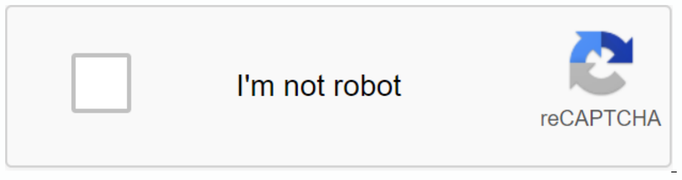

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Coastal plains climate

The climate of the coastal plain is mild, with hot summers and cool winters with little frost hardy frost. Precipitation is high, especially along the coast, and seasonal. The average annual high temperature is around 77 degrees, although highs in the upper 90s are not uncommon during the midsummer period. Although the coastal plain experiences temperatures below freezing every winter, temperatures are on average in the 50s. A full description of the climate in the coastal plain can be found in the brochure of the National Climatologist's Office. To open this file, you need the Adobe Acrobat Reader. It can be downloaded for free from Adobe. enscarpment- steep cliffs - narrow waters between islands - a fracture in the rock of the earth's surface There are five subregions of the Texas Gulf Coastal Plains: the Piney Woods, the Post Oak Belt, the Blackland Praire, the Gulf Coastal Plain and the South Texas Plains. There are many big cities in the Gulf Coast plains that you may recognize. Some of these cities are: HoustonAustinSan AntonioDallasTexarkanaCorpus Christi The Gulf Coastal Plains region is the wettest of the four regions. It gets the most rainfall, but like all other regions it is still prone to drought. The summers here are hot and humid with a lot of rain. The winters are mild with a little cold and little rain. In summer, this region is a hotspot for hurricanes. The Gulf Coastal Plains region is hit by many hurricanes. On average, this region hit about per year. The Gulf Coastal Plains is mainly Praire along the Gulf Coast. But in other parts of the region, vast fields of colorful wildflowers are a common sight. This region is famous for its wide fields of state flower; Bluebonnets. People come from near and far to take pictures in these beautiful flowers. In other parts of this region, the short grass of the plains makes it perfect for ranchers to graze their cattle. The Gulf Coastal Plains region has many different land forms. Probably the largest - the region after which the region was named is the Gulf of Mexico. The Gulf Coast and the Gulf Islands make up most of the Gulf Coast Plains. One of the most famous of these islands is Galveston Island. The three largest industries in the Gulf Coast region are: oil, fishing and livestock farming. The short grass of the Praire along the Gulf Coast makes it perfect for the cattle pasture. The Gulf of Mexico is full of fish. This makes fishing a very common job and passtime. The Gulf Coastal Plains region is rich in oil, so people can also drill for a job. The Gulf Coastal Plains region has many water resources. There is the Gulf of Mexico, the Guadalupe River, the Red River at the The Oklahoma border, the Sabine River on the Louisiana border of Texas, and the Rio Grande on the Texan border. Some non-water resources are the short grass of Oil that people come from all over the country to drill, and the fish provided by the Gulf and the rivers. As an eco-region that occurs at the intersections between continent and ocean and between tropical and temperate climates, the Mid-Atlantic Coastal Plain is equally ecologically dynamic and diverse. Natural communities are moving, and new species are appearing on the biological horizon. The Mid-Atlantic Coastal Plain is almost a factory for the production of new and new species, communities and ecological patterns and processes. The Mid-Atlantic Coastal Plain (MACP) occupies 26 million acres east of the fall line between Piedmont and Atlantic Coastal Plain, south of the James River in Virginia, and north of Charleston Harbor, South Carolina. About two-thirds of this very rich ecoregion is located in North Carolina. This is the land of long-leaf pines and bare cypresses; of soil foliage forests and swamps; pocosins and palmettos; carolina Bays and Carolina Sandhills; the outer shores and some of the best and most active coastal dunes, sounds and estuaries in the world; natural fires, floods and storms are so dominant in this region that the landscape changes very quickly. Rivers routinely change courses and get out of their banks. ClimateThe coastal climate is humid summers and temperate winters. Plants & AnimalsThe eco-regional planning team working on this region has set targets for 561 targets (97 animal species, 224 plant species, 240 plant community species), including the red-tailed woodpecker, Venus flytrap, the red wolf and the now extinct Carolina Paradiskich.People & HistoryThis is a dynamic and damaged region where threat reduction is extremely frightening and almost always requires active conservation efforts. Today, almost a third of MACP's rarest plants and one-tenth of its natural communities have already disappeared or been severely degraded, and much of the rest, including nearly two-thirds of the macP's rare fauna, is in very serious trouble. Key threats (sources of biological and environmental stress) in the region include: global climate change and rising sea levels; altered surface hydrology and land shape change (e.g. flood protection and hydroelectric power stations, water transfers between basins, drainage ditches, broken dikes, artificial dikes, dredged