



DEPARTMENT OF THE ARMY
ROCK ISLAND DISTRICT, CORPS OF ENGINEERS
CLOCK TOWER BUILDING
ROCK ISLAND, ILLINOIS 61201

IN REPLY REFER TO

NCROD

Subject: Combined Appendices B and D to the Coralville Lake Master Plan

Division Engineer, North Central
ATTN: NCDCO-MO

Attached are eight copies of the final Forestry and Fish & Wildlife Management Plan for Coralville Lake (Inclosure 1). This is being submitted for final approval.

FOR THE DISTRICT ENGINEER:

1 Incl
as

A handwritten signature in black ink, appearing to read "H. G. Pfiester", is written over the typed name.

HENRY G. PFIESTER, P.E.
Chief, Operations Division

Handwritten initials "HCP" in black ink, located below the typed name and to the left of the signature.

NCDCO-MO (14 Dec 79) 1st Ind

SUBJECT: Combined Appendices B and D to the Coralville Lake Master Plan

DA, North Central Division, Corps of Engineers, 536 South Clark Street,
Chicago, Illinois 60605 25 January 1980

TO: District Engineer, Rock Island
ATTN: NCROD-R

1. Your combined Appendices B and D to the Coralville Lake Master Plan are approved subject to the following comments.
2. An Environmental Impact Assessment should be made for the proposed actions. The findings of the EIA as to whether or not an Environmental Impact Statement is needed should be included as Addendum 1 in the Management Plan.
3. Evidence of coordination with the Iowa Conservation Commission on proposed management actions should be included in the Management Plan as Addendum 2.
4. Seven copies of the Addenda explained above should be provided to NCDCO-MO for inclusion in NCD and OCE copies of the Management Plan.

FOR THE DIVISION ENGINEER:



CARL C. CABLE, P.E.

Chief, Construction-Operations Division

1 Incl
wd

CORALVILLE LAKE

MASTER PLAN

APPENDICES B AND D

FORESTRY AND FISH AND WILDLIFE MANAGEMENT PLAN

US ARMY ENGINEER DISTRICT, ROCK ISLAND
CORPS OF ENGINEERS
CLOCK TOWER BUILDING
ROCK ISLAND, ILLINOIS 61201

November, 1979

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FORESTRY MANAGEMENT (APPENDIX B)

1. Introduction.

1.1 Purpose. The purpose of this forest management appendix is to develop, manage, and protect the forest resources of Coralville Lake. This appendix provides a forestry management guide for: recreation use and development, the preservation and improvement of wildlife habitat and the forest resource, aesthetic values, the control of soil erosion, and the promotion of natural ecological conditions. The objectives of this appendix are to increase the value of all project lands for recreation and/or wildlife and to assure long-term public benefits by integrating short-term plans with long-term goals.

1.2 Project Authority. Coralville Lake was authorized by Section 4 of the Flood Control Act of 28 June 1938 (Flood Control Committee Document No. 1, 75th Congress, First Session) and was placed in operation in 1958.

2. Description of the Project.

2.1 Location. The Coralville dam and lake are located in eastern Iowa 83.3 miles above the confluence of the Iowa and Mississippi Rivers. Coralville Lake is located in Johnson, Linn and Iowa Counties.

2.2 Lake Area. The conservation pool (Coralville Lake), created by the dam and maintained at an elevation of 680 feet m.s.l., extends 21.7 miles upstream with a surface area of 4,900 acres. At the flood pool elevation of 712 feet m.s.l., the reservoir will extend 35 miles upstream and create a lake with a surface of 24,800.

2.3 Climate.

2.31 The climate of the Coralville Lake area is of the humid continental type. The spring season may fluctuate from wet to fairly dry. Prevail-

ing winds are primarily northwesterly November through April and southwest-
erly May through October. Hot winds and periods of prolonged high tempera-
tures are characteristic of the summer season.

