (Gossypium spp.), sugarcane (Saccharum officinarum) and the American physic nut (Jatropha curcas), whose seed oil was extracted to make soap or candles, all main exports during the 19th century [55]. Today, and except for sugarcane—used to produce “grogue” (an alcoholic spirit similar to rum), one of the main exports, produced in Santo Antão, São Nicolau and Santiago—and coffee (Coffeea spp.)—in Fogo and São Nicolau islands (where it was introduced in 1778, [59])—these activities are almost completely abandoned.

Species used for utilitarian purposes include Sida rhombifolia, to make brooms; Urena lobata and Calotropis procura, to obtain fiber, with the latter used to fill mattresses and pillows (as reported by Roberts and Defoe [22]) as well as for firewood; Phoenix atlantica leaves, for basketry; Cyperus alternifolius subsp. flabiliformis, for mat weaving; and Dichanthium annulatum and Imperata cylindrica, for roofing.

For centuries, the continuous need for wood as a fuel for cooking and as a building material led to the overexploitation of the few native woody species and, therefore, to a severe reduction of their populations. There are interesting references in the early 18th century [22] to the over-exploitation of wild fig trees (probably Ficus sycomorus and F. sur) to build canoes, and of the dragon tree (Dracaena caboverdiana) to build houses in São Nicolau. Other widely used species were Sideroxylon marginatum, for timber, and Arthrocaulon franzii,
Calotropis procera, Dichrostachys cinerea, Echium vulcanorum, Launaea arborescens, Tamarix senegalensis and Tetraena gaetula subsp. waterlotii for firewood.

It should be noted that the percentage of inhabitants currently using fuelwood is still quite significant, particularly in Fogo (50.1%), Santo Antão (39.6%), Santiago (30.9%) and Maio (30.5%) (see Supplementary Materials Table S2).

The social and cultural role of plants is also relevant in Cabo Verde, with particular species being of great symbolic value for ceremonial festivities. A few examples are the use of leaves of Phoenix spp. for religious ceremonies, such as at Easter time, or to decorate the streets to welcome governors in colonial times, or the use, in São Nicolau, of the endemic Asteriscus smithii in bonfires on Saint John’s eve.

To meet population needs, as well as to restore degraded land and improve soil characteristics, several woody species were introduced through afforestation programs, especially by the mid-20th century. In the highlands of Santo Antão, Santiago and Fogo, species of the genera Eucalyptus, Hesperocyparis and Pinus, among others, were and still are widely planted, while the lowlands are extensively afforested with the Southern American Prosopis juliflora, species of the genera Acacia and Vachellia, and Ziziphus mauritiana. To halt the erosion of slopes, several exotic species such as Aloe vera, Lantana camara, and Furcraea foetida were formerly used. Native grasses, such as Heteropogon contortus and Bothriochloa bladhii, are also reported as important species for this purpose, and their use may be a good alternative to consider.

With the increasing valuation of native species (e.g., Bozzano et al. [60]), the use of autochthonous resources in reforestation/afforestation programs is now being promoted by the Cabo Verdean authorities in charge of forestry—e.g., Direção Geral da Agricultura Silvicultura e Pecuária (DGASP-MAAP) and international agencies (such as the World Bank, the United States Agency for International Development, or the Global Climate Change Alliance). These species are better adapted to local conditions and more likely to enhance biodiversity and improve ecosystem services while providing traditional products (e.g., fruits, wood) to local communities.

Most of the useful species in Cabo Verde are introduced and/or distributed worldwide and, as such, they do not represent serious conservation issues, except for the environmental impacts resulting from the invasive behaviour of some of them. This is the case with Lantana camara, Furcraea foetida, Prosopis juliflora or Eucalyptus spp., which are currently seriously damaging native species and ecosystems.

More worrying is the overuse of some native species (e.g., the non-endemic Tamarix senegalensis or Ficus spp.) and, in particular, of the 38 endemic species listed in the present work, most of them endangered. Reported for all use types, they are relevant in the livelihood of Cabo Verdean population.

The end of some commercial activities (e.g., tanning, dyeing) and the switch from firewood to cooking gas, especially in rural households, have reduced anthropogenic pressure, but the sustainability of some native plant populations (e.g., Sideroxylon marginatum, Dracaena caboverdeana) is far from certain.

