Bibliography of Forestry in Puerto Rico

Menandra Mosquera, JoAnne Feheley, Compilers

An Institute of Tropical Forestry Publication
COMPILERS:

Menandra Mosquera, formerly working as a college librarian in Puerto Rico, is now living and working in Washington, D.C. The nucleus of this work originated with references for a bibliography on the history of the Institute of Tropical Forestry by Ms. Mosquera. It was part of the coursework for her Master's Degree in library science from the University of Puerto Rico.

JoAnne Feheley is the library technician at the Institute of Tropical Forestry in Río Piedras, Puerto Rico.

The compilers decided to broaden extensively the original concept and make this a record of written material on all forestry activities in Puerto Rico.

This work was done in cooperation with the University of Puerto Rico.
BIBLIOGRAPHY OF FORESTRY IN PUERTO RICO

MENANDRA MOSQUERA and JOANNE FEHELEY, COMPILERS

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We dedicate this bibliography to Dr. Frank H. Wadsworth to express our appreciation for his recommendations and guidance in this work and for his constant support to strengthen and maintain the Institute's outstanding tropical forestry library.
This annotated bibliography provides sources of literature regarding Puerto Rico's practice of forestry and allied fields. It includes references to texts, journal articles, newspaper articles, theses, booklets, proceedings, investigations and reports, the majority of which were written between 1887 and 1978.

The entries in this bibliography vary greatly in significance but are purposely included in order that it be an historical record as well as a source of scientific or technical information.

Most of this material is part of the library collection of the Institute of Tropical Forestry, and much of it can be located in tropical forestry centers throughout the world.

Publications listed in this bibliography are arranged alphabetically by lead author. The Author Index provides access to names of authors who are not lead authors. The Subject Index refers to key topics, discussed or cited in the publications, which may not be ascertained through the titles. Only those species names which appear in the title are indexed. In both Author and Subject Indexes, the numbers shown refer to the number of the publication in the bibliography.

If any errors or omissions are noted in the bibliography, we would appreciate your informing the Library, Institute of Tropical Forestry, Southern Forest Experiment Station, P.O. Box AQ, Río Piedras, Puerto Rico 00928.

Esta bibliografía provee literatura relacionada a la práctica de dasonomía y especialidades afines en Puerto Rico. Incluye referencias de libros, artículos de revistas, artículos de periódicos, tesis, folletos, actas, investigaciones e informes, la mayoría de los cuales han sido escritas desde 1887 hasta 1978.

Los apuntes en esta bibliografía varían grandemente en significado pero han sido incluidos con el propósito de usarlos como una recopilación histórica al igual que una fuente de información científica y técnica.

La mayoría de este material es parte de la colección de la biblioteca del Instituto de Dasonomía Tropical, y la mayoría de ellos pueden ser localizados en los centros de dasonomía tropical a través del mundo.

Las publicaciones listadas en esta bibliografía han sido alfabéticamente ordenadas por primer autor. El índice de autores proveerá acceso al nombre
de los autores principales y co-autores. El índice de materia dirigirá a las materias claves discutidas o citadas en las publicaciones que no son autoexplicativas a través de los títulos. Sólo incluimos los nombres de las especies que aparecen en los títulos. Tanto en los índices de autor y de materia, los números refieren al número de la publicación en la bibliografía.

Si nota algún error u omisión en esta bibliografía, será apreciado si ellos fuesen referidos a la atención de la biblioteca del Instituto de Dasonomía Tropical, Apartado AQ, Río Piedras, Puerto Rico 00928.
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   1979. Historia geográfica civil y natural de la Isla de San Juan Bautista de Puerto Rico. Editorial Universitaria, San Juan, P.R.

   This is latest edition of this book, the original of which was written in 1788.

3. Acosta, José de.

   The natural and cultural history of the Indians. [Puerto Rico].


   A procedure for the quantitative description of vegetation geometry is presented with diagram and computer computations.


   Proceedings of the Southern Regional Technical Work-Planning Conference of the National Cooperative Soil Survey.


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   1968. I think that I shall never see a Puerto Rican tree... The San Juan Star [San Juan, P.R.], July 28, 1968.

   Article about Puerto Rican indigenous species.
8. Albanese, Lorelei.
   1974. There's more to a forest than the trees. The San Juan Star [San Juan, P.R.], Feb. 24, 1974.

   Maintenance and management problems in Río Abajo Forest, one of Puerto Rico's 13 forest reserves.


10. Alexander, William Henry.

11. Alexopoulos, Constantine J.

   Sixty species of slime molds were collected in the Caribbean Islands during a six-week period in 1965 and 1966. Myxomycetes fructifications were less abundant in these rain forests than in temperate forests in rainy periods.


    1962. Notes on a mangrove channel at La Parguera, P.R. [Unpublished manuscript].


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   An effort to save the parrot.

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   Information about ornamental and shade trees.
19. Angleró, José I.  
The need of shade for livestock is discussed.


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History of the cyclone on the day of Saint Cyriacus.

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25. Arrarás, J. D.  

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Controversy over the planting of the Honduras pine and the introduction of the mycorrhiza fungus in Puerto Rico.

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History of the silviculture in Puerto Rico from 1830 to 1962.


The agrarian reform movement in Puerto Rico from 1510-1961.


Description of Cinnamodendron macranthum (Pleodendron macranthum (Baill.) v. Tiegh).


The life cycle of the sierra palm, studied in environment chambers and in the rain forest of Puerto Rico, suggests that Euterpe is adapted to conditions inside the forest and is a normal component of rain forest vegetation, not a successional species as previously assumed.


38. Barker, E. Eugene.  

39. Barres, H.  
Rooting medium influences the growth and survival of Honduras pine in a hydroponic culture.

40. Barres, H.  
Recent forestry research undertaken in Puerto Rico, including site evaluations and species trials.

41. Barrett, O.W.  
A record of the deforestation begun prior to 1850, with consequent rarity of many forest trees.

42. Barrett, O.W.  

43. Barrett, O.W.  
Annotated and descriptive list of cultivated and naturalized species and varieties of food plants.

44. Barrett, O.W.  
This is an address delivered at the School of Tropical Medicine in San Juan, P.R.

Description of two new varieties of the "Caribbean Pine."

46. Bartlett, Federico P.  

47. Bascopé, R.  
The mangroves in America are described.


The planting of trees in school areas is discussed.


Farm silviculture is outlined.


An article about planting trees on farms in Puerto Rico.


Report of work done during July 1924.


What silviculture can do for Puerto Rico.


Introduction of exotic trees to Puerto Rico.


The effects of the hurricane of Sept. 13, 1928 on various trees in Puerto Rico.

57. Bates, Charles Z.

Silviculture on the farm, a necessity in Puerto Rico.

58. Bates, [Charles] Z.

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59. Baynton, H. W.

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61. Beard, John Stewart.


65. Beinroth, F. [Friedrich] H.

66. Beinroth, Friedrich H.

67. Bell, C. A.

Germination of Phytolacca and other species was studied in
12 seed flats filled with soils from six stations in and around the North Cut Center. Half of the flats of soil were moved into the sunlight and half were distributed to the sites of soil collection. Disturbance stimulated germination even in the shade, but explosive seedling production required sunny exposure.

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The birds of Puerto Rico.

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Protoplasm-ecology investigations on mangroves of Puerto Rico.

Investigation on Laguncularia racemosa (L.) and other mangroves of Puerto Rico.


A mathematical model is presented for the flow of hydrogen and tritium through the rain forest system at El Verde, Puerto Rico.

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   Scientific-technological aspects of the environmental
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90. Boone, R. S., and M. Chudnoff.
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   P.R. [Discontinued series].
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   physical and mechanical properties of 8-10 year old Pinus
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   Insecticides other than borax and BHC formulations and
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   gave control at low dosages, and further study was
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107. Briscoe, C. B.

108. Briscoe, C. B.
109. Briscoe, C. B.  

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Teak plantations, 8 to 10 years old, were pruned to improve log quality.


Permanent plots established in 1943 to study growth in the Tabonuco forest type in Puerto Rico indicates that the relation of mortality to diameter at breast height for understory species is independent of the relation for canopy species.


Teak plantations, 3 to 16 years old, were thinned and fertilized in an effort to increase productivity.

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Narrative of botanical collecting in 1914 on the mainland of Puerto Rico and on the islands Mona and Desecheo in the Mona Passage.

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Narrative of studies along the western and southern coasts of Puerto Rico and a visit to the island of Cayo Muertos.
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A description of this island and a catalog of species.

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127. Britton, N. L.

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141. Britton, N. L.

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142. Britton, N. L.

The investigation and observations made from November 1929 to April 1930.


Descriptions of orders, families, genera and species, with keys, synonymy, and geographic distribution of the species, and their Spanish and English names. Perhaps the plant life of no other area of equal size in the world has been as adequately covered as the flora of Porto Rico has been in this work.


Descriptions of orders, families, genera and species, with keys, synonymy, and geographic distribution of the species, and their Spanish and English names. Perhaps the plant life of no other area of equal size in the world has been as adequately covered as the flora of Porto Rico has been in this work.

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147. Bruner, E. M. [Murray].  
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The disappearance of the mangroves in the reefs of Puerto Rico.


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187. Chudnoff, M.
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Third comprehensive progress report on low investment non-pressure wood preservation techniques for fence posts. About 6,700 treated and non-treated control posts representing some 70 species are under study.

A brief description of a commercially feasible post incising machine is given. Groundline incising together with a single universal hot-and-cold bath schedule was tested as a practical method of treating batches of mixed species.

A brief description of a commercially feasible post incising machine is given. Groundline incising together with a single universal hot-and-cold bath schedule was tested as a practical method of treating batches of mixed species.

A simple but highly sensitive wafer assay was used to classify the treatability of the more common woods of Puerto Rico and the Virgin Islands. Sapwood only was tested to reflect the large number of small diameter trees available for posts and short poles.


This fourth comprehensive progress report on low investment non-pressure wood preservation techniques describes in detail the materials and treatment methods used, the chemical retentions, and soil and climate at each plot. It also reviews the condition of the posts through the April 1972 inspection. Most of the posts have been in service for 13 years and some tentative as well as final conclusions are made.


Solar and air drying time of seven charges of Honduras mahogany of varying thicknesses and one mixed charge of 11 hardwoods species has been determined.


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Local distribution of tree frogs was studied in the vegetation of the Luquillo Forest at two stations. Examinations of stomach contents suggests that their food includes predominantly beetles and ants.


Measurements of stomatal numbers and sized were made in leaves of the Luquillo Forest. Larger sized stomata and larger numbers of stomata were found in species inhabiting higher altitudes where the air remains close to saturation.


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A comprehensive interception study was carried out in a  
  montane rain forest in eastern Puerto Rico. Results  
  indicate that the factors of intensity, duration, and  
  overall distribution of storms by storm size must be taken  
  into consideration when determining the fate of isotopes  
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  Report PRNG-147. 142 p. Puerto Rico Nuclear Center,  
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The findings of two new objectives of a seven-year  
Terrestrial Ecology Program are discussed: the effects  
of gamma radiation on a tropical forest ecosystem and  
the measurement of fall-out nuclides in the rain forest  
  system.
Samples of litter and soil from the Puerto Rican rain forest were censused for nematodes in the Radiation, Control, and Cut Centers. Reasons for a marked decrease and for the extent of its duration throughout the year are unknown.

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233. Cowley, G. T.

234. Cowley, G. T.

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235. Cowley, G. T.

Population numbers of microfungi on leaf samples of two principal tree species were variable, but there were detectable differences in the species composition of the microbial community according to substrate tree and height.

236. Crawford, G. L.
Regression analysis is often used to estimate tree biomass as a function of tree dimension, but most regressions are developed for a specific species and site. Broader applications may be valid in some cases. These results suggest that common regressions also exist for estimating aboveground biomass and total tree biomass.

Measurements taken in 1957 and again in 1975 indicate slow rates of diameter growth for trees in a moist tropical forest of Puerto Rico.

The birds of Puerto Rico.


Mapping vegetation types in Puerto Rico. In Aerial surveys and integrated studies: Proc. of the Toulouse Conf. (F.7 refs. from abstr. in Geogr. Abstr. 1970 2B, (395) O.R.S.) Eight vegetation types have been mapped from aerial photos, including lowland rain forest, seasonal evergreen forest, hill scrub, semi-deciduous forest, lower montane rain forest, and montane scrub.


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254. Descartes, S. L.  
1946. Historical account of recent land reform in  
Caribb. Land Tenure Symp. Proc. Port of Spain,  
Trinidad, B.W.I.

1970. Effects of 137 Cs radiation on vegetation  
structure and optical density at El Verde. In A  
tropical rain forest: a study of irradiation and  
ecology at El Verde, Puerto Rico. Howard T. Odum  
USAEC, Oak Ridge, Tn.

The vegetation physiognomies of two centers in the El  
Verde rain forest were described in 1964. A second  
description of the Radiation Center was made after it had  
been exposed to radiation. Significant changes were  
detected in both vegetation physiognomy and optical  
density out to a distance of about 12 m from the center  
of the radiation site.

256. Desmarais, A. Paul, and Alfonso Vázquez.  
1970. Upper canopy crown closure at El Verde. In A  
tropical rain forest: a study of irradiation and  
ecology at El Verde, Puerto Rico. Howard T. Odum  
USAEC, Oak Ridge, Tn.

Coverage of tree crowns (canopy closure) was studied  
along with other basic structural attributes of the El  
Verde sites.

257. Díaz-Piferrer, M.  
1967. The effects of an oil spill on the shore of  
Guánica, P.R. Assoc. Island Mar. Labs. (fourth  

Woods 95. 145 p.

Includes tests of the following Puerto Rican woods:  
Buchenavia capitata, Hymenaea courbaril, Manilkara bidentata,  
and Tetragastris balsamifera.
259. Dienes, G. J.  

A kinetic model of radiation response was used to compute the areal distribution of radiation damage around a field radiation source. Biological components with faster repair rates were found to survive several times greater dosages. Curves predicted for survival vs. distance from the source have a similar and characteristic shape, being displaced toward the radiation source when recovery processes are rapid.

260. Dinwiddie, W.  

261. Doerr, A. H.  

262. Domenech, M. V.  
1899. Porto Rico, her mineral resources, their value and extent, and the reasons why they are not more developed. Mines and Miner. 19:529-532.

263. Dowler, C. C., W. Forestier, and F. H. Tschirley.  

264. Dowler, C. C., and F. H. Tschirley.  

Herbicides were applied to the soil and to the foliage in the Luquillo National Forest in Puerto Rico. Teak and mahogany planted in treated plots several months after treatment showed no herbicidal effect, which indicates that only a small amount of the herbicide reached the forest floor.


Cites effects of 2,4-D, 2,4,5-T, Picloram and Paraquat dosages with relation to climate in Texas and Puerto Rico.
266. Drewry, George.

As part of the instrumentation of the Puerto Rico Nuclear Center, a device was designed and assembled to record, from several locations within the forest, a 3-min integral of the fluctuating sound pressure level. The unfiltered machine was used to document changes in forest sound during and after a period of strong gamma irradiation and did detect differences attributable to radiation effects.

267. Drewry, George E.

Twelve hundred species of insects were collected at the El Verde study area from 1963 to 1967. The species that have been identified are listed according to taxonomic groupings.

268. Duke, James A.

269. Duke, James A.

A survey of seedlings was made of the El Verde study areas after the Radiation Center had been irradiated. Tabebuia heterophylla seedlings were dominant because a nearby parent tree had flowered during irradiation.
270. Duplaquet, L.  
1960. Le Centre Tropical de Recherches Forestieres de Río Piedras, à Porto Rico. Tropical Forest Experiment Station, [now named Inst. of Trop. For.], Río Piedras, P.R. Rev. For. Franc. 12(7):445-7, 3 photos, 1 sketch map.

This is an account of the forests, research done and in progress, and the future program, based on a visit by the author.

271. Durland, W. D.  

272. Durland, W. D.  

The development of silviculture in Puerto Rico is discussed.

