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ELF BIOLOGICAL EFFECTS LITERATURE
DATA BASE MANAGEMENT SYSTEM

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16. Abstract (Limit: 200 words) This report describes the functions and operation of the ELF biological effects literature data base management system. It covers functional requirements, system implementation, data base description, system operations, and detailed procedures. The system utilizes an IBM PC/XT computer and dBASE-III software.				
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1. PURPOSE

The purpose of the ELF Biological Effects Literature Data Base Management System is to store bibliographic information related to published documents on the subject and provide an automated, rapid response retrieval system for use by interested parties.

2. FUNCTIONAL REQUIREMENTS

- Store bibliographic information on ELF biological effects
- Provide reports:
 - Standard report of the current information in any selected record
 - *Summary report* (file number, author, date, language, subject category, and title).
- Provide sorting and selection feature for reports and displays.
- Provide appropriate back-up data protection.
- Provide menu-driven functions for:
 - Data entry
 - Report generation
 - Sorting and selection features
 - Data display.

3. SYSTEM IMPLEMENTATION

3.1 HARDWARE

The system utilizes an IBM PC XT, a video monitor, and a dot matrix printer (EPSON FX-100). In general, the hardware requirements for the dBASE III software are:

- An 8086 or 8088 based microprocessor system (such as the IBM PC, NEC APC, etc.) with CP/M-86 or MSDOS operating systems
- 256K bytes minimum of memory
- One or more mass storage devices (usually floppy or hard disk drives)
- A cursor-addressable CRT if full-screen operations are to be used
- An optional text printer (for some commands).

3.2 SOFTWARE

The data base uses Ashton-Tate dBASE III Software. dBASE III is a data base management tool that allows easy manipulation of small- and medium-sized data bases using English-like commands. dBASE III can:

- Create complete data base systems
- Easily add, delete, edit, display, and print data from a data base, with a minimum of data duplication on file
- Gain a large measure of program/data independence so that when data are changed, programs are not changed, and vice-versa
- Generate reports from one or more data bases and automatically do multiplication, division, subtotals, totals, and other data manipulation
- Use full-screen editing capability to set up a screen format.

Some dBASE III specifications of interest to this application:

Records per data base file:	10 ⁹
Characters per record:	4000
Fields per record:	128
Characters per field:	254 maximum.

In addition, the dBASE III Screen Editor is used to generate report and display formats. Screen Editor is a program to simplify screen displays and report formats for dBASE III. Screen Editor automatically generates dBASE III command files from the screen displays created by the user on a monitor with Screen Editor in the format mode.

4. DATA BASE DESCRIPTION

4.1 DATA REQUIREMENTS

In general, the data required to accomplish the ELF data base management system functions include:

- Publication data--author, title, date, language, etc.
- Keywords--subject categories, endpoints, and species
- ELF library index number.

Fifty-two fields of information have been defined. The standard report format, with the width of data fields indicated by X's, is illustrated in Figure 1. A sample report is illustrated in Figure 2, and a summary report sample, which displays 12 records on an 11 x 17 in. page, is illustrated in Figure 3.

4.2 FIELD STRUCTURE

The name of the data base primary file is ELFS. The ELFS field structure is given in Table 1, which shows the field number, field name, width, and description for each field.

4.3 SYSTEM DESIGN

The design of the data base system is illustrated in Figure 4, which shows a data flow diagram for the ELF data base management system. There are three basic inputs: field definition, input data, and display and report requirements. The dBASE III program generates the ELFS file (ELFS.DBF) and provides data storage and manipulation. In addition, programs are written by the user for display and report command files. The Screen Editor is used to generate format files for displays and reports that act as subprograms in the user-generated programs. These program command files generate the displays and reports with data transferred from the data base file. Special file names are given to data base and command files by dBASE III. These are automatic extensions to the name of the file given by the user. A data base file has the extension (.DBF) and a command file has the extension (.PRG).

AUTHOR(S): ADEY, M.R. BAWIN, S.M.
 TITLE: BRAIN INTERACTIONS WITH WEAK ELECTRIC AND MAGNETIC FIELDS
 PUBLICATION DATE: JANUARY 1977
 SOURCE: NEUROSCIENCES RESEARCH PROGRAM BULLETIN, VOL. 15, NO.1
 LANGUAGE: ABSTRACT: INDEX NUMBER: 77005

SUBJECT CATEGORIES	END POINTS	SPECIES
AC ELECTRIC FIELDS	ORIENTATION	AVIANS
UNCONVENTIONAL ELECTRIC FIELDS	PSYCHOLOGY	CATS
ATMOSPHERIC ELECTRIC FIELDS		DOMESTIC FOWL
GEOMAGNETIC FIELDS	BEHAVIOR	FISH
	BRAIN SYSTEM	HUMANS
	CALCIUM EFFLUX	PRIMATES
	CELL COMMUNICATIONS	
	CIRCADIAN RHYTHMS	
	ELECTROSENSITIVITY	
	FIELD EQUATIONS	
	MECHANISMS	
	MODULATION	
	NEUROPHYSIOLOGY	