Finally, most ornamental species are introduced and do not raise conservation concerns. However, some native or even endemic species (e.g., Echium spp., Nauplius spp., Phoenix atlanticca or Aeonium gorgoneum) are become increasingly attractive to local population as ornamentals and for other purposes, which may threaten their populations. This situation can be avoided, provided that cultivation is promoted and no pressure is imposed on wild populations. On this issue, it is interesting to note that schemes are being proposed (e.g., Krigas et al. [61]) to assess the potential of neglected or underused local endemic plants. Ensuring the safeguarding of native populations, which in Cabo Verde involves their prior recovery, will allow for the sustainable exploitation of these resources and benefit the local economy. In this respect, it is important to mention that several local initiatives, promoted by government agencies and non-governmental organizations (for example, the “Associação Projecto Vité” on Fogo Island), have played a relevant role in informing and involving local populations in the safeguarding of threatened taxa.
4. Materials and Methods
4.1. The Study Area

Cabo Verde is a volcanic archipelago in the Atlantic Ocean, with 10 islands and several islets, about 600 km off the West African coast. The topography is generally very rugged, with high massifs and deep valleys. The island of Fogo reaches the highest elevation at 2829 m, followed by Santo Antão (1979 m), Santiago (1392 m), and São Nicolau (1304 m) [13].

A dry tropical climate with two well-marked seasons (humid and dry) and a limited and irregular rainfall (mean annual value about 300 mm) constrains the distribution of flora and vegetation. However, the topography contributes to significant spatial variations according to altitude and exposure to prevailing winds, leading to contrasting weather conditions [13,45]. Cabo Verde’s biodiversity is poor when compared to the other archipelagos of Macaronesia [62]. Native flora comprises about 400 taxa [63], of which 92 are endemic [32]. Plant communities are diversified and include open woodlands, scrubs, savannas and grasslands [33].

Among the main economic activities are livestock rearing (cattle, goats, poultry, pigs, rabbits, donkeys, and horses) and agriculture, with the latter limited to areas of adequate topographic and edaphoclimatic conditions [4,52].

To mitigate the effects of erosion, afforestation programmes were initiated in the 19th century and intensified during the 20th century, especially in mountainous areas of higher altitude islands (namely, Santo Antão, Santiago and Fogo) and in the more humid windward-facing slopes; the forestation of arid lowlands is more recent, dating from the second half of the 20th century [64,65].

4.2. Listing Useful Plants

A comprehensive review of the literature, including the Flora of Cabo Verde [66–68] and scientific publications (e.g., [11,15,16,25,29,31,63,69–96]), was undertaken to compile the list of useful plants in Cabo Verde and respective common names. We also examined several historical documents published between 1506 and the late 19th century, namely Valentim Fernandes 1506–1510 (in Monod et al. [18]), Gaspar Frutuoso, 1522–1591 (in Frutuoso [20]), Roberts and Defoe [22], Feijó (in Feijó [24], and Gardêre et al. [25]), Forster [23], Chelmicki & Varnhagen [26,27], and Ficalho [58], which allowed us to identify the species used since the first settlements. These historical references help to understand how and when species were introduced and to provide a historical perspective on this subject. Information collected from herbarium specimens, especially LISC Herbarium (University of Lisbon), which hosts one of the most complete collections of Cabo Verdean plant species, was also used, as well as data collected in all the islands during field surveys performed by the authors (especially M.C.D., I.G., S.G., A.R., and M.M.R.) during the last decades.

Taxa nomenclature primarily follows Plants of the World Online [30]. Other databases, such as World Flora Online [34], were occasionally used. Note that there is still some uncertainty about the classification of some endemic taxa, which has led to frequent nomenclatural changes; the most relevant cases (for example, in the Apiaceae) are duly noted.

Information about growth form (habit) was obtained from taxa descriptions in the Flora of Cabo Verde and in World Flora Online [34]. Seven categories were considered: annual/biennial herbs, perennial herbs, shrubs/subshrubs (inc. rosette shrubs), trees (including palms and tree-like species), annual herbaceous climbers (annual vines), perennial herbaceous climbers (perennial vines) and woody climbers (lianas).

Eleven categories of uses (adapted from Cook [97]) were considered: food for humans (including beverages, food additives, spices, condiments, colorants, etc.); forage for livestock (including plants for pasture); materials (including plants producing gums, resins, oils, latex, waxes, tannins, dyes, etc.); timber; poison (e.g., for hunting and fishing, or used as biocides); melliferous; social uses (including stimulant, smoking materials, and plants used in ceremonial or ritual practices); fuelwood (firewood, charcoal); utilitarian (including plants used to make domestic utensils or tools, and sources of fibres); ornamental (garden plants, street trees, hedge plants, etc.); and environmental use (for revegetation, forestation.
and erosion control, as windbreaks, etc.). Medicinal species and gene source plants were not included in the present analysis.