273. Durland, W. D.  

274. Durland, William D.  

275. Edmisten, Joe.  

A mineral-cycle diagram comprising new measurements of nitrogen fixation, rain inflows, and waters percolating in soil for nitrogen at El Verde summarizes data to date and serves as a hypothesis for further study.

276. Edmisten, Joe.  

Several physical and chemical properties of tropical rain forest soils at El Verde, Puerto Rico, were investigated before and after treatments with gamma radiation and after mechanical defoliation of the vegetation.
277. Edmisten, Joe.
1970. Some autecological studies of *Ormosia krugii*. 

Five experiments were done with seedlings of *Ormosia krugii*. Stem growth, leaf fall, and innate voltage of the seedlings were monitored for one month after treatment for indications of radiation damage.

278. Edmisten Joe.

Experiments were performed on *Phytolacca icosandra*, a roadside weed of Puerto Rico, to clarify the mechanisms responsible for the transport and germination of *Phytolacca* seeds. These studies support the theory of dispersal of seeds by birds.

279. Edmisten, Joe.

Thirty-two species of rain forest dominants were surveyed for mycorrhiza. It is suggested that these fungus-root associations act as nutrient traps, especially for anions.

280. Edmondson, Charles Howard.

English version, Caribb For. 10(1):37-41.

281. Edmondson, Charles Howard.

Spanish version, Caribb. For. 10(1):41-42.

282. Eggers, H. F. A.

Annotated catalog of species, based mainly on collection by the author, 1869-1874.
283. Eggers, H. F. A.

284. Eggers, H. F. A.
Account of the Ptercarpus swamps, palo de pollo, of Puerto Rico.

285. Eggers, H. F. A.

286. Enamorado-Cuesta, José.

287. Englerth, George H.

288. Englerth, George H.
Spanish version published as Apuntes Forestales Tropicales No. 1, entitled "Condiciones para el secado al aire de la madera en el área de San Juan, Puerto Rico."

289. Englerth, George H.
English version published as Tropical Forest Note No. 1, entitled "Air drying conditions for lumber in the San Juan Area, Puerto Rico."
290. Englerth, George H.

English version published as Tropical Forest Notes No. 5, entitled "The service life on untreated posts in Puerto Rico after one year in test."

291. Englerth, George H.

Spanish version published as Apuntes Forestales Tropicales No. 5, entitled "Durabilidad de postes sin tratar para cercas después de un año de prueba en Puerto Rico."


Spanish version published as Apuntes Forestales Tropicales No. 2, entitled "Preservación de las maderas de Puerto Rico usadas para postes de cercas por los métodos de remojo frío y de baño caliente y frío."

293. Englerth, George H., and Ernesto Goytía Olmedo.

English version published as Tropical Forest Note No. 2, entitled "Preservation of Puerto Rican fence posts treated by cold soaking and the hot-and-cold bath method."

Spanish version published as Apuntes Forestales Tropicales No. 6, entitled "Bambú para postes de cercas."


English version published as Tropical Forest Note No. 6, entitled "Bamboo for fence posts."


Spanish version published as Apuntes Forestales Tropicales No. 11, entitled "La sierra de arco para el corte de maderas tropicales."


English version published as Tropical Forest Notes No. 11, entitled "The bow saw for cutting tropical woods."

298. Erdman, Donald S.

299. Estrada Pinto, Alejo.

From 1963 to 1967 field notes and three series of regular counts were made to outline the patterns of flowering, fruiting, and leaf fall of 60 principal tree species in normal forest and in areas subjected to gamma irradiation. Unusually heavy and lasting flowering and fruiting were observed in 1965 after irradiation.
Eucalyptus experience summarized.

Since 1940 more than 2,000 acres have been planted with Eucalyptus robusta and E. kirtoniana in the state forest of Puerto Rico, and the seeds of additional species have been planted experimentally on different sites. Brief reports are presented on the progress of 14 species.

Evans, R. M.


Six life-zones are described in accordance with Holdridge's system: Subtropical dry forest, subtropical moist forest, subtropical wet forest, subtropical rain forest, subtropical lower montane wet forest, and subtropical lower montane rain forest. The paper is fully illustrated with photos of typical landscapes and representative trees species. Spanish synopsis - ITF-18-A.


Puerto Rico and the U.S. Virgin Islands were mapped in accordance with Holdridge's system and a discussion and descriptions of each of six life zones were written. The manuscript in English offers water balances, a description of the Holdridge theory of biotemperature, and greater detail in general. This shortened version in Spanish is intended as a field manual to be used with the map.

Ewel, John J.

Fassig, O. L.

Fassig, O. L.
307. Fassig, O. L.  

308. Fassig, O. L.  

309. Fassig, O. L.  

310. Feliciano, C.  

311. Fernández de Oviedo, Gonzalo.  

This version of Gonzalo Fernández de Oviedo's Natural History of the West Indies is for persons interested in the early history of America who are not able to read Spanish. Oviedo's account appeared in Toledo in 1526, but no complete English version was hitherto made. A partial but unsatisfactory translation and summary by Richard Eden - The decades of the new worlde or West India, containing the navigations of the Spaniards - was published in London in 1555 and was reprinted in 1577. An imperfect reprint of this was published again in London in 1625 by Samuel Purchas - Hakluytus Posthumus or Purchas His Pilgrimes, Containing a History of the World in Sea Voyages and Lande Travells by Englishmen and Others. This version, which was reprinted for the Hakluyt Society in 1902, is fragmentary, inaccurate, unedited, and was merged with translations of similar works from the same period.

312. Fewkes, Jesse Walter.  

313. Flinter, George Dawson.  
314. Foerster, J. W.
1971. The ecology of an elfin forest in Puerto Rico.

315. Food and Agricultural Organization of the United Nations,
FAO Comisión Forestal Latinoamericana.
1960. Datos de crecimiento de plantaciones forestales
en México, Indias Occidentales, y Centro y Sur América. Segundo informe anual de la Sección de
Forestación por el Comité Regional sobre Investigación Forestal. Caribb For. Suppl. 21 in Spanish.

English version, Caribb. For. Suppl. 21 in English.

316. Food and Agricultural Organization of the United Nations,
FAO Latin American Forestry Commission.
1960. Records of forest plantation growth in Mexico,
the West Indies, and Central and South America.
Second annual report of the section on planting by
the Regional Committee on Forest Research.
Caribb. For. Suppl. 21 in English.

Spanish version, Caribb. For. Suppl. in Spanish.

317. Forbes, W. T. M.
1930. Insects of Porto Rico and the Virgin Islands:
Heterocera or moths (Excepting the Noctuidae,
Geometridae, and Pyralidae). Scientific Survey of

318. Forbes, W. T. M.
1931. Supplementary report on the Heterocera of moths

319. Fowler, H. W.
1918. Some amphibians and reptiles from Porto Rico
and the Virgin Islands. Carnegie Inst., Washington,

320. Fox, J. E. D.
1962. Determination of wet and dry weight relations
of a specimen of Ausubo (Manilkara bidentata)
found in the Caribbean National Forest. Student
Report, State Univ. of N.Y. at Syracuse and U.S. Dep.
Agric. For. Serv., Inst. Trop. For., Río Piedras, P.R.
321. Fram, M.  
1971. Memo to Roberto Vázquez, Assistant Secretary, Area of Natural Resources, P.R. Dep. of Pub. Wks. on: Area to be preserved for biological studies near Camuy High School.

322. Fram, M.  

323. Fram, M.  

324. Fram, M.  

325. Friedman, Robert.  
1974. Putting down roots for Arbor week. The San Juan Star [San Juan, P.R.], Nov. 29, 1974.  
Article on Arbor Day celebration with map and instructions on how to reach government tree nursery in Dorado, P.R., where public may purchase trees at low cost.

1970. The ecology of an elfin forest in Puerto Rico.  
11. The leafy hepaticae of Pico del Oeste.  
J. Arnold Arbor.  51:56-69.

1971. The ecology of an elfin forest in Puerto Rico.  

328. Fürstenberg, P. von.  
Covers the former viceregal domain of New Spain (i.e. most of Central America, plus parts of the U.S.A., Cuba, Puerto Rico, Haiti, and Jamaica), discussing utilization of wood and minor forest products, including forest pasture and milpa (shifting cultivation).
329. Gandía Córdova, R.
Mineral Resources of Puerto Rico.

330. Gannutz, T. P.
The lichen population of a tropical rain forest community was examined, and the effects of ionizing radiation on the lichen thalli were determined. The thesis that the crustose type lichens are more resistant to radiation than other forms of lichens was supported.


333. Garofa, Carmen M.
1977. Palmas del Mar preserve to be auxiliary forest. The San Juan Star [San Juan, P.R.], Apr. 24, 1977.
A 60 to 70 acre tropical forest located at a plush resort in Humacao, P.R., is expected to become the first auxiliary forest to be authorized by the Commonw. of P.R. under a 1975 law.

334. García-Piquera, Carmen.
1946. A Spanish glossary of forestry technology I-V. Caribb. For. 7(2):103-120.

335. García-Piquera, Carmen.
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García-Piquera, Carmen.  

García-Piquera, Carmen.  

García-Piquera, Carmen.  

Glossary of forestry terminology. (English-Spanish and Spanish-English).

Garver, Earl S., and Ernest B. Fincher.  

Gates, D. M.  

Gaztambide, Juan B.  

Teaching the value of forests and forestry to the children of Puerto Rico.

Gaztambide, Juan B.  

The importance of the maintenance of forests.

Geary, T. F.  

Geary, T. F., and N. F. de Barros.  

Progeny of sixteen British Honduras superior phenotypes of Pinus caribaea var. hondurensis were compared in a Puerto Rico nursery. There were significant correlations involving seed yield, seed germination, germination vigor, and seedling height.

Thirty-two tree species were tested for adaptability in Puerto Rico's humid, granitic uplands, and recommendations made for timber plantations.


Series were collected from natural stands of Swietenia macrophylla and Swietenia humilis in eighteen areas from Mexico through Panama and seedlings from the seeds were planted at thirteen locations in Puerto Rico and the Virgin Islands. Swietenia mahogani from naturalized stands in the Virgin Islands were included in the plantings.


Wood density of juvenile cores and outer layers next to the bark was determined for Honduras pine growing in a Subtropical Moist and a Subtropical Wet Life Zone. Results showed the resin-free wood of the Moist Zone trees was denser than that of the Wet Zone trees.


A replicated trial on eleven sites tested the drought resistance and growth of hybrid, Honduras, and West Indies mahoganies. Ten years after planting the hybrid has survived and grown more than either of the parent species.

351. Geary, T. F., and J. A. Zambrana.

This study concerns the least amount of weeding required on pine for good survival and a reasonable rate of growth.

352. Gerhart, G. A.

353. Gerry, Eloise.

354. Gifford, John Clayton.

355. Gill, A. M.

356. Gill, Tom.

357. Gill-Bermejo García, J.

The history of agriculture in Puerto Rico.

358. Gilormini, J. A.

Description of the teak species.

359. Gilormini, J. A.

Preparation and use of composts in forestry nurseries.
360. Gilormini, J. A.  
1946. Orientando al agricultor en silvicultura.  
Caribb. For. 7(4):295-296, 328.  
Orientation for the farmer regarding silviculture.

361. Gilormini, J. A.  
1949. Manual para la propagación de árboles y el  
establecimiento de plantaciones forestales en Puerto  
Rico, segunda edición. 109 p. P.R. Dep. Agric. and  
Com., Río Piedras, P.R.  
Manual on the propagation of trees and the establishment  
of forest plantations in Puerto Rico and includes tables of  
common and scientific tree names, and some notes on utili-  
zation incidental to silviculture. 

362. Gilormini, José A.  
1949. 6. Problemas de propagación forestal. En Los  

363. Gilormini, José A.  
1949. 6. Problems of the tree preparation for farm  
forestry. In A farm forestry training program.  
Caribb. For. 10(4):267-268.  

Caribb. J. Sci. 7:87-93. 

1926. Plant ecology of Puerto Rico. In Scientific  
Survey of Puerto Rico and the Virgin Islands 7(1&2).  
A detailed account of the distribution of the natural  
vegetation in relation to climate, altitude, and soil  
is presented and is illustrated by photographs. 

1964. Effects of Hurricane Edith on marine life in  

367. Glynn, P. W.  
1964. Common marine invertebrate animals of the shallow  
waters of Puerto Rico. In Historia Natural de Puerto  
Rico. p. 12-20. Univ. of P.R., Mayaguez, P.R. 

368. Golley, F. [Frank] B.  
Nautilus 73:152-155.


Annual geographic pluvial distribution in Puerto Rico.


379. Grisebach, A. H. R.  
The geographic distribution of West Indian plants.

380. Groff, G. G.  

381. Grosourdy, R. de.  
Medical and therapeutical botany of the West Indies.

382. Gunlach, J.  

383. Haas, William Herman.  


385. Hacskaylo, Edward.  

386. Hacskaylo, Edward.  

MSMA, sodium cacodylate, diquat, aminotriazole, paraquat + surfactant, 2,4-D amine, ametryne, and picram were tested for use as herbicides in forest plantations.

52
388. Hagloy, E. W.

389. Hall, Roscoe M., Jr.

   The procedures used to estimate gamma-radiation dosage with lithium fluoride capsules in the rain forest at El Verde, Puerto Rico, were tested.

390. Hall, W. M.
   1938. Hicaco Dam cost estimate. San Juan, Puerto Rico Reconstruction Administration, Rural Electrification Division. [Mimeo].

391. Haman, M.

392. Hamilton, Gulielmus.

   Includes records of species from Puerto Rico, St. Thomas, and St. Croix.

393. Hamilton, S. H.

394. Hanson, E.

395. Harrar, E. S., and D. G. Reid.

   Spanish summary, p. 131.

396. Harrington, M. W.

   This includes observations on some Puerto Rican plants.


A study of populations of the large snail Caracolus caracolla was made by capture, measurement, marking, and recapture before and after irradiation. Irradiation did not cause widespread mortality, although indirect evidence suggested increased mortality close to the source.


Report by the Forestry Committee: Conference on the problems of the mountains in Puerto Rico.


The importance of the forestry nursery in the conservation program of the soils and water.


Conservation of the natural resources in the agriculture of Puerto Rico: situation and possibilities. [Report to the Governor of Puerto Rico].
Port of Spain, Trinidad.

404. Hill, L. W.  
A publication discussing the future direction of environmental tropical forestry.

405. Hill, L. W.  
U.S. Dep. Agric., For. Serv., Inst. Trop. For., Río Piedras, P.R.


The influence of forests in urban planning.

408. Hill, R. T.  
Description of the forests as then existing and of the woods of some of the forest trees.

409. Hill, Robert.  

410. Holdridge, L. R.  

411. Holdridge, L. R.  
Mahogany.
412. Holdridge, L. R.

413. Holdridge, L. R.

414. Holdridge, L. R.

415. Holdridge, L. R.

416. Holdridge, L. R.
1940. The possibility of close cooperation for mutual benefit between agriculture and forestry in the American tropics. Caribb. For. 1(3):25-29.

417. Holdridge, L. R.

418. Holdridge, L. R.

419. Holdridge, L. R.

Trees of Puerto Rico.

420. Holdridge, L. R.

421. Holdridge, L. R.
422. Holdridge, L. R.

Trees of Puerto Rico.

423. Holdridge, L. R.

424. Holdridge, L. R.

A procedure for construction of an idealized profile of mature trees is described, and an example from the study sites at El Verde, Puerto Rico, is given.


Spanish version, Apuntes sobre las plantas venenosas y de pelos punzantes de P.R.

426. Holdridge, L. R., and José Marrero.

427. Holler, J. R.


Microfungal populations were isolated from the soil, root, and litter layers in both the Radiation and the South Control Centers of the Rain Forest Project before irradiation in the summer of 1964 and after irradiation in the summer of 1965. The total population in the soil of the radiation Center after irradiation was significantly higher than that of the South Control Center, and the litter population of the North Cut Center was significantly higher than all other populations.
   This review includes descriptions and illustrations of specimens from Puerto Rico.