AUTHOR(S): ADEY, M.R. BAWIN, S.M. SAGAN, P.M.
 TITLE: EFFECTS OF 60 HZ ENVIRONMENTAL ELECTRIC FIELDS ON THE MAMMALIAN CENTRAL NERVOUS SYSTEM
 PUBLICATION DATE: 3 APRIL 1979
 SOURCE: FINAL REPORT TO OFFICE OF NAVAL RESEARCH BY VA MEDICAL CENTER LOMA LINDA
 LANGUAGE: ABSTRACT: INDEX NUMBER: 79002

SUBJECT CATEGORIES	END POINTS	SPECIES
AC ELECTRIC FIELDS		
	BEHAVIOR	
	BIOCHEMISTRY	
	FOOD/WATER INTAKE	
	PATHOLOGY	
		SMALL MAMMALS

FIGURE 2. SAMPLE STANDARD REPORT.

TABLE 1. ELF BIOLOGICAL EFFECTS LITERATURE DATA BASE
FIELD DEFINITIONS

Field Name	Width	Description
1-5 SUBCAT1, -2, -3, -4, -5	30	Subcategories 1 through 5
6 ELFNUM	10	ELF library number
7 TITLE	225	Title
8 AUTHOR	220	Author(s)
9 DATE	20	Date of publication
10 SOURCE	225	Source
11 LANG	16	Language
12 ABS1	8	Abstract on file
13-22 SPEC1, -2, -3, ...10	20	Species fields 1 through 10
23-52 ENDPT1, -2, -3, ...30	30	Endpoint fields 1 through 30

Note: All fields are character fields.

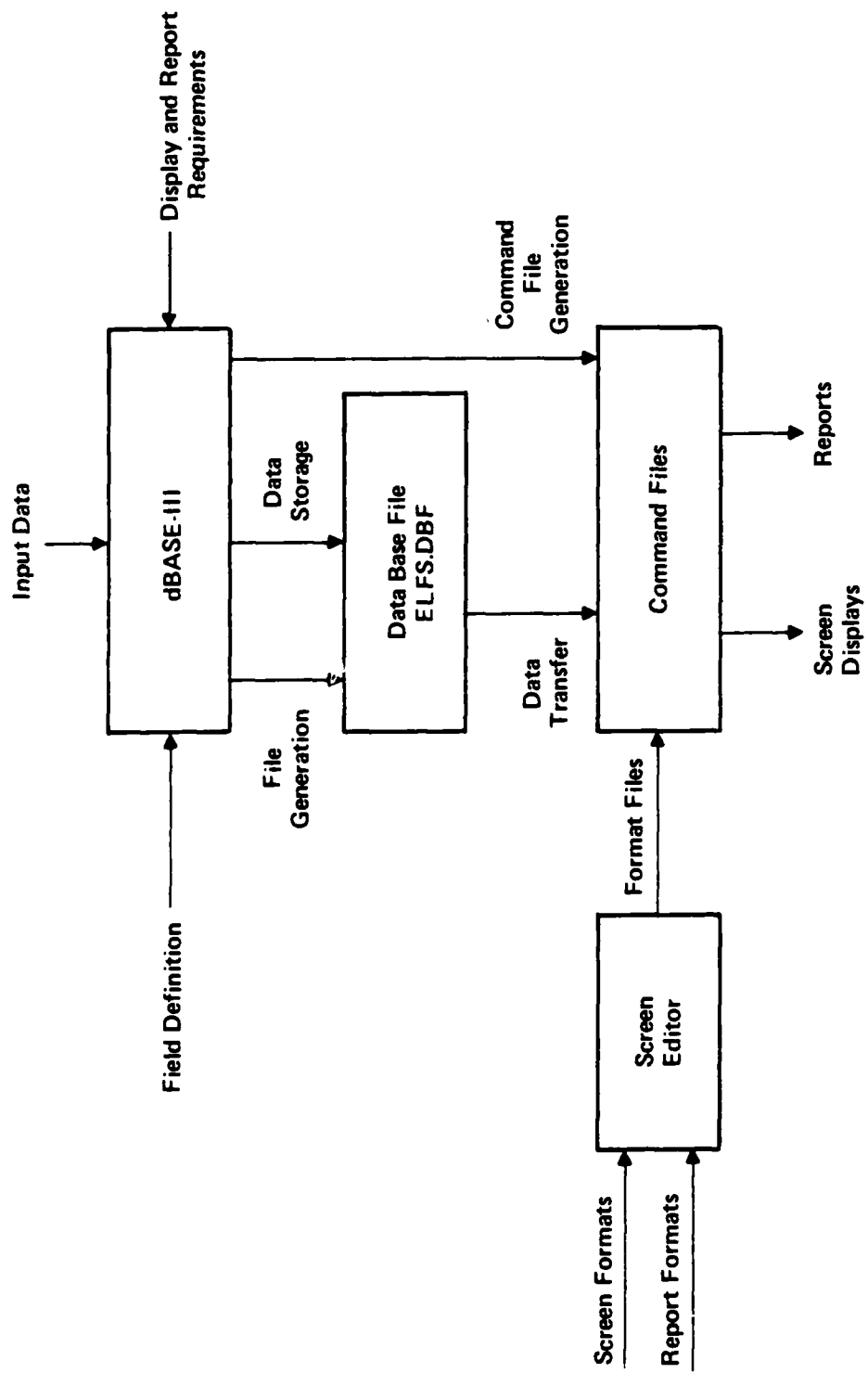


FIGURE 4. ELF BIOLOGICAL EFFECTS LITERATURE DATA BASE MANAGEMENT FLOW DIAGRAM.