Species distribution in Cabo Verde and worldwide was mainly based on the Flora of Cabo Verde [66–68], Sánchez-Pinto et al. [63] and Plants of the World Online [30]. Biogeographic distribution was established for each taxon using the regions established by Morrone [98] (Nearctic, Palaeartic, Neotropical, Afrotopical, Oriental, Australotropical, Andean, Afrotropical, Antarctic, Neoguinean, Australotemperate and Neozelandic). When the species occurred in two or more regions, classification was based on the main distribution area(s). To avoid a large number of classes with a very low representation in Cabo Verde, some regions were merged (for details see the legend of Figure 6).

The conservation status was obtained from Romeiras et al. [37] and the IUCN Red List of Threatened Species [36].

4.3. Geographic and Socio-Economic Data

Fourteen indicators, summarized in Supplementary Materials Table S2, were selected to study the relationships between the diversity and distribution of useful flora in Cabo Verde with geographic, demographic, and economic factors. Data were obtained from official sources, produced by public authorities, namely Instituto Nacional de Estatística [14,99,100], Ministério da Agricultura e Ambiente [101] and Ministério do Desenvolvimento Rural [102].

4.4. Data Analysis

The relationships between the diversity and distribution of useful species and the geographical, demographic and economic indicators were analyzed using Spearman’s rank correlation coefficients. Correlation values were calculated using the “cor” function and the “Spearman” method. A probability value equal to or less than 0.05 was used to determine statistical significance. The visualization of the correlation matrix was produced with the packages “ggplot2” and “ggcorrplot” and the function “ggcorrplot”. All these statistical analyses were performed in R v. 4.0.5 [103].

The chord diagram showing the relation between the uses and the habit of the taxa was performed with the package “circlize” v.0.4.14 and the function “chordDiagram”.

The heatmap was produced based on the number of taxa with different use categories, for each island. This analysis was performed with the function “heatmap”, and the resulting chart was normalized by columns.

The treemap chart, providing a hierarchical view of the data, was created in Microsoft Excel v.2202.

5. Conclusions

This study shows that the biodiversity of Cabo Verde is threatened by human activities that meet the basic needs of local populations in the particularly harsh environment of this Macaronesian archipelago. This calls for the integration of scientific information with local indigenous knowledge, but comprehensive knowledge of the plants traditionally used is unavailable. Therefore, we used an integrative approach (i.e., (1) the taxonomic diversity and phytogeographic distribution of useful plants in Cabo Verde; (2) the role of geophysical, demographic, historical, economic, and socio-cultural factors on species distribution and uses; and (3) the potentially relevant species, particularly native ones) for the sustainable development of the archipelago. Information about the plant species and their uses was obtained for 11 categories of uses (e.g., food, forage/pasture, materials, timber, poison, melliferous, social, fuelwood, utilitarian, ornamental and environmental), and species biogeographic distributions and conservation status, as well as 14 geographic and socio-economic indicators, were also taken into account.

Cabo Verde was uninhabited before the mid-15th century, and many exotic plant species were introduced, first to ensure human survival and later also to support commercial interests. In this study, we identified 518 useful taxa (88 plant families), of which only
145 are native and 38 are endemic. Taxa of Afrotropical origin prevail as forage, whereas ornamentals are mainly Neotropical. Only less than 38% of the recorded taxa were assessed by the IUCN Red List, and they include 44 species classified with some level of threat. The number of useful taxa is correlated with altitude and agricultural area, as well as with the size of the rural population, number and type of farms, but not with total population or socio-economic indicators such as the number of tourists or gross domestic product. Plants are primarily used as ornamentals and for forage and food; native taxa—including many threatened ones—are mostly used for fuelwood, forage and utilitarian purposes. The islands where agricultural activities prevail present more useful taxa than the others. The agrobiodiversity and traditional practices (e.g., multiple cropping, selection of resistant varieties and storage of propagules) are crucial to cope with recurrent droughts and to ensure food security in Cabo Verde. Our inventory discloses previously ignored information on particular species; in particular, some species are no longer used.

This study improves the knowledge of the useful plants of Cabo Verde. Most of the useful species are introduced but do not represent serious conservation problems; of much more concern is the overuse of some native taxa and, in particular, of 38 endemics listed, most of them endangered. Only by ensuring the safeguard of native plant populations in Cabo Verde will the sustainable exploitation of these resources be possible and benefit the local economy.