   This is a description and illustration of Juglans archaeo-antillana.

   Report on field work in 1926.

   A record of collections made in 1926, including historical and geological data, descriptions, and illustrations of tertiary species.

433. Horn, Claud L.

434. Hottle, Walter D.
   1930. La propagación y distribución de árboles en Puerto Rico. Rev. de Agr. de P.R. 25(9):118.
   The propagation and distribution of trees in Puerto Rico.

435. Howard, Alexander L.

   This is the first of a series of papers by various collaborators, on an elfin forest on the undisturbed summit of Pico del Oeste in the Luquillo Mountains. Comparable studies are briefly reviewed, species of the vascular flora listed, and composition studies described.
1969. The ecology of an elfin forest in Puerto Rico, 8.  
Studies of stem growth and form and of leaf structure.  
Briefly discusses observations under the heads: growth  
and form; monopodial and sympodial growth; dichotomous  
branching; dieback; bud protection; leaf size and morphology;  
leaf development, number and persistence; factors of pro-  
ductivity of the leaves; and leaf damage.  

438. Howard, Richard A.  
1957. Studies in the genus Coccoloba, IV. The Species  
from Puerto Rico and the Virgin Islands and from the  

439. Howard, Richard A.  
Arbor. 47(2):137-146.  

440. Howard, Richard A.  
1970. The summit forest of Pico del Oeste, Puerto Rico.  
In A tropical rain forest: a study of irradiation  
and ecology at El Verde, Puerto Rico. Howard T. Odum  
USAEC, Oak Ridge, Tn.  
These studies of aspects of climate, systematic botany,  
phenology, cytology, biochemistry, epiphytic life, growth,  
soils, and other features made within the dwarf summit  
forest on West Peak in the Luquillo Mountain Range mention  
the importance of liverworts, the prevalence of adventitious  
rooting, difficulties with seed germination under ordinary  
conditions, characteristic morphology of leaves, and the  
absence of synchronized leaf fall.  

441. Howe, Marshall A.  

442. Howell, B.  
[n.d.] Patterns of rural resettlement in Puerto Rico.  
Unpublished report available from the Centro de In-  
vestigaciones Sociales, Univ. de P.R., Rio Piedras,  
P.R. [mimeo].
Counts were made of fungi and bacteria after standardized aerial exposures of plates at various heights on vertical towers in forests at El Verde, Puerto Rico, and at Ft. Clayton Canal Zone. The largest number of colonies of fungi and bacteria was found at the middle height of the canopy (50 ft), and the ratio of bacteria to fungi was greater at this height.


The Kadam Tree: planting tested in the El Yunque forest (Caribbean National Forest).


According to this report the program of the Institute during 1962 consisted of five broad lines of work: forest management research, forest products utilization research, applied forestry, technical forestry assistance, and forestry training in Puerto Rico.


457. Institute of Tropical Forestry, Forest Service, USDA. 1972. Puerto Rico más o menos [Puerto Rico more or less]. 16mm. color film, 20 mins. Inst. Trop. For., Río Piedras, P.R.

Available with Spanish or English soundtrack.


Iornes, M. J.

Iornes, M. J.

Iornes, M. J.


The apical meristem of Palicourea riparia was studied cytologically and histologically. In general, it appears that the outer region was more sensitive to radiation than the inner region and that radiation injury increased with the dose.

Jackson, C. F.


Jagels, F. P.
1963. The variation of rainfall, temperature, soil moisture, soil characteristics, and vegetation with elevation as these affect the computation of a water balance in a localized drainage area of the Luquillo Mountains. Unpublished course report. Inst. Trop. For., Río Piedras, P.R.

Johnson, Philip.

Hemispherical photographs of the canopy at El Verde are given for the radiation source and for a site 10 m south-east of the source on Feb. 7, 1965 (during irradiation), and on Jan. 23, 1966, a year later. Canopy-closure index decreased about 10% in the first year and was about 50% diminished by the end of the second year.

Aerial and ground photographs of the El Verde rain forest site were obtained over a two-year period. They recorded the consistency of the vegetational patterns in untreated sites and the changes that occurred following gamma irradiation.


Experiments with runoff pans at two depths in the soil at El Verde show that rainfall penetrates downward vertically through loose upper layers until it reaches denser layers below upon which it flows laterally and downhill.


Radioactive strontium and cesium were used to tag waters applied to rain forest plots under which were located lysimeters at litter level and at a 5-in. depth within the mineral soil. Changes in the rate of release of these elements with time suggest the effectiveness of the litter layer in retaining minerals.

478. Jordan, Carl F.

The importance of vegetative sprouting was studied in the El Verde Radiation Center 18 months after irradiation. Sprouting was less important in the recovery of the irradiated tropical rain forest in Puerto Rico from a short period of radiation than it was in the recovery of a temperate forest in Georgia.

479. Jordan, Carl F.

Studies in progress on mineral cycles of some principal elements within the El Verde Forest are summarized using mineral-cycle diagrams to show magnitudes in data so far obtained and to indicate portions of the budget which require further analysis.


The three objectives of the Rain Forest Project study are: to determine the effects of gamma radiation on the tropical ecosystem, to study the cycling of stable and radioactive isotopes through the ecosystem, and to investigate basic biological functions of the ecosystem in order to better understand phenomena related to the first two objectives. Studies of secondary succession in the forest opened up by radiation are continuing, and changes during the first three years of succession are reported here.

481. Jordan, D. G.

482. Kaye, C. A.
483. Kaye, Clifford A.

484. Kepler, Angela Kay.
1975. Common ferns of Luquillo Forest, Puerto Rico. 125 p. Inter-Amer. Univ. Press, San Juan, P.R.

485. Kepler, Angela Kay.
1975. helechos comunes del bosque de Luquillo, Puerto Rico. 128 p. Inter-Am. Univ. Press, San Juan, P.R.

486. Kepler, Cameron B.
Extinct birds of Puerto Rico.

487. Kepler, Cameron B.

488. Kepler, Cameron B., and Angela K. Kepler.
In transect studies, diversity of birds was greater in the dry forest at Guánica, Puerto Rico, (38 species) than in the Luquillo Forest (18 species). Total bird density was also greater. In Appendix A are observations on the remaining flocks of the near extinct Puerto Rican parrot. In Appendix B the tody's life-history characteristics are compared in the Luquillo and Guánica forests.


490. Kline, J. R., ed.
491. Kline, J. R.

Freshly fallen leaf litter and live-leaf samples pruned from trees were collected monthly at El Verde experimental site to measure the biological half-times for retention of four nuclides in tropical forest vegetation. The data show that some of the nuclides have been partially incorporated into the forest mineral cycle.


Tritiated water applied to the surface of soil in a tropical rain forest was found in free water of the litter and the top cm of soil as long as seven months after its application. It is concluded, therefore, that plant roots, even in the high-rainfall environment of a tropical rain forest, are exposed to tritiated water for a considerable time after release.

1967. The Rain Forest Project Annual Report. USAEC Rep. PRNC-103. 201 p. P.R. Nuclear Center, Univ. of Puerto Rico, Río Piedras, P.R.

This is the annual report of work done on the Rain Forest Project at El Verde, P.R. The experimental emphasis includes detailed studies on radionuclide behavior in the tropical forest and studies on the recovery and succession in the irradiated area.

1968. The Rain Forest Project Annual Report. USAEC Rep. PRNC-119. P.R. Nuclear Center, Univ. of Puerto Rico, Río Piedras, P.R.

A section of the montane rain forest on El Yunque Mountain was irradiated and many follow-up studies have been completed. Present effort is being directed to long term studies on recovery and succession of vegetation in the irradiated area and to detailed investigations of mineral cycling and distribution in the tropical ecosystem.
An experiment was carried out in the understory of the El Verde rain forest to determine the fate of several radionuclides applied to the forest floor in water-soluble carrier-free form. Uptake by plants was extremely slow for all the nuclides of this experiment. It was concluded from the slow movement of nuclides that the El Verde forest was not in a steady state with regard to turnover of its burden of fission products. The experiment supports the hypothesis that fission products in vegetation of this forest are the result of their interception and retention on leaf surfaces.

Leaves and forest litter were collected from 10 tropical forests in Puerto Rico, Dominica, Trinidad, and Central America for analyses of fallout radionuclide content. Highest isotope levels were found in the northernmost tropical forests at the highest elevations above sea level. The amounts of contamination showed a general decrease with decreasing latitude.

The effect of gamma radiation on removal of fallout radionuclides by leaching from rain forest trees and litter was investigated. Samples of canopy leaves were collected both before and after irradiation. The results from preirradiation and postirradiation collections show that radiation had no measurable effect on the rates of leaching of $^{137}$Cs and $^{54}$Mn from the forest canopies.
499. Knapp, Slaman A.

500. Kobuski, Clarence E.

501. Koenig, N.


Nuclear volumes of 68 plant species were studied. The 100% growth-inhibition dose observed for twigs appears to agree with the predicted inhibition dose in the majority of instances, although these species as a whole tend to be more resistant than predicted.


Chlorophyll A and optical transmission density of leaves were measured in bromeliads which were removed from the El Verde forest, irradiated with gamma radiation and retained in moderate illumination in a greenhouse. Chlorophyll and optical transmission density of leaves declined in the 60 days following irradiation with more decrease in plants receiving 75 kr or more. Significant correlation was found between chlorophyll A and transmission density of the leaves.

The survival and continuing growth of bromeliads were studied in relation to gamma irradiation with acute doses applied under greenhouse conditions and 3-month doses in the natural rain forest environment at El Verde. Bromeliads were resistant, with 85% of the plants surviving acute radiation of 48 kr. In the field after two years, 33% had survived 33 kr. New growth centers developed at 7.7 kr.


Summary of the work done by the P.R. Div. of For., during November 1924.


Summary of the work done by the P.R. Div. of For., during January, 1924.


Summary of the work done by the P.R. Div. of For., during February 1924.


Summary of the work done by the P.R. Div. of For., during March 1924.


Summary of the work done by the P.R. Div. of For., during May 1924.
514. Kramer, William P.  
1924. Resumen del trabajo realizado durante el mes de junio, 1924.  
[Div. For., Puerto Rico]. Depto. de Agricultura y Trabajo, Div.  

Summary of the work done by the P.R. Div. of For., during June 1924.

515. Kramer, William P.  
1924. Resumen del trabajo realizado durante el mes de agosto, 1924.  
[Div. For., Puerto Rico]. Depto. de Agricultura y Trabajo, Div.  

Summary of the work done by the P.R. Div. of For., during August 1924.

516. Kramer, William P.  
1924. Resumen del trabajo realizado durante el mes de septiembre, 1924  
[Div. For., Puerto Rico]. Depto. de Agricultura y Trabajo, Div.  

Summary of the work done by the P.R. Div. of For., during September 1924.

517. Kramer, William P.  
1924. Resumen del trabajo realizado durante el mes de octubre, 1924.  
[Div. For., Puerto Rico]. Depto. de Agricultura y Trabajo, Div.  

Summary of the work done by the P.R. Div. of For., during October 1924.

518. Kramer, William P.  
1924. Resumen del trabajo realizado durante el mes de noviembre, 1924.  
[Div. For., Puerto Rico]. Depto. de Agricultura y Trabajo, Div.  

Summary of the work done by the P.R. Div. of For., during November 1924.

519. Kramer, William P.  

Description of the Chaulmoogra tree.

520. Kramer, William P.  
1925. Imposición contributiva sobre terrenos forestales.  

The taxation of forest lands.

521. Kramer, William P.  
1925. El Jardín Arbóreo de Arnold y el proyecto Jardín Arbóreo  

The Arnold Arboretum and the botanical garden project for Puerto Rico.
522. Kramer, William P.  
1925. Resumen del trabajo realizado durante el mes de diciembre, 1924.  
[Div. For., Puerto Rico]. Depto. de Agricultura y Trabajo, Div.  
Summary of the work done by the P.R. Div. of For., during December 1924.

523. Kramer, William P.  
1925. Resumen del trabajo realizado durante el mes de enero, 1925.  
[Div. For., Puerto Rico]. Depto. de Agricultura y Trabajo, Div.  
Summary of the work done by the P.R. Div. of For., during January 1925.

524. Kramer, William P.  
1925. Resumen del trabajo realizado durante el mes de febrero, 1925.  
[Div. For., Puerto Rico]. Depto. de Agricultura y Trabajo, Div.  
Summary of the work done by the P.R. Div. of For., during February 1925.

525. Kramer, William P.  
1925. Resumen del trabajo realizado durante el mes de marzo, 1925.  
[Div. For., Puerto Rico]. Depto. de Agricultura y Trabajo, Div.  
Summary of the work done by the P.R. Div. of For., during March 1925.

526. Kramer, William P.  
1925. Resumen de los trabajos verificados en abril, 1925.  
[Div. For., Puerto Rico]. Depto. de Agricultura y Trabajo, Div.  
Summary of the work done by the P.R. Div. of For., during April 1925.

527. Kramer, William P.  
1925. Resumen de los trabajos verificados en mayo, 1925.  
[Div. For., Puerto Rico]. Depto. de Agricultura y Trabajo, Div.  
Summary of the work done by the P.R. Div. of For., during May 1925.

528. Kramer, William P.  
1925. Resumen del trabajo efectuado por la División Forestal du-  
rante el mes de junio de 1925. Depto. de Agricultura y Trabajo,  
Summary of the work done by the P.R. Div. of For., during June 1925.

529. Kramer, William P.  

530. Kramer, William P.  
The necessity of forestry laws in Puerto Rico.
531. Kramer, William P.

Summary of the work done by the P.R. Div. of For., during December 1925.

532. Kramer, William P.

Summary of the work done by the P.R. Div. of For., during January 1926.

533. Kramer, William P.

Summary of the work done by the P.R. Div. of For., during February 1926.

534. Kramer, William P.

Summary of the work done by the P.R. Div. of For., during March 1926.

535. Kramer, William P.

Summary of work done by the Forest Service during April and May 1926.

536. Kramer, William P.

Summary of work done in the Forest Service during June 1926.

537. Kramer, William P.

A perspective for an experimental station for Puerto Rico.

538. Kramer, William P.

Reforestation plan for Puerto Rico.
539. Kramer, William P.

The United States' need for tropical forests.

540. Kramer, William P.

Report of the Forest Division, Puerto Rico Dept. of Agriculture and Labor.

541. Kramer, William P.
1930. La agricultura y la silvicultura. Rev. de Agr. de P.R. 25(7):21, 40-41.

Agriculture and forestry in Puerto Rico.

542. Kramer, William P.

Puerto Rican laws that permit the acquisition of land for forests and the classification of land as auxiliary state forests.

543. Kramer, William P.


545. Kuntze, Otto.
1881. Um die erde. Leipzig, Germany.

Contains account of the author's visits to St. Thomas and Puerto Rico in 1874.

546. Kuntze, Otto.

Contains records of specimens collected by the author in St. Thomas and Puerto Rico.

547. La Bastille, Anne, and Douglas J. Pool.

548. Lamb, F. Bruce.


1810. Viaje a la Isla de Puerto Rico en el año 1797. Traducido al español por Julio L. Vizcarrondo. 5ta. edición. San Juan, Editorial Coquí. 177 p. Series "Ediciones Borinquen".

This is latest Spanish edition of this book; the original in French was written in 1810. This contains narratives of observations on the vegetation of the islands, 1796-1798, and records of collections made.

1919. Consideraciones acerca de la destrucción de los bosques de P.R. El Mundo [San Juan, P.R.], June 14, 1919. p. 11.

An account of the destruction of forests in Puerto Rico.


Useful plants of Puerto Rico.


Useful plants of Puerto Rico.


Useful plants of Puerto Rico.


Useful plants of Puerto Rico.
559. Legrand, J. Federico.
Useful plants of Puerto Rico.

Useful plants of Puerto Rico.

Useful plants of Puerto Rico.

Useful plants of Puerto Rico.

Useful plants of Puerto Rico.

564. Legrand, J. Federico.
Useful plants of Puerto Rico.

Useful plants of Puerto Rico.