5. SYSTEM OPERATIONS

5.1 BASIC OPERATIONS

The basic operations of the system are:

- System start-up
- Data entry
- Screen display
- Report generation
- Record selection for displays or reports
- Editing.

5.2 SYSTEM START-UP

The dBASE III, Screen Editor, and ELF data base programs are stored on the IBM PC XT hard disk in a directory called DBASE3. The directory is accessed by using the operating system to change to that directory. This is followed by giving the command dBASE. The dBASE prompt (.) will then be given. This means that dBASE is ready to receive an instruction.

5.3 ELF DATA BASE OPERATIONS

For normal operations a command program called ELF (ELF.PRG) is utilized for data entry, displays, and report generation. This program is accessed by giving dBASE a command (DO ELF). The screen display (data base menu) illustrated in Figure 5 will appear on the monitor. The menu choices are:

- | | |
|---------------------------|--|
| (0) Return to System | Returns to DOS in the DBASE3 Directory. |
| (1) Return to dBASE | Exits from the ELF command program and returns to dBASE. |
| (2) Print Summary Report | Prints selected records in the summary report format, on 11 x 17-in. paper with condensed print. |
| (3) Print Standard Report | Prints selected records in the summary report format on 8-1/2 x 11-in. paper with condensed print. |

ELF BIOLOGICAL EFFECTS LITERATURE
DATABASE MENU

- 0 = RETURN TO SYSTEM
- 1 = RETURN TO dBASE
- 2 = PRINT SUMMARY REPORT
- 3 = PRINT STANDARD REPORT
- 4 = DISPLAY RECORDS
- 5 = ADD DATA

CHOOSE OPTION AND ENTER NUMBER

FIGURE 5. ELF DATA BASE MAIN MENU.

- | | |
|----------------------------|--|
| (4) Display Records | Displays selected records on the monitor. |
| (5) Add Data | Initiates data entry mode for new records. |

The option selected is entered by striking the appropriate number key and the return key.

5.2.1 Data Entry Mode (Option 5)

When Option 5 is selected, the monitor will display the following message:

**TYPE S TO STOP DATA ENTRY
PRESS ANY KEY TO CONTINUE...**

This message will be followed by three successive data entry screens (see Figures 6, 7, and 8), on which the X's indicate field widths. Data are entered in sequence. On any data entry screen, transfer from one field to the next is accomplished by striking the return key. Transfer from one data entry screen to the next may be accomplished at any point by striking **(CTRL-W)**.

5.2.2 Report Generation (Options 2 and 3)

When either Option 2 or Option 3 is selected, the monitor will display the following message:

DO YOU WANT TO SELECT RECORDS (Y OR N)

If the user strikes N, he will be instructed to:

ENTER FILE NAME TO BE USED

Normally, the user would enter ELFS, but he may enter a secondary file that has been derived from ELFS by sorting or other means. He will then be given the message:

**READY PRINTER. HIT SPACE BAR TO PRINT.
PRESS ANY KEY TO CONTINUE...**

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```

ENTER UP TO 5 SUBJECT CATEGORIES:  XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

ENTER AUTHOR:  XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

ENTER TITLE:  XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

ENTER PUBLICATION DATE:  XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

LANGUAGE:  XXXXXXXXXXXXXXXXXXXX ABSTRACT: XXXXXXXXXXXXXXXXXXXX INDEX #: XXXXXXXXXXXX

ENTER SOURCE:  XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

```

FIGURE 6. DATA ENTRY SCREEN NO. 1.

ENTER UP TO 10 SPECIES:

```
XXXXXXXXXXXXXXXXXXXXX  
XXXXXXXXXXXXXXXXXXXXX  
XXXXXXXXXXXXXXXXXXXXX  
XXXXXXXXXXXXXXXXXXXXX  
XXXXXXXXXXXXXXXXXXXXX  
XXXXXXXXXXXXXXXXXXXXX  
XXXXXXXXXXXXXXXXXXXXX  
XXXXXXXXXXXXXXXXXXXXX  
XXXXXXXXXXXXXXXXXXXXX  
XXXXXXXXXXXXXXXXXXXXX  
XXXXXXXXXXXXXXXXXXXXX  
XXXXXXXXXXXXXXXXXXXXX
```

FIGURE 8. DATA ENTRY SCREEN NO. 3.

The requested reports will be printed once the space bar has been struck.

If the user hits Y, he will be transferred to the selection procedure described in Section 5.2.4.

5.2.3 Display Records (Option 4)

When Option 4 is chosen, the user will be prompted as in Section 5.2.2, except that the records will be successively displayed on the monitor rather than printed.

5.2.4 Select Records

If Options 2, 3, or 4 are chosen, the user may select records from ELFS and generate a secondary data base that contains the selected records. If the user responds Y to the prompt **DO YOU WANT TO SELECT RECORDS (Y OR N)**, the selection menu (see Figure 9) will be displayed. The user may search in six different categories.

5.2.5 Editing

Record editing is accomplished utilizing the normal dBASE III edit command.

5.2.6 Special Operations

There is one special operation that will normally be utilized, backing up the ELFS data base file on floppy disks. Back-up floppy disk storage is provided by utilizing the dBASE III COPY command to create temporary files containing 100 records and using these files to copy from the hard disk to the floppy disks. Storing 100 records on a floppy disk utilizes approximately 70% of the space available on the disk.

Other special operations may be performed utilizing the full power of the dBASE III command set. Examples of these would be creating secondary data bases, such as one sorted alphabetically by author or numerically by ELF library number.

The specific procedures for these operations are given in Section 6.

*** SEARCH CATEGORIES ***

- 1 = INDEX NUMBER
- 2 = AUTHOR
- 3 = SUBJECT CATEGORY
- 4 = TITLE
- 5 = SPECIES - KEY WORDS
- 6 = END POINT - KEY WORDS

SELECT ONE SEARCH CATEGORY AT A TIME

ENTER THE NUMBER OF THE SEARCH CATEGORY

FIGURE 9. SEARCH SELECTION MENU.

6. DETAILED PROCEDURES

The procedures described in detail below are summarized on the command card in Appendix A.

6.1 SYSTEM START-UP

The system should be booted-up with the hard disk as the default drive. Upon receipt of the system prompt:

```
C>
```

enter the change directory command.

```
C>CD\DBASE3
```

Call up DBASE III by entering

```
C>DBASE
```

and the following will appear on the screen

```
DBASE III Version 1.10 IBM/MS DOS***
```

followed by the copyright statement

```
Copyright (C) 1984, Ashton-Tate Inc. (etc.)
```

and the DBASE prompt

The period is the dBASE III prompt. It means that dBASE is ready to accept commands. If problems are encountered and the user wants to stop whatever dBASE III is doing, the escape key will return the system to the dBASE III prompt.

6.2 MAIN MENU

In response to the dBASE prompt

enter

DO ELF

and follow the menu instructions from there.

6.3 EDITING

This is accomplished by selecting the data base file to be edited, normally ELFS, by giving the following commands in response to the dBASE prompt:

Select data base to edit:

. USE ELFS

Select Record to Edit:

. EDIT N

where N is the record number. The editing mode is exited by striking

CRTL-W

6.4 MAIN DATA BASE FILE BACK-UP PROCEDURE

The back-up procedure copies records, in groups of 100, to floppy disks on Drive A. A temporary file is created on the hard disk (Drive C) and then copied to Drive A. In general, while in DBASE, issue the following commands:

```
. USE ELFS  
. COPY TO TEMPX FOR RECNO(>N.AND.RECNO(<=M
```

For x = 1, 2, 3, etc., the back-up floppy disks
N = beginning record #
M = ending record #

If the file already exists, the following message will be displayed:

```
TEMPX.DBF already exists, overwrite it? (Y/N)
```

Strike Y and dBASE will then create a secondary file containing 100 records. Then exit dBASE by giving the command:

```
. QUIT
```

Check to see if the temporary file is on C:

```
C>DIR
```

The file should be listed in the directory display.

Place a disk in A and give the DOS command

```
C>COPY TEMPX.DBF A:
```

This will copy the file to the A disk.

Check to see if the back-up file is on A:

>DIR A:

For example, to create three temporary files, issue the following commands:

- . USE ELFS
- . COPY TO TEMP1 FOR RECNO()<=100
- . COPY TO TEMP2 FOR RECNO(>100.AND.RECNO()<=200
- . COPY TO TEMP3 FOR RECNO(>200.AND.RECNO()<=300
- . QUIT

Follow this by the copy procedure to disk A.

6.5 FINDING A RECORD BY INDEX NUMBER

- . USE ELFS
- . DISPLAY RECNO() FOR ELFNUM + '#####'

6.6 SORTING ALPHABETICALLY

- . USE ELFS
- . SORT TO AUTHTEMP ON AUTHOR

A new file, AUTHTEMP, will be created in alphabetical order by author.

7. COMMAND PROGRAMS

A series of command programs has been prepared to provide dBASE III control of the primary data base functions. These programs are listed below; printouts of the complete command (.PRG) programs are given in Appendix B.

<u>File Name</u>	<u>Function</u>
ELFS.DBF	Primary data base file
ELF.PRG	Main menu
ELFSEL.PRG	Sort selection menu
ELFDATA.PRG	Data entry program
ELFSUM.PRG	Prints summary report
ELFSTAN.PRG	Prints standard reports
ELFDISP.PRG	Displays records

APPENDIX A

ELF DATA BASE MANAGEMENT
SYSTEM COMMAND CARD

ELF DATA BASE COMMAND CARD

SYSTEM START-UP and EXIT

Change directories

C>CD\DBASE3

Call up dBASE III

C>DBASE

Select a data base file

. USE FILENAME

Select a record

. GOTO N
(N is record number)

Exit dBASE III

. QUIT

DATA BASE COMMANDS

ELF data base menu

. DO ELF

Edit

. USE ELFS
. EDIT N
(N is record number)

Delete a record

. DELETE N
. PACK
(N is record number)

SPECIAL FUNCTIONS

Back-up Procedure

. USE ELFS
. COPY TO TEMPX FOR RECNO(>N.AND RECNO(<=M
. QUIT
C>COPY TEMPX.DBF A:

Find a record

. USE ELFS
. DISPLAY RECNO() FOR ELFNUM +'#####'

Sort alphabetically

. USE ELFS
. SORT TO AUTHTEMP ON AUTHOR

APPENDIX B

COMMAND PROGRAM LISTINGS

ELF.PRG
MAIN MENU
(page 2 of 2)

