

Users' Guide To Cheetah Version 2






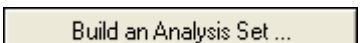
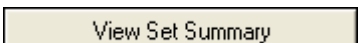

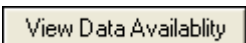


Computerized Harmonic Evaluation of Episodes and Tools
for Assessment and Help



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Key Button Descriptions Summary		
	Next Step	Go to Next Step
	Previous Step	Go to Previous Step
	Check All	Select All Items
	Uncheck All	De-select All Items
	Collect	Gather Fire Occurrence Data from Database
	Build Analysis Set	Create and Save and Analysis Set
	View Set Summary	
	Run	Generate Graphs or Reports
	View Data Availability	View Unit Which Meet Data Assumptions for Inclusion in an Analysis Set
	Exit	Close and Exit the Program
	Help	Open Online Help Document

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Welcome to Cheetah 2

Introduction

Cheetah 2 (Computerized Harmonic Evaluation of Episodes and Tools for Assessment of Help) was developed to support examination of fire occurrence patterns and fire suppression resource requirements at the National and Geographic Area level. Questions are frequently asked on the expected fire suppression resource needs by the National and Geographic Area decision-makers and managers need to assess fire occurrence patterns to predict future fire suppression resource requirements.

Program Installation

System Requirements

The following minimum system requirements are as follows:

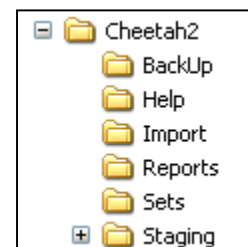
- Windows 98/2000/NT/XP
- Pentium class processor
- 64 mb of RAM
- 110 mb of free hard drive space

Installation

On the installation CD, locate the file named setup.exe. Double-click on the setup.exe file and follow the menus that appear. Next, copy Fires database (Cheetah2Master.mdb) from the installation disk to the folder where Cheetah 2 is installed. This replaces the blank Fires database installed with the program. Be sure to restart the computer when installation is complete.

Installation Folder Structure

The default installation folder for the program is C:\Program Files\Cheetah2. The user can change this during installation. The graphic at the right shows the folders inside the Cheetah2 folder that are created.



Backup Folder

This folder contains backup fires database files.

Help Folder

This folder contains the online Help files.

Import Folder

This folder contains ASCII corporate fire occurrence files. It is not required these files reside here but it is recommended they do if disk space allows for this.

Reports Folder

This folder is the default folder to the saved Rich text format (rtf) reports.

Sets Folder

This folder contains fires database sets created by the user.

Staging Folder

This folder contains the initial database files for an organizational unit when the initial import of the fire occurrence data from the corporate ASCII fire occurrence files. After import of unit fire occurrence to the fire database, this file will remain if there are fire occurrence records with errors.

Fire Occurrence Records

The fire occurrence data used by Cheetah 2 is contained in a Microsoft Access database (mdb). The mdb is located in the directory where the Cheetah 2 program is installed. The file name is Cheetah2Master.mdb. The database contains fire occurrence records downloaded from the FAMWEB Internet site for the contiguous United States from 1980 through 2002 for each of 5 federal land management agencies: USDA-Forest Service, USDI-Bureau of Land Management, USDI-National Park Service, USDI-Bureau of Indian Affairs and USDI-Fish and Wildlife Service.

For the Forest Service, all fire records are included. The DOI 1202 fire report contains more incidents than the Forest service fire report. The types of incidents are identified by two fields, fire type and protection type. The following table provides definitions of each.

Fire Types		Protection Types	
Code	Description	Code	Description
1	Suppressed Fire	1	For agency land under agency protection. The agency has the fire suppression responsibility
2	Natural Out	2	For agency lands protected by another Federal agency under an interagency mutual aid agreement. Another agency does the suppression work.
3	Support Action	3	For agency lands protected by a non-Federal agency (eg. state, county, city) under a cooperative agreement, memo of understanding, or contract.
4	Prescribed Fire	4	For fires suppressed under confine or contain strategy under Fire Type 1.
5	False Alarm	5	For other lands not under agreement, memo of understanding or contract, but where agency suppression action was taken to prevent fire spread onto agency lands; ie. Private land adjacent to agency boundary.
		6	For other lands protected by agency under a memo of understanding, interagency agreement or contract.
		7	Support actions by agency resources under Fire Type 3.
		8	Prescribed burns – management-ignited prescribed fires, ignited by or for park management under Fire Type 4.
		9	Prescribed natural fires - ignited by lightning, volcanic activity, or other natural ignition sources under Fire Type 4.

The Fire Types/Protection Type codes included for the lower 48 States are as follows: 11, 12, 13, 14, 21, 22, 23, 24 and 49. For Alaska, fires with these codes were also imported and in addition, fire type/protection type code 16 was imported for the Alaska Fire Service (AFS).

Cheetah 2 Programs

Two programs are used in Cheetah. These are Cheetah 2 Data Manager and Cheetah 2 Analyzer.

Cheetah 2 Data Manager

The purpose and function of the Cheetah 2 Data Manager program is to manage the organizational units and fire occurrence records in the fires database (Cheetah2Master.mdb). This function is normally performed at the National level with support from the Geographic Area Coordination Centers (GACCs).

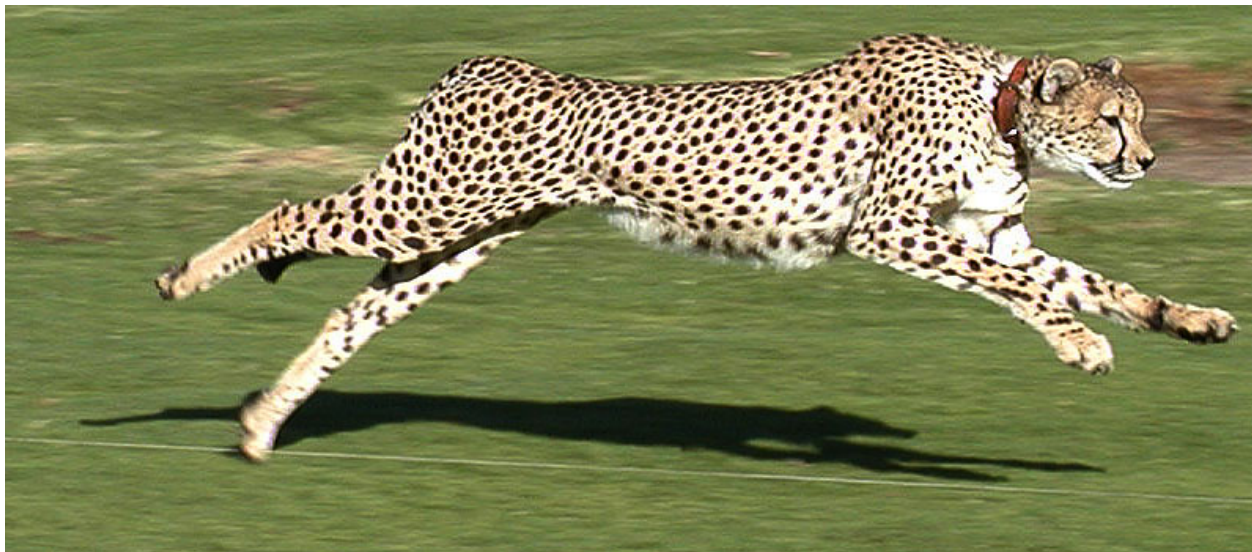
Cheetah 2 Analyzer

The purpose and function of the Cheetah 2 Analyzer program is the analysis of fire occurrence data to support decision-making. Analysis is done on Analysis Sets containing fires by year, by agency and by GACC(s), state(s) or unit(s). Particular attention is available to analyze fire occurrence episodes as they relate to large fire occurrence.