566. Legrand, J. Federico.
Useful plants of Puerto Rico.

Useful plants of Puerto Rico.

568. Legrand, J. Federico.
Useful plants of Puerto Rico.

569. Legrand, J. Federico.
Useful plants of Puerto Rico.
Useful plants of Puerto Rico.

Useful plants of Puerto Rico.

Useful plants of Puerto Rico.


Linares, Kaúl. 1962. Recreación en áreas forestales del Estado. Rev. de Agr. de P.R. 49(i):103-113B.

This is an article on the development of recreation areas in the public forests of Puerto Rico which were created in the years from 1939 to 1962.


581. Little, Elbert L., Jr.  

582. Little, Elbert L., Jr.  

Notes on tropical dendrology.

583. Little, Elbert L., Jr.  

584. Little, Elbert L., Jr.  

Notes on topography, climate, fauna, and history of the island; also, a brief survey of the vegetation and its range elsewhere, including an annotated list of 100 species of trees and large shrubs.

585. Little, Elbert L., Jr.  

Sixty-nine native tree species on Jost Van Dyke, one of the British Virgin Islands, and 18 other species are noted as introduced. This list, based on field work and collections on April 11-13, 1967, provides distribution records of species previously known from adjacent islands. It is also a contribution of the USDA Forest Service project on forest trees of the Caribbean area under the International Biological Program.

586. Little, Elbert L., Jr.  

The tree flora of the Luquillo Mountains of Puerto Rico is compared with that of other parts of Puerto Rico, of other islands, and of adjacent continents. Approximately 61 species are restricted to Puerto Rico, and are of special interest in the study of relations and evolution. These include 26 endemic to the Luquillo Mountains and environments.

587. Little, Elbert L., Jr., and Frank H. Wadsworth.  

The 250 most common tree species of Puerto Rico and the Virgin Islands are described and illustrated in this volume. They are grouped by plant families and within each family alphabetically by scientific names.
588. Little, Elbert L., Jr., Frank H. Wadsworth, and José Marrero.  

Spanish translation of "Common trees of Puerto Rico and the Virgin Islands", by Little and Wadsworth. This volume describes and illustrates 250 of the most common tree species of Puerto Rico and the U.S. and British Virgin Islands.

589. Little, Elbert L., Jr., Roy O. Woodbury, and Frank H. Wadsworth.  

This volume follows the publication of "Common Trees of Puerto Rico and the Virgin Islands" by Little and Wadsworth. This second volume treats 460 additional species and briefly describes 40 others, a total of 500. Thus, the two volumes together contain the text of 750 species and illustrations for 710 of them. The aim is to include all native species attaining tree size, even rarely, also the common and many uncommon trees introduced for various purposes. Information from the Introduction to volume 1 is repeated or revised here. Each volume can be used independently, and the second volume mentions in keys all species of the first.

590. Little, Elbert L., Jr., Roy O. Woodbury, and Frank H. Wadsworth.  
[Discontinued series].

The tropical flora of Virgin Gorda, third largest of the British Virgin Islands, is presented in this annotated list of 403 species of native and introduced vascular plants. The report provides information on plant distribution and contributes records of about 154 species not previously reported.

591. Little, Elbert L., Jr., and Roy O. Woodbury.  
[Discontinued series].

Tree species of the Caribbean National Forest (the only tropical forest in the U.S. Forest System) in the Luquillo Mountains of northeastern Puerto Rico are discussed.

592. Littlefield, E. W.  
1943. ¿Qué puede lograr la reforestación? (Taken from conference notes at the N.Y. Botanical Garden). Caribb For. 4(3):143.

Notes on what reforestation can do.


599. López Abrams, Betsy. 1973. $1,000 fine is planned for tree cutters. The San Juan Star [San Juan, P.R.], Nov. 23, 1973.


Article on how we benefit from planting trees.


Description of Puerto Rico in 1571.


Report on the first high school course in environmental education given in Puerto Rico.
604. Lucchetti, A.
1945. Second general report on the utilization of water resources of Puerto Rico. P.R. Water Resour. Auth., San Juan, P.R.

605. Lugo, A. [Ariel] E.


607. Lugo, A. [Ariel] E.

608. Lugo, A. [Ariel] E.


This is a review with special reference to the mangroves of Florida and Puerto Rico, including previously unpublished observations on their physiognomy, biomass, and cycling of matter and energy. Controversy over the causes of mortality of chemically defoliated mangroves in Vietnam is discussed as evidence of ecological complexity, and it is concluded that mangroves are open ecosystems representing special problems for research and management.

611. Lugo, Ariel [E.].

Photosynthetic studies were made on seedlings of the rain forest species Cecropia peltata, Anthocephalus cadamba, Sloanea berteriana, and Dacryodes excelsa under various light conditions. The results were many and varied.


This report covers a soil reconnaissance made on the Island of Vieques at various short periods beginning June 27, 1949. It contains soil-profile observations made in deep pits and road cuts, field-infiltration data, and laboratory data on the physical and chemical properties of the major soil types of the area. The report is supplemented with information compiled relative to physical geography, climate, geology, soils, agriculture, and present land use in the area.


Concentrations and flows of phosphorus in the forest-floor zone of the El Verde rain forest were studied with radioactive tagging and by analysis of some principal forest components. The radioactive phosphorus released from decaying leaves was almost quantitatively held by the zone of surface roots and humus, and was subsequently recycled to the plants.


621. McClelland, T. B.  


Studies were made of seedling density, diversity, and microenvironmental conditions before and after irradiation. Following irradiation, as the more-radiation-sensitive species disappeared, species diversity was reduced in proportion to the radiation exposure. The rain forest is less radiation sensitive than temperate forests that have been studied, and recovery is faster.


Population samples of the sierra palm, Euterpe globosa Gaertn., were exposed to varying intensities of radiation in their natural rain forest environment and also in simulated growth-chamber and greenhouse environments. The conclusion that exposures in excess of 35 kr would be required to severely damage populations of this dominant species corresponds to the conclusion of a related study that 35 to 50 kr would be required to severely affect species diversity in the forest.


The pattern of gamma radiation received in the rain forest at El Verde was monitored by 1450 lithium fluoride dosimeters dispersed in horizontal and vertical patterns during the 92-day exposure period. Although the geometry of the area exposed was extremely heterogeneous because of ravines, trees, and rocks, the radiation field became symmetrical beyond 30 m. Within the 30-m radius, rocks and trees provided up to 40-fold reduction in exposure dose to microhabitats.

625. McDonough, James.  
1970. Ceiba vs. Palm is potential fight on official tree choice. The San Juan Star [San Juan, P.R.], Feb. 22, 1970.
1967. Effects of the high seas of December 3-5, 1967 on shores and beaches in the San Juan Area, P.R. Rev. del Colegio de Ingenieros, Arquitectos y Agrimensores, Puerto Rico.

627. McMahan, Elizabeth A.

Comparisons of nest condition, tunnel occupancy, and behavior were made between rain forest termites in an irradiated area after exposure and others outside the area. All nests within 30 m of the cesium source were entirely abandoned after 24 months. Direct effects of radiation were presumed to be responsible rather than defoliation or mechanical disturbance.


An exploratory study comparing postirradiation diversity of litter microfauna in the South Control, Radiation, and North Cut Centers was carried out in March 1967, 24 months after irradiation. Radiation did not produce decreased diversity in the postirradiative growth.

629. McManus, Irene.

630. McMillen, J. M.

Spanish summary, Caribb. For. 22(3/4):90.

631. Magruder, Joel.
1967. Al borde de la extinción. El Mundo[San Juan, P.R.], June 28, 1967. p. 4

Puerto Rican parrot at the borderline of extinction.

632. Maguire, Bassett, Jr.

Faunas in the water held in the leaf axils of bromeliads were examined, and association coefficients were calculated for combinations of species groups to characterize communities. Positive associations were found between harpacticoids and oligochaetes and between cyclopoid copepods, ostracods, and nauplii but not with harpacticoid copepods and nauplii.
633. Malaret, Augusto.

This lexicon includes approximately 9,000 words used in Latin America to designate plants and animals and is limited to the names of those scientifically classified.

634. Malaret, René Jiménez.

The control of soil erosion in Puerto Rico.

635. Maldonado, Edwin D.

Durability of treated posts for the farm.

636. Maldonado, Edwin D.

U.S. Dep. Agric. For. Serv., Instituto de Dasonornía Tropical, [Inst. Trop. For.], Río Piedras, P.R. [Discontinued series].

English version published as Tropical Forest Notes No. 14, entitled "Solar radiation used to dry mahogany lumber in Puerto Rico."

637. Maldonado, Edwin D.


Spanish version published as Apuntes Forestales Tropicales No. 14, entitled "Radiación solar para secar caoba en Puerto Rico."


U.S. Dep. Agric. For. Serv., Instituto de Dasonornía Tropical, [Inst. Trop. For.], Río Piedras, P.R. [Discontinued series].

English version published as Tropical Forest Notes No. 7, entitled "Sawmills and suppliers of wood in Puerto Rico."


U.S. Dep Agric. For. Serv., Inst. Trop. For., Río Piedras, P.R. [Discontinued series].

Spanish version published as Apuntes Forestales Tropicales No. 7, entitled "Aserraderos y suplidores de madera de Puerto Rico."

This study reports on some machining characteristics of Puerto Rico plantation-grown mahogany and teak. Also included is small-leaf (West Indies) mahogany from St. Croix, U.S. Virgin Islands. Shaping and planning were chosen for evaluation since these operations are decisive in exposed furniture parts.


642. Mann, R. I.  

643. Marchán, F. J.  

644. Margalef, R.  
1962. Comunidades Naturales. Instituto de Biología Marina, Univ. de P.R., Mayaguez, P.R.

Paper on natural communities.

645. Margenat, Alfredo.  

Federal and Commonwealth governments make exchange of Toro Negro and El Yunque (Caribbean National Forest) forests.

646. Márquez, Juan Luis.  

Article about the Toro Negro forest, Puerto Rico.

647. Marrero, Joaquín F.  
1962. Efecto de los bosques en la conservación de suelos y agua y en el control de la sedimentación en los lagos de Puerto Rico. Rev. de Agr. de P.R. 49(1):137-142.

Effects of the forests on the conservation of soils and water and the control of deposits in the lakes of Puerto Rico.
648. Marrero, José.
1939. Siembras combinadas de cosechas agrícolas y especies made- 
rables. Rev. de Agr. de P.R. 31(2):244-252.
The combination of agricultural harvest and timber-yielding species.

649. Marrero, José.
English summary of this article on conservation, Caribb For. 1(2):17-24.

650. Marrero, José.
English summary of this article on celebration of Arbor Day, Caribb. For. 3(2):89-90. A forester states that the attitude of our children will decide the fate of our farm woodlands in the future.

651. Marrero, José.

652. Marrero, José.
Spanish summary, Caribb For. 3(2):87-88.

653. Marrero, José.
Spanish summary, Caribb For. 4(3):106.

654. Marrero, José.
The planting season in the tropics follows the rains. Unlike the temperate zones, temperature is not generally a limiting factor in plant survival. High temperature and high humidity result in active vegetative growth in the nursery. This has been considered an un- 
derirable condition which might affect survival.

655. Marrero, José.
1947. La profundidad y tipo de cobertura tórrea adecuados para las semillas de varias especies de maderas duras del trópico. Caribb. For. 8(3):228-235.

656. Marrero, José.
657. Marrero, José.

658. Marrero, José.

This is an extract of a thesis submitted in partial fulfillment of the requirements for the degree of Master of Forestry at the Univ. of Mich., March 1947. Spanish version, Caribb For. 9(2):148-210. French summary, Caribb For. 9(2):210-212.

659. Marrero, José.


660. Marrero, José.


661. Marrero, José.


662. Marrero, José.

English version, Caribb. For. 10(4):244-249.

663. Marrero, José.


664. Marrero, José.

665. Marrero, José.  


666. Marrero, José.  


667. Marrero, José.  


668. Marrero, José.  

Forestation varies with the zones.

669. Marrero, José.  

Inga used as shade for coffee in Puerto Rico.

670. Marrero, José.  


671. Marrero, José.  
1949. What tree species are adapted to farm forest lands? 2. In A farm forestry training program. Caribb. For. 10(4):244-249.


672. Marrero, José.  

English version published as Tropical Forest Notes No. 9, entitled "Spagnum moss as a medium for rooting pine seedlings."
673. Marrero, José.

Spanish version published as Apuntes Forestales Tropicales No. 9, entitled "El musgo esfagno en la propagación de arbolitos de pino."
Pine seedlings grown in sphagnum moss were much taller at planting time, an important aid to survival during the first year in the field. Although this study included only Honduras pine, hardwoods, among them mahogany (Swietenia macrophylla), blue mahoe (Hibiscus elatus), plumajillo (Schizolobium sp.), and primavera (Cybtax donnell-smithii), have also been grown successfully in sphagnum moss.

674. Marrero, José.
1961. Tamaño de las parcelas de ensayo en investigaciones de genética forestal. Caribb. For. 22(3/4):79-83. (Translation of "Plot Size in Forest Genetic Research" by Jonathan W. Wright and Dean Freeland, Jr.).

675. Marrero, José.

English summary, Caribb. For. 23(2):87.

676. Marrero, José.

Black polyethylene squares were used in two tests to reduce competition of weeds around newly planted trees. One test was on a wet site at 1800 feet elevation, the other on a moist site near sea level.

677. Marrero, José.

An earlier Research Note reported that studies showed Honduras Pine seedlings growing on sphagnum moss grew almost twice as fast in height as seedlings in soil and 23% more than seedlings growing in a mixture of vermiculite and sandy loam.
A study was made comparing the following materials during 1962:
(1) sphagnum moss (2) ground vermiculite (3) coco-peat (4) year-old mahogany sawdust (5) a mixture of one part coco-peat and three parts sawdust (6) a mixture of equal parts of coco-peat and sawdust. During 1963 comparisons were made between (1) a mixture of equal parts of vermiculite and mahogany sawdust (2) peat, and (3) sphagnum moss. Results of this study showed no statistical difference in the heights of the seedlings obtained.
To determine whether Honduras pine, cadam and primavera can be planted barerooted, plants were raised in polyethylene bags but at time of planting the potting material was removed from around the roots of half the plants. This study discusses the results.
Martorell, Luis F.

Martorell, Luis F.

Martorell, Luis F.
1941. Some notes on forest entomology IV. Caribb. For. 2(2):80-82.

Martorell, Luis F.

Martorell, Luis F.

Martorell, Luis F.

Discusses the suitability of certain species for planting in gardens or on estates and presents a list of species classified according to their uses, i.e., for shade, ornament, fruit, or timber production.

Martorell, Luis F.

Martorell, Luis F.

Martorell, Luis F.

The Araucaria or Norfolk Pine.

Martorell, Luis F.

Trees of Puerto Rico: the Higuerito (Calabash tree).

Martorell, Luis F.

Trees of Puerto Rico: El Palo de Muñeca (manjack).

Martorell, Luis F.

Endemic trees of Puerto Rico: the Cupefillo.
700. Martorell, Luis F.

Moca: a timber and shade tree.

701. Martorell, Luis F.

Trees of the Elfin Forests: Oreganillo or Tamarindo de Loma.

702. Martorell, Luis F.

Button-mangrove.

703. Martorell, Luis F.

Bucaré tree.

704. Martorell, Luis F.
1969. El Jaguey Colorado o Higuillo Prieto. El Mundo [San Juan, P.R.], Sept. 6, 1969. p. 5-B.

705. Martorell, Luis F.

706. Matthews, Barbara M.

707. Matos, Cruz A.

708. Mattoon, W. R.

709. Maury, Carlotta J.

710. Maxon, William R.

Descriptions of orders, families, genera, and species, with keys, synonymy and geographic distribution of the species are included.
711. Maza, M. G. de la.  

These volumes contain Spanish names for many plants of Puerto Rico.

712. Meléndez Muñoz, Miguel.  

The topic of this article is the urgency of a forestry policy for Puerto Rico.