Supplementary Materials: The following supporting information can be downloaded at: https://www.mdpi.com/article/10.3390/plants11101313/s1. Table S1. Useful plant species in Cabo Verde islands: taxonomic diversity, origin and uses. Table S2. Geographic, demographic and economic indicators for Cabo Verde.

Author Contributions: Conceptualization, M.C.D. and M.M.R.; methodology, M.C.D. and M.M.R.; field surveys, M.C.D., I.G., S.C., A.R. and M.M.R.; investigation, M.C.D. and M.M.R.; data curation, M.C.D., S.C., M.B. and M.M.R.; results analysis, M.C.D., M.M.R. and S.C.; writing—original draft preparation, M.C.D.; writing—review and editing, M.C.D., I.G., S.C., M.B., I.B., H.D., V.S.F., A.R.F., S.G., Â.M., A.R. and M.M.R. All authors have read and agreed to the published version of the manuscript.

Funding: This research was funded by the Fundação para a Ciência e Tecnologia (FCT) and Aga Khan Development Network (AKDN) through the project CVAgrobiodiversity/333111699 and also by research units: UIDB/04129/2020 to Linking Landscape, Environment, Agriculture and Food (LEAF), and UIDB/00329/2020 to Center for Ecology, Evolution and Environmental Changes (cE3c).

Data Availability Statement: We confirm that all data are original and provided in Tables and Figures within the article and in the Supplementary Materials.

Acknowledgments: The authors would like to acknowledge the support provided by Fundação para a Ciência e Tecnologia (FCT) and Aga Khan Development Network (AKDN).

Conflicts of Interest: The authors declare no conflict of interest.

References
1. Ceballos, G.; Ehrlich, P.R.; Dirzo, R. Biological annihilation via the ongoing sixth mass extinction signaled by vertebrate population losses and declines. Proc. Natl. Acad. Sci. USA 2017, 114, E6089–E6096. [CrossRef] [PubMed]
2. Kier, G.; Kreft, H.; Lee, T.M.; Jetz, W.; Ibisch, P.L.; Nowicki, C.; Mutke, J.; Barthlott, W. A global assessment of endemism and species richness across island and mainland regions. Proc. Natl. Acad. Sci. USA 2009, 106, 9322–9327. [CrossRef] [PubMed]
3. Florencio, M.; Patiño, J.; Nogué, S.; Traveset, A.; Borges, P.A.; Schaefler, H.; Amorim, I.R.; Arnedo, M.; Ávila, S.P.; Cardoso, P.; et al. Macaronesia as a fruitful arena for ecology, evolution, and conservation biology. Front. Ecol. Evol. 2021, 9, 718169. [CrossRef]
4. Monteiro, F.; Fortes, A.; Ferreira, V.; Essoh, A.P.; Gomes, I.; Correia, A.M.; Romeiras, M.M. Current Status and Trends in Cabo Verde Agriculture. Agronomy 2020, 10, 74. [CrossRef]
5. Varela, D.; Monteiro, F.; Vidigal, P.; Silva, L.; Romeiras, M.M. Mechanisms implemented for the sustainable development of agriculture: An overview of Cabo Verde performance. Sustainability 2020, 12, 5855. [CrossRef]
6. Brilhante, M.; Varela, E.; Essoh, A.P.; Fortes, A.; Duarte, M.C.; Monteiro, F.; Ferreira, V.; Correia, A.M.; Duarte, M.P.; Romeiras, M.M. Tackling Food Insecurity in Small Island Developing States: The Nutritional, Agricultural and Environmental Values of the Legume Species. Foods 2021, 10, 206. [CrossRef]
Plants 2022, 11, 1313

37. Romeiras, M.M.; Catarino, S.; Gomes, I.; Fernandes, C.; Costa, J.C.; Caujapé-Castells, J.; Duarte, M.C. IUCN Red List assessment of the Cape Verde endemic flora: Towards a global strategy for plant conservation in Macaronesia. *Bot. J. Linn. Soc.* 2016, 180, 413–425. [CrossRef]

38. Câmara-Leret, R.; Paniagua-Zambrana, N.; Balslev, H.; Macia, M.J. Ethnobotanical knowledge is vastly under-documented in southwestern South America. *PLoS ONE* 2014, 9, e85794. [CrossRef]