```
ENDIF
ENDIF
IF title>' '.OR.elfnum>' '.OR.SEARCH="N".OR.SEARCH="n"
IF CHOICE="2"
  DO ELFSUM
ENDIF
IF CHOICE="3"
  DO ELFSTAN
ENDIF
IF CHOICE="4"
  DO ELFDISP
ENDIF
IF FILE('&FILE..DBF')=.T.
  ?
  ?
  ?
ACCEPT "DO YOU WANT TO SAVE THE FILE WHICH CONTAINS THE SELECTED
RECORDS (Y or N) " TO SAVE
  IF SAVE="Y".OR.SAVE="y"
    CLOSE DATABASES
  ELSE
    CLOSE DATABASES
    ERASE &FILE..DBF
  ENDIF
ENDIF
ENDIF
ENDIF
IF CHOICE="5"
  USE ELFS
  DO ELFDATA
ENDIF
ENDDO
ENDDO
```


ELFSEL.PRG
SORT SELECTION PROGRAM
(page 2 of 4)

```
APPEND FROM &NAME FOR A#author
USE
RENAME TEMP.DBF TO TEMP1.DBF
USE TEMP1
?
ACCEPT "DO YOU WANT TO ENTER ANOTHER AUTHOR'S NAME ( Y or N )
" TO PICK
DO WHILE PICK="Y".OR.PICK="y"
CLEAR
?
ACCEPT "ENTER AUTHOR'S NAME :   " TO A
APPEND FROM &NAME FOR A#author
?
ACCEPT "DO YOU WANT TO ENTER ANOTHER AUTHOR'S NAME ( Y or N )
" TO PICK
ENDDO
ENDIF
IF NUM="3"
COPY STRUCTURE TO TEMP FIELDS SUBCAT1
SELECT B
USE TEMP
APPEND
SELECT A
USE &NAME
JOIN WITH TEMP TO TEMP1 FOR
SUBCAT1=B->SUBCAT1.OR.SUBCAT2=B->SUBCAT1.OR.SUBCAT3=B->SUBCAT1
CLOSE DATABASES
USE TEMP1
ERASE TEMP.DBF
IF FILE("TEMP2.DBF") .T.
ERASE TEMP2
ENDIF
ENDIF
IF NUM="4"
CLEAR
?
?
ACCEPT "ENTER TITLE   " TO A
COPY STRUCTURE TO TEMP
USE TEMP
APPEND FROM &NAME FOR A#title
USE
RENAME TEMP.DBF TO TEMP1.DBF
USE TEMP1
ACCEPT "DO YOU WANT TO ENTER ANOTHER TITLE ( Y or N )   " TO
PICK
DO WHILE PICK="Y".OR.PICK="y"
CLEAR
?
ACCEPT "ENTER TITLE   " TO A
APPEND FROM &NAME FOR A#title
?
```

ELFSEL.PRG
SORT SELECTION PROGRAM
(page 3 of 4)