713. Melgarejo, Juan.  
1914. Memoria y descripción de la isla de Puerto Rico. Mandada a hacer por S.M. el Rey D. Felipe II, en el año 1582. 13 p. + map.  
Printed in San Juan [no date, no publisher. Mimeo copy available at Puerto Rico Collection, UPR Library, Río Piedras.]

714. Mercado, Nelson.  

Following irradiation of the rain forest plot at El Verde, data were obtained on bud condition, cambium condition, percentage of leaf survival, rate of new leaf production, and leaf holes. Species sensitivity was not closely related to unclear volume.

715. Meyerhoff, H. A.  

Geology of the district of Fajardo, P.R.

716. Meyerhoff, H. A.  
1933. Geology of Puerto Rico. Monograph of the University of Puerto Rico, Physical and Biological Sciences, Series B, No. 1, Univ. of P.R., Río Piedras. 36 p., map.

717. Miers, J.  

Goetzea is an endemic genus of Puerto Rico.

718. Miller, K. R.  

A model leading to more efficient allocation of resources and production of services in keeping with the needs of the Island's several cultures is developed in the cited thesis.

720. Millsbaugh, C. F.  
An enumeration of plants collected on St. Thomas and in Puerto Rico and Culebra in January 1899.

721. Mitchell, Raoul C.  


724. Mosquera Moreno, M. [Menandra], and J. L. Whitmore.  

725. Mosquera Moreno, Menandra.  

Bibliography on the mangroves of Puerto Rico from 1923-1972. Mimeographed copies distributed by the Institute of Tropical Forestry, Río Piedras, P.R.

726. Muñoz, J. E.  

1968. La repoblación forestal en Puerto Rico. Servicio de Extensión Agrícola, Univ. de P.R., Río Piedras. 13 p.

The reforestation of Puerto Rico

728. Muñoz, J. E., and L. W. Hill.  

Effects of Picloram herbicide on planted mahogany are discussed.
729. Muñoz, L. A.

730. Murphy, Louis S.

731. Murphy, Louis S.

Detailed discussion of forestry and its problems includes an annotated list of native trees.

732. Murphy, P. [Peter G.].

733. Murphy, Peter G.

The radial growths of 250 tree trunks of five principal species were measured monthly with vernier bands at El Verde from December 1963 to May 1966. Growth ranged from 0.36 cm annual increase in trunk diameter in Dacryodes excelsa to 0.18 cm in the lower story dominant Croton poecillanthus.

734. Murray, Robert Rose.

Organization of forestry work. The Forestry Service of Puerto Rico wishes to establish a forestry experimental station.

735. Nevares, R., Jr.

736. Nevling, L. I.

737. Nevling, Lorin I., Jr.

738. Nevling, Lorin I., Jr., and Roy Woodbury.

This natural history survey of Porto Rico [Puerto Rico] and the Virgin Islands, conducted by The New York Academy of Sciences, was established in 1913 and carried out with the cooperation of the Puerto Rican government. The results of this survey have appeared from time to time as investigations by specialists have been completed.

740. Nieves Rivera, Carlos.

Protecting the native parrot.

741. Noble, W. D.

The force of the Río Blanco River.

U.S. Dep. Agric. For. Serv., Inst. Trop. For., Río Piedras, P.R.
[Discontinued series]

The results of this study were that small-leaf mahogany seedlings grew more rapidly than bigleaf, and their hybrids grew more rapidly than either for the first two years. However, between 4 and 7 years of age, both hybrids and bigleaf were significantly taller than small-leaf. Bigleaf suffered the most mortality, followed by small-leaf, then the two hybrids.

U.S. Dep. Agric. For. Serv., Inst. Trop. For., Río Piedras, P.R.
[Discontinued series].

Peeling and frilling killed approximately 70 percent of treated West Indies mahogany, usually within the first 15 months following treatment.

[Discontinued series].

This study indicated mowing competing grass and brush improved accessibility and appearance and reduced fire hazard, but neither height nor diameter growth of the teak was affected.

According to this study, root pruning had no effect on growth or survival of either young or held-over mahogany nursery stock.

746. Noll, John J.  

The purpose of this study was to determine the rate of storage loss resulting from soil and other erosional debris washing into Caonillas Reservoir, to determine the principal sources of this material, and to make some broad recommendations for reducing the rate of sedimentation. The study also included a detailed sedimentation survey of the Reservoir and a detailed soil conservation survey of the watershed.

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Puerto Rico Department of Agriculture may seek Puerto Rico legislation next year to allow farmer's tax exemption on any portion of land above 5 acres devoted to raising trees.

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This is a renewal proposal for studies of the effects of gamma irradiation on the rain forest ecological system at El Verde, Puerto Rico.

This is the annual report for work done on the rain forest project at El Verde, Puerto Rico. An account is given of the measurements taken in the various phases of work by resident staff and visiting participants.


This illustrated narrative describes the experimental design of the forest-irradiation experiment at El Verde, related studies, and the sequence of events in the ABC Rain Forest Program. Effects of the irradiation and the course of recovery were studied in the six years that followed.


The setting and site history of the Rain Forest Project in the Luquillo Mountains of Puerto Rico are introduced with photographs, sectional data, and maps for reference. Base maps, details on facilities, and an introductory trail description are provided to encourage new investigations at the El Verde Site.


As an introduction to the section on mineral-cycling and soil studies, this chapter compares these properties in the forest at El Verde with the same properties in some tropical forests of Costa Rica, Panama, Trinidad, Hawaii, Dominica, and Brazil. A theory of control by changes of atmospheric saturation deficit with attitude is considered and new measurements of numbers of roots in soil pits were made to compare adaptations for absorption to evapotranspiration climate.

The Tabanuco forest at El Verde was measured for the parts, processes, and the effects of radiation stress.

This book of about 1500 pages gathers the results of a study begun in 1963 by the Atomic Energy Commission, and studies the effects of the gamma rays over a tropical rain forest (El Verde).

Previously unpublished studies made in the Tabanuco forest type from 1957 to 1962 were used to characterize some overall properties of a forest prism including chlorophyll A and some principal classes of biomass. This study served as a planning guideline to more detailed studies of biomass, chlorophyll, and metabolism at El Verde from 1963 to 1967.

After relatively high levels of fallout retention were discovered in the epiphytic mossy forest of the Luquillo Mountains during 1962, a survey of the distribution of radioactivity in the rain forest system was made. High levels, up to 4138 counts per minute per gram, were found mainly in or on green plant tissue and the derived litter, with as much variability among leaves of the same tree as between trees.
Patterns of chlorophyll A distribution were studied in trees of the El Verde forest before and after irradiation. Comparisons were also made between successional species, climax species, species in the mossy forest on the mountain top, and corals from a reef. Mean chlorophyll A per area of leaf was highest in species from the mossy forest, intermediate in climax species in the El Verde forest, and least in successional species.

A semiportable 10,000-curie cesium source was constructed for environmental irradiation in the rain forest. The total radiation exposure was 92.8 days (2228 hr). Qualitatively, most of the radiation at 500 m was less than 0.1 Mev.

Hourly, daily, and monthly records of insolation, illumination, temperature, humidity, rainfall, wind, evaporation, and concentrations of carbon dioxide at El Verde are summarized for the period from 1963 to 1966.
For the study of metabolism and evapotranspiration, a giant cylinder of plastic was hung on towers to enclose a prism of rain forest 67 ft. high by 60 ft. wide. Air sampling systems with electrical recorders continuously monitored the carbon dioxide and humidity of the inflowing air at the top of the cylinder and of the outflowing air from the large fan. The high respiration found in the lower forest indicates there is a large photosynthesis that goes immediately into the useful work of maintaining a complex, diverse ecosystem with little net deposition of organic matter.

Terrestrial microcosms were seeded with mineral soil, litter, forest-floor herbs, and small animals to simulate some properties of the rain forest floor. Data support the model of control of respiration and photosynthesis by limiting flow from one process, depending on the recent storage accumulating from the other process.

The metabolic rates of some principal forest components were measured with CO₂ analyzer methods; these components included sun and shade leaves of some principal trees, the forest floor, roots, trunk surfaces, and some animals. The very high respiration of all leaf surfaces, the roots, and the forest floor documents the vast work processes of the steady-state climax, with energy mainly derived from some excess net photosynthesis of canopy leaves below the uppermost layer.

The flow rates and compartmental storages of hydrogen in the rain forest system at El Verde were estimated from data on inflows and outflows collected. Although most forest compartments had a turnover of hydrogen every few days, the turnover ratio for wood was 9000 days.
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A tropical rain forest: a study of irradiation and ecology  
at El Verde, Puerto Rico. Howard T. Odum and Robert F. Pigeon,  
eds. Ch. D-1, p. D 3 - D 75. USAEC, Oak Ridge, Tn.  

A summarizing chronological account is given of defoliation regeneration  
and succession following irradiation in 1965, with documentation by  
photographs; counts of leaves, shoots, and seedlings; and instrumental  
records of optical density as an index to vegetation mass.  

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The relatively small increase in herbivore action at El Verde suggests  
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Soil samples from three selected sphagnum-bog sites in the Luquillo  
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of the vegetation located near the bogs. Pollen from about half the  
species on nearby sites were predominant in the soil samples.  

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El Mundo [San Juan, P.R.], Sept. 6, 1919. p. 3  

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780. Ortiz, Víctor.
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49(1):176-185.

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over 100 trees and regressions that separately treated three groupings
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Detailed structural data, including measured values of crown diameter  
and stem diameter, were collected for 28 forest stands. The data  
suggest that the regression line of best fit is a straight line on  
a log plot throughout the range of size. The assumption that rain  
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as a function of height without commensurate increase in stem diameter  
was tested and found to be invalid.
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828. Puerto Rico Aqueduct and Sewer Authority.

829. [Puerto Rico. Arboles].

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830. [Puerto Rico. Arboles].

Tree pruning for urban beautification.

831. [Puerto Rico. Arboles].

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832. Puerto Rico, Autoridad de las Puentes Fluviales.
[n.d.]. Siempre adecuadamente. 34 p. illus. San Juan.

Proper planting procedures.

833. [Puerto Rico. Aves].

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834. [Puerto Rico. Bosque de Luquillo].

The Luquillo Experimental Forest is recognized as part of the international network of Biosphere Reserves by MAB - Programme on Man and the Biosphere, UNESCO.
The government receives federal funding of $6,037 for the development of a Puerto Rican national forest.

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   Forest as a wilderness area.
Recent forest law will allow Puerto Rico Department of Natural Resources to revamp existing programs and begin new projects for the conservation and development of the island's 13 forest reserves.

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Program for the conservation of resources in the public forests of Puerto Rico.

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This document was prepared at the request and under the direction of the Secretary of Agriculture for his final approval. It was edited by agronomist José Vicente-Chandler, who revised the drafts submitted by several of the island's scientists in agriculture and related fields.

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   P.R. Dep. Agric., San Juan.

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   Effect on the ecology of Puerto Rico by the proposed mining develop-
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   Report based on the work of the Interagency Technical Task Force

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   Dep. of Nat. Resour., San Juan.

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Río Abajo Forest: Forestry workshop.

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892. Puerto Rico Department of Natural Resources.

Department of Natural Resources nurseries will have 1.3 million tres of different species this year, doubling last year's crop.

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895. Puerto Rico Department of Natural Resources.

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897. [Puerto Rico Department of Natural Resources Inventory Division and Cornell University Center for Aerial Photo Studies].
P.R. Econ. Dev. Adm., San Juan.


1973. Mona and Monito Islands: an assessment of their natural  
and historical resources. Vol. 1, 47 p. + photos and maps.  
San Juan, P.R.

This report presents the results of the Environmental Quality Board  
of Puerto Rico's assessment in July 1972 of Mona and Monito Islands.

P.R. Env. Qual. Bd., San Juan, P.R.

The purpose of this survey was to assemble the necessary base data for  
constructive land use planning for Vieques Island. Four additional  
sections which discuss man's modification of his environment have  
been added.

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Star [San Juan, P.R.], Feb. 15, 1963.

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1962. U.S. Forestry Institute publishes handbooks. The San Juan  
Star [San Juan, P.R.], June 27, 1962.

Publication announcement of two new handbooks, "Puerto Rican Woods,"  
and "Commercial Timbers of the Caribbean."
Growing interest in the development of Mona and Monito Islands during the past year has led to proposals which call for drastic modification of what has always been an essentially natural environment. Rational planning and decisions regarding the development of these islands requires a full assessment of their present values. The Environmental Quality Board of Puerto Rico undertook the assessment in July 1972. This report presents the results.

This assessment was assigned to a volunteer team of local scientists representing the disciplines which relate to the present environmental values of the area. Most of team members were already familiar with the islands, and one is stationed there. Four trips to the islands were made to collect additional information. The assessment team was directed by Frank H. Wadsworth. The photographs are individually credited. The two general maps were prepared by John J. Whelan.

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1959. Trees for all in 28,000 acre area. The Island Times [San Juan, P.R.], Nov. 27, 1959.

History of the forest surrounding "El Yunque" peak.

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915. [Puerto Rico. Mangroves].

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916. [Puerto Rico. Mangroves].

Plea to take care of the Vacía Talega area.

917. [Puerto Rico. Mangroves].

Request for protection of mangroves on the island.

918. [Puerto Rico. Honduras pine].

Reforestation: agriculture program will plant a million small Honduras pine trees.

919. Puerto Rico Planning Board.


921. Puerto Rico Reconstruction Administration.
922. [Puerto Rico. Recursos Forestales].
1943. Forestal tuvo un aumento de 17,000 acres. El Mundo [San Juan, P.R.], Nov. 4, 1943. p. 4.

Forestry has an increase of 17,000 acres.

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1968. Island group saving water by reforesting. The San Juan Star [San Juan, P.R.], Feb. 16, 1968.

Association of Soil and Water Conservationists, District of Puerto Rico, launch tree planting program.


Conservation of the natural resources of Puerto Rico.

925. [Puerto Rico. Seedlings].
1966. More than eight million seedlings planted here. The San Juan Star [San Juan, P.R.], Nov. 14, 1966.

Since 1956 seedlings have been planted on more than 10,000 farms in Puerto Rico under a forestry management program that has resulted in some 3,000 acres of forest plantations on the island.

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Instructions for the evaluation of soils in Puerto Rico.

[n.d.] Suelos más importantes de Puerto Rico. 8 p. Univ. de P.R. Recinto de Mayaguez, Colegio de Ciencias Agrícolas, Mayaguez, P.R.

The most important soils of Puerto Rico.

1970. Conservando la tierra y el agua a través de los Distritos de Conservación de suelos y agua. 8 p. Univ. de P.R. Recinto de Mayaguez, Colegio de Ciencias Agrícolas, Mayaguez, P.R.

Conserving the soil and water by means of the Districts of Conservation of soils and water.

1972. Minerales, rocas y suelos. 3 p. Univ. de P.R. Recinto de Mayaguez, Colegio de Ciencias Agrícolas, Mayaguez, P.R.

Minerals, rocks, and soils.
Univ. de P.R. Recinto de Mayaguez, Colegio de Ciencias Agrícolas, Mayaguez, P.R.

Breaking the subsoil and deep fertilization.

1973. Espeques duran más con Pentaclorofenol. 8 p. Univ. de P.R.  
Recinto de Mayaguez, Colegio de Ciencias Agrícolas, Mayaguez, P.R.

The fenceposts last longer with Pentachloropenol.

Univ. de P.R. Recinto de Mayaguez, Colegio de Ciencias Agrícolas, Mayaguez, P.R.

What is a soils conservation district?

1976. Apuntes sobre suelos de P.R. 4 p. Univ. de P.R. Recinto de Mayaguez, Colegio de Ciencias Agrícolas, Mayaguez, P.R.

Notes on Puerto Rican soils.

1976. Como propagar plantas por acodos. 8 p. Univ. de P.R.  
Recinto de Mayaguez, Colegio de Ciencias Agrícolas, Mayaguez, P.R.

How to propagate plants by layering.