39. Vu, D.T.; Nguyen, T.A. The neglected and underutilized species in the Northern mountainous provinces of Vietnam. *Genet. Resour. Crop. Evol.* 2017, 64, 1115–1124. [CrossRef]

40. Nortje, J.M.; van Wyk, B.-E. Useful plants of Namaqualand, South Africa: A checklist and analysis. *S. Afr. J. Bot.* 2019, 122, 120–135. [CrossRef]

41. Welcome, A.K.; Van Wyk, B.-E. An inventory and analysis of the food plants of southern Africa. *S. Afr. J. Bot.* 2019, 122, 136–179. [CrossRef]

42. Diazgranados, M.; Allkin, B.; Black, N.; Cámara-Leret, R.; Canteiro, C.; Carretero, J.; Eastwood, R.; Hargreaves, S.; Hudson, A.; Milliken, W.; et al. *World Checklist of Useful Plant Species*; Royal Botanical Gardens: Kew, UK, 2020; pp. 1–689. [CrossRef]

43. State of the World’s Plants. Available online: https://stateoftheworldsplants.org/2017/report/SOTWP_2017_1_naming_and_counting_the_world_s_plant_families.pdf/ (accessed on 11 January 2022).

44. Linder, H.P.; Lehmann, C.E.R.; Archibald, S.; Osborne, C.P.; Richardson, D.M. Global grass (Poaceae) success underpinned by studies on recent radiated insular groups: A meta-analysis using Cabo Verde biodiversity. *Int. J. Mol. Sci.* 2019, 20, 216. [CrossRef]

45. Beleza, S.; Campos, J.; Lopes, J.; Araújo, I.I.; Hoppfer Almada, A.; Correia e Silva, A.; Parra, E.J.; Rocha, J. The admixture structure and genetic variation of the archipelago of Cape Verde and its implications for admixture mapping studies. *PLoS ONE* 2012, 7, e51103. [CrossRef] [PubMed]

46. Santana-Pérez, J.M. The African Atlantic islands in marine history during the Ancien Régime. *Int. J. Marit. Hist.* 2018, 30, 634–648. [CrossRef]

47. Torrão, M.M. *Dietas Alimentares: Transferências e Adaptações nas Ilhas de Cabo Verde, 1460–1540*; Instituto de Investigação Científica Tropical: Lisbon, Portugal, 1995; pp. 1–108.

48. Wieczorek, J.-P. *Las Plantas de Cabo Verde*; Fundação Berardo: Lisboa, Portugal, 1990; pp. 1–228.

49. Khoshbakht, K.; Hammer, K. How many plant species are cultivated? *Genet. Resour. Crop. Evol.* 2008, 55, 925–928. [CrossRef]

50. Fortes, A.R.; Ferreira, V.; Barbosa Simões, E.; Baptista, I.; Grando, S.; Sequeira, E. Food Systems and Food Security: The Role of Small Farms and Small Food Businesses in Santiago Island, Cape Verde. *Agriculture* 2020, 10, 216. [CrossRef]

51. Gomes, I.; Gomes, S. *Arvores Centenárias de Cabo Verde (Fichas técnicas)*; INIDA: São Jorge dos Órgãos, Cabo Verde, 2018.

52. Garí, J.A. Review of the African millet diversity. In Proceedings of the International Workshop on Fonio, Food Security and Livelihood among the Rural Poor in West Africa, Bamako, Mali, 19–22 November 2001; pp. 1–9.

53. Carreiro, A. *Migrações nas Ilhas de Cabo Verde, 2nd ed.*; Instituto Caboverdiano do Livro: Praia, Cabo Verde, 1983; p. 322.

54. Trucco, F.; Tranell, P.J. *Amaranthus* In *Wild Crop Relatives: Genomic and Breeding Resources*; Kole, C., Ed.; Springer: Berlin/Heidelberg, Germany, 2011; pp. 11–21. [PubMed]

55. Senna, M.R.L. *Dissecação Sobre as Ilhas de Cabo Verde, 1818. Anotações e Comentários de A. Carreira*; Instituto Caboverdiano do Livro: Praia, Cabo Verde, 1987.

56. Ficalho, C. *Plantas úteis do Brasil*; Imprensa Nacional: Lisbon, Portugal, 1884; pp. 1–279.

57. Rocha, A. *Subsídios para a História de Santo Antão (1462/1983)*; Imprensa Nacional de Cabo Verde: Praia, Cabo Verde, 1990; pp. 1–131.