```
ACCEPT "DO YOU WANT TO ENTER ANOTHER TITLE ( Y or N ) " TO  
PICK  
ENDDO  
ENDIF  
IF NUM="5"  
COPY STRUCTURE TO TEMP FIELDS SPEC1  
SELECT B  
USE TEMP  
APPEND  
SELECT A  
USE &NAME  
JOIN WITH TEMP TO TEMP1 FOR SPEC1=B->SPEC1.OR.SPEC2=B->SPEC1  
.OR.SPEC3=B->SPEC1.OR.SPEC4=B->SPEC1.OR.SPEC5=B->SPEC1  
JOIN WITH TEMP TO T FOR SPEC6=B->SPEC1.OR.SPEC7=B->SPEC1.OR.  
SPEC8=B->SPEC1.OR.SPEC9=B->SPEC1.OR.SPEC10=B->SPEC1  
CLOSE DATABASES  
USE TEMP1  
APPEND FROM T  
ERASE TEMP.DBF  
ERASE T.DBF  
IF FILE("TEMP2.DBF")= .T.  
ERASE TEMP2.DBF  
ENDIF  
ENDIF  
IF NUM="6"  
COPY STRUCTURE TO TEMP FIELDS ENDPT1  
SELECT B  
USE TEMP  
APPEND  
SELECT A  
USE &NAME  
JOIN WITH TEMP TO TEMP1 FOR ENDPT1=B->ENDPT1 .OR.  
ENDPT2=B->ENDPT1.OR.ENDPT3=B->ENDPT1.OR.ENDPT4=B->ENDPT1.OR.  
ENDPT5=B->ENDPT1.OR.ENDPT6=B->ENDPT1.OR.ENDPT7=B->ENDPT1  
JOIN WITH TEMP TO T FOR ENDPT8=B->ENDPT1.OR.ENDPT9=B->ENDPT1  
.OR.ENDPT10=B->ENDPT1.OR.ENDPT11=B->ENDPT1.OR.ENDPT12=B->ENDPT1  
.OR.ENDPT13=B->ENDPT1.OR.ENDPT14=B->ENDPT1.OR.ENDPT15=B->ENDPT1  
JOIN WITH TEMP TO E FOR ENDPT16=B->ENDPT1.OR.ENDPT17=B->ENDPT1  
.OR.ENDPT18=B->ENDPT1.OR.ENDPT19=B->ENDPT1.OR.ENDPT20=B->ENDPT1  
.OR.ENDPT21=B->ENDPT1.OR.ENDPT22=B->ENDPT1.OR.ENDPT23=B->ENDPT1  
JOIN WITH TEMP TO F FOR ENDPT24=B->ENDPT1.OR.ENDPT25=B->ENDPT1  
.OR.ENDPT26=B->ENDPT1.OR.ENDPT27=B->ENDPT1.OR.ENDPT28=B->ENDPT1  
.OR.ENDPT29=B->ENDPT1.OR.ENDPT30=B->ENDPT1  
CLOSE DATABASES  
USE TEMP1  
APPEND FROM T  
APPEND FROM E  
APPEND FROM F  
ERASE E.DBF  
ERASE F.DBF  
ERASE TEMP.DBF  
ERASE T.DBF
```

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ELFSEL.PRG
SORT SELECTION PROGRAM
(page 4 of 4)

```
IF FILE("TEMP2.DBF")= .T.  
  ERASE TEMP2.DBF  
ENDIF  
CLEAR  
IF LOGIC="OR".OR.LOGIC="or"  
  APPEND FROM TEMP3  
  ERASE TEMP3.DBF  
ENDIF  
?  
ACCEPT "DO YOU WANT TO SEARCH ANOTHER CATEGORY ? ( Y or N) " TO  
SEARCH  
?  
IF SEARCH="Y".OR.SEARCH="y"  
ACCEPT "WHICH TYPE OF LOGIC SHOULD BE USED (AND or OR) " TO  
LOGIC  
IF LOGIC="AND".OR.LOGIC="and"  
  USE  
  RENAME TEMP1.DBF TO TEMP2.DBF  
  STORE "TEMP2" TO NAME  
ENDIF  
IF LOGIC="OR".OR.LOGIC="or"  
  USE  
  RENAME TEMP1.DBF TO TEMP3.DBF  
  STORE 'ELFS' TO NAME  
ENDIF  
ENDIF  
ENDDO  
USE TEMP1  
IF FILE("TEMP2.DBF")= .T.  
  ERASE TEMP2.DBF  
ENDIF  
GOTO BOTTOM  
IF RECNO()=1  
  USE  
  RENAME TEMP1.DBF TO &FILE..DBF  
  USE &FILE  
ENDIF  
IF RECNO()>1  
  SORT TO &FILE ON ELFNUM  
  USE &FILE  
  ERASE TEMP1.DBF  
ENDIF  
GO BOTTOM  
IF title=' '.AND.elfnum=' '  
  CLEAR  
  @ 12,10 SAY "NO RECORDS MEET THE SPECIFIED CRITERIA."  
  WAIT TO continue  
  RETURN TO MASTER  
ENDIF  
RETURN
```

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ELFDATA.PRG
DATA ENTRY PROGRAM
(page 1 of 2)

```
* ELFDATA.PRG
SET TALK OFF
SET ECHO OFF
CLEAR
SET BELL OFF
@ 9,5 SAY "                TYPE S TO STOP DATA ENTRY"
@ 19,1 SAY " "
WAIT TO continue
DO WHILE continue<>"S".AND.continue<>"s"
CLEAR
APPEND BLANK
@ 1,1 SAY "ENTER UP TO 5 SUBJECT CATEGORIES:"
@ 1,36 GET subcat1
@ 2,36 GET subcat2
@ 3,36 GET subcat3
@ 4,36 GET subcat4
@ 5,36 GET subcat5
@ 7,1 SAY "ENTER AUTHOR:"
@ 7,15 GET author
@ 12,1 SAY "ENTER TITLE:"
@ 12,14 GET title
@ 17,1 SAY "ENTER PUBLICATION DATE:"
@ 17,25 GET date
@ 19,1 SAY "LANGUAGE:"
@ 19,11 GET lang
@ 19,28 SAY "ABSTRACT:"
@ 19,37 GET abs1
@ 19,58 SAY "INDEX #:"
@ 19,67 GET elfnum
@ 21,1 SAY "ENTER SOURCE:"
@ 21,15 GET source
READ
CLEAR
@ 2,1 SAY "ENTER UP TO 30 END POINTS:"
@ 3,2 GET endpt1
@ 3,42 GET endpt2
@ 4,2 GET endpt3
@ 4,42 GET endpt4
@ 5,2 GET endpt5
@ 5,42 GET endpt6
@ 6,2 GET endpt7
@ 6,42 GET endpt8
@ 7,2 GET endpt9
@ 7,42 GET endpt10
@ 8,2 GET endpt11
@ 8,42 GET endpt12
```

ELFDATA.PRG
DATA ENTRY PROGRAM
(page 2 of 2)

