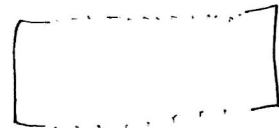




Department of Energy

Oak Ridge Operations Office
P.O. Box 2001
Oak Ridge, Tennessee 37831—



December 30, 1997

Mr. Justin P. Wilson
State of Tennessee
Department of Environment and Conservation
20th Floor, L&C Tower
401 Church Street
Nashville, Tennessee 37243-1553
ATTN: Dodd Galbreath, State Policy Coordinator

Dear Mr. Galbreath:

**Annual Report: Implementation of Mitigation Action Plan (MAP) for DOE/EA-1113:
Lease of Parcel ED-1 of the Oak Ridge Reservation, Oak Ridge, Tennessee, to the
Community Reuse Organization of East Tennessee (CROET)**

In the Finding of No Significant Impact for DOE/EA-1113 and the MAP, the U.S. Department of Energy (DOE) committed to providing the public with annual progress reports on monitoring conducted and mitigation implemented before, during, and after development of the parcel. To satisfy this commitment, DOE contracted with Oak Ridge National Laboratory (ORNL) to establish field monitoring and reference sites on Parcel ED-1; gather data on vegetation and terrestrial and aquatic wildlife, including state and federally protected species; and physically delineate an exclusion area on Parcel ED-1 to protect sensitive habitat and other ecological resources from encroachment during construction and operation of industrial facilities. Enclosed is a copy of the subject report, which discusses the results of pre-development ecological surveys on Parcel ED-1 over a 16-month period that began in June 1996. Information and data provided in this report are intended to serve as a baseline against which future monitoring data can be compared as Parcel ED-1 is developed as an industrial park.

If you have questions on the technical aspects of the report, please contact Mr. Patrick J. Mulholland, ORNL Project Leader, on (423) 574-7309. Questions on the DOE environmental review process or the Parcel ED-1 EA may be directed to Mr. David R. Allen, Acting NEPA Compliance Officer, Oak Ridge Operations Office, on (423) 576-0411.

Sincerely,

Andrea W. Campbell

Andrea Wargo Campbell
Technical Support Division

Enclosure

cc w/enclosure

Emory Valley Rd
481-0995
Earl Leming, TDEC, DOE Oak Ridge Oversight
Reginald Reeves, TDEC, Division of Natural Heritage

ORF50535

-ANNUAL REPORT

**IMPLEMENTATION OF MITIGATION ACTION PLAN
FOR DOE/EA-1113: LEASE OF PARCEL ED-1 OF THE OAK RIDGE RESERVATION**

PRE-DEVELOPMENT ECOLOGICAL SURVEYS

**Submitted
October 1997**

to

**Andrea W. Campbell
Technical Support Division
U.S. Department of Energy
Oak Ridge Operations Office
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**Oak Ridge National Laboratory is managed by Lockheed Martin Energy Research Corp.
for the U.S. Department of Energy under contract number DE-AC05-96OR22464.**