Starting Cheetah 2 Programs

The Cheetah 2 programs can be started by:

- Selecting the Windows Start Menu, Programs, Cheetah Directory and either the Cheetah 2 Data Manager or Analyzer program icons.
- Doubling clicking either the Cheetah 2 Data Manager or Analyzer program icons on the Windows Desktop
- Double clicking on the C2Analyzer.exe or C2Manager.exe files from Windows Explorer



The Cheetah 2 Data Manager Program

The purpose and function of the Cheetah 2 Data Manager program is to manage the organizational units and fire occurrence records in the fires database (Cheetah2Master.mdb). This function is normally performed at the National level with support from the Geographic Area Coordination Centers (GACCs).



Databases

There are two databases, the parameters database and the fires database.

Cheetah2LU.mdb (parameters database)

This database contains non-fire record information including agencies identifiers, fire cause identifiers and correlations, GACC identifiers and assignments of organizational units to GACCs. Edits to these database tables is done via the Utilities Menu in the Data Manager program. A complete description of the fields in each of these tables is also contained in the Utilities Menu, Reference Table Maintenance section of this document.

Table
List of States
List of Organizational Units and Associated Codes
List of Years
List of Agencies
List of Geographic Areas
List of Fire Causes

Cheetah2Master.mdb (fires database)

This database contains the fire occurrence records. The main purpose of the Data Manager program is to load and manage fire occurrence records into the fires database. Not all information from agency fire report records is loaded. The following information is loaded for each fire:

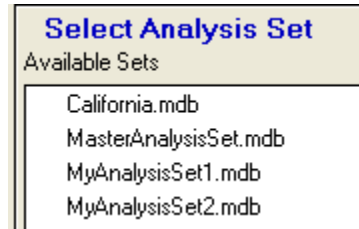
- Unit identifier
- Discovery date
- Fire number
- Fire size (acres to nearest tenth)
- Statistical cause code (Forest Service definitions)

The Data Manager program assigns the following attributes to each fire using the unit identifier and information in the Units table in the parameters database (Cheetah2LU.mdb).

- Agency
- GACC
- State

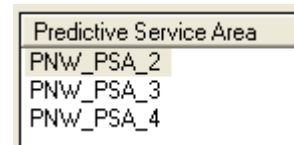
UserDefined.mdb (sets database)

This database contains the fire occurrence records that are a subset of the fire occurrence records in the fires database. An Analysis Set is a unique combination years, GACCs, states with GACCS selected and agencies. The reason for creation of an Analysis set is to create smaller database in a defined format to facilitate local analysis in an efficient way. The creating of an Analysis Set will be covered later in this document. Analysis Set databases are contained in the Sets folder.



Cheetah2PSA.mdb (PSA database)

This database contains the fire occurrence records that are a subset of the fire occurrence records in the fires database. PSA stands for Predictive Service Area. A PSA Set is special version of an Analysis Set where the PSA fires database is specific for the organizational units in the PSA. PSA Analysis Sets will be covered later in this document. PSA Set databases are contained in the Sets folder.



Password

On the initial splash screen, a password must be entered to access the Data Manager program. The password can be changed from the startup screen.



Program Control

Program control is achieved by the use of menu buttons that appear in the upper left of the startup screen in addition to Exit and Help menus on the program's toolbar. There are five menu buttons: Summary, Edit Records, Reports and Graphs, Utilities and Import.



Obtaining Corporate Fire Occurrence Data

There are two fire report formats for the five federal agencies. One format exists for the USDA Forest Service and another format exists for the Department of Interior Agencies (Bureau of Indian Affairs, Bureau of Land Management, Fish and Wildlife Service and National Park Service). ASCII fire occurrence files currently are available for download from the Internet. The current web site is as follows: <http://famweb.nwccg.gov/weatherfirecd/>. It is recommended these files be downloaded to user created folders in the Import folder. Any modifications to the CheetahMaster2.mdb need to be coordinated with NICC. This will facilitate the creation and maintenance of a single, National CheetahMaster2.mdb.

Adding Federal Fire Occurrence Data in the Fires Database

Follow the following steps to add fire occurrence records to the fires database.

Step 1

Obtain the corporate ASCII fire occurrence data file.

Step 2

Verify the agency is defined in the Units table in the parameters database. To do this, go to the Utilities Menu, Reference Table Maintenance, List of Organizational Units and Associated Codes feature. Scan or search for the unit. If the unit is not in the table, add the unit. To add a unit, first uncheck the Read Only box at the bottom of the screen. Then click on the Add button, enter information and then click Close. It will be necessary to exit the Cheetah 2 Data Manager program and restart program before adding fire occurrence data.

Step 3

Follow the steps in the section titled The Import Menu.

Adding an Organizational Unit and Fire Occurrence Data to the Fires Database

Non-federal fire occurrence data can be added to the fire database. This may be desirable at the GACC level where state protection agency fire occurrence data is available. Since there are many electronic state fire occurrence file formats and field definitions, a Standard Cheetah ASCII file format has been defined to facilitate inclusion of other agency fire occurrence data. The Standard Cheetah ASCII file format is as follows:

The Cheetah Standard format is a comma-delimited ASCII in the following order from left to right:

- Fire Discovery Date (MM/DD/YYYY)
- Unit Organizational Code (alpha-numeric)
- Fire Number (alpha-numeric)
- Fire Size (nearest tenth of an acre)
- Fire Cause Code (Forest Service Statistical Cause)

For the agency whose fire occurrence data is to be included, it will be necessary for a computer specialist to reformat the agency fire occurrence data record to the Cheetah Standard format.

To add an organizational unit and its fire occurrence data to the fires database, follow these steps.

Step 1

Obtain the corporate ASCII fire occurrence data file.

Step 2

Create an ASCII file with the agency fire occurrence records in Cheetah Standard format.

Step 3

Add the agency to the Units table in the parameters database. To do this, go to the Utilities Menu, Reference Table Maintenance, List of Organizational Units and Associated Codes feature. Scan or search for the unit. If the unit is not in the table, add the unit. To add a unit, first uncheck the Read Only box at the bottom of the screen. Then click on the Add button, enter information and then click Close. It will be necessary to exit the Cheetah 2 Data Manager program and restart program before adding fire occurrence data.

Step 4

Follow the steps in the section titled The Import Menu.

The Import Menu

The Import Menu yields a screen with two tabs: Import and Staging.

Import Tab

This tab is used to select a unit for import and to perform the import of corporate ASCII fire occurrence records to a unit specific staging database.

Step 1 – Type of Import Format

The import formats are as follows:

- Cheetah Standard
- Forest Service
- BLM (Bureau) of Land Management)
- FWS (Fish and Wildlife Service)
- BIA (Bureau of Indian Affairs)
- NPS (National Park Service)

Select the import format by clicking on the radio button to the left of the agency.

Step 2 – Import File Name

Click on the Browse button to navigate to the location of the agency's corporate ASCII fire occurrence file. Select the file and click on the Open button. The units file name will appear in the window.

Step 3 – Select Year to Import

Select the range of years to import to the staging database.

Step 4 – Perform Import

Click on the Import button to load the fire occurrence records into a staging database for the unit. This is a temporary database and is located in the Staging folder where the programs are installed.

The Cheetah 2 Data Manager program will search for problems within the import file records. A Problems Report can be viewed and printed by selecting the View Problems Report Button.

Staging Tab

On the Tab, the user can view problem fire records for a unit and also assign a year to have zero fire records. Below is an example of what might appear on the Staging Tab after a unit's ASCII fire occurrence file has been imported to the staging area.