```
@ 9,2 GET endpt13
@ 9,42 GET endpt14
@ 10,2 GET endpt15
@ 10,42 GET endpt16
@ 11,2 GET endpt17
@ 11,42 GET endpt18
@ 12,2 GET endpt19
@ 12,42 GET endpt20
@ 13,2 GET endpt21
@ 13,42 GET endpt22
@ 14,2 GET endpt23
@ 14,42 GET endpt24
@ 15,2 GET endpt25
@ 15,42 GET endpt26
@ 16,2 GET endpt27
@ 16,42 GET endpt28
@ 17,2 GET endpt29
@ 17,42 GET endpt30
READ
CLEAR
@ 3,1 SAY "ENTER UP TO 10 SPECIES:"
@ 3,28 GET spec1
@ 4,28 GET spec2
@ 5,28 GET spec3
@ 6,28 GET spec4
@ 7,28 GET spec5
@ 8,28 GET spec6
@ 9,28 GET spec7
@ 10,28 GET spec8
@ 11,28 GET spec9
@ 12,28 GET spec10
READ
@ 20,5 SAY "                TYPE S TO STOP DATA ENTRY"
WAIT TO continue
ENDDO
RETURN
```

ELFSUM.PRG
SUMMARY REPORT PROGRAM
(page 1 of 2)

```
*  
SET HEADING OFF  
SET SAFETY OFF  
* ELFSUM.PRG      This program prints out the ELF database  
summary.  
* 07/01/85 1mk  
SET TALK OFF  
SET ECHO OFF  
CLEAR  
@ 0,1 SAY "READY PRINTER.  HIT SPACE BAR TO PRINT."  
WAIT  
SET PRINT ON  
SET DEVICE TO PRINT  
?? CHR(27)+'@'  
?? CHR(27)+'C'+CHR(66)  
?? CHR(27)+'Q'+CHR(233)  
?? CHR(15)  
STORE " 1 " TO PG  
GOTO TOP  
DO WHILE .NOT.EOF()  
STORE 2 TO C  
@ 0,1 SAY "PAGE"  
@ 0,7 SAY pg  
@ 0,86 SAY "ELF BIOLOGICAL EFFECTS LITERATURE DATABASE SUMMARY"  
@ 0,211 SAY "DATE"  
@ 0,216 SAY DTOC(date())  
@ 1,1 SAY "-----"  
@ 1,56 SAY "-----"  
@ 1,111 SAY "-----"  
@ 1,166 SAY "-----"  
@ 1,221 SAY "-----"  
DO WHILE C<60  
@ C,1 SAY "ELF LIBRARY NUMBER:"  
@ C,21 SAY elfnum  
@ C,62 SAY "DATE:"  
@ C,68 SAY date  
@ C,107 SAY "LANGUAGE:"  
@ C,117 SAY lang  
STORE C+1 TO C  
@ C,1 SAY "AUTHOR:"  
@ C,9 SAY author  
STORE C+1 TO C  
@ C,1 SAY "TITLE:"  
@ C,8 SAY title
```

ELFSUM.PRG
SUMMARY REPORT PROGRAM
(page 2 of 2)

```
STORE C+1 TO C
@ C,1 SAY "-----"
@ C,56 SAY "-----"
@ C,111 SAY "-----"
@ C,166 SAY "-----"
@ C,221 SAY "-----"
STORE C+1 TO C
SKIP
IF EOF()
  EJECT
  SET PRINT OFF
  SET DEVICE TO SCREEN
  RETURN
ENDIF
ENDDO
STORE VAL(PG) TO VALPG
STORE VALPG+1 TO VALPG
STORE STR(VALPG,5) TO PG
ENDDO
EJECT
SET PRINT OFF
SET DEVICE TO SCREEN
RETURN
```

ELFSTAN.PRG
STANDARD REPORT PROGRAM
(page 1 of 3)

