

SOILS AND WATER CONTROL
in the
Everglades Drainage District
by the
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Agricultural Experiment Station.
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In Coeoperation with the
United States Department of Agriculture
Soil Conservation Service.

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Intro.

Everglades drainage district- 7200 sq.mi. of land, ~~enxx~~ around Lake Oke and extending to end of peninsula. Wet muck and peat soil almost 100 mi. Forty years of attempts to drain. Cost of canals greater than undeveloped land could bear. Not enough settlers could be obtained. Funds exhausted.

Overflow from Lake Oke now prevented by flood-control works of the War department, main drainage canals inadequate. By supplemental drainage and irrigation works constructed by subdistricts or privately around 150,000 acres brought into cultivation, greater portion around Lake and lesser along Atlantic coast.

Subsidence of land surface following drainage had increased the cost of development and indicated that the time during which the peaty soils can be farmed profitably is limited. Drainage of undeveloped peat has permitted destruction of soil by uncontrolled fires.

As the canals operate, at times drainage for some of the farm lands involves flooding of others, or drainage for some involves drought for others and removal of water needed for irrigation. Moreover, it appears that extensive and indiscriminate drainage threatens injury to the water supply along coast, not only reducing the quantity of fresh water available but also by permitting sea water to enter the cities' wells. Needs a thorough investigation.

Studies relating to water control in agr. lands of Everglades have been carried on continuously since 1933 under co-op. agreements between Ag. Exp. Sta. University of Fla. and Bureau of Agricultural Engineering and Soil Conservation Service of the U.S. Dept. of Agriculture. Everglades Project of Soil Conservation Service was set up under specific appropriation by Congress (Pub. Act no. 156, 76th Cong.) for research and demonstration work on soil conservation in Everglades region.

Topographical survey and a survey of soils and their capabilities in District. subsurface investigations of rock structures and ground water as related to control of water in the soil and studies of requirements of Ev. soils with respect to drainage and irrigation and the effects of water control on the soil. Subsurface in collab. with U.S. Geol. Survey.

Wverglades Drainage district 4 and one half million acres of land. Vast area of peat largest known body of organic soils in the world.

Swamp Lands Act sept. 28, 1850--inundated lands to states. Jan. 1851 Fla legislature passed act to secure. Jan. 6 1855 lands and unsold lands granted to Trustess of the Internal Improvement Fund--committed to use any funds obtained for reclaiming and improving as provided in Congressional Act of 1850.

Since 1879 Trustess of the Internal Improvement Fund and the exec of the various adminitstrations adhered strictly to the terms of the grant. Af After Gov. Drew's veto of the first attempted railroad land grant in 1879 the legislature forestalled any veto of later rr grants acts by making such grants subject to the trust and to the provisions of the act of Januar 5, 1855. Of the 15 million acres granted to the rr companies by the legislature betw. 1879 and 1900 to encourage the constr ction of rrs. upward of 8 million acres were swamp and overflowed lands conveyed by the trustees.

New difficulties in the reconstruction period after 1865. The maturin of large obligations against the Fund, for payment of which there was no money caused the management of the Fund to be temporarily placed in the hands of the U.S.Court. The sale of 4 million acres to Hamilton Disston in first term of Gov. Bloxham in 1881 permitted Trustess to regain control of fund by applying proceeding of sale to Fund's debts.

Contract betwee Trustess and Disston(Atlantic and Gulf Coast Canal and Okee Land Co) was the first major attempt toward drainage. Agreed to drain all south of Township 23 and east of Peace Creek and in payment trustees agreed to convey alternate sections of all lands so reclaimed, provided the lands so reclaimed were not less that 200,000 acres. Lands covered by the contract were more than 9 million acres.

Drainage o erations were begun near Kissimmee. Questions resulted in leg. authorization for investigation. Gov. appointed committee in 1885. Reported that only about 80,000 acres had been reclaimed and that canals had not lowered Lake Oke. and Kissimmee river. Disston contract revised

in 1888, restricting dr. operations to Kissimee valley and deeding to company one acre of land for each 25 cents expended. Total result of Disston were the digging of three mile canal connecting Caloosa to lake Oke and another canal ext. southward from lek Oke and discharging water on the ground surface of the glades. All operations ceased under Disston contract about 1889.

Statutory grants of swamp and overflowed lands to transportation co's and others had by 1900 disposed of most of the Everglades and of the other lands in the I.I.Fund. Conflicting--1901 various rr cos demanded hearings to settle questions of priority of title under the acts. Sale by the trustess of 100,000 claimed by the co's resulted in suit to recover lands or proceeds of sale. Investigation--IITrustes published disposition and status of all lands granted to Fla under Act of 1850. Trustess asserted superior title and declared they would defend for purpose of performing trust of drainage and reclamation. Litigation followed beginning in 1902. Whole Fund involved in test case which resulted in order, May 2 1907 authorizing and empowering trustess to sell or dispose of lands for the purpose drainage and reclamation.