2.32 The mean annual temperature is 48° Fahrenheit (F), with a range
of extremes from -37°F to 122°F. The average summer temperature is approx-
imately 72°F while the average winter temperature is about 22°F. Almost
half of the 33 inches of average annual rainfall occurs during the 160-day
growing season which extends from May through August.

2.4 Shoreline. The general shoreline is fairly irregular and broken by
several large and many small inlets and coves. Downstream from U.S. Highway
218, there are fairly steep ridges and valley slopes which are partially
stabilized with mixed stands of upland hardwoods interspersed with small
clearings. There are also frequent areas of gently rolling, open land with
isolated clumps of upland hardwoods. Upstream from U.S. Highway 218, the
terrain is much broader and flatter on the first and second levels of the
Iowa River floodplain. Most of the lower woodlands in the flood pool have
died off as a result of frequent extended periods of inundation. The
result has been a transition from bottomland hardwoods to marsh-type areas
and much of the land is nearly devoid of woody vegetation.

2.5 Flood Zones. Flood zones for Coralville, based on a computer simula-
tion from 1903 to 1963 for the Resource Master Plan, can be found in the
following lists:

<u>Elevation</u>	<u>Frequency in Years</u>
685	2
702	5
708	10
712	50
713	100

2.6 Topography.

2.61 The topographic features of the area fall into two main classes, depositional land forms and erosional land forms; these features are essentially the result of stream dissection of the glacial materials deposited during the Pleistocene Epoch.

2.62 Generally, the Iowa River Basin is gently rolling prairie land, with elevations in most places less than 150 feet above the streams. Elevations in the Coralville Lake vicinity range from 645 feet m.s.l. in the river valley to 900 feet m.s.l. in the uplands.

2.7 Soils. The soils of the Coralville Lake area were generally developed either from glacial till or loess; the three major associations represented in those areas where recreational development is planned are Shelby-Lindley, Lamont-Chelsea, and Fayette Associations. The Shelby-Lindley Association soils are dark colored, moderately well-drained loams found on strongly sloping to steep, well-dissected slopes (5 to 30 percent slopes). Lamont-Chelsea Association soils were developed from eolian sand. They are light colored, well to excessively drained soils found on uplands and stream terraces (1 to 40 percent slopes). Light colored, well-drained silty loams found on gently to strong sloping sideslopes (1 to 24 percent slopes) are representative of the Fayette Association, a soil class of loess origin.

2.8 Vegetation Characteristics.

2.81 Elevation Zones of Vegetation.

2.811 The inundation by maximum flood pool has created five elevation zones which have an influence on woody vegetation which affect forest management. These elevation zones are 682 to 699, 699 to 702, 702 to 712, and 712 (all feet above m.s.l.) to project boundary lines. An additional elevation zone is the land located between 680 and 682 feet m.s.l. This particular zone applies to the inundation of the flood plain upstream of U.S. Highway 218.

2.812 The lands in the elevation zone of 670 to 682 feet m.s.l. will not

support tree species. The lands in the elevation zone of 682 to 699 feet m.s.l. will support silver maple Acer saccharinum. The lands in the elevation zone of 699 to 702 feet m.s.l. will support certain varieties of eastern cottonwood Populus deltoides. The lands in the elevation zone of 702 to 712 feet m.s.l. will support the "hardwood" tree species except the species that are known to be intolerant to long periods (30 days or more) of inundation. The elevation zone of 702 to 712 feet m.s.l. does not represent a significant overstory vegetation management problem that the preceding elevation zones have presented. The known intolerant species for the Coralville Lake areas are boxelders Acer negundo, red mulberry Morus rubra, honeylocust Gleditsia triacanthos, and hawthorn Crataegus spp. Tree species in the elevation zone between 712 feet m.s.l. and the project boundary line are influenced by factors other than inundation by maximum flood pool.