inlets and river canals, beach rehabilitation and depraved deposit benches and piles); a regionally declining groundwater level, probably due to both overuse and insufficient charging; firefighting; Land fragmentation, mainly due to the expansion of motorways; Land use conversion (e.g. from forests to plantations, farms, golf courses, housing estates and resorts); the invasion of exotic plants and animals; air and water pollution, mainly due to agricultural activities, including concentrated concentrations of Feeding operations; overharvesting and poaching, especially of rare reptiles and carnivorous plants. It is important to note that most of these threats are very synergistic. For example, global climate change facilitates invasions by non-native species. Land-use conversion and fragmentation inhibit the ability to reduce fire suppression and use prescribed fires as a management tool. Concentrated feed lots were important sources of water pollution. The coastal plains are a lowland, mostly flat area, which stretches 3200 km, from Cape Cod, then along the Atlantic coast, to the west to Mexico. The average altitude is less than 200m above sea levelMore than half of the coastal plains is less than 30m above sea levelContaining a lot of wetland, especially swamps & swamps. Both are sources of shellfish and many other aquatic life forms. Previously, the gradual decline of the land allowed the sea to sink the underpass of streams that cross the plainsThe Mississipi Delta is the place where the Mississippi River flows into the Gulf of Mexico, creating large fertile land that is used for agriculture. Climate and temperatures vary by part of the regionThe north has cold, snow-covered winters and hot, humid summersThe south is home to subtropical weather conditions, with mild to warm winters and hot summers. Although snow is common, the total rainfall is lower in the north than in the south. Florida, for example, has up to 200 mm of rain in the summer months. Soils are mostly sandThe natural vegetation in the plains has adapted to the sand, especially in some areas where lush jungles have grown. The vegetation originally consisted mainly of pine forests, before the sandy environment was formed Industries found in the coastal plains include processing, manufacturing and marketing of products, especially seafood and wood. Others are tourism & recreation, shipping, paper making, commercial fishing and forestry. Pollution is a major environmental problem at the coastal plainone concerns the groundwater discharge of submarines (SGD). Groundwater is released on beaches and coastal environments and degrades the quality of seawater, lower habitats and coral reefs. The climate in the Coastal Plains region of Texas is very humid. Obviously, the closer you get to the coast, the wetter it gets. It also rains a lot in the coastal plains. You get about 20 - 58 in the rain per year! The average temperature in summer is 93oF, and in winter 65oF. It is considered moist subtropical or simply subtropical. There are also many leisure activities to do all year round. is played in autumn, basketball in winter and lacrosse in spring, and since the Coastal Plains are located on the coast, boat activities are very common, especially in summer when is the best weather for boating. Educational resources in your inbox join our community of educators and get the latest information about National Geographic resources for you and your students. D.S.D. Araujo, in Coastal Plant Communities of Latin America, 1992Sandy coastal plains and related vegetation species are found along most tropical, subtropical and temperate Brazilian coastlines. Many different geomorphological formations can be found on this coast with a corresponding variety of different plant communities, which have often been classified in the phytogeographical literature under the broad category of Restinga vegetation. The chapter gives an overview of the phytogeographical treatment of Brazil, in which four formations on sandy substrate were detected within the broad category restinga: (1) beach halophytes, (2) coastal clerophyllous thicket, (3) coastal swamp forests and (4) lagoon hydrophytes. The classification of plant communities on sandy coastal plains in Brazil is also discussed. Attempts have been made along the tropical Brazilian coast to classify the sandy coastal vegetation types that were few and were confined to one state or region.G. Carleton Ray, in the Encyclopedia of Biodiversity, 2001Classification is essential as a comparative reference system, otherwise data and information cannot be made comparable among the estuaries. Various classifications or typologies of estuaries have been attempted, but most of them are physical; no typology is specifically focused on biodiversity, although the distribution of estuaries has led to different classification schemes. To my knowledge, the first classification was the so-called Venice system (Anonymous, 1959), in which estuaries were divided into salt zones. This was later changed by Bulger et al. (1993) on the basis of the salt tolerances of the species. These two schemes are quite closely consistent and can be compared as follows (Anonymous, 1959 = V; Bulger et al., 1993 = B; PPT = parts per thousand): Limnetic: freshwater, 0.5 ppt (V); Freshwater, 4 ppt (B) Oligohaline: 0.5-5 ppt (V); 2-14 ppt (B) Mesohaline: 5-18 ppt (V); 11-18 ppt (B) Polyhaline: 18-30 ppt (V); 16-27 ppt (B) Euhaline: 30 ppt-full marine (V); 24-ppt marine (B)The reason for the differences in salinity is between the Venice system and Bulger et al. is that the former was derived from the salinity, while the latter was analytically derived from the salt tolerances of the species in which the zones would be expected to overlap. In both cases, however, the compartments are too simple, as estuaries have many characteristics that affect the biotic and influence the distinction of estuary zones, variably identified as upper sands, upper middles, underpasses, etc. Salinium-derived systems also do not distinguish zones Variations in soil type, water movement, flow volume and other attributes important for the biota. Another classification concerns pelvic geomorphology, which is of obvious importance for circulation patterns. The classification on this basis appears in many texts and can be summarized as follows:•Coastal estuary (drowned river valley): Normally limited to areas with a wide coastal plain where seawater has penetrated existing rivers since the Pleistocene Ice Age. In general, the congestion limit is in the mouth where the chlorine inity is about 0.06% (salin content about 0.1%); above this point there may be a part of the tidal freshwater.•Fjord: Generally U-shaped in the cross-section, in which the sides are steep and glaciated. Can be fed by a river, have a deep basin, and a flat threshold may be present near the mouth.•bar built: Occurs in shallow, low-lying areas where sand tends to be deposited in bars parallel to the coast. Usually flat and wind-mixed. May be a network of drowned river valleys and indentations and occurs when offshore sand barriers between headlands are built into a chain to enclose the body of water. Can be fed by several rivers, but the entire drainage area is usually not large.•tectonic: A different category, including estuaries, which are formed from faults or wrinkles of the Earth's crust. Often have an excess of freshwater flow. The exchange of fresh water and seawater offers a further classification. The inlet (mouth) must be of sufficient dimension to allow the mixing of seawater and fresh water, and the dilution of seawater provides the density gradients that drive characteristic circulation patterns. With regard to this exchange, the general classification is:•Salt wedge: Where a layer of relatively fresh water emanates on the surface.•Partially mixed (moderately layered): Wheretidal currents, turbulences and mixing are increased, the salt wedge tends to erase the salt wedge.•vertically homogeneous: Where the tidal current is strong, the flow is weak and all stratification is degraded. that is, it may be possible to find a layered or mixed bar built estuary, or a fjord with a salt wedge or not. In addition, the extents of salinity zones can vary considerably across all categories. Such combinations of structure and hydrological process lead to very different conditions in the distributions, e.g. sediments, phytoplankton, submerged water-diving vegetation as well as fish and invertebrates. In addition, fluctuations in freshwater inputs, turbulence and mixing change the typology. A final classification concerns the development of the estuary, such as that of Roy (1984) for estuaries of New South Wales, Australia. There are estuaries of three successor species: drowned river valleys, barrier estuaries and salting coastal lakes. All are characterized by filling relatively short periods of time. This affects their size, configuration, the invasion of mangroves and other aquatic vegetation, and fish communities. Biodiversity maxima are achieved in the intermediate stages, as population densities and biodiversity increase with ecological complexity. However, continued completion simplifies the mouth and reduces biodiversity. Therefore, estuarine geology, hydrology and biology form a hierarchical sequence. Renwick, in Encyclopedia of Inland Waters, 2009The coastal plain in northwestern Canada and adjacent Alaska is a unique lake region. This area is an extensive permafrost in a low-relief environment. Parts of this region were glaciated during the Pleistocene period, but much was not. The Arctic lowlands are home to dozens and perhaps hundreds of thousands of shallow lakes. Some of them are covered by peat, while others are deposited on glacial deposits or marine sediments derived from previous high sea levels. In today's age of rising temperatures, many lakes are formed, which are then drained by thawing of permanently frozen soil. When ice-rich sediments begin to thaw, they can settle when water melts and is ejected from the sediments. Areas of shallow standing water form, and because in the short warm season this water absorbs and stores more heat than the surrounding contemplative areas, the thawing and depositing of sediments under it is accelerated. This process is called thermokarst and leads to the formation of lakes. At the same time, many lakes are drained while the thawing and discontinuation of sediments continues. Curtis J. Dell, Jeffrey M. Novak, in Managing Agricultural