1977. Apreciación de suelos. 28 p. Univ. de P.R. Recinto de Mayaguez, Colegio de Ciencias Agrícolas, Mayaguez, P.R.

Soils evaluation.

1977. Charcas artificiales y siembra de peces. 4 p. Univ. de P.R.  
Recinto de Mayaguez, Colegio de Ciencias Agrícolas, Mayaguez, P.R.

Artificial pools and implanting of fishes.

1977. Combate del comején común. 4 p. Univ. de P.R. Recinto de Mayaguez, Colegio de Ciencias Agrícolas, Mayaguez, P.R.

Fighting the common termite.

1977. Instrucciones en la toma de muestra de suelos para determinación de acidez. 1 p. Univ. de P.R. Recinto de Mayaguez, Colegio de Ciencias Agrícolas, Mayaguez, P.R.

How to take samples of soils to determine the acidity.
1977. El murciélago y su combate. 2 p. Univ. de P.R. 
Recinto de Mayaguez, Colegio de Ciencias Agrícolas, Mayaguez, P.R. 

The bat and how to fight it.

1977. La Polilla. 4 p. Univ. de P.R. Recinto de Mayaguez, 
Colegio de Ciencias Agrícolas, Mayaguez, P.R.

Termites

941. [Puerto Rico. Trees]. 

942. [Puerto Rico. Trees]. 
1970. Four senators want Ceiba as official tree. The San Juan 
Star [San Juan, P.R.], Jan. 16, 1970.

943. [Puerto Rico. Trees]. 
1973. City to plant 2,000 trees in "Green San Juan" program. 
The San Juan Star [San Juan, P.R.], Nov. 30, 1973.

San Juan's mayor announced that 2,000 trees could be planted in 
Santurce, and he urged the Legislature to have the municipality 
increase fines against persons who destroy them.

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and the Virgin Islands, Vol. II). The San Juan Star [San 
Juan, P.R.], Oct. 11, 1974.

The trees of Puerto Rico and the Virgin Islands, both United States 
and British, are described in two volumes, of which this is the second 
(volume 2). "Common Trees of Puerto Rico and the Virgin Islands" by 
Little and Wadsworth is cited here as volume 1.

945. [Puerto Rico. Trees]. 
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[San Juan, P.R.], Aug. 2, 1975.

An organization made up of citizens interested in beautifying San Juan 
recently began planting trees and shrubs along main streets in the 
capital city.

946. [Puerto Rico. Trees]. 
1975. Wise trees, magic trees. The San Juan Star [San Juan, P.R.], 

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logical cycle.
947. Puerto Rico, Universidad de, Escuela de Derecho, Instituto de Derecho Urbano.
   1967. La Conservación de recursos naturales. Univ. de P.R., Río Piedras, P.R.

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950. [Puerto Rico. Vacía Talega].

Hearings on the preservation of Vacía Talega mangrove swampland by converting the area into an aquatic forest to serve recreational needs are outlined in this article.

951. Puerto Rico Water Resources Authority.

This environmental report provides a summary description of the project's environmental features, evaluation of the environmental effects attributable to the project's implementation, and a benefit-cost analysis.

952. [Puerto Rico. Yunque].

953. Quarterman, Elsie.

Seeds of three species were planted to test the effects of radiation on germination. Germination of irradiated Dacryodes seeds was severely reduced; that of Smilax was not. Seeds of Linociera proved to be immature; germination of Dacryodes seeds was better in the shade.

954. Quiles Colón, Heriberto.

Reforestation on the private farms in Puerto Rico.
955. Quiñones, Luis R.

Preliminary report on the utilization of the bark of the mangroves.

956. Raffaele, Herbert.

957. Raffaele, Herbert.
1977. Animales raros y en peligro de extinción en Puerto Rico. 69 p. Departamento de Recursos Naturales, San Juan, P.R.

Rare animals in danger of extinction in Puerto Rico.

958. Ramos, Francisco.
1866. Prontuario de disposiciones oficiales del gobierno superior de la isla de Puerto Rico. Imp. de J. González Font, San Juan, P.R. 531 p.

The official disposition of the government of the island of Puerto Rico.

959. Ramos López, Juan R.

Reforestation plan would provide 30,000 jobs and satisfy demand for wood on the island.

960. Recher, Harry F.

From 1964 to 1966 bird populations were censused in 25 acres of lower montane rain forest at El Verde and in 9 acres of palm forest on Mt. Britton to the east. At El Verde bird densities were 6.7 to 9.1 per acre and at Mt. Britton 5.8 to 7.7 birds per acre. Patterns of breeding were charted with season; they are discussed relative to pulses of food productivity available in insects, flowers, and fruits.

961. Recher, Harry F., and Judy T. Recher.

962. Record, Samuel J.


965. Reddy, C. V. K.  

966. Reid, David.  

This paper deals specifically with the problems in the preservative treatment of tabonuco, Dacryodes excelsa Vahl., one of the more important Puerto Rican species. Spanish summary, Caribb. For. 4(1):34.

967. Ricciuti, Edward R.  

968. Ricciuti, Edward R.  

This book tells the stories of seven species of wild animals that have been on the road to extinction, one of which is the Puerto Rican parrot.

969. Richards, Douglas D.  

The U.S. Department of Agriculture assigns five million dollars for construction on forests in Puerto Rico.

970. Rivera, Angel.  

Puerto Rico and silviculture.

971. Rivera, Julio.  

General description of the works done during this period.

972. Rivera, Luis H.  

Public forests of Puerto Rico.


Reforestation in the mountains of Puerto Rico.


Overseas legislation.


Forest nurseries in Puerto Rico.


The rescue from destruction of 40 acres of mangroves in Puerto Rico.


Puerto Rican governmental departments unite to restrict elimination of the mangroves from the Martín Peña Canal.


More than a million small trees have been produced in the Caribbean Forest nursery for free distribution for planting on private farms.

Plans to establish 4 new recreation areas in the Caribbean National Forest.


Article on the multiple uses made of the Caribbean National Forest.


New forests for Puerto Rico.

985. Rosario, José. 1935. Development of the Puerto Rican jíbaro and his present attitude toward society. 116 p. Univ. of P.R., Río Piedras.


From quantitative structural data collected on two forest sites, detailed maps of the area were drawn. Other vegetation data, both structural and taxonomic, also are available for the sampled areas.


In Scientific Survey of Porto Rico and the Virgin Islands

1002. Seda, Benjamín R.
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para Puerto Rico. Rev. de Agr. de P.R. 49(1):87-93.
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1003. Seda, Benjamín R.
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1004. Seda, Benjamín R.
1964. El programa forestal de Puerto Rico. Rev. de Agr. de P.R.
The forestry program of Puerto Rico.

1005. Shafer, J. A.
This is a general account of the island and of its vegetation.

1006. Shafer, J. A.
1915. Collecting in the mountain region of eastern Porto Rico

1007. Sherman, E. A.
1928. Condiciones silvícolas de Puerto Rico. Rev. de Agr. de
Silvicultural conditions of Puerto Rico.

1008. Shlers, D.
1970. Jobos Bay ecology study announced. The San Juan Star
[San Juan, P.R.], July 21, 1970. p. 6.

1009. Smedley, D.

1010. Smith, M. R.
1936. The ants of Puerto Rico. J. Agric. Univ. of P.R.

1011. Smith, R. F.
structure of lower montane rain forest at El Verde. p. 47-60.
USAEC Report PRNC-61. P.R. Nuclear Center, Univ. of Puerto
Rico, Río Piedras, P.R.

1013. Smith, Robert Ford.

Study done following the sequence of changes in forest structure during radiation and of changes in the first year following radiation as compared with those reported in some similar experiments done previously in temperate forests.

1014. Smith, Robert Ford.

Plants frequently involved in the studies at El Verde are listed in this chapter.

1015. Smith, Robert Ford.

A key with leaf drawings is provided for identification of the common woody plants of the Luquillo Mountains, Puerto Rico, using vegetative characteristics.

1016. Smith, Robert Ford.

The structure of a stand of rain forest at El Verde was studied before and for one year after it had been subjected to three months of gamma radiation. Floristic analysis showed that a change in the soil from relatively aerobic to anaerobic conditions was attributed to factors of drainage.

1017. Sollins, Phillip, and George Drewry.

Throughfall, stemflow, and rainfall interception were studied to determine their relative importance as factors in the canopy water balance and the overall nutrient cycle of the forest.
1018. Soriano-Ressy, Mario, A. Paul Desmarais, and José W. Pérez.

Pedology, geology, and vegetation data were collected from seven Tabonuco forests to characterize rain forest systems found in the mountains of the Caribbean Islands. Three sites were established in matured virgin forests on the island of Dominica, British West Indies, and four sites were established in forests that had experienced selective cuttings on the island of Puerto Rico.

1019. Sorrie, B.

1020. Sorsa, Veikko.

Postirradiation studies carried out on pteridophytes in the rain forest project area at El Verde have shown that these plants are unexpectedly resistant to the radiation emitted by a cesium source. Possibly some structural characteristics prevent breaks in the chromosomes or leads to their repair.

1884. Regulations for the compromise sale of unappropriated government lands in the Island of Porto Rico, approved on April 17, 1884. 4 p. [Copy of the regulations in Institute of Tropical Forestry files].

1022. Sposta, J. W.
1957. National forests are closely tied to Commonwealth economy. The Island Times [San Juan, P.R.], No. 102, Sept. 20, 1957.

Laborers carry out an integral part of the improvement program on national forest land in Puerto Rico.

1023. Sposta, Joseph W.

The Spanish version is published as Apuntes Forestales Tropicales No. 4 and is entitled "Eliminación de esocies tropicales inferiores por medio de substancias químicas."

129
1024. Sposta, Joseph W.

English version published as Tropical Forest Notes No. 4, entitled "Chemical removal of interior tropical tree species."

1025. Stahl, Agustín.

Account of economic plants of Puerto Rico, with special discussion of the Sapotaceae.

1026. Stahl, Agustín.

Descriptions in Spanish of some plants of Puerto Rico, based mainly upon the author's collections from 1865 to 1888. This is an uncompleted work.

1027. Stahl, Agustín.

The Borinquen Indians (Puerto Rico).

1028. Steere, William C.

Bryophytes appeared to be more resistant to ionizing radiation than higher plants. Among bryophytes leafy hepatics were more sensitive and mosses were more resistant.

1029. Stehle, Henri.
1945. Forest types of the Caribbean Islands. Part I. Caribb. For. 6(suppl.):273-408.

This article has been translated from French and also has been translated into Spanish.

1030. Stehle, Henri.
1945. Los tipos forestales de las islas del Caribe. Parte I. Caribb. For. 6(suppl.):273-416.

This article has been translated from French and also has been translated into English.
1031. Stehlé, Henri.
1945. Les types forestiers des Iles Caraibes. [Forest types of the Caribbean Islands]. Caribb. For. 6(suppl.):273-474, 1945, Premier Suite, and Caribb. For. 7(suppl.):337-709, 1946, Deuxieme Partie.

1032. Stehlé, Henri.

List of trees and shrubs of the Lesser Antilles.

1033. Stein, A. H.

1034. Stejneger, L.

1035. Stella, Tomás.

An experiment of radiation at El Verde to study the effects of radiation in the living organisms is reported in this article.

1036. Stella, Tomás.
1976. Huge program eyes planting of 30,000 San Juan trees in '76. The San Juan Star [San Juan, P.R.], May 30, 1976.

The municipal government of San Juan will undertake to plant trees. The group will be composed of high school and college students plus 200 regular or temporary employees of the Municipal Public Works Department in planting saplings along the city's sidewalks and in front of homes.

1037. Stevens, F. L.

This is a record of botanical investigations made while Professor Stevens was dean of the College of Agriculture at Mayaguez, P.R.

1038. Stevenson, Tom.

Account on roots of the trees.

The size-specific oxygen consumption of the dominant tree snail, Caracolus caracolla was estimated in August 1966, and the population oxygen consumption was computed for various possible population densities. The relative abundances of these species fitted well the MacArthur (1957) "broken stick" model, suggesting that in the relatively homogeneous-litter environment the niches of gastropod species are nonoverlapping and contiguous.


Land usage in the West Indies is dominated by limited land area, rapidly increasing population and dependence on agricultural crops, declining in value. In Haiti excessive deforestation has created land problems of major importance. The erosion problems of Puerto Rico are discussed also, a brief history of the U.S. Forest Service and its organization is given.


Four species of bats from the rain forest of the El Verde experimental area, Luquillo National Forest, Puerto Rico are reported on, and the potential of the forest for studies in neotropical bat ecology and population dynamics is discussed.


132
1047. Toro Nazario, J. M.

The first Arbor Day in Puerto Rico was initiated by the last Spanish Governor.


1049. Tower, W. V.

1050. Tropical Forest Experiment Station [now named Institute of Tropical Forestry], Forest Service, USDA.

1051. Tropical Forest Experiment Station [now named Institute of Tropical Forestry], Forest Service, USDA.

The beginning of active cooperation in tropical forestry research and toward establishment of a Forest Research Center for the Caribbean Area has been accomplished between the comptroller for Development and Welfare of the British West Indies and the Trop. For. Exp. Stn., USDA For. Serv., Rio Piedras, P.R.

1052. Tropical Forest Experiment Station [now named Institute of Tropical Forestry], Forest Service, USDA.

The first 9 years' reports were unpublished; this reference refers to a bound collection located in the library of the Institute of Tropical Forestry, Rio Piedras, P.R.

1053. Tropical Forest Experiment Station [now named Institute of Tropical Forestry], Forest Service, USDA, and the Agric. Exp. Stn., Univ. of P.R.

At the time this system was adopted, there were 6 forest units belonging to the Federal Government on the island: Luquillo, Toro Negro, Guajataca, Carite, Susúa, and Guárate (Prieto). The Luquillo unit was subdivided into 5 main projects. These are El Verde, Pizá, Ciénaga Alta, Sabana, and Del Valle. The Toro Negro unit was composed of three projects: El Guineo, Doña Juana, and Matrullas. The Río Abajo and the Isabelita projects formed the Guajataca unit. Guavate and Patillas constituted what was known as the Carite unit. With the exception of the Luquillo unit, known as the Caribbean National Forest, and part of Toro Negro unit (Doña Juana), all the other units were bought after 1935 by the Puerto Rico Reconstruction Administration for reforestation purposes. Although these lands belonged to the Puerto Rico Reconstruction Administration, they were under the direct supervision of the Forest Service of the United States Department of Agriculture.
In the "Parcelero Policy" program, a plan made land available to laborers for planting and cultivating subsisting crops. Some of this land was to be used only for agriculture. They were also given forest land to plant and care for forest trees planted in rotation with subsistence crops. The final objective was to create a group of forest laborers who would grow crops for their own use and obtain their cash income from the sale of forest products.


Spanish version, Caribb. For. 11(2):81-104.


1064. Tropical Forest Research Center [now named Institute of Tropical Forestry], Forest Service, USDA.

1065. Tropical Forest Research Center [now named Institute of Tropical Forestry], Forest Service, USDA.

1066. Tropical Forest Research Center [now named Institute of Tropical Forestry], Forest Service, USDA.

1067. Tropical Forest Research Center [now named Institute of Tropical Forestry], Forest Service, USDA.

1068. Tropical Region [now named Institute of Tropical Forestry], Forest Service, USDA.

This atlas includes descriptive and factual information on the public acquisition and continuing status and ownership of land for national forest purposes in Puerto Rico. Information compiled during 1946-1948.

1069. Tschirley, Fred H., Clyde C. Dowler, and James A. Duke.

Species diversity of flora in the wet Tabonuco forest of the Luquillo Mountains on basalt was compared with that in the drier montane forest on serpentine at Maricao in western Puerto Rico. The floristic diversity on the drier Maricao soil that was derived from nutrient-poor rocks suggests that nutrients can be cycled and recycled through the extant plants to develop a rich forest.