```
* ELFSTAN.PRG
SET ECHO OFF
SET TALK OFF
SET PRINT ON
SET DEVICE TO PRINT
?? CHR(27)+'C'+CHR(51)
?? CHR(27)+'Q'+CHR(166)
?? CHR(15)
STORE " 1" TO PG
GOTO TOP
DO WHILE .NOT.EOF()
STORE 2 TO C
@ 0,1 SAY "PAGE"
@ 0,7 SAY pg
@ 0,57 SAY "ELF BIOLOGICAL EFFECTS LITERATURE DATABASE"
@ 0,149 SAY "DATE"
@ 0,155 SAY date()
@ 1,1 SAY "-----"
@ 1,56 SAY "-----"
@ 1,111 SAY "-----"
DO WHILE C<30
@ C,1 SAY "AUTHOR(S):"
@ C,12 SAY author
STORE C+1 TO C
@ C,1 SAY "TITLE:"
@ C,8 SAY title
STORE C+1 TO C
@ C,1 SAY "PUBLICATION DATE:"
@ C,19 SAY date
@ C,55 SAY "LANGUAGE:"
@ C,65 SAY lang
@ C,90 SAY "ABSTRACT:"
@ C,100 SAY abs1
@ C,128 SAY "INDEX NUMBER:"
@ C,142 SAY elfnum
STORE C+2 TO C
@ C,1 SAY "SOURCE:"
@ C,9 SAY source
STORE C+1 TO C
@ C,7 SAY "SUBJECT CATEGORIES"
@ C,81 SAY "END POINTS"
@ C,149 SAY "SPECIES"
STORE C+1 TO C
@ C,1 SAY "-----"
@ C,56 SAY "-----"
@ C,111 SAY "-----"
STORE C+1 TO C
```

ELFSTAN.PRG
STANDARD REPORT PROGRAM
(page 2 of 3)

```
@ C,2 SAY subcat1
@ C,36 SAY endpt1
@ C,72 SAY endpt11
@ C,106 SAY endpt21
@ C,143 SAY spec1
STORE C+1 TO C
@ C,2 SAY subcat2
@ C,36 SAY endpt2
@ C,72 SAY endpt12
@ C,106 SAY endpt22
@ C,143 SAY spec2
STORE C+1 TO C
@ C,2 SAY subcat3
@ C,36 SAY endpt3
@ C,72 SAY endpt13
@ C,106 SAY endpt23
@ C,143 SAY spec3
STORE C+1 TO C
@ C,2 SAY subcat4
@ C,36 SAY endpt4
@ C,72 SAY endpt14
@ C,106 SAY endpt24
@ C,143 SAY spec4
STORE C+1 TO C
@ C,2 SAY subcat5
@ C,36 SAY endpt5
@ C,72 SAY endpt15
@ C,106 SAY endpt25
@ C,143 SAY spec5
STORE C+1 TO C
@ C,36 SAY endpt6
@ C,72 SAY endpt16
@ C,106 SAY endpt26
@ C,143 SAY spec6
STORE C+1 TO C
@ C,36 SAY endpt7
@ C,72 SAY endpt17
@ C,106 SAY endpt27
@ C,143 SAY spec7
STORE C+1 TO C
@ C,36 SAY endpt8
@ C,72 SAY endpt18
@ C,106 SAY endpt28
@ C,143 SAY spec8
STORE C+1 TO C
```

ELFSTAN.PRG
STANDARD REPORT PROGRAM
(page 3 of 3)

```
@ C,36 SAY endpt9  
@ C,72 SAY endpt19  
@ C,106 SAY endpt29  
@ C,143 SAY spec9  
STORE C+1 TO C  
@ C,36 SAY endpt10  
@ C,72 SAY endpt20  
@ C,106 SAY endpt30  
@ C,143 SAY spec10  
STORE C+1 TO C  
@ C,1 SAY
```

```
"=====
```

```
=====
```

```
STORE C+1 TO C  
SKIP  
IF EOF()  
  EJECT  
  SET PRINT OFF  
  SET DEVICE TO SCREEN  
  RETURN  
ENDIF  
ENDDO  
STORE VAL(PG) TO VALPG  
STORE VALPG+1 TO VALPG  
STORE STR(VALPG,5) TO PG  
ENDDC  
EJECT  
SET PRINT OFF  
SET DEVICE TO SCREEN  
RETURN
```

ELFDISP.PRG
RECORD DISPLAY PROGRAM

* ELFDISP.PRG This program displays the following fields on
the screen: Index number, language, author,
date, title, and subject categories.

```
* 7/10/85 1mk
SET DEVICE TO SCREEN
GOTO TOP
DO WHILE .NOT.EOF()
CLEAR
@ 1,1 SAY "INDEX NUMBER : "
@ 1,16 GET elfnum
@ 1,40 SAY "ABSTRACT : "
@ 1,52 GET abs1
@ 3,1 SAY "PUBLICATION DATE : "
@ 3,20 GET date
@ 3,45 SAY "LANGUAGE: "
@ 3,55 GET lang
@ 5,1 SAY "TITLE : "
@ 5,9 GET title
@ 10,1 SAY "AUTHOR : "
@ 10,10 GET author
@ 15,1 SAY "SOURCE : "
@ 15,10 GET source
@ 20,1 SAY "SUBCAT1"
@ 20,9 GET subcat1
@ 20,40 SAY "SUBCAT4"
@ 20,50 GET subcat4
@ 21,1 SAY "SUBCAT2"
@ 21,9 GET subcat2
@ 21,40 SAY "SUBCAT5"
@ 21,50 GET subcat5
@ 22,1 SAY "SUBCAT3"
@ 22,9 GET subcat3
SKIP
WAIT TO continue
ENDDO
RETURN
```

END

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