Greenhouse Gases, 2012The Coastal Plain is an extensive geophysical province that stretches from southern New Jersey along the Atlantic coast across the Gulf coast of Mexico to southeastern Texas (Figure 3.1), with farmland covering about 15% of the region's total land area (USDA, 2006). The coastal plain was created by a series of sea level rises and recessions and subsequent depression and erosion forces (Siple, 1967). The landscape is relatively flat and characterized by scars and terraces due to changes in sea level, sediment deposition and river section over time. The altitude ranges from sea level to about 150 m (Daniels et al., 1999). Ultisols are the dominant coastal plain ground order. Stable coastal surfaces developed aged soils that included an eluvial (E) horizon, weathered clays (Daniels et al., 1967a) and a reddened argillic B-horizon (Daniels et al., 1967b). Due to the extreme age, the Precipitation and humid climate many of the ultisols have a high degree of weathering, resulting in low pH (unless chalky), highly weathered clay (Shaw et al., 2004; Novak et al., 2009), low cation exchange capacity (<2 to 4 cmolc kg1; Kleiss, 1994) and SOC content (0.2 to 0.8 g kg 1; Hunt et al., 1982; Novak et al., 2009). Coastal Plains sandy soils also often have a restrictive underground hard layer (Mullins, 2000; Chartres et al., 1990), which can limit root penetration (Busscher et al., 2001). The average rainfall is 1000-1500 mm (from north to south), with maximum rainfall in high summer in the eastern part and in winter and spring in the west. Average temperatures range from 13 to 20 °C (from north to south), the average number of frost-free days between 200 and 305 (USDA, 2006). Piedmont stretches from the Appalachians to the Coastal Plain, from Alabama to southeastern Pennsylvania (Figure 3.1). Farmland accounts for 8% of the Region of the Southern Piedmont Major Land Resource Area (MLRA) and 28% of northern Piedmont MLRA (USDA, 2006). Piedmont can be heavily hilly and contain soils that have formed in unstable positions where soil profile expression was limited (e.g. inceptisols, entisoles). In more stable positions, such as gently rolling topography, soils are older and show more soil profile development (alfisols and ultisols). Piedmont soils are often formed from residuum or alluvium along streams and rivers (Daniels et al., 1999), resulting in textures that vary from fine-toned to coarse. Profile horizon sequences of Piedmontese soils are very variable. Profiles can consist of kaolinitic, mixed and smectitic clays and are low in basic saturation depending on age due to leaching from the rock nut materials (Daniels et al., 1999). The average rainfall is 940-1525 mm in -1 (from north to south). Average temperatures range from 9 to 18 °C (also from north to south), with the average number of frost-free days between 185 and 275 (USDA, 2006). The Appalachian Ridge and the valleys stretch from northern Alabama to central Pennsylvania (Figure 3.1). Parallel ridges of limestone, slate and sandstone are separated by narrow to moderately wide valleys, which range from almost flat to gentle hills. Soils are usually flat on ridges, but can be deep and productive in larger valleys. Valley soils are classified as inceptisols, alfisols and ultisols with loamy or loamy textures and drainage, which typically range from overly drained to moderately well-drained. Croplands occupy about 15% of the Ridge and Valley landscape. The average rainfall is 800-1300 mm, with the maximum rainfall from late winter to early summer. Average temperatures range from 11-17°C in the southern part and 7-14°C in the north, with an average of 205 frost-free days in the south and 180 days in the north (USDA, 2006). A Part of northern Pennsylvania and New York is located on the glaciated Appalachian Plateau (Figure 3.1). Soils are mainly formed from glacial and rinsing (April et al., 1986). Soils that on semi-stable plateaus are classified as inceptisols or alfisols with a loamy texture. These soils range from shallow to moderately deep with drainage from good to very poorly drained. Soils in the rinsing areas are classified as entisole, inceptisols or spodosols and can be well-drained to well, especially if the texture is dominated by sand (April et al., 1986). Cropland is usually found on wide plateau peaks, which fall almost flat to moderately and are dissected by narrow, steeply walled valleys. About 17% of the land area on the Appalachian Plateau is used for plant production (USDA, 2006). It should be noted that the large amount of rock material on the cash register surface and in the profile of the glacial soils makes agricultural production more difficult; extremely rocky serving areas remain for forest production. The average rainfall is 760-1200 mm, with much of it as snowfall. The average temperature is 4-10°C, with an average of 165 frost-free days per year (USDA, 2006). The physiographic province of New England (Figure 3.1) covers the northernmost part of the eastern U.S. state and is part of the Appalachian Highlands. More than 80% of New England is mountainous and forested, with less than 4% of the area being used for crop production. Most of the cultivated area is located on gently curved high and coastal