1070. Tukey, H. E., Jr.

Studies were made of the leaching of minerals (phosphorus, calcium, potassium, magnesium, zinc, manganese, iron, copper, boron, aluminum, and strontium) from healthy rain forest seedlings from El Verde, including sugar cane and banana. Little, if any, nutrients were leached from young, growing seedlings of tree species, and small amounts were leached from young banana trees, sugar cane, and the seedlings of the rain forest shrub Palicourea.

Populations of semi-arboreal (Anolis gundlachi and A. evermanni) and a tree frog, Eleutherodactylus portoricensis (the coqui), were studied at El Verde, Puerto Rico, before one of the areas was exposed to gamma irradiation and again following the experiment. Animals were killed by irradiation, and the density of all species was obviously reduced within 15 to 20 m of the source; however, young individuals apparently enjoyed better survival because of time spent below ground.


Tech. Pap. 21. 46 p. plus illus.


1946. Programación forestal para las tierras forestales de Puerto  

English version, Caribb. For. 7(4):277-278.

1083. U.S. Department of Agriculture, Forest Service.  
1946. Program for forestry and forest lands in Puerto Rico.  
Caribb. For. 7(4):277-278

Spanish version, Caribb. For. 7(4):281-283.

1946. El progreso de la legislación forestal en el Caribe.  
Caribb. For. 7(4):279-280.


1946. Progress in tropical forest legislation.  
Caribb. For. 7(4):275-276.


1086. U.S. Department of Agriculture, Forest Service.  
1948. Resumen de la investigación forestal en Puerto Rico.  
Caribb. For. 9(1):70-83.


1948. Summary of forest research in Puerto Rico.  
Caribb. For. 9(1):57-69.

A Spanish version, Caribb. For. 9(1):70-83.

1950. Adiestramiento forestal en Puerto Rico bajo el programa del  

Forestry training in Puerto Rico under the Point Four Program.

1089. U.S. Department of Agriculture, Forest Service, Caribbean National  
Forest.  
[n.d.] Reader's guide to the Caribbean National Forest plans.  
Forestry training in Puerto Rico under the Point Four Program.  
U.S. Dep. Agric. For. Serv., Inst. Trop. For., Río Piedras, P.R.
1090. U.S. Department of Agriculture, Forest Service, Tropical Region. [now named Institute of Tropical Forestry].

This classification, prepared by the Department of Agriculture, Forest Service, Tropical Region, is based on data from "Timbers of the World" by Record and Hess, Yale University Press, 1943; "Tropical Woods," Yale University 1925; some British publications; the experience and knowledge of local persons, and the use of these woods. There are listed approximately 200 tree species in the natural forests of Puerto Rico.


This is a handbook for soil conservation service technicians, vocational agricultural teachers, agricultural extension agents, and others in Puerto Rico and the Virgin Islands.


Land capability guides.


The soils conservation districts in Puerto Rico.


The inventory was prepared under the supervision of the Puerto Rico Conserv. Needs Comm., representing agencies and organizations with conservation responsibilities and interest.

This report was done in cooperation with the Univ. of P.R. Agric. Exp. Stn. and contains descriptions and laboratory data for 93 pedons sampled in Puerto Rico and the Virgin Islands. Three indices are provided to help the reader find the descriptions and data for specific pedons.


This is a summary of the 1968 conservation needs inventory.


A committee of representatives of commonwealth, federal, and private agencies has prepared this report on the Island's rare and endangered animal species. The report deals with the degree of endangerment of these animals, a description of these species, the causes of endangerment, and guidelines for a plan of action to protect the animals.


Evaluation of the potential development of the Cibuco District of conservation as a recreation area.


Evaluation of the potential development of the Northeastern Puerto Rico District of Conservation as a recreation area.


This report is a list of rare and endangered plant species for Puerto Rico.

1103. U.S. Department of Agriculture, Soil Conservation Service, and the University of Puerto Rico, Agricultural Experiment Station.


This soil survey contains information for use in managing farms and woodlands; in selecting sites for roads, ponds, buildings, and other structures; and in judging the suitability of tracts of land for farming, industry, and recreation.  


This soil survey contains information that can be used in managing farms, ranches, woodlands, and wildlife areas; in selecting sites for roads, ponds, buildings, and other structures; and in judging the suitability of tracts of land for farming, industry, and recreation.  


1109. Upson, Arthur T.  


1111. Upson, Arthur [T.].  

Rural silviculture research in Cambalache.  

140
Upson, Arthur [T.].

This atlas was prepared by ITF for its own use, is kept current, and includes relative notes on the P.R. Insular Forests.

Upson, Arthur [T.], and Frank H. Wadsworth.

Urban, I.

Descriptions of Puerto Rican species in many families of plants.

Urban, I.

Includes descriptions of three new Brunfelsias of Puerto Rico.

Urban, I., ed.
1898-1928. Symbolae antillanae: Fundamenta flvae Indice Occidentalis. 9 Vol; Fratres Borntraeger, Berlin.

Contains many records and descriptions of plants of Puerto Rico and the Virgin Islands.

Urban, I.

This is a catalogue of the Pteridophyta and Spermatophyta of Puerto Rico and includes detailed synonymy and distribution, a bibliography, and chapters on plant geography on the history of botanical investigation.

Urban, I.

Vahl, Martin.

This includes descriptions and illustrations of some plant species from Puerto Rico, St. Thomas, and St. Croix.

Van der Schalie, H.
1121. Van Zwalwegen, R. H.

1122. Vázquez García, Salvador.

Conservation of the renewable resources.

1123. Vázquez Pérez, Carlos J.

Management of the public forest lands of Puerto Rico.

1124. Velarde, J. A.

1125. Velázquez, Imaro.
1974. Study urges forestry development program. The San Juan Star [San Juan, P.R.], Jan. 3, 1974.

This article is about 500,000 acres in Puerto Rico which are devoted to forestry for commercial use.

1126. Vélez, Manuel J., Jr.


Cytological studies were made of Palicourea riparia Benth., a small tree dispersed within the gamma-radiation field of the rain forest at El Verde, Puerto Rico. Under natural conditions this species was found to have a relatively high frequency of cytological abnormalities. After three months of chronic gamma irradiation, there was a significant increase in meiotic abnormalities, which decreased with a passage of time.


Before irradiation, only one karyotype rearrangement was found and it was in an unknown species. After 3 months' irradiation, six specimens with autosomal centric fusion were encountered. Only whole-arm transpositions were found, and there were no heteromorphic bivalents, in contrast to earlier reports on walkingstick chromosomes.


Puerto Rico's forests and their benefits.


English version, Caribb. For. 10(4):308-309.
1150. Vivaldi, Santiago A. 

Spanish version, Caribb. For. 10(4):308-309.

1151. Vivaldi, Santiago A. 

English version, Caribb. For. 243-244.

1152. Vivaldi, Santiago A. 

Spanish version, Caribb. For. 10(4):281-282.

1153. Vivaldi, Santiago A. 

This is a paper presented at the Symp. Am. Soc. Agric. Sci., Nov. 14, 1952, Rio Piedras, P.R.


1155. Wadsworth, Frank H. 
1943a. The evaluation of forest tree species in Puerto Rico, as affected by the local forest problem. Caribb. For. 4(2):54-58.

1156. Wadsworth, Frank H. 

1157. Wadsworth, Frank H. 

1158. Wadsworth, Frank H. 

1159. Wadsworth, Frank H. 
1943e. Roble, a valuable forest tree in Puerto Rico. Caribb. For. 4(2):59-76.

1160. Wadsworth, Frank H. 
1161. Wadsworth, Frank H.
1944b. The first year in the Cambalache Experimental Forest. Caribb. For. 6(1):34-38.

Spanish version, Caribb. For. 6(1):38-43. French summary, Caribb. For. 6(1):43-44.

1162. Wadsworth, Frank H.
1944c. The management policy of the Caribbean National Forest, as it effects minimum stumpage rates. [Unpublished memorandum].

1163. Wadsworth, Frank H.

English version, Caribb. For. 6(1):43-44.

1164. Wadsworth, Frank H.
1945a. El Bosque Experimental Cambalache, una ventaja para la comunidad campesina. Rev. de Agr. de P.R. 36(2):139-140.

The Experimental Cambalache Forest, an advantage for the rural community.

1165. Wadsworth, Frank H.

1166. Wadsworth, Frank H.
1945c. La dasonómía en la región cafetelera de Puerto Rico. Caribb. For. 6(2):75-80.

English version, Caribb. For. 6(2):71-75. French summary, Caribb. For. 6(2):80-81.

1167. Wadsworth, Frank H.
1945d. Forestry in the coffee region of Puerto Rico. Caribb. For. 6(2):71-75.

Spanish version, Caribb. For. 6(2):75-80. French summary, Caribb. For. 6(2):80-81.

1168. Wadsworth, Frank H.
1945e. Further notes on the regeneration and growth of Tabebuia pallida Miers. Caribb. For. 6(4):267-269.


1169. Wadsworth, Frank H.

1170. Wadsworth, Frank H.
1945g. Las potencialidades dasonómicas de la Isla de Mona. Caribb. For. 6(4):231-242.

English version, Caribb. For. 6(4):219-231. French summary, Caribb. For. 6(4):243-244.

1171. Wadsworth, Frank H.

1172. Wadsworth, Frank H.


1173. Wadsworth, Frank H.


This paper considers the management of these lands for forest production.

1174. Wadsworth, Frank H.


1175. Wadsworth, Frank H.


1176. Wadsworth, Frank H.


1177. Wadsworth, Frank H.

Effect of the forest over the climate and supply of water. Trees contribute more to the quantity of subterranean water than other types of vegetation.
1178. Wadsworth, Frank H.
1947g. Growth on the lower montane rain forest of Puerto Rico.
Caribb. For. 8(1):27-35.


This article is based on a paper presented before the Journal Club,
Mayaguez, P.R., on Oct. 21, 1946.

1179. Wadsworth, Frank H.
1947h. The second year in the Cambalache Experimental Forest.
Caribb. For. 8(1):65-70.

Spanish version, Caribb. For. 8(1):70-76. French summary, Caribb. For.
8(1):76-77.

1180. Wadsworth, Frank H.
1947i. Segundo aniversario del Bosque Experimental Cambalache.
Caribb. For. 8(1):70-76.

8(1):76-77.

1181. Wadsworth, Frank H.
Caribb. For. 8(3):207-212.

8(3):212.

1182. Wadsworth, Frank H.
1947k. The third year in the Cambalache Experimental Forest.
Caribb. For. 8(3):203-207.

8(3):212.

1183. Wadsworth, Frank H.
1948a. Cinco años de investigación forestal en la costa norte de


1184. Wadsworth, Frank H.
1948b. El clima en las montañas de Luquillo y lo que significa para

9(4):344.

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1186. Wadsworth, Frank H.


1187. Wadsworth, Frank H.

Prizes for the scientific works (The climate of the mountains of Luquillo and their meaning for Puerto Rico).

1188. Wadsworth, Frank H.


1189. Wadsworth, Frank H.
1948g. La influencia climatológica e hidrológica de los bosques. Caribb. For. 8(4):294-298.


1190. Wadsworth, Frank H.


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1193. Wadsworth, Frank H.

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1194. Wadsworth, Frank H.  

1195. Wadsworth, Frank H.  

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1197. Wadsworth, Frank H.  

1198. Wadsworth, Frank H.  
1949i. What kind of land is adapted to trees? 1 b. Point of view of the Forest Service. In A farm forestry training program. Caribb. For. 10(4):243-244.  
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1199. Wadsworth, Frank H.  
1949j. What will be the returns from farm forestry? 5. In A farm forestry training program. Caribb. For. 10(4):259-266.  
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1200. Wadsworth, Frank H.  
1950a. Notas sobre los bosques climáticos de Puerto Rico y su destrucción y conservación con anterioridad al 1900.  
Caribb. For. 11(1):47-56.  

1201. Wadsworth, Frank H.  
1950b. Notes on the climax forests of Puerto Rico and their destruction and conservation prior to 1900.  
Caribb. For. 11(1):38-47.  

1202. Wadsworth, Frank H.  
1951a. ¿Cómo puede ayudar el técnico forestal al cafetalero?  
How the forestry technician can help the coffee planter.
1203. Wadsworth, Frank H.

The forestry culture as a practice for the soil conservation in Puerto Rico.

1204. Wadsworth, Frank H.


1205. Wadsworth, Frank H.


1206. Wadsworth, Frank H.


1207. Wadsworth, Frank H.

Spanish version, Caribb. For. 13(3):120-142.

1208. Wadsworth, Frank H.


1209. Wadsworth, Frank H.


1210. Wadsworth, Frank H.

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1218. Wadsworth, Frank H.
The forests of Puerto Rico.

1219. Wadsworth, Frank H.

1220. Wadsworth, Frank H.

1221. Wadsworth, Frank H.

1222. Wadsworth, Frank H.
The forest problems of the humid American tropics. International revision report.

1223. Wadsworth, Frank H.
1967. A design for planned use of our rural land resources. In Ponencias y comentarios, conferencia sobre la conservación de recursos naturales. p. 55-75. Inst. of Urban Law, Univ. of Puerto Rico, Rio Piedras, P.R.
1224. Wadsworth, Frank H.  

1225. Wadsworth, Frank H.  

La evidencia de los problemas que confronta la investigación dasonómica de la América Latina condujo a una encuesta de las 16 instituciones mayores. Se encontró que sus programas de investigación eran amplios y tenían muchos aspectos en común. La orientación de los programas es deficiente. Hay muy pocas oportunidades de adiestramiento.


1226. Wadsworth, Frank H.  

1227. Wadsworth, Frank H.  

Evidence of problems confronting forestry research in Latin America led to this survey of the 16 major institutions. The research programs were found to be broad and overlapping, program orientation is weak, training opportunities are too few, and regional coordination of research is needed, and these institutions appear ready for it. Stronger support of expert advisors, voluntary coordination of programs and a series of regional training courses are suggested.


1228. Wadsworth, Frank H.  

1229. Wadsworth, Frank H.  
1969a. Records of forest plantation growth in Mexico, the West Indies, and Central and South America. Caribb. For. 21(supp.):387.

1230. Wadsworth, Frank H.  
1969b. Uso planificado de recursos naturales. El Mundo [San Juan, P.R.], July 5, 1969. p. 8-A.

Planned use of the natural resources of Puerto Rico.
1231. Wadsworth, Frank H.

Planned use of the rural lands.

1232. Wadsworth, Frank H.

Planned use of our rural lands.

1233. Wadsworth, Frank H.

This chapter reviews the major biologic and geographic investigations that have been made in the Luquillo Mountains of Puerto Rico. The results of the most extensive and continuous investigations, especially those in forestry, are summarized in some detail.

1234. Wadsworth, Frank H.

1235. Wadsworth, Frank H.

1236. Wadsworth, Frank H.

1237. Wadsworth, Frank H.

Article on how Puerto Rican forests affect the island's environment.

1238. Wadsworth, Frank H.

Status of forestry research in Latin America.

1239. Wadsworth, Frank H.
1240. Wadsworth, Frank H.  

1241. Wadsworth, Frank H.  

1242. Wadsworth, Frank H.  

1243. Wadsworth, Frank H.  

1244. Wadsworth, Frank H.  

1245. Wadsworth, Frank H.  

1246. Wadsworth, Frank H.  

1247. Wadsworth, Frank H.  

1248. Wadsworth, Frank H.  
Are exotic trees better than Puerto Rican trees?

1249. Wadsworth, Frank H.  
Selfsufficiency of wood: another opportunity for Puerto Rico.
1250. Wadsworth, Frank H.

The reforestation of the island of Puerto Rico.

1251. Wadsworth, Frank H., and J. A. Bonnet.


1252. Wadsworth, Frank H., and J. A. Bonnet.


English version, Caribb. For. 16(1/2):12-23.


Spanish version, Caribb. For. 16(1/2):24-35.

1256. Wadsworth, Frank H., and José Marrero.


Companhia Paulista's (Brazil) experiences with Eucalyptus and its importance for Puerto Rico.

1257. Wadsworth, Frank H. and José Marrero.


This is a review of the work of the Companhia Paulista in Brazil. It discusses experiences to date with Eucalyptus in Puerto Rico and makes some recommendations for future work.