58. Bozanno, M.; Jalonen, R.; Thomas, E.; Boshier, D.; Gallo, L.; Cavers, S.; Bordacs, S.; Smith, P.; Loo, J. *Genetic Considerations in Ecosystem Restoration Using Native Tree Species. State of the World’s Forest Genetic Resources—Thematic Study*; FAO and Bioversity International: Rome, Italy, 2014; pp. 1–282.

59. Krigas, N.; Tsoktouridis, G.; Anestis, I.; Khabbach, A.; Libiad, M.; Megdiche-Ksouri, W.; Ghribi-Gammar, Z.; Lamchouri, F.; Tsiripidis, I.; Tsiafouli, M.A.; et al. Exploring the potential of neglected local endemic plants of three Mediterranean regions in the ornamental sector: Value chain feasibility and readiness timescale for their sustainable exploitation. *Sustainability* 2021, 13, 2539. [CrossRef]

60. Romeiras, M.M.; Pena, A.R.; Menezes, T.; Vasconcelos, R.; Monteiro, F.; Paulo, O.S.; Moura, M. Shortcomings of phylogenetic studies on recent radiated insular groups: A meta-analysis using Cabo Verde biodiversity. *Int. J. Mol. Sci.* 2019, 20, 2782. [CrossRef]

61. Sánchez-Pinto, L.; Rodríguez, M.L.; Rodríguez, S.; Martín, K.; Cabrera, A.; Marrero, M.C. *Pteridophyta, Spermatophyta* In *Lista Preliminar de Especies Silvestres de Cabo Verde (Hongos, Plantas y Animales Terrestres)*: 38–57; Arechavaleta, M., Zurita, N., Marrero, M.C., Martín, J.L., Eds.; Consejería de Medio Ambiente y Ordenación Territorial, Gobierno de Canarias: Canarias, Spain, 2005; pp. 38–57.

62. Costa, F.L. Contribuições para o conhecimento dos processos erosivos em Cabo Verde. *GeoNov* 2004, 9, 215–244.
96. Instituto Nacional de Investigação e Desenvolvimento Agrário. *Lista de Variedades Hortícolas Recomendadas em Cabo Verde*. 2012. Available online: [http://www.portaldocnhecimento.gov.cv/bitstream/10961/1920/1/Lista%20de%20Variedades%20Hort%C3%ADculas%20Recomendadas%20em%20Cabo%20Verde.pdf](http://www.portaldocnhecimento.gov.cv/bitstream/10961/1920/1/Lista%20de%20Variedades%20Hort%C3%ADculas%20Recomendadas%20em%20Cabo%20Verde.pdf) (accessed on 24 February 2022).

97. Cook, F.E.M. *Economic Botany Data Collection Standard*; Royal Botanic Gardens: Kew, UK, 1995; p. 146.

98. Morrone, J.J. Biogeographical Regions under Track and Cladistic Scrutiny. *J. Biogeogr.* 2002, 29, 149–152. [CrossRef]

99. Instituto Nacional de Estatística. Estatísticas do Ambiente 2016. Available online: [https://ine.cv/publicacoes/estatisticas-do-ambiente-2016/](https://ine.cv/publicacoes/estatisticas-do-ambiente-2016/) (accessed on 14 February 2022).

100. Instituto Nacional de Estatística. Avaliação de Impacto da Pandemia da COVID-19—Inquérito Rápido às Empresas 2º Trimestre 2020. Available online: [https://ine.cv/publicacoes/avaliacao-impacto-da-pandemia-da-covid-19-inquerto-rapido-as-empresas-2o-trimestre/](https://ine.cv/publicacoes/avaliacao-impacto-da-pandemia-da-covid-19-inquerto-rapido-as-empresas-2o-trimestre/) (accessed on 15 February 2022).

101. Ministério da Agricultura e Ambiente. V. *Recenseamento Geral da Agricultura 2015. Principais Resultados Definitivos*; Ministério da Agricultura e Ambiente: Praia, Cabo Verde.

102. Ministério do Desenvolvimento Rural. Inventário Florestal Nacional de Cabo Verde. 2012. Available online: [http://www.caboverdeifn.ifer.cz/?page_id=8](http://www.caboverdeifn.ifer.cz/?page_id=8) (accessed on 10 February 2022).

103. R Core Team. R: A Language and Environment for Statistical Computing. R Foundation for Statistical Computing: Vienna. Available online: [https://www.R-project.org/](https://www.R-project.org/) (accessed on 14 January 2022).