lowlands. The predominant cultivated soils are entisole and inceptisols, which form and rinse from the glacier coffers. The driest month is 850-1400 mm. The average temperature is 6-12°C in the southern part of the region and 4-9°C in the north, with an average of 190 frost-free days in the north of the region decreasing for 160 days.R.A.J. Taylor, in Taylor's Power Law, 2019The Elbe estuary is a coastal estuary stretching 140 km from the North Sea to 40 km southeast of Hamburg. It is one of the most polluted rivers in Europe with waste water and industrial waste. Holst et al. (1998) carried out a survey of the rotting community in the tidal ranges of the Elbe west of Hamburg. They took weekly samples from March to July 1995 at low tide and 1 and 2 h before and after low tide in a shallow back water 15 km downstream from Hamburg. In addition, at low tide, 4 samples were taken at 8 stations 10 km apart in the main canal between Hamburg and the sea. All samples were taken from 2.25 l of water from the upper 1 m and sifted to extract organisms. Rotifers in all samples were counted under the microscope. Subsamples were examined and all faeces were identified. More than 70, mostly freshwater species were identified and a single species, Keratella cochlearis, accounted for 32% of individuals. The 1 of Holst et al. lists 75 taxa caught in 11 rehearsal

cases at the backwater site. Your Fig. 2 indicates the average density ()L) that is 5 samples with ebb and flow and Table 1 indicate the abundance of taxa at each sampling, encoded 1-5 as < 1%, 1%-2%, 2%-5%, 5%-10% and > 10%. Given the frequency codes and average density per sample date, approximate densities can be calculated for each taxon date combination. Approximate densities were validated against Holst et al.s Fig. 4 with the mean density of the 12 most common species. Since the samples were taken at the same location, but at intervals before and after low tide, the TPLs derived from this data are hybrid TPLs.In Table 1 of Holst et al. data where no taxon was recorded were left blank. If zero counts are not included in the TPL analysis, this can have a profound impact on the results. Mixed species and variances with (Fig. 9.3A) and excluding (Fig. 9.3B) Zero counts are based on different taxa figures: 76 with zeros and 44 without (Annex 9.C). Uncontained zeros also distort the end of low-density regression, reducing the correlation coefficient from r = 0.99 to 0.94 and significantly increasing the TPL slope from b = 1.70 ± 0.03 to b = 2.57 ± 0.13. The same method applied to the Community TPL also increases the slope, but without loss of data points or distortion at the lower end, since most points are above the Poisson line.Fig. 9.3. Community (NQ = 76, NB = 11) and mixed species (NQ = 11, NB = 76) TPP of fists in the Elbe estuary differ when zero counts are included in the analysis. (A) Types found in at least one site are listed as zero counters instead of missing entries (zeros included). (B) As reported by the authors with zero counts listed as no count (zeros excluded). (Data from Table 1 and Figures 2 and 4 in Holst et al. (1998).) The zero-to-zero effect on TPL raises the question of when the absence of a person from a sample should be counted as zero or ignored. The absence of a taxon from a sample may be due to the fact that the site is really missing or that there is a density below the sampler's detection threshold. Increasing the efficiency of the sampler can make it sensitive enough to catch the rare person, but has no effect in sampling outside the target area. Pragmatically, if a taxon is missing from a site in all samples, it seems reasonable to assume that it is really absent and should not be counted in a sample. However, if it occurs in one or more samples, it should be counted as zero in the others. The estimate of mixed species is comparable to the temporal and spatial estimates of the heifers in Bowles' (1974) from Lake Eufaula.Christopher R. Burn, in Reference Module in Earth Systems and Environmental Sciences, 2020Many dew lakes in the Arctic coastal plains of Canada, Alaska and Siberia are elongated and aligned in a common direction. Some of the lakes are located in eroded by ice sheets (Figs. 3 and 21), but many seem to be caused by the wind-activated circulation of seawater (Mackay, 1963). In the sandy plains of the western Arctic coastal areas, the lakes are perenning to the prevailing wind direction. This was attributed to the movement of water in two cells from the windy shore to each end of the lake, then to the Leeufer and back across the lake. The current should be fastest at the end of the lake due to the integrated river along the wind bank. In contrast, the stretching in the silts and tons of Old Crow Flats is parallel to the prevailing winds. The difference is due to the minimal erosion caused by lake currents in sediments, which are not usually suspended in seawater but accumulate at the point of the wave effect, and the considerable erosion that occurs when finer sediments can be suspended and removed from the lake shore (Roy-Léveillée and Burn, 2016).L.R. Dillenburg, ... M.L. Porto, in Coastal Plant Communities of Latin America, 1992A common feature of most sandy coastal forests is the reduced size