1259. Wadsworth, Frank H., and Emilio Solís.  

1260. Wadsworth, Frank H., and Emilio Solís.  

1261. Wadsworth, Robert K. [Kenneth].  
The effects of elevation and terrain steepness on species distribution were studied to test a theory that these factors control the distribution of two forest types (Tabonuco and Colorado) which interfinger at this altitude. The point-quarter technique proved promising as a measure of species groups that represent more than half of the forest.

1262. Wadsworth, Robert Kenneth.  


1264. Water Information Center, Inc.  

1265. Watson, Henry.  
Five thousand limb tips of ground-story plants were tagged and measured in both the Radiation and South Control Centers of the El Verde forest after irradiation. The dosage at which growth in the Radiation Center equaled that in the Control Center was taken as a measure of species sensitivity.
1266. Watson, Robert.

Epiphytic algae on the fronds of the palm *Euterpe globosa* were studied in the Puerto Rican Nuclear Center rain forest program at El Verde, Puerto Rico. Considerable variation in epiphytic algae in the two areas observed was attributed to the indirect radiation effect of a sunny microenvironment rather than to the direct effect of radiation.

1267. Weaver, P. [Peter] L.

1268. Weaver, P. [Peter] L.

1269. Weaver, P. [Peter] L.

1270. Weaver, Peter L.

1271. Weaver, Peter L.

1272. Weaver, Peter L.

Voluntary paper submitted to the Technical Conference on Tropical Moist Forests, originally due to be held September 22 – October 3, 1975, and eventually cancelled. FAO, Rome. [Unpublished; repro. may be obtained from FAO Lib. and Doc. Div., att. DIS/Library].


1274. Weaver, Peter L., and Luis O. Nieves.

1275. Weaver, Peter L., Luis O. Nieves, and Thomas R. Crow.

A report contracted by and submitted to the U.S. Navy.

In study of viruses made in 10 species of mosquitoes in the year preceding and following gamma irradiation, no arboviruses were found, but Coxsackie virus was found in rats and mosquitoes immediately following irradiation.


A study was made of the mosquito population in the tropical rain forest at El Verde before and after radiation source. Comparison of the records of mosquito recovery indicates that the mosquito populations were initially depressed to a similar extent by both radiation and cutting, but the rate at which the different species could be recovered differed markedly from one area to another.


Population field studies of the black roof rat were made in the Radiation and South Control Centers at El Verde, both before and after radiation treatment of the areas. More rats were caught in areas in which there was less human activity.


1294. Whitmore, Jacob L.

This bibliography is presented as an aid and stimulus to future research in the neotropics on E. deglupta. References included in For. Abstr. are so noted for easy access to the abstracted information (i.e., FA 16-3370 indicates For. Abstr., Vol. 16, Abstr. 3370).

1295. Whitmore, Jacob L.

Three years after outplanting, a provenance trial of Spanish cedar was evaluated. Of the five sites considered, none proved appropriate for plantations of this species. The relative importance of the two main problems of Spanish cedar plantation establishment, site sensitivity and borer attack is discussed.

1296. Whitmore, J. [Jacob] L.

1297. Whitmore, Jacob L., and T. F. Geary.

1298. Whitmore, Jacob L., and G. S. Hartshorn.

1299. Whitmore, Jacob L., and Gilberto Hinojosa.

This study concludes that Swietenia macrophylla x mahagoni is the same as S. aubrevilleana Stehle & Cusin and is a hybrid worthy of widespread adaptability trials.


1302. Whitmore, Jacob L., and A. Otárola T.
1976. Acrocarpus fraxini folius Wight, especie de rápido crecimiento inicial, buena forma y madera de usos múltiples.
Turrialba 26(2):201-204.

Acrocarpus fraxini folius Wight is a species of rapid growth, good form, and many uses.

1303. Whitmore, R. A.

Doctors Green and Whitmore give conference relating to the reduction of nitrogen in plants; artificial fertilization.

1304. Wiegert, Richard G.

The effects of ionizing-radiation stress were analyzed with respect to three major components of the detritus-decomposer food web in a Puerto Rican montane rain forest: the rate of leaf fall, the decomposition rate of leaf litter, and the density of soil-litter microarthropods. No immediate effect of the radiation stress on the disappearance of litter from mesh bags was detected, and the radiation stress has no apparent effects on the microarthropod fauna of the soil and litter.

1305. Wiegert, Richard G.

Density, respiratory energy loss, and secondary production by nest-building termites were studied in a Puerto Rican montane rain forest. Several tentative conclusions were drawn: the number of termites per nest is related not to the volume but to the surface area of the nest, worker and soldier termites had a "normal" calorific equivalent of about 5700 cal/g, but nymphs and winged reproductives in the nest had 6700 to 6800 cal/g dry wt., and the relation of oxygen consumption to body weight in these termites was similar to that found in other studies of insect respiration.

1306. Wiegert, Richard G., and Peter Murphy.
A two-year experiment was designed to test for the significance of species, location, and seasonal differences in disappearance rates of rain forest tree leaf litter. A factorial analysis of variance showed that disappearance rates differed significantly between trees (location), leaf species, and seasons, with a significant interaction between leaf species and season.

1307. Wiewandt, Thomas Alan.

1308. Wiewandt, Thomas Alan.

1309. Williams, L.

1310. Willoughby, W. F.

1311. Wilson, H. M.

1312. Wilson, Percy.

This is an account of botanical collecting, especially in the Sierra de Luquillo.

1313. Wilson, Percy.

A brief description of the island, record of collectors, and catalogue of species are included in this article.


This is an annotated list of species suitable for Puerto Rico, including palms, bamboos, and evergreens.

1315. Wisdom, Harold W.
This thesis describes a cost/benefit model developed to provide criteria for choosing between investment alternatives, and it discusses the model's use in Puerto Rico in the choice among alternatives in forestry, recreation, and watershed management and in private forestry investment incentives.

Microbial densities and activity were measured just before and after 3 months of irradiation and again 7 and 13 months after the period of irradiation. Comparisons of rock-shielded and exposed sites from 3 to 140 m from the radiation source showed no direct radiation effects on microflora. Seven months later breakdown rates and population densities were still higher in the defoliated area than in the forest with leaves remaining, and maximum activity was located in the highest accumulation of litter just around the source.

Leaf surfaces with epiphylls dipped in nuclide solutions retained from 6 to 1726 ppm of the nuclide. It is argued that retention by epiphylls of minerals from precipitation may be a significant process in the mineral cycle of rain forests.

Puerto Rican economic entomology.
1324. Wolcott, George N.

1325. Wolcott, George N.

1326. Wolcott, George N.


1327. Wolcott, George N.

1328. Wolcott, George N.


1329. Wolcott, George N.

English version, Caribb. For. 6(3):115-120.

1330. Wolcott, George N.
1945. Cómo lograr que la madera no sea apetecible al termes de la madera seca, Cryptotermes brevis Walker. III. Caribb. For. 6(4):256-266.

English version, Caribb. For. 6(4):245-256.

1331. Wolcott, George N.
1945. How to make wood unpalatable to the West Indian dry-wood termite, Cryptotermes brevis Walker. III. Caribb. For. 6(4):245-256.

Spanish version, Caribb. For. 6(4):256-266.

1332. Wolcott, George N.

Spanish version, Caribb. For. 6(3):120-128. French summary, Caribb. For. 6(3):128-129.

1333. Wolcott, George N.
1946. Factores en la resistencia natural de las maderas al ataque de los termes. Caribb. For. 7(2):139-149.

English version, Caribb. For. 7(2):121-134.
1334. Wolcott, George N.
1946. Factors in the natural resistance of woods to termite attack. Caribb. For. 7(2):121-134.

Spanish version, Caribb. For. 7(2):139-149.

1335. Wolcott, George N.
1946. A list of woods arranged according to their resistance to the attack of the West Indian dry-wood termite, Cryptotermes brevis Walker. Caribb. For. 7(4):329-334.

This list is adapted from that given in "What to do about polilla" (Wolcott, G.N., 1946, Bull. 68, Agric. Exp. Stn., Univ. of P.R. at Río Piedras, P.R. 29 p.), which includes minor changes of position of some woods.


1336. Wolcott, George N.


1337. Wolcott, George N.

1338. Wolcott, George N.

1339. Wolcott, George N.

1340. Wolcott, George N.


1341. Wolcott, George N.

1342. Wolcott, George N.
1949. The compounds of copper most effective in making wood resistant to the attack of the West Indian dry-wood termite, Cryptotermes brevis Walker. Caribb. For. 10(3):197-200.

Spanish version, Caribb. For. 10(3):200-203.

1343. Wolcott, George N.
1949. Los compuestos de cobre que logran mayor efectividad en infundirle resistencia a la madera contra la polilla, Cryptotermes brevis Walker. Caribb. For. 10(3):200-203.

English version, Caribb. For. 10(3):197-200.

1344. Wolcott, George N.

1345. Wolcott, George N.

1346. Wolcott, George N.

1347. Wolcott, George N., and Luis F. Martorell.
1942. The accidental introduction of a beneficial insect (Chalcisolepidius silvemanni) into Puerto Rico. Caribb. For. 3(2):58-60.


1349. Woodbury, Roy O.

1350. Woodbury, Roy O., and Elbert L. Little, Jr.

Buck Island, an uninhabited island about 1 mile long and less than half as wide, is located in the Caribbean Sea only 1 2/3 miles north of the eastern part of St. Croix and about 5 miles northeast of Christiansted, U.S. Virgin Islands. It supports a rich and representative land flora of the seasonal or relatively dry forest, tropical zone, totaling 228 listed species of seed plants but no ferns.


This article includes a description of Goetzea, an endemic genus of Puerto Rico.

1355. Zambrana, José A. 1978. Asociaciones de suelos de Puerto Rico y su potencial para siembra de árboles. Depto. de Agric. de los E.U., Servicio Forestal, Boletín Forestal, Area del Caribe, Río Piedras, P.R. 1 p., table, and map.


HIGHLIGHTS OF FORESTRY IN PUERTO RICO AND U.S. VIRGIN ISLANDS

1510 "Eighth Law" of Spain, first legal provision contemplating tree planting on granted land in the "Indies".

1770 Introduction of West Indies Mahogany to the Danish West Indies (now U.S. Virgin Islands) subsequently widely planted along roadsides and fencerows.

1824 First Puerto Rican forest conservation law.

1839 Public forestry commission established in Puerto Rico by Spain, first comprehensive forest law.

1860 First Spanish public forestry appropriation for Puerto Rico.

1898 Crown lands of Puerto Rico passed from Spain to the United States.

1903 U.S. proclaimed Luquillo Forest Reserve.

1907 The Luquillo Forest Reserve was changed to Luquillo National Forest.

1916 First boundary survey of Luquillo Forest completed; area 12,443 acres.

1917 First Supervisor of Luquillo Forest appointed. Insular Forest Service also created within the Puerto Rico Department of Agriculture and Labor, placed under same supervisor.

1917 Virgin Islands purchased from Denmark by the United States.

1918-19 P. R. Government reserved mangroves at San Juan, Ceiba, Aguirre, Boquerón, and the upland forests of Maricao, Guánica, and Mona and Monito Islands, totalling nearly 34,000 acres.

1920 Beginning of large-scale program of trial plantings with exotic and native tree species. First tree nursery established.

1921 Insular Forest Service began program of tree distribution to landowners.

1928 Position of Extension Forester established in University of Puerto Rico Extension Service.

1930-32 U.S. Bureau of Efficiency reforestation program in Virgin Islands.

1931 Public purchase of lands for forestry begun in Puerto Rico. Total area now 98,000 acres.

1931 First forest plantations (Mahogany) established within the Luquillo National Forest.

1932 First policy statement of the Luquillo National Forest.

1933 Emergency Conservation Program began, and with Civilian Conservation Corps (CCC) program that succeeded it in 1937 accomplished extensive work in reforestation, forest road construction, and recreational and administrative improvements within both Federal and State Forests.

1935 The Luquillo National Forest was renamed the Caribbean National Forest to accommodate the Toro Negro Purchase Unit in Central Puerto Rico where 1,500 acres were subsequently purchased by U.S. Forest Service.
1935 Third Forest Service set up under Puerto Rico Reconstruction Administration of the U.S. Department of the Interior but administered by the Forest Service of USDA; established Carite, Río Abajo, Guajataca, Guílarde, and Susúa Forests, and expanded Toro Negro Unit, purchasing 21,750 acres.

1937 First systematic timber inventory made of the Caribbean National Forest.

1939 Tropical Forest Experiment Station (now Institute of Tropical Forestry) established in Puerto Rico. First 24 volumes of The Caribbean Forester published. Scientific testing of site adaptability program begun, since has tested more than 100 native species and more than 350 introduced species.

1940 Mona Island withdrawn from Insular Forest System.

1943 Puerto Rico Reconstruction Administration Forest Service discontinued and its lands at Carite, Río Abajo, Guajataca, Guílarde and Susúa transferred to Puerto Rico Forest Service, and those at Toro Negro to the U.S. Forest Service.

1946 All public forests, including the Caribbean National Forest, made insular wildlife refuges.

1949 First timber management plan completed for the Caribbean National Forest.

1949 Land Authority of Puerto Rico transferred what is now the Cambalache Forest to the Department of Agriculture and Commerce. These lands were then ceded to the Puerto Rico Forest Service, a part of this department.

1951 The Ensenada section of the Guánica Forest comprising 1,600 acres, and the area now called Vega Forest transferred from the Land Authority to the Puerto Rico Forest Service.

1952 First island-wide forest inventory undertaken by Puerto Rico Forest Service.

1953 Virgin Islands Corporation forestry program begun. 147-acre Estate Thomas Experimental Forest reserved in St. Croix.

1953 Puerto Rico Forest Service separated from U.S. Forest Service.

1953 First of international tropical forestry short courses held at the Institute of Tropical Forestry.

1956 Cooperative Forest Management program begun by Federal and State governments to intensify technical forestry assistance to private landowners, wood processors, and forest products consumers.

1956 Caribbean National Forest administratively designated also Luquillo Experimental Forest to recognize the growing importance of research work there.

1959 Successful introduction of Caribbean pine (Pinus caribaea) in Puerto Rico, since proven adaptable to much of the island.

1967 Virgin Islands Territorial Government initiated its own forestry program in cooperation with U.S. Forest Service.

1968 Formal research efforts to save the Puerto Rican parrot begun in the Caribbean National Forest. Wild population then 27 birds.

1970 Toro Negro Unit transferred to Puerto Rico Forest System in exchange for lands added to the Luquillo Unit of the Caribbean National Forest.

1973 The Caribbean National Forest and Cooperative State and Private programs separated from
research activities and administered by Southern Region (Atlanta) of the National Forest System.

1973 Administration of the State Forests transferred from the Puerto Rico Department of Agriculture to the P.R. Department of Natural Resources.

1975 The Commonwealth enacts Law 133 - The Puerto Rico Forest Act giving the Department of Natural Resources new powers to administer the forests of Puerto Rico.

1976 The P.R. Department of Natural Resources completed first master plan for its forest lands.

1976 Luquillo Experimental Forest designated by the United States as part of the international network of Biosphere Reserves.

1977 The Institute of Tropical Forestry transferred from the Office of the Chief of the U.S. Forest Service to the Southern Forest Experiment Station (New Orleans), as its Tropical American Forest Management Research Unit.
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Lists 1,357 publications, with annotations and subject and author indexes, issued about Puerto Rico's forestry and related activities. Also included is an appendix, chronologically listing the forestry highlights from 1513 through 1978.

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Retrieval Terms: tropical forestry, tropical silviculture, tropical ecology, tropical ecosystems, tropical woods, tropical soils, Institute of Tropical Forestry, Caribbean National Forest, Puerto Rico

Incluye 1,357 referencias (con anotaciones e índices de materia y autor) publicadas acerca de la daconomía y actividades relacionadas en Puerto Rico. También incluye un apéndice de una lista cronológica de los eventos importantes de daconomía desde 1513 hasta el año 1978.