Import		Staging (Files: 1)			Include Year	Records
Imported Data	Total Records	Problem Records	Comments			
! FWS_Devils_Lake_WMD_62580	175	3		<input checked="" type="checkbox"/> 1980	4	
				<input type="checkbox"/> 1981	None	
				<input type="checkbox"/> 1982	None	
				<input checked="" type="checkbox"/> 1983	11	
				<input checked="" type="checkbox"/> 1984	7	
				<input checked="" type="checkbox"/> 1985	4	
				<input checked="" type="checkbox"/> 1986	1	
				<input checked="" type="checkbox"/> 1987	10	
				<input checked="" type="checkbox"/> 1988	9	
				<input checked="" type="checkbox"/> 1989	2	
				<input checked="" type="checkbox"/> 1990	6	
				<input type="checkbox"/> 1991	None	
				<input checked="" type="checkbox"/> 1992	3	
				<input checked="" type="checkbox"/> 1993	4	
				<input checked="" type="checkbox"/> 1994	6	
				<input checked="" type="checkbox"/> 1995	1	
				<input checked="" type="checkbox"/> 1996	11	
				<input checked="" type="checkbox"/> 1997	7	
				<input checked="" type="checkbox"/> 1998	14	
				<input checked="" type="checkbox"/> 1999	44	
				<input checked="" type="checkbox"/> 2000	8	
				<input checked="" type="checkbox"/> 2001	12	
				<input checked="" type="checkbox"/> 2002	11	

For this unit, 175 fire records were imported but 3 fire records have an error in at least one of the data fields. Also note that for the years 1981, 1982 and 1991, there were no occurrence fire records.

Two actions are needed. The first is the correction of errors, if possible. The second is a decision on the three years with no fire records to determine if these records are missing or if there were zero fires for those years.

Edit Button

Select a unit and click on the Edit button to view problem fire occurrence records and to make changes. This Button takes the user to the edit records screen where reports with problems will be shown. Using this screen, the user can change a fire's attributes and save those changes to the staging database. The screen supports sort and query capabilities. For the example on the previous page, the Error screen appears as follows.

Data: FWS_Devils_Lake_WMD_62580									
	Record Number	Discovery Date	GACC Code	State Code	Agency Code	Fire Number	Organization Code	Fire Size	Fire Cause
▶	167	??/2002	NR	ND	FWS	6431	62580	0.0	5
	168	??/2002	NR	ND	FWS	6432	62580	0.0	5
	172	??/2002	NR	ND	FWS	6584	62580	0.0	5

View Problems Report Button

This button allows for the generation of a report of problem fire records.

Record Number

If the Record Number cell is red, this indicates that this fire already exists in the fire database. Adding another record with this record number would cause duplication. Any other cell highlighted in yellow is a cell with a problem needing attention.

Discovery Date

The most common error is the absence of a discovery date in the corporate ASCII fire occurrence file. When there is discovery date (month, day and year), a ??/?/2999 will be displayed. In the example above, a ??/?/2002 is shown because the year is in the data file but the month and day are missing. Before fires can be added to the Cheetah2Master.mdb database, a valid month, day and year need to be defined for each fire.

GACC, State, and Agency Codes

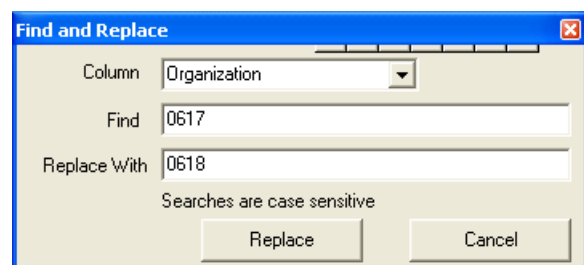
These are assigned based on the organizational unit ID. If any of these are missing, the most likely cause is the program could not find the organizational unit ID in the parameters table. Either the organizational unit has not been added to the Units table in the parameters database or there is a typographical error. Check for the inclusion of the organizational unit in the Unit table via the Utilities Menu, Reference Table Maintenance, List of Organizational Units and Associated Codes feature. Once the unit is defined correctly in the Units table, click the Reassign Codes button.

Assign Unique Button

Over time, two units may have merged. In some cases, the agency fire occurrence file for a unit may contain fire records for several units for overlapping years. Changing the unit identifier to a unique identifier can cause duplicate unit identifier / fire number combinations. Before making the unit identifier change, select all of the fire records with the incorrect unit identifier. Pressing the Assign Unique button will append an X to reach fire number.

Replace Button

Pressing the Replace button will cause the dialog at the right to appear. Select a column, the find string and the replace string.



As was mentioned above, unit consolidation can cause an agency's fire occurrence file to have fire records with two unit identifiers. This functionality will allow for a global replacement of unit identifiers.

Reassign Codes Button

Some fire records do not have GACC, State and/or Agency codes assigned due to problems with a fire's record. Most common is a unit identifier that is not assigned to a unit and a GACC. This can occur when organizational units merge and the fire records are merged.

Display Only Records With Errors Checkbox

If checked, only problem fire records will be displayed. When unchecked, all fire records in a unit's staging database will be displayed.

Assigning Zero Fire per Year

If no fire records exist in the corporate ASCII fire occurrence file, these years are highlight in red on the Staging Tab.

To assign a year to have 0 fires for that year, click on the box to the left of the year. The year will become blue and a 0 will appear in the Records column. Note that all of these years can be set to 0 fires by clicking the Set Missing Years to Zero Fires button. The Undo button will reset all these to None, which means fire records are missing.

Include Year	Records
<input checked="" type="checkbox"/> 1980	4
<input type="checkbox"/> 1981	None
<input type="checkbox"/> 1982	None
<input checked="" type="checkbox"/> 1983	11

Include Year	Records
<input checked="" type="checkbox"/> 1980	4
<input checked="" type="checkbox"/> 1981	0
<input type="checkbox"/> 1982	None
<input checked="" type="checkbox"/> 1983	11

Since fire occurrence values in the Cheetah 2 Analyzer program are annualized, fire occurrence data must exist for a unit to be included in analysis using a defined set of years or range of years. In the example above, if any of the years without fire records were included in the years of the analysis, the unit's fire occurrence data would not be included in the analysis

Adding Fire Records to the Fires Database

Fires can be added by unit or for all units on the Staging Tab at one time.

Add to Master Library

Select the file to add by clicking (highlighting) it. Pressing this button will add the selected unit's fire records to the fires database. Problem records will not be added and will remain in the unit's staging database.

Add All to Master Library

Pressing this button will add all of the fire records for all of the units in staging to the fires database. Problem records will not be added and will remain in the unit's staging database.

A file on the Staging Tab with a blue question mark in front of the file's name indicates a database file with only problems records.

Imported Data
? _FWS_Devils_Lake_WMD_62580

The Summary Menu

The screen displayed shows the GACCs, number of records and years for which fire occurrence records exist in the fires database. Below is the screen for the current fires database, which has all five federal agency fire occurrence records Nationally loaded.