of the trees. Adaptation of woody and herbaceous species for survival on barren soils requires a reduction in stature and potential growth rates, with a choice for species and ecotypes with low demand for nutrients in the soil (Grime, 1983). The low water absorption capacity, ion adsorption, buffering capacity and observed micronutrient contents are characteristic of sand in general (Dudal, 1976). The forest floor is poor, both in the total N and in the available P; therefore, many species may have been excluded. The low pH of the sandy soil can lead to a toxic effect of the interchangeable Al and impair the nutrient availability (e.g. phosphorus). The toxic effect of Al can be determined by its saturation value at the interchangeable sites of soil particles (Al%) 56% between 30 and 45 cm. Values above 30% have a strong negative impact on plant development and growth in the cerrado vegetation of central Brazil (Goodland and Ferri, 1979). Overall, soil infertility increased slightly with depth, as reported in similar soils (Lemos et al., 1973). This can have important effects on the dynamics of root growth, as roots tend to exploit soil microsites with higher nutrients (Fitter, 1987). Most tree roots in a similar forest were concentrated on the soil surface (Oliveira, 1975). The frequent occurrence of scleromorphism and succulence in these forests is also associated with soil properties. Scleromorphism of leaves can cause a low phosphorus and nitrogen availability in local soil (Beadle, 1953; Loveless, 1961; Oliveira. The presence of terrestrial succulents in the study area suggests that water availability plays an important role in the design of this type of vegetation. Although the average annual rainfall of 1318 mm/year mm/year it is lower than in other regions of the state (Machado, 1950). In addition, wind speeds along the coast are higher than elsewhere and can have significant dehydration effects on tree foliage, especially if enriched with salt particles (Kuhlmann, 1956)The interpretation of tree diameter distributions is several limitations (Leak, 1964; Hett and Loucks, 1971; Johnson and Bell. However, the diameter distribution of the sampled trees indicates an age balance in the coastal forest and favorable conditions for tree regeneration. This also applies to persons of S. klotzschiana, despite some gaps in larger diameter classes, which may indicate past removal of mature trees. A homogeneous diameter distribution of C. sylvestris could indicate reduced regeneration under current conditions or rapid growth with a constant shift of individuals from lower to upper diameter classes (Knight, 1975). About 33% of E. uniflora individuals had diameters between 5 and 10 cm. The peak in the number of trees in the 10 cm and 15 cm diameter class (47%) indicates a recent reduction in reproductive potential or rapid growth in early stages, leading to the accumulation of individuals in medium-diameter classes (Knight, 1975). The state of Rio Grande do Sul is part of a biogeographical transition zone between northern tropical and southern regions with moderate temperate regions (Cordazzo and Seeliger, 1988). The local species Bumelia obtusifolia, Casearia sylvestris, Eugenia uniflora, Ficus organensis, Guapira opposita, Lithraea brasiliensis, Myrrhinium loranthoides, Ocotea pulchella and Rapanea umbellata have been reported for tropical calm forests of the Brazilian coast (Ule, 1901; Reitz, 1961; Segadas-Vianna, 1967; Araujo and Henriques, 1984; Pinto et al., 1984). Other characteristic species of tropical Restinga forests have their southern distribution limit north of the study area on the coast of the state of Santa Catarina (Waechter, 1990). Most of the tree species studied in this study were also reported for similar forests in the southern coastal region of the state (Porto and Dillenburg, 1986), where vegetation is influenced by cold temperate elements. Sebastiania klotzschiana was the dominant species in the studied sandy coastal forest. A similar dominance was described for inland forest areas in Rio Grande do Sul (Baptista and Irgang, 1972; Knob, 1978; Jarenkov and Baptista, 1987). The geographical distribution of S. klotzschiana extends from the state of Minas Gerais (Brazil) to Uruguay, Argentina and Paraguay. It is typically a pioneer species (Rambo, 1951, 1958), prefers moist sites, but is rarely shady forest stands, such as the rainforests along the Atlantic coast (Mata Atlantica) (Rambo, 1960; Alvarez Filho. Reitz et al., 1963). Information on Autoecology, Reproductive Biology and Competitiveness of S. S. still lacks to explain the overwhelming dominance of this species in several forests. Casearia sylvestris and Eugenia uniflora are common components in well-lit open stands, such as gallery and island forests or on the edge of denser rainforests. C. sylvestris is a pioneer inge tree, but unlike S. klotzschiana, it thrives on dry, poor soils (Rambo, 1958; Reitz et al., 1963; Klein and Sleumer, 1984). Eugenia uniflora is often associated with moist sites (Legrand and Klein, 1969; Reitz et al., 1963). Most of the other species studied are either rare or absent in the neighbouring rainforests (Mata Atlantica), with the exception of Guapira opposita, characteristic of coastal