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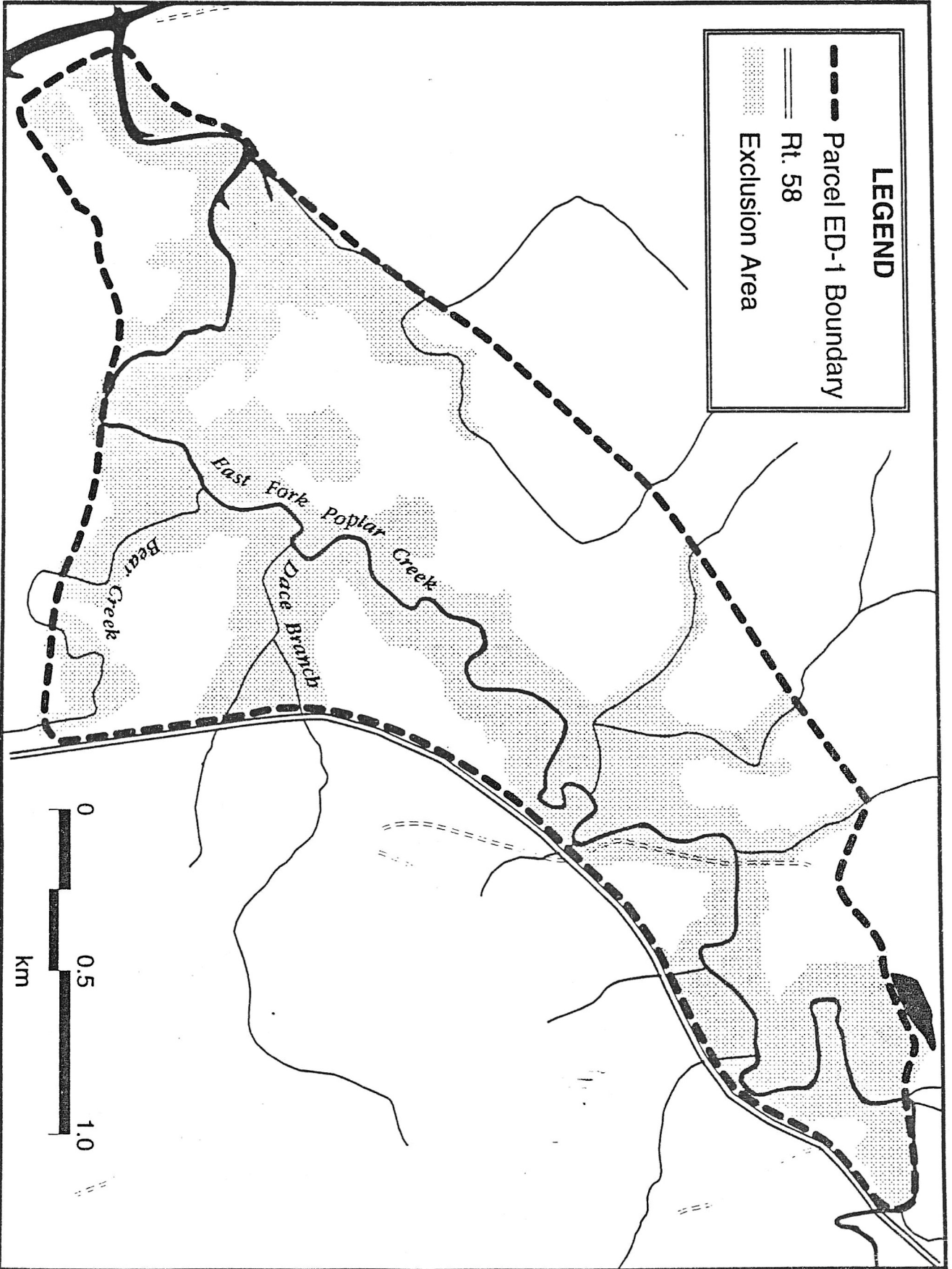


Figure 1. Map of Parcel ED-1 showing revised Exclusion Area

1.0 INTRODUCTION

In accordance with its National Environmental Policy Act (NEPA) regulations (10 CFR 1021), the U.S. Department of Energy (DOE) issued an environmental assessment (EA) (DOE/EA-1113; 1996a) and a Finding of No Significant Impact (FONSI) in April 1996 for the proposed lease of 957.16 acres (Parcel ED-1) of the Oak Ridge Reservation (ORR) by the East Tennessee Economic Council [ETEC; name subsequently changed to Community Reuse Organization of East Tennessee (CROET)]. In accordance with NEPA regulation 10 CFR 1021.322, DOE also prepared and issued a Mitigation Action Plan (MAP) (DOE 1996b) that describes measures to be implemented to mitigate significant adverse impacts from industrial development by CROET on Parcel ED-1. The FONSI is conditional upon implementation of mitigation specified in the MAP, which emphasizes (1) exclusion of specific environmentally sensitive areas from disturbance and development and (2) pre- and post-development resource surveys and monitoring. The objectives of mitigation are

- (1) protection of wildlife habitat, plant communities, threatened and endangered species, water resources, wetlands, and historic and archaeological resources;
- (2) maintenance of habitat connections to reduce the ecological effects of fragmentation;
- (3) pre- and post-development evaluation of natural succession and the impacts of development by monitoring natural communities and populations; and
- (4) identification of additional measures as necessary to remediate observed impacts of development.

This document reports DOE's progress toward meeting these objectives over the period from June 1996 through September 1997. The data and information presented in this report were collected and interpreted by staff of the Oak Ridge National Laboratory (ORNL), Environmental Sciences Division (ESD), under contract to DOE. This progress report, which is the second issued by DOE, presents the methods, data, and interpretation of results for all pre-development surveys of sensitive resources on Parcel ED-1 and describes the delineation of the exclusion area.