Master Library Contents (Last Update: 1/3/2004 5:06:24 AM, Records: 434330)		
GACC	Records	Years
AK	6418	1980, 1981, 1982, 1983, 1984, 1985, 1986, 1987, 1988, 1989, 1990, 1991, 1992, 1993, 1994, 1995, 1996, 1997, 1998, 1999, 2000, 2001, 2002
EA	26447	1980, 1981, 1982, 1983, 1984, 1985, 1986, 1987, 1988, 1989, 1990, 1991, 1992, 1993, 1994, 1995, 1996, 1997, 1998, 1999, 2000, 2001, 2002
EB	31813	1980, 1981, 1982, 1983, 1984, 1985, 1986, 1987, 1988, 1989, 1990, 1991, 1992, 1993, 1994, 1995, 1996, 1997, 1998, 1999, 2000, 2001, 2002
NO	32950	1980, 1981, 1982, 1983, 1984, 1985, 1986, 1987, 1988, 1989, 1990, 1991, 1992, 1993, 1994, 1995, 1996, 1997, 1998, 1999, 2000, 2001, 2002
NR	49715	1980, 1981, 1982, 1983, 1984, 1985, 1986, 1987, 1988, 1989, 1990, 1991, 1992, 1993, 1994, 1995, 1996, 1997, 1998, 1999, 2000, 2001, 2002
NW	52330	1980, 1981, 1982, 1983, 1984, 1985, 1986, 1987, 1988, 1989, 1990, 1991, 1992, 1993, 1994, 1995, 1996, 1997, 1998, 1999, 2000, 2001, 2002
RM	46412	1980, 1981, 1982, 1983, 1984, 1985, 1986, 1987, 1988, 1989, 1990, 1991, 1992, 1993, 1994, 1995, 1996, 1997, 1998, 1999, 2000, 2001, 2002
SA	47584	1980, 1981, 1982, 1983, 1984, 1985, 1986, 1987, 1988, 1989, 1990, 1991, 1992, 1993, 1994, 1995, 1996, 1997, 1998, 1999, 2000, 2001, 2002
SO	36206	1980, 1981, 1982, 1983, 1984, 1985, 1986, 1987, 1988, 1989, 1990, 1991, 1992, 1993, 1994, 1995, 1996, 1997, 1998, 1999, 2000, 2001, 2002
SW	86285	1980, 1981, 1982, 1983, 1984, 1985, 1986, 1987, 1988, 1989, 1990, 1991, 1992, 1993, 1994, 1995, 1996, 1997, 1998, 1999, 2000, 2001, 2002
WB	18170	1980, 1981, 1982, 1983, 1984, 1985, 1986, 1987, 1988, 1989, 1990, 1991, 1992, 1993, 1994, 1995, 1996, 1997, 1998, 1999, 2000, 2001, 2002

The Edit Records Menu

This menu takes the user to the edit records screen. Using this screen, the user can change a fire's attributes and save those changes to the fires database. The screen supports sort and query capabilities to assist the user in locating a fire record.

Master Library, Records: 434330								
	Discovery Date	GACC Code	State Code	Agency Code	Fire Number	Organization Code	Fire Size	Fire Cause
▶	6/8/1980	NW	WA	FS	001	0621	0.1	1
	6/21/1980	NW	WA	FS	002	0621	0.1	1
	7/8/1980	NW	WA	FS	003	0621	0.1	3
	1/1/1980	NW	WA	FS	004	0621	1.0	4
	8/1/1980	NW	WA	FS	005	0621	0.1	3
	8/3/1980	NW	WA	FS	006	0621	0.1	9
	8/4/1980	NW	WA	FS	007	0621	2.0	6

Sort Capability

By clicking on the column header, the column will sort. This sort process may take a while since the master database can be quite large.

Query Capability

Entering a value in the cell below a column header will query the fires database based on the entry. Multiple queries can be done by entering values in more than one column; ie. GACC Code and Agency Code columns. The records selected at any one time are called the "active records."

	Discovery Date	GACC Code	State Code	Agency Code
		NW		
▶	1/1/1980	NW	WA	FS
	2/29/1980	NW	OR	BLM
	3/22/1980	NW	OR	FS
	3/24/1980	NW	OR	BLM

Select All Button

Clicking on this button will cause all active records to be selected. The selected records will be colored blue.

Deselect All Button

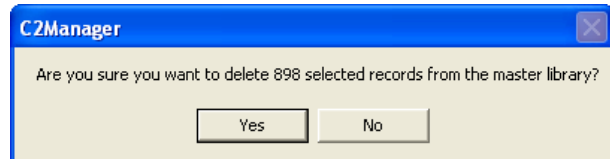
Clicking on this button will cause all active records to be deselected.

Clear Filter Button

Clicking on this button will cause the query filter to be cancelled and the entire fire database to become the active records.





Delete Button

Clicking on this button will cause all active records to be deleted. Use this functionality with care. A warning message similar to the one at the right will appear before records deleted.



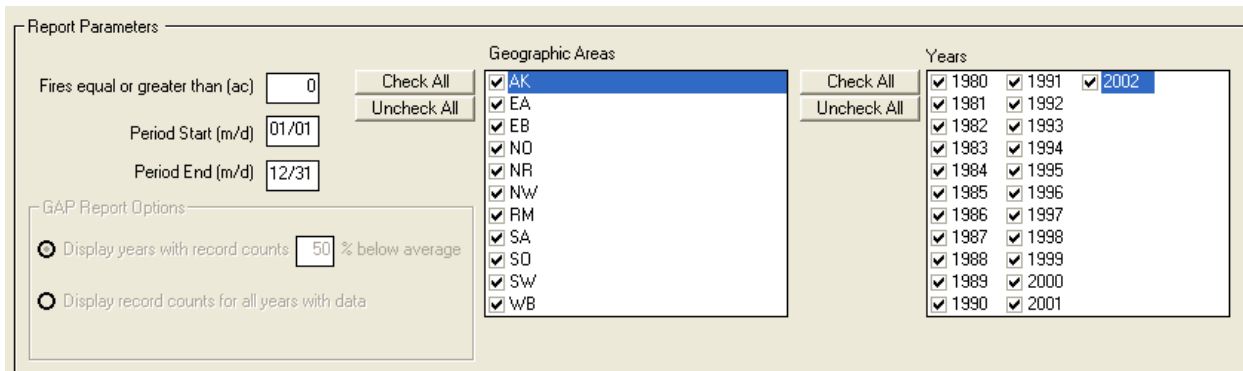
The Reports and Graphs Menu

To support the management of the fires database, several reports and graphs are available. The Cheetah 2 Analyzer has a full complement of graphs more detailed than those in the Data Manager program. The graphic below lists these reports and graphs along with a description of each. Once generated, reports and graphs can be saved in Rich text format (rtf) that can be opened by most word processing programs and and Adobe pdf format.

Report	Description
 Organization Level Summary	Displays record counts by Geographic Area, Year, State, Agency and Organization
 Record Gap Analysis	Locate possible gaps in fire records
 Daily Fire Records	Plot total daily fire records over a range of dates
 Agency Fire Record Distribution	Display a pie chart of Agency record totals

Below is a graphic showing the selections the user can make when building a report or graph. These include a selection for:

- Fire size limit
- Period start and stop dates
- Geographic areas
- Years



A screenshot of the "Report Parameters" dialog box. It contains several sections:

- Fires equal or greater than (ac):** A text box with "0" and buttons for "Check All" and "Uncheck All".
- Period Start (m/d):** A text box with "01/01".
- Period End (m/d):** A text box with "12/31".
- GAP Report Options:** Two radio buttons: "Display years with record counts 50 % below average" (selected) and "Display record counts for all years with data".
- Geographic Areas:** A list box containing: AK, EA, EB, NO, NR, NW, RM, SA, SO, SW, WB. All are checked.
- Years:** A list box containing years from 1980 to 2001. All are checked.

Organizational Level Summary Report

This report provides a summary by:

- GACC
- State
- Agency
- Organization name (unit name)
- Years with fire records
- Number of fire records per year.

Organizational Level Record Summary					
Date: 3/27/2004 12:30:50 PM					
Total Records in Database: 434330					
Last Update: 1/3/2004 5:06:24 AM					
For fires greater or equal to: 0 acres					
For period between 01/01 and 12/31					
For years: 1980					
For Geographic Areas: Northwest					
Number of Existing Individual Fire Records					
GACC	State	Agency	Organization	Year	Nb. of Records
NW	OR	BIA	(P00F07) Umatilla Agency	1980	1
			(P00F09) Warm Springs Agency	1980	68
		BLM	(CRBLD) Burns District	1980	35
			(CRCBD) Coos Bay District	1980	4
			(CRELD) Eugene District	1980	4
			(CRLAD) Lakeview District	1980	64
			(CRMED) Medford District	1980	35

Record Gap Analysis Report

There are two options here.