rainforests (Veloso and Klein, 1963), which was represented by only one person in this survey. The biodiversity (H = 1.98) of the tree component in the sandy coastal forest was compared to an Araucaria forest (H = 2.93) in the state of Rio Grande do Sul (Jarenkow and Baptista, 1987), a tropical forest (H = 3.6) in the Brazilian state of Sao Paulo (Martins, 1979) and a permeable forest stand (H = 4.3) in the Amazon (Pires et al. , 1953). The low diversity of the forest level studied could be related to the interaction of latitudinal, edapho-climatological, temporal and historical factors. The increasing latitude reduces biodiversity (Buzas, 1972) and limits the distribution of arboreal vegetation. Tropical components gradually disappear and move south from the state of St. Catarina to Rio Grande do Sul State (Waechter, 1990). In addition, the forest formations in Rio Grande do Sul in the southern part of the state are becoming more and more restricted in size. Unfavourable soil conditions and dried-up coastal winds further limit the number of tolerant tree species, as has been observed elsewhere (Rodrigues, 1961; Anderson et al., 1975; Prance. Finally, none of the species studied or observed in this forest is confined to this physiographic region; in fact, most have a wide spread throughout the state of Rio Grande do Sul. According to Rambo (1954), the geologically young substrate of the coastal plain was colonized by pre-adapted species of older continental substrates. Therefore, the recent geological history of the coastal sandplain may have limited the successful settlement of many tree species. Poorly developed forests on well-drained sand plains along the north coast of the Rio Grande do Sul are probably edaphic formations (Small, 1961), as they contrast strongly with plyatic peak forests on the slopes of the coastal mountains under similar climatic conditions. A significant invasion of species from mature pluvial forests was observed only in forest stands on humid plains, where drainage is neither too high (e.g. sand forests) nor too low (e.g. peat forests) (Veloso and Klein, 1963). There is a debate debate whether forests on sandy coastal plains represent successor stages of the mature pluvial forest, as proposed by Velos and Klein (1963), or represent only edapthise formations, which are limited in their development by the peculiarity of the substrate. Long-term follow-up studies or careful comparison between locations of different ages, but similar topographical and edapthise conditions, are necessary to answer these questions.S. Fujino, ... T. Ichihara, in Tsunamiites, 2008Phra Thong Island and Khao Lak have flat coastal plains surrounded by straight beaches. Phra Thong Island (Fig. 8.2A) is about 100 km north of Phuket Island. The west side of the island is flat and mainly covered with grass, with small sand ridges near the coast. The tsunami flooded this part of the island. We conducted a survey along a transect parallel to the tsunami's inseating direction. Figure 8.2. Areas flooded by the tsunami (modified by the Environmental Geology Division, 2005) and survey points. (A) Phra Thong Island; (B) Khao Lak area. Copyright © 2005 The Khao Lak study area stretches 13 km from Khao Lak to Cape Pakarang (Fig. 8.2B). It is a 2 km wide coastal plain, which is begort with coconut trees. The tsunami eroded the coast and flooded most of the plain. We examined three transects perennially to the shore.J. Shamshuddin, ... U.S. Near, in Advances in Agronomy, 2014 Acid sulphate soils occur sporadically in the coastal plains of countries around the world. The soils are characterized by a low pH value and the presence of sulfur-containing horizon, above sulphide materials, mostly pyrite (FeS2). This pyrite is slightly oxidized when the soils are drained to make way for development (e.g. agriculture). During the process of pyrite oxidation, a straw-yellow mineral called jarosit emanate is formed and finally high acidity and toxic aluminium are released into the environment, which affects plant growth. This chapter examines the studies carried out in South-East Asia on the management of soils for sustainable plant production. Some of the soils are used for the cultivation of rice, oil palms and cocoa with mixed success because of their inherently low fertility and Al and/or Fe toxicity. Lime, basalt or organic fertiliser can be used for rice cultivation to reduce soil infertility. The application of lime or basalt increases the pH of the soil, which leads to precipitation of the inert al-hydroxides. Oil palms can be successfully grown on acidic sulphate soils if the correct water management practice is carried out. The outflows in the oil palm plantation should be designed in such a way that that the excess water is removed from the area while the water level is maintained above the pyrite layer. Cocoa grows poorly on acidic sulphate soils due to low pH and Al toxicity. However, with sufficient limration, with ground magnesium lime and organic matter, the soils can be productive for Production. In general, acidic sulphate soils can be made productive for rice, oil palm or cocoa cultivation by increasing the pH of the soil with lime or basalt, applying organic matter or applying appropriate water