2.82 Forest Types.

2.821 Downstream of U.S. Highway 218, the steep ridges and valley slopes adjacent to the main channel of the Iowa River are covered with mixed stands of upland hardwoods interspersed with small clearings. The Federal lands upstream of U.S. Highway 218 are gently rolling terrain which is predominately open space with isolated clumps of upland hardwoods.

2.8211 Downstream of U.S. Highway 218, cultivation, high grade timber harvesting, recreational development, and especially urban expansion and rural developments have removed or greatly modified the original upland hardwood forest communities located on the ridges and valley slopes. The areas that were in field crops or pasture before federal acquisition are now reverting back to native species. Some of these areas have been planted in conifer and hardwood species during 1964 and 1965. The oldest trees that have invaded the non-planted areas after termination of agricultural activities are about 15 years old. Most of the reverting areas, which exclude the coniferous plantings, are upland sites. The climax association, after the completion of succession, will probably be an oak-hickory associa-

tion. The predominant species will be red oak Quercus rubra, black oak Quercus nigra, and shagbark hickory Carya ovata.

2.8212 In the lower portions of the valley which occur below 702 feet m.s.l., an elm-ash association will probably be established. The primary species will be green ash Fraxinus pennsylvanica, American basswood Tilia americana, and other minor species. The American elm Ulmus americana will occur in the young stands, but as the stand matures it will gradually be eliminated by Dutch elm disease.

2.8213 The area downstream of U.S. Highway 218 which occurs below 702 feet m.s.l., is in an area of predominately steep slopes which have had the majority of the soil eroded. The result is either barren rock or a very thin layer of soil.

2.8214 In protected coves below 702 feet m.s.l., extremely dense reproduction of bottomland species indicates that the original association will be replaced by the following species; cottonwood, silver maple, green ash, and American elm. The dense reproduction is because of the deep rich soils and an increase in available moisture as a result of periodic inundation.

2.8215 Upstream of U.S. Highway 218, most of the bottomland woods in the elevation zone of 670 to 682 have died off as a result of frequent and extended periods of inundation. The result has been a transition from bottomland hardwoods to marsh areas. Much of this land is presently devoid of woody vegetation. Some willows and cottonwoods which were large trees at the time of impoundment have survived at elevations of 680 to 682 feet m.s.l. even though partially inundated for several months of the year. However, there is no reproduction in this area and eventually these older trees will be eliminated.

2.8216 Between 682 and 699 feet m.s.l., bottomland hardwood species are becoming established on areas where upland hardwoods were killed by inundation. The overstory is 25 to 35 foot cottonwoods which are approximately

15 years old. The understory tree species are silver maple, green ash, and American elm. The silver maple is the most abundant of the understory tree species. It appears that the silver maple may become a codominant species with cottonwood in this elevation zone if it is able to gain sufficient height to photosynthesize during periods of inundation. Many of the silver maple have had the entire aerial portion of the plant killed by inundation. These trees have resprouted from the root collar. Inundation destroys the submerged portions of plants which are inundated during the growing season. Many of the young stands of trees which have a portion of the crown below the maximum flood pool elevation have had the lower branches killed by inundation. The portion of the trees which have been killed may be 15 to 20 feet above the ground level and corresponds to the 712 feet flood pool elevation.

2.8217 The terrestrial communities above elevation 683 feet m.s.l. are forming a successional pattern which will continue with an increase in bottomland hardwood species diversity and productivity.

3. Management.

3.1 Land Management Zones. Six land management zones are described in the Coralville Lake Resource Master Plan, Design Memorandum No. 15C, Revision No. 2. They will be referred to in Exhibit 2 and Plates A-1 through G-2 of this document.

3.2 Management of Objectives. The management objectives of this plan are as follows:

- * Establishment of suitable forest cover on recreation areas. There is a need for vegetative cover to serve as shade, screening, buffers, erosion control protection, and wildlife cover.

- * Select those open areas which should be forested and plant them with desirable species.

* Protect steep banks from erosion.