The first report provides a summary by:

- GACC
- State
- Agency
- Organization name (unit name)
- Average number of fire records per year
- Years with no fire records
- Years with fire records X% below the average record count

GAP Report Options

Display years with record counts % below average

Display record counts for all years with data

An example of the report is on the next page.

Fire Record Gap Analysis
 Date: 3/27/2004 12:52:56 PM

Total Records in Database: 434330
 Last Update: 1/3/2004 5:06:24 AM
 For period between 01/01 and 12/31
 For years: 1980, 1981, 1982, 1983
 For Geographic Areas: Northwest
 Total Records Used in this Report: 6623

Potential Gaps in Individual Fire Records						
GACC	State	Agency	Organization	Average Number Records per Year	Years With No Records	Years With Records 50% Below Average Record Count
NW	OR	BIA	Siletz Field Office	0.0	1980, 1981, 1982, 1983	
			Northwest Regional Office	0.0	1980, 1981, 1982, 1983	
			Grande Ronde Tribe	0.0	1980, 1981, 1982, 1983	
			Umatilla Agency	1.3	1982	
		BLM	Salem District	11.3		1981(5)
			Roseburg District	14.3		1983(5)
			Oregon State Office	0.0	1980, 1981, 1982, 1983	
		FS	Umpqua National Forest	45.3		1981(21)
			Siuslaw National Forest	13.3		1982(6)

The second report provides a summary by:

- GACC
- State
- Agency
- Organization name (unit name)
- Average number of fire records per year
- Years with no fire records
- Years with fire records and counts

GAP Report Options

Display years with record counts % below average

Display record counts for all years with data

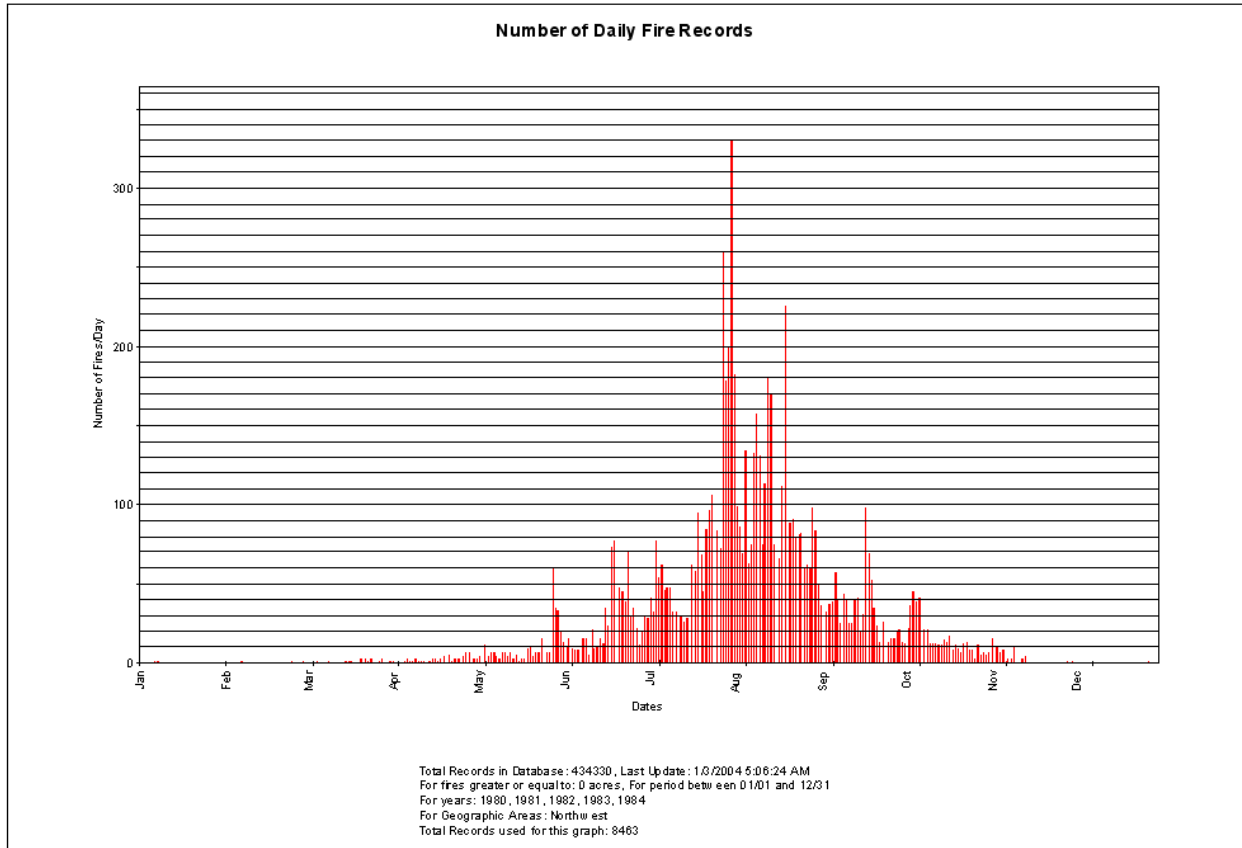
Fire Record Gap Analysis
 Date: 3/27/2004 1:01:32 PM

Total Records in Database: 434330
 Last Update: 1/3/2004 5:06:24 AM
 For period between 01/01 and 12/31
 For years: 1980, 1981, 1982, 1983, 1984
 For Geographic Areas: Northwest
 Total Records Used in this Report: 8463

Potential Gaps in Individual Fire Records						
GACC	State	Agency	Organization	Average Number Records per Year	Years With No Records	Years With Records and Counts
NW	OR	BIA	Siletz Field Office	0.0	1980, 1981, 1982, 1983, 1984	
			Northwest Regional Office	0.0	1980, 1981, 1982, 1983, 1984	
			Grande Ronde Tribe	0.0	1980, 1981, 1982, 1983, 1984	
			Umatilla Agency	1.3	1982, 1984	1980(1), 1981(2), 1983(1)
			Warm Springs Agency	57.2		1980(68), 1981(58), 1982(36), 1983(79), 1984(45)
		BLM	Burns District	65.0		1980(35), 1981(90), 1982(59), 1983(73), 1984(68)