management practices.G. MILTON WARD, ... AMELIA K. WARD, in The Rivers of North America, 2005The Suwannee River Basin is located in the physiographic province of Coastal Plain (CP), an area with relatively little relief. Upper strains of the Suwannee drainage lie within the physiographic units Tifton buoyancy and okefenokee basins. The Tifton Buoyancy is a plain with low relief with a mountainous area that lies 15 to 60 m above relatively narrow valleys. The Okefenokee Basin is characterized by very small reliefs, numerous and extensive swamps and local sand ridges. Sediments from the upper Suwannee Basin are of marine origin and are typical of coastal plain basins. They are heavily weathered and poorly consolidated, dominated by sands, clays and gravel from Miocene to the Holocene (Environmental Protection Division 2002). Soil types in the Suwannee River basin vary depending on height and underlying geology. The soils in the alapaha river basin are well-drained, with loamy sandy soils and loamy substrates, while the soils in the Withlacoochee are less well-drained spodzoles (sandy soils where a layer of aluminium and organic matter has accumulated due to poor drainage). Further east in the Okefenokee swamp, the soils are very organic, extremely acidic and saturated or covered with water all year round. The hydrological and biological properties of the Suwannee River are closely linked to the physiography and underlying geology of the region. What is today the Panhandle and the Peninsula of Florida is the emerging part of a larger geological feature called the Floridan Plateau, which consists of layers of sand and limestone up to a depth of one kilometer or more (Rosenau et al. 1977). The upper portion of these limestone and dolomite deposits contains an extensive aquifer covering all of Florida, as well as parts of southeastern Alabama, South Georgia, and southwestern South Carolina. In Florida, he is known as a Florida aquifer. Mainly an artesian aquifer, the Florida aquifer contains large amounts of solution channels, cavities and sink holes through which surface water leaks and enters the system. Impermeable surface deposits restrict much of the Florida aquifer, but in the Suwannee and nearby basins, these deposits have been eroded to uncover a large number of sources emanating from the aquifer below. The Suwannee Basin is completely within southeastern coniferous forests terrestrial eco-region. In Georgia, the basin borders well-known langlaubene forests in southeastern Alabama and southwest Georgia. However, little remains of the native populations, and the region today contains many pine species and mixed oak pine forests. A large part of the Coniferous and deciduous forests have been replaced by commercial forests, most of which have been converted into commercial pine species. In the upper Suwannee Basin in Georgia, 62% of the forest area is in the commercial forest (Environmental Protection Division 2002). In Florida, the upper Suwannee was historically dominated by hardwoods in northern Florida, high wood hammocks, long-leafed pine-turkey oak hills and swamp foliage/shrub bogs (SRWMD 2001). The middle Suwannee regions contained long-leaf-pine-turkey oak, mixed hardwoods and pines, highland hardwood hammocks and swamp foliage. The climate in the catchment area of the river Suwannee is characterized by hot summers, mild winters and abundant rain. The air temperature patterns for the Suwannee River basin are similar to those of the other eastern gulf basins. The average annual temperature for the basin is 20.2°C and ranges from 18.3°C in the upper parts of the basin to 22.2°C in the south. Typical average daily air temperature for the warmest months, July to August, is 27°C, and for the coolest month, January, is 11°C (see Fig. 4.21). The average annual rainfall (134 cm) is similar to other eastern gulf pools, ranging from 114 cm/year in Georgia to 142 cm/year in Florida. Precipitation occurs as precipitation, and the basin width is relatively eventhroughout throughout the year, although the high summer may be slightly drier until late autumn (see Fig. 4.21). Interestingly, near the Gulf Coast (Wilcox, Florida), numerous convection thunderstorms form a pattern in summer, with maximum rainfall from June to August. FIGURE 4.21. Average monthly air temperature, precipitation and drain for the Suwannee River Basin. The eastern headwaters of the Suwannee Basin are protected within the Okefenokee Wildlife Refuge. South of the refuge are extensive swamps, little agriculture and little urbanization. In the western headwaters, the rivers Withlacoochee and Alapaha, agriculture is much more abundant, and there are many small towns. Some sub-basins are up to 80% agricultural. Although agriculture had little impact on many shoreareas, significant shore vegetation was removed in smaller tributaries. A large part of the Suwannee Basin remains forested (38%), although a significant proportion is located in cultivated pine plantations (G. M. Ward, unpublished data). Of the others, 30% were in agriculture, 22% in wetlands and <1% in urban or suburban areas. The main population centers are Lake City, Florida, and Valdosta, Georgia. Georgia.

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