* In conjunction with the Wildlife Management Plan, develop and hold high populations of desirable wildlife species, both game and non-game.

* Protect heavily used areas from destruction of woody vegetation resulting from soil compaction and to reestablish suitable vegetative cover on areas denuded by overuse and/or high water.

4. Implementation of Plans.

4.1 Tract-by-tract Prescriptions. General land management practices will be used to accomplish the purposes set forth by this plan. A combination of practices for a tract will be termed as prescription and will be developed in conjunction with the Wildlife Management Plan (Appendix D) of this document. The practices are explained in detail in Exhibit 1. Individual tract-by-tract prescriptions are presented in Exhibit 2. Maps showing whether any forestry or wildlife practice will be implemented on fee title lands are included in Exhibit 3. Land use regulations are listed in Exhibit 4. Aerial maps showing the location of each tract and the land-use classification for each tract are included in Plates A-1 through G-2.

4.2 Organization and Responsibility. Environmental Analysis Section, Planning and Reports Branch, Engineering Division, was responsible for preparation of the Forest Management Appendix to the master plan. The Recreation Resource Management Branch is responsible for implementing the plan and updating it as necessary. Any updating of the plan will be coordinated with Environmental Analysis Section, Planning Branch.

4.3 Ranger Responsibility. To implement this plan, one of the park rangers will be designated as the responsible individual. The designee will be assigned the following management tasks:

- * Preparation of all vegetative management work plans.
- * Supervision of all contracts dealing with vegetative management matters, such as grass mowing, but excluding timber management.
- * Inspection of leased and licensed lands to see that non-approved forest management programs are not being carried on.
- * Maintain accurate records on materials, equipment, and labor costs involved in carrying out work plans.

4.4 Annual Management Plans. The park manager or designated ranger will prepare annual management plans. These plans will detail ground work needed to implement tract prescriptions. These work plans will include the materials needed, man-hours to be used, costs, layout maps or drawings, dates for starting and completing the work, establishing priorities for utilization of funds which are made available, etc. Completed annual management plans for the next fiscal year will be forwarded by the park manager to the District Engineer for approval prior to its implementation. The park manager or the designated ranger will implement the approved work plans.

4.5 Cost of Implementation.

4.51 Estimated Operational Cost - Five Year Plan.

FY 79

<u>What is to be done</u>	<u>Where</u>	<u>Costs</u>
Practice 1,9	Jolly Roger Area Tracts 417, 418, 443, and 448	\$1200
Practice 1,8,9	Sugar Bottom shelters landscaping	\$1200
Practice 8,9	Tract #A52	\$ 400

<u>What is to be done</u>	<u>Where</u>	<u>Costs</u>
Compound screenings	all camping	\$1600
Practice 1,4	Roads to Sugar Bottom and other developed campgrounds	\$ 600
	TOTAL	<u>\$5000</u>
<u>FY 80</u>		
Miscellaneous tree planting	Hoosier Creek Basin	\$3000
	TOTAL	<u>\$3000</u>
<u>FY 81</u>		
Practice 13	Tract 426	\$3000
	Miscellaneous replacement of trees in campgrounds and general practices	\$1000
Practice 1,2,3,4	Sugar Bottom Expansion and upkeep	\$2000
	Miscellaneous material and logistics purchase	\$1500
	TOTAL	<u>\$7500</u>
<u>FY 82</u>		
Maintenance of existing areas	camping areas	\$ 500
Appropriate forestry practices		\$7000
	TOTAL	<u>\$7500</u>
<u>FY 83</u>		
Maintenance of existing areas		\$ 500
Appropriate forestry practices		\$7000
	TOTAL	<u>\$7500</u>

4.62 Cost of Implementation of Larger Projects if Contracting Funds
Become Available in 5 Year Period.

1) Sugar Bottom landscaping, planting and expansion	\$50,000
2) Tailwater borrow area and recreation area landscaping	\$35,000
3) Boy Scout area reforestation	\$10,000