Daily Fire Records Graph

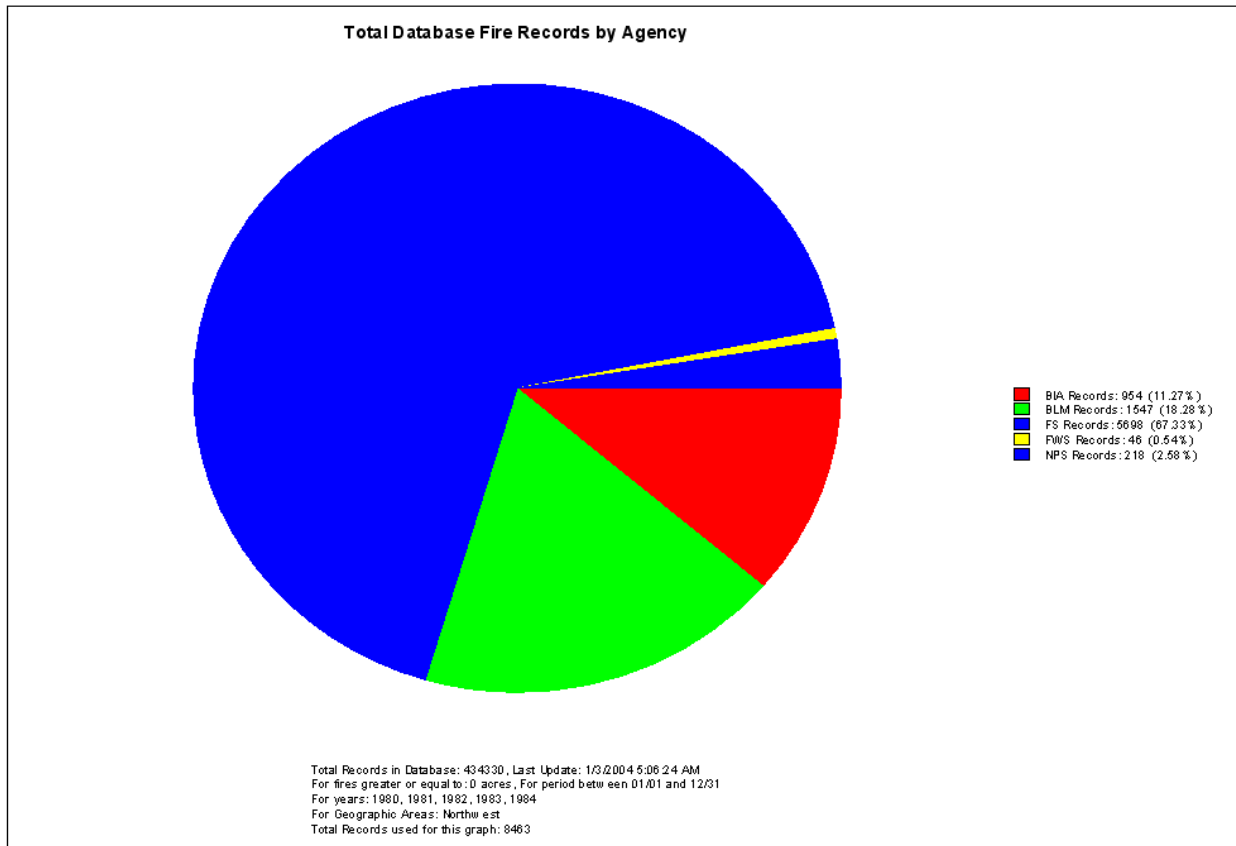
This graph displays the average number of fires per day for the years, GACCs and fire season selected. An example graph follows.



Agency Fire Record Distribution Graph

This graph displays a pie chart years, GACCs and fire season selected showing the proportion of fires by agency. An example graph follows on the next page.





The Utilities Menu

The Utilities Menu contains areas where the user can:

- Create and manage backup file of the fires database
- Compact the fires database
- Manage reference tables in the parameters database
- Manage years where fire occurrence is zero

Master Library Backup

The user can create a backup of the current fires database.

Backup Current Fires Database Button

Clicking this button will produce a dialog screen where the user can name the backup file for the current fires database. Clicking on the OK button will cause the current fires database to be copied to the backup file.

Note there is no utility in Cheetah2 to backup the parameters database. If this is desired, it is suggested the user use the standard file management copy and rename functions to do this.

Restore Backup Button

Clicking on this button will allow the user to replace the current fires database with a fire database in the Backup folder. To perform the operation, first click on a file to use in the restore process. Then click on the Restore Backup button. You will receive a warning dialog. Respond Yes or No to this warning dialog. By clicking on the Yes button, the selected fire database in the Backup folder will replace the current fire database.

Delete Backup Button

Clicking on this button will allow the user to delete fires database in the Backup folder. To perform the operation, first click on a file to use in the delete process. Then click on the Delete Backup button. You will receive a warning dialog. Respond Yes or No to this warning dialog. By clicking on the Yes button, the selected fire database in the Backup folder will be deleted. Note this is a non-reversible process. The deleted fire database will not exist in the Windows Recycle folder.

Compact Fires Database

The fires database file size increases with use. It is recommended that the user compact this database after frequent use. This may take a few minutes based on the size of the database. To do this operation, click on the Compact Database button and me patient. When the operation is complete, the size of the compacted fires database will be shown on the screen.

Reference Table Maintenance

The tables in the parameters database that can be managed are shown in the graphic at the right. The tables are contained in the Cheetah2LU.mdb file in the Cheetah2 folder.

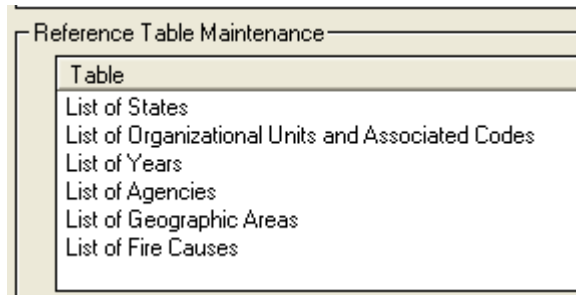
A screenshot of a dialog box titled "Reference Table Maintenance". The dialog box has a title bar and a list of tables. The list is enclosed in a rectangular frame with a header "Table".

Table
List of States
List of Organizational Units and Associated Codes
List of Years
List of Agencies
List of Geographic Areas
List of Fire Causes

States Table

The State table contains the state name and state code. This table should not need to be edited.

Organizational Units and Associated Codes (Units Table)

The Units table contains the following fields:

- Unit Name
- Unit ID
- ICS ID
- GACC ID
- State ID
- Agency ID

Cheetah2 uses this table to assign a GACC, state and agency to each fire record imported to the fires database. As organizational changes occur, there will be a periodic need to update this table.

A unique situation currently exists for the BLM in some states where reorganization has occurred but the corporate fire occurrence database has not been updated to reflect these changes. The table below provides information on the BLM units that are included in the unit defined in the fires database (Cheetah Unit).

State	Unit ID	Cheetah Unit	BLM Units (1980-2002)
CA	CANOD	NorCal Region	Alrurus, Eagle Lake and Surprise Resource Areas; Ukiah District (Ukiah, Redding and Arcata Resource Areas)
CO	COMRD	Western Slope Center - Montrose	Western Slope Center – Montrose and San Juan Field Office
ID	IDBOD	Boise District	Birds of Prey NCA, Four Rivers Field Office, Jarbridge Field Office and Owyhee Field Office
ID	IDSID	Southern Idaho District	Burley and Shoshone District; Burley and Shoshone Field Office, and Craters of the Moon NM
ID	IDSAD	Salmon District	Salmon District, Salmon Field Office and Challis Field Office
ID	IDCOD	Coeur d’ Alene District	Coeur d’ Alene District, Coeur d’ Alene Field Office and Cottonwood Field Office
ID	IDIFD	Idaho Falls District	Idaho Falls District, Idaho Falls Field Office and Pocatello Field Office
MT	MTBUD	Butte District	Butte District, Butte Field Office, Dillon Field Office and Missoula Field Office
MT	MTMCD	Miles City District	Miles City District, Miles City Field Office, Billings Field Office, and South Dakota Field Office
MT	MTLED	Lewistown District	Lewistown District, Lewistown Field and Malta Field Office
MT	MTNDO	North Dakota Field Office	Dickenson District and North Dakota Field Office
NM	NMABD	Albuquerque District	Albuquerque District, Albuquerque Field Office and Taos Field Office
NM	NMROD	Roswell District	Roswell District, Roswell Field Office and Carlsbad Field Office
NM	NMLCD	Las Cruces District	Las Cruces District, Las Cruces District and Socorro Field Office
WY	WYCAD	Casper District	Casper District, Casper Field Office, Buffalo Field Office and Newcastle Field Office
WY	WYWOD	Worland District	Worland District, Worland Field Office and Cody Field Office
WY	WY	Rock Springs District	Rock Springs District, Rock Springs Field Office, Pinedale Field Office and Kremmerer Field Office
WY	WY	Rawlins District	Rawlins District, Rawlins Field Office and Lander Field Office

Years Table

The Years Table provides a correlation between the four-digit year ID and the two digit year ID. This table will need to be updated as new years of data are added to the fires database.

Agencies Table

The Agency's table contains the following fields:

- Agency name
- Agency ID
- Fields for the default proportion of fires by fuel category

This table should not need to be updated.