Present drainage program Gov. Jennings (1901,1905) No further deeds and survey undertaken and date collected. 1903 patent issued by Federal Land office to state of Florida for lands granted by Act of Congress in 1850. Com of Agr. prepared a map by extending lines of previous surveys east and west. Map adopted by IIFund Trustess in Jan 1905.

May 1905 board of drainage comms to establish drainage districts and levy on lands therein drained taxes not exceeding 10 cents per acre per year. This act unconstitutional but one approved May 1907 defining Ev drainage district and levying tax 5 cents per acre per year was sustained.

Litigation following showed states lack of technical knowledge for drainage. Office of Exp Stations undertook ~~plan~~ report and plan. Field parties winter of 19067-8 Report released 1909. Similar plan today.

Gov. Howard's campaign. Dredges Okeechobee and Everglades in 1906 and contracts for Caloosahatchee and Miami in Aug, 1908.

Lands sales provided million-dollar fund. Agreements between Trustees and big companies who brought suit against collection of 5-cent tax and owners would pay all drainage taxes thereafter. Chief engineer appointed and eight dredges following letting of dredging contract. Increased rate of excavation.

Increase in Ev. land owners from 12 in 1909 to 15000 in 1911. (Speculation.) Price advanced, state lands, \$2 acre in 1909 to \$15 in 1910. Increased activity increased demand for more active program. Leg in 1913 enacted laws laying acreage taxes on benefits received and authorized issuance of bonds.

see Soil Science Society report 1942.

Area.

The region commonly known as the Everglades--nearly flat, shallow more or less oblong basin which extends from Lake Okeechobee to the southern tip of the state. Basin bordered by slightly higher sandy coastal ridge on the east, the Miami rock rim on the se, by sand prairies on n and nw and Big Cypress swamp on west. Flat sandy prairie extends a few miles s of the ne cor of Collier co. South of Tamiami trail the land slopes to sw. Flat sandy prairies ext a few miles south of the ne cor of Collier co. S of Tamiami trail the lands slopes to the sw. South of Lake Okeechobee subsidence has changed the land surface so that the slope from about Bolles canal is now toward the lake. Main part Evs slopes 2 or 3 inches to the mile south or se.

Main part made up of sawgrass plains and ridge-and-slough country. Sawgrass included custard apple, willow-and-elder and hammock-sawgrass. W of southern portion of glades is hammock-and-glades, Big Cypress. Sandy lands of the east, n, w of district have hammock-and-slough phase in nw and ne cors. Miami rock rim is narrow ridge 5 to 15 mi wide wh exts about 60 mi s of Miami. Se and s of it is coastal marsh.

Lake Oke received runoff from Kissimmee river and sev smaller streams which have combined area of ? 450 sq mi. Area of lake 725 sq mi. Surface first stood betw. 18 and 20 ft above sea. Did not have any well defined outlet but over flowed at high water over much of s rim. Flwed slowly through Evs into Gulf or Atl Ocean. What was not used ~~ex~~ by plants and evaporated. Changed by Caloosa canals in 1883. Shoes now diked and water maintained as near as possible 12 to 15 ft (15.6) above sea level.)

Cross state water way connects Lake Oke ch with the Gulf by way of Caloos. and w. Atl ocean by St. Lucie canal.

Highest portion of district n. of Lake. S highest grounds is 27 ft above sea level in Hendry co. near w boundary of district. Greatest elevation in northern glades about 16 ft in undeveloped peat lands some 6 to 10 mi below lake, sep by subsidence valleys along drainage canals. Along Tamiami trail canal the ground elevations werw 4 to 6 ft in the Glades and slightly higher at west line of Dade county. Rock rim across s end of district is 7 to 11 ft above sea level.

Cities. pop. 194P Miami-172172. West Palm Beach- 33693. Miami Beach 29,012, Fort Lauderdale 17996. Smaller- Lake worth, Holly hood, Pompano, Delray beach, Dania. Lake-- Gahokee 4766, Belle Glade 3806, Canal Point 3131 (precinct) Okeechobee 1658 Clewiston 1338 and Moore Haven 831. Homestead 3154.

Lake Oke dev after 1920. Moorehaven to Port Mayaca--most ~~dev~~ cult. Truck crops peat and muck-- snap beans and celery. Then cabbage, toms, peppers etc. Sugar cane, lemon grass. Cane used to be grown on sandy soil now on peat. tendency large farms 100 to sev. thousand acres.

Grazing areas, Hendry Glades, Highlands, Oke Martin St. Lucie and northern Palm Beach counties.

Geology. See report. Formations at or near the surface of northern part of state and deeply buried under Evs, in areas of their outcrop they carry potable water, groundwater here is saline, sulfurous, corrosive and unfit for human use. Ground water under artesian pressure suff to cause water to flow wherever the land surface is less than 40 ft above mean sea level.

Geologic formations at or near the surface.

Caloosahatchee marl and Tamiami formation, Pliocene; Anatasia formation, Miami oolite, Ft. Thompson form, and Pamlico form, pleistocene; Lake Flirt marl and the organic soils of Evs or latest pleistocene and Recent.