In the MAP, DOE prescribes long-term monitoring of terrestrial and aquatic ecosystems on Parcel ED-1 so that future impacts may be evaluated. Surveys of areas to be disturbed during infrastructure development and construction and operation of industrial facilities will be the responsibility of CROET and/or its sublessees, in accordance with the terms of the lease, EA and FONSI. The pre-development surveys described in this report provide the framework and baseline data for this long-term monitoring activity. DOE has achieved the ecological resource exclusions of objectives 1 and 2 by completing the delineation, with field markers, of sensitive areas and habitat connections that must be avoided by CROET and/or its sublessees. Additionally, the pre-development ecological surveys (which partially complete objective 3) have provided information that DOE will submit to the U.S. Fish and Wildlife Service (FWS) and the Tennessee Department of Environment and Conservation (TDEC) to meet conditions specified by these agencies when

they concurred on the Parcel ED-1 FONSI.

2.0 DELINEATION OF THE EXCLUSION AREA

Establishment of the Exclusion Area was designed to protect threatened and endangered (T&E) species listed by the FWS or TDEC and species listed as in-need-of-management by the state. The boundaries of the 491-acre Exclusion Area reported in the EA, FONSI, and MAP were initially based on past research and monitoring activities, walk-through surveys by ORNL ecologists, and consultation with state and federal agencies. Initially, ORNL mapped the Exclusion Area by overlaying the most current (1995) geographic information system (GIS) data for each of the following areas to produce an integrated map outline. The MAP states that the Exclusion Area would include:

- 1) the 100-year floodplain of onsite streams,
- 2) terrestrial Natural Areas (NAs) 46 and 47 of the National Environmental Research Park, which include
 - a) bottomland hardwood forests
 - b) upland hardwood habitat
 - c) beech-maple forest
 - d) karst hardwood communities,
- 3) walnut plantations,
- 4) aquatic NAs,
- 5) archeological and historic sites,
- 6) special features, including
 - a) caves
 - b) springs
 - c) wetlands,
- 7) wildlife corridors, and
- 8) a 100-ft buffer on each side of streams.

Additionally, the FONSI prescribed that "a natural corridor system, a minimum of 61-meters (m) (200-ft) wide, shall be retained to connect bottomland habitat to upland hardwood habitat north of the parcel; this would maintain continuity of habitat and mitigate the adverse effects of forest fragmentation. This system shall be configured to include the isolated hardwood stands retained on the north side of the parcel...". The natural corridor system was not mapped separately as it was created by the combination of the other layers. Stream buffers (100 ft) on tributaries of East Fork Poplar Creek (EFPC) draining from the northwest created 200-ft wide corridors connecting the bottomland along the creek and the upland hardwood habitat north of the parcel. Due to its relatively large size, EFPC creates a habitat edge (open canopy, disturbance due to annual flooding cycle, barrier to the movement of some species); thus the Exclusion Area was to include a minimum of 200 ft on each side of EFPC in order to function as a natural corridor. However, the combination of the 100-yr floodplain and National Environmental Research Park NAs (terrestrial and aquatic) extended beyond 200 ft on both sides of EFPC, thus forming a sufficient natural corridor.

As newer and more accurate spatial data became available in 1996 and 1997, the boundaries of the Exclusion Area were revised. New data included (1) more accurate GIS coverage for the 100-yr floodplain of EFPC and Bear Creek (BC), which was based on a re-analysis by the Tennessee Valley Authority using 1990 aerial photography; (2) additional raster ortho images of the site, geo-referenced aerial photography for use within the GIS environment, obtained from the Oak Ridge Environmental Information System¹, and (3) field data from pre-development monitoring activities and Exclusion Area boundary marking that verified the location of specific features (e.g., stream channels, wetlands). With the new information based on the 100-yr floodplain coverage, a net of 31 acres was added to the Exclusion Area. This was offset by revisions based on ortho images and field data, which identified errors in GIS coverages for streams, roads, the Parcel ED-1 boundary, and designated NAs. For example, in the field, one previously GIS-designated stream was found to be non-existent. Subsequently, the stream buffer area for it was removed from the Exclusion Area, resulting in a reduction of 11.34 acres. Corrections to the 100-ft stream buffers and designated NA coverages resulted in a 10.5-acre increase in the Exclusion Area. Overall, revisions made based on new data resulted in a revised Exclusion Area of approximately 521 acres (Figure 1), or an additional 30 acres over that which was defined in the EA.

The boundary of the Exclusion Area was marked in the field by green metal fence posts with attached signs that read "ED-1 Exclusion Area boundary". Signs were placed along the boundary at approximately 400-ft intervals and at points where there is a noticeably sharp change in boundary direction (e.g. corners).

¹ <http://www-internal.ornl.gov/~oreis/oreishome.htm>