Geographic Areas Table

The GACC,s table contains the following fields:

- GACC name
- GACC ID
- Default episode parameters

This table should not need to be updated.

Fire Causes Table

The Fire Causes table contains the following fields:

- Fire cause code
- Fire cause name

This table should not need to be updated.

Manage Years With Zero Fire Occurrence

Select the button titled Manage Absent Unit Records. For an organizational unit, the fire occurrence records from the agency fire occurrence database might show no fire records for a year. Two situations might cause this situation.

- Situation 1 - There were zero fires that year.
- Situation 2 - There were fires that year but the fire records have not been posted to the corporate agencies fire occurrence file.

A graphic similar to the one at the right is shown when a unit is selected. For the example shown, there were no fire records in the unit's fire occurrence file for 1981, 1982, 1985, 1988 and 1989. As shown, the Analyzer program would assume Situation 2 for these years; ie. Missing fire records. Instead of 23 years of fire occurrence data, this unit would only have 18 years as shown in black.

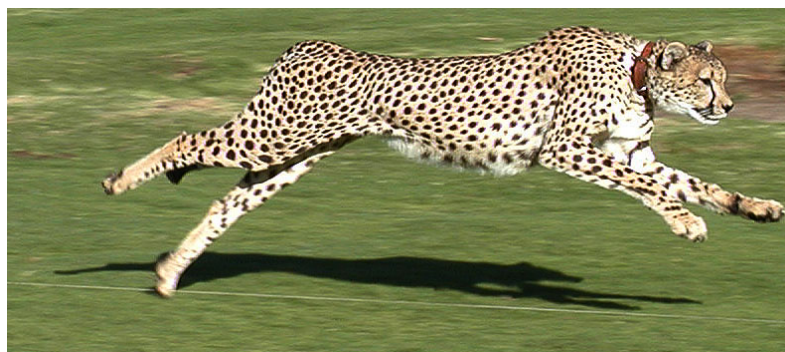
Since fire occurrence values in the Cheetah 2 Analyzer program are annualized, fire occurrence data must exist for a unit to be included in analysis using a defined set of years or range of years. In the example at the right, the unit's fire occurrence would be included if the years selected were 1994 – 2002. If any of the years without fire records were included in the years of the analysis such as 1980 – 1987, the unit's fire occurrence data would not be included in the analysis.

Personnel near the local level will need to determine if any of the years with no fire records fit into Situation 1.

Include Year	Records
<input checked="" type="checkbox"/> 1980	1
<input type="checkbox"/> 1981	None
<input type="checkbox"/> 1982	None
<input checked="" type="checkbox"/> 1983	4
<input checked="" type="checkbox"/> 1984	6
<input type="checkbox"/> 1985	None
<input checked="" type="checkbox"/> 1986	3
<input checked="" type="checkbox"/> 1987	2
<input type="checkbox"/> 1988	None
<input type="checkbox"/> 1989	None
<input checked="" type="checkbox"/> 1990	32
<input checked="" type="checkbox"/> 1991	40
<input checked="" type="checkbox"/> 1992	3
<input checked="" type="checkbox"/> 1993	7
<input checked="" type="checkbox"/> 1994	2
<input checked="" type="checkbox"/> 1995	6
<input checked="" type="checkbox"/> 1996	5
<input checked="" type="checkbox"/> 1997	3
<input checked="" type="checkbox"/> 1998	2
<input checked="" type="checkbox"/> 1999	1
<input checked="" type="checkbox"/> 2000	2
<input checked="" type="checkbox"/> 2001	2
<input checked="" type="checkbox"/> 2002	2

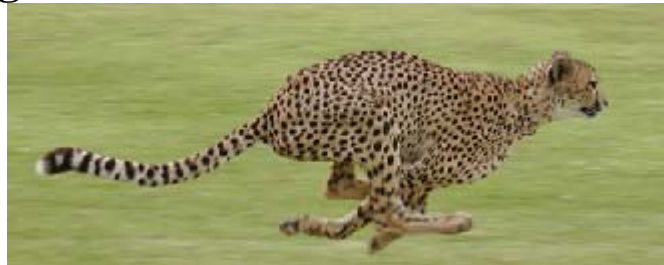
When fire records are loaded into the fires database, the user has the opportunity while the fires are in Staging to identify the years with no fires. In the example, the user can select the years in Situation 1 by checking the box in the Include Year column. For the example, the years 1981 and 1982 have been designated as years where the fire occurrence was zero. In the Cheetah 2 Analyzer program, it will be assumed that fire occurrence during these two years was zero and the unit's data will be included in analysis as long as the range of years does not include a year with missing data.

Include Year	Records
<input checked="" type="checkbox"/> 1980	1
<input checked="" type="checkbox"/> 1981	0
<input checked="" type="checkbox"/> 1982	0
<input checked="" type="checkbox"/> 1983	4
<input checked="" type="checkbox"/> 1984	6
<input type="checkbox"/> 1985	None



The Cheetah 2 Analyzer Program

The purpose and function of the Cheetah 2 Analyzer program is to support examination of fire occurrence patterns and fire suppression resource requirements at the National and Geographic Area level. Questions are frequently asked on the expected fire suppression resource needs by the National and Geographic Area decision-makers and managers have the need to assess fire occurrence patterns to predict future fire suppression resource requirements.



To analyze fire occurrence events, two terms are defined: Epi-Day and Episode. A description of each follows:

Definition of Epi-Day

In Cheetah, the term Epi-Day is used. Three criteria are defined to facilitate the definition of an Epi-Day. These criteria are:

- Criteria 1: The Minimum Number of Fires that Occurred in a Day
- Criteria 2: The Minimum Number of Fires that Occurred Over a 3 Day Period
- Criteria 3: The Previous Day Meets One of the Two Criteria Define Above

The first criterion is based on the number of fires that occurred on a given day. If fire occurrence on a day is greater than the number of fires defined in Criteria 1, then the day is classified as an Epi-Day. Frequently, fire occurrence may remain high for period of days. If a day is contained within a series of days with total fire occurrence for the series of days being greater than that defined in Criteria 2, then the day is classified as an Epi-Day. Particularly when lightning storms occur, fires are not discovered until a day following a storm. To account for this situation, Criteria 3 is defined.

Criterion 3 classifies a day as an Epi-Day if it follows a day that qualifies as an Epi-Day based on Criteria 1 or 2.

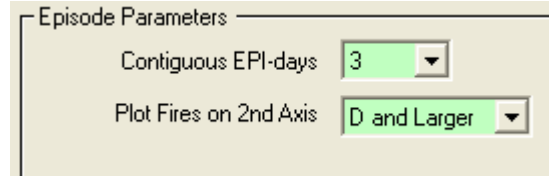
The minimum number of fires per day for Criteria 1 is defined in this section. The minimum number of fires over a specified number of days is also defined here. The default time period for Criteria 2 is 3 days. The default number of fires per day for each Geographic Area is shown in Table 1.

Table 1

GACC	Min. Fires per Day for Criteria 1	Min. Fires over 3 Days for Criteria 2
Alaska	10	30
Eastern	14	42
Eastern Great Basin	15	45
Northern California	20	60
Northern Rockies	25	75
Northwest	50	150
Rocky Mountain	20	50
Southern	15	45
Southern California	20	60
Southwest	30	90
Western Great	15	45

Definition of Episode

In Cheetah 2, the term Fire Occurrence Episode (Episode) is used to define a contiguous series of Epi-Days. The user can define an Episode as a series of 3, 5 or 7 contiguous Epi-Days using the pull-down in this section.



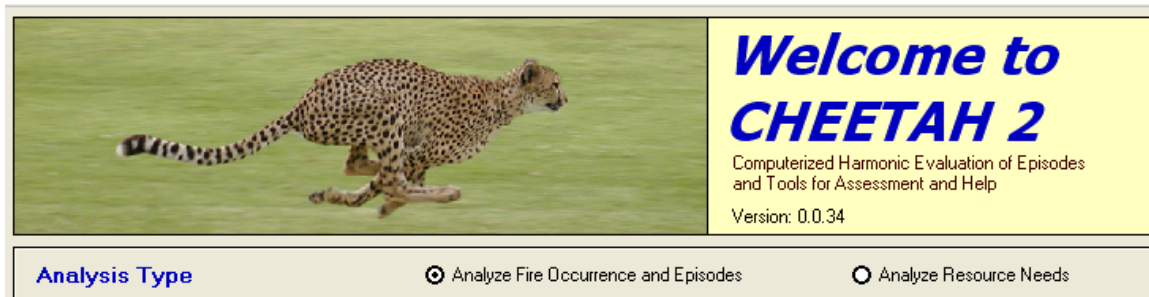
The ability to show correlations, if they exist, between daily fire occurrence and large fire occurrence is provided by Cheetah 2. Large fire occurrence will be defined as the number of fires per day that are equal to or large than a defined fire size class; ie. size class D and larger. The size class break for defining large fires is defined using the pull-down labeled Plot Fires on Second Axis.

Startup Menu

Analysis is performed to either:

- Analyze Fire Occurrence and Episodes
- Analyze Resource Needs

The initial Cheetah screen provides the opportunity to select which type of analysis is desired.

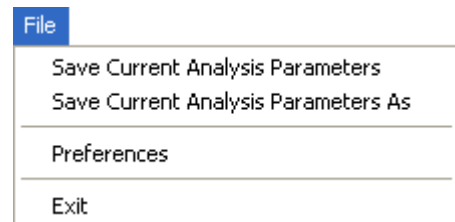


Program Control

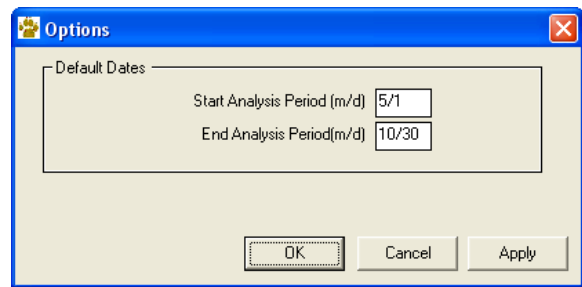
Program control is achieved by the use of menu buttons that appear in the upper left of the startup screen in addition to File, Database Maintenance and Help menus on the program's toolbar.

File Menu

The File menu is shown at the right. Analysis Parameter Set can be saved here as well as using buttons on the Analysis Setup screen.

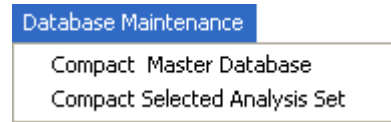


The Preferences menu is used to set the default dates for the analysis period.



Database Maintenance Menu

The Fires and Analysis Set database’s file size increases with use. It is recommended that the user compact the databases after frequent use. These menu items can be used to compact the fires database and Analysis Set databases.



Help Menu

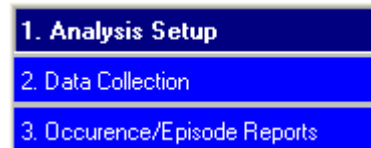
Click on this menu enables the display of the online Help system.

General Program Flow via Steps

Analysis is done in a sequential pattern defined by steps. For each type of analysis, the steps are as follows:

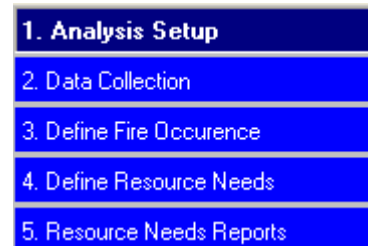
Analyzing Fire Occurrence and Episodes

- Step 1: Analysis Setup
- Step 2: Collect Fire Occurrence Records
- Step 3: Fire Occurrence and Episode Analysis and Reports



Analyzing Resource Needs

- Step 1: Analysis Setup
- Step 2: Collect Fire Occurrence Records
- Step 3: Define Fire Occurrence
- Step 4: Define Resource Needs
- Step 5: Resource Needs Reports



Details on each step follow.

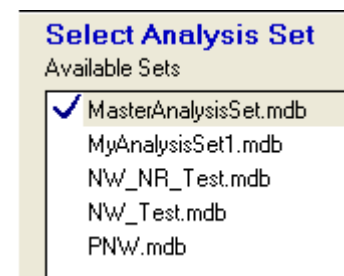
Analysis Setup

Analysis setup is required for either program option. Create or select an Analysis Set.

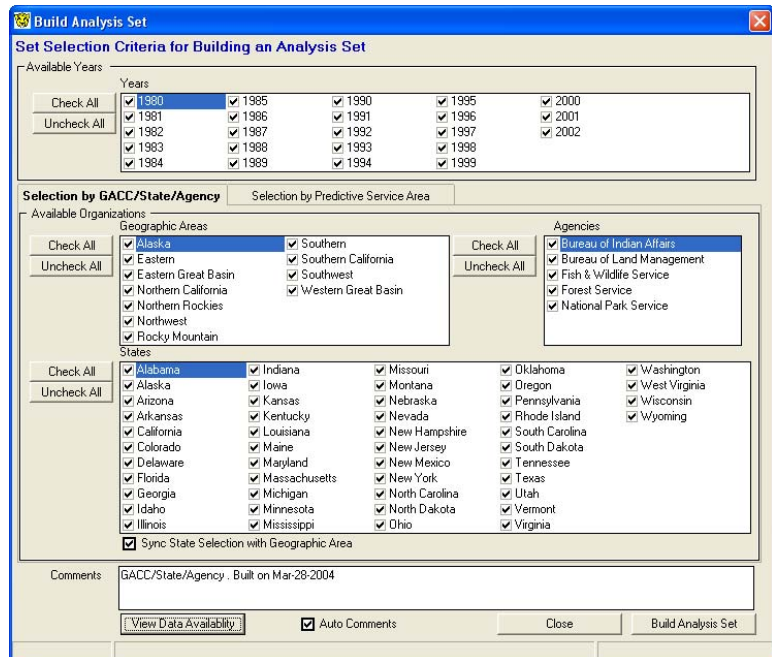


Analysis Sets

The fires database contains one record for each fire. For Cheetah 2 Analyzer uses a working database with one record per day by GACC, by State and by Agency. These working databases are called Analysis Sets. An Analysis Set is built based on a unique selection of years, GACCs, agencies and States. A unique type of Analysis Set is a Predictive Services Area (PSA), which contains a number of organizational units within a GACC.

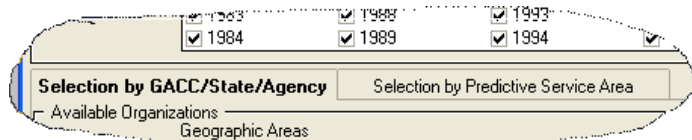


To build an Analysis Set, press the Build Analysis Set button. Note that if the fires database is large, it may take a few moments for the Build Analysis Set screen to appear. The screen at the right shows fires database loaded with fire occurrence records for all GACCs in the United States.



Two types of Analysis Sets can be built. These two types are:

- Selection by GACC/State/Agency
- Selection by Predictive Service Area



Clicking on the appropriate tab makes selection of the type.

Selection by GACC/State/Agency

Select the year(s), GACC(s) and Agency(s) to be included in the Analysis Set. Note that buttons are available to Check All and Uncheck All items in a group. Within a GACC, individual states can be selected also to further refine an Analysis Set.



Hot Tip

Note the check box titled Sync State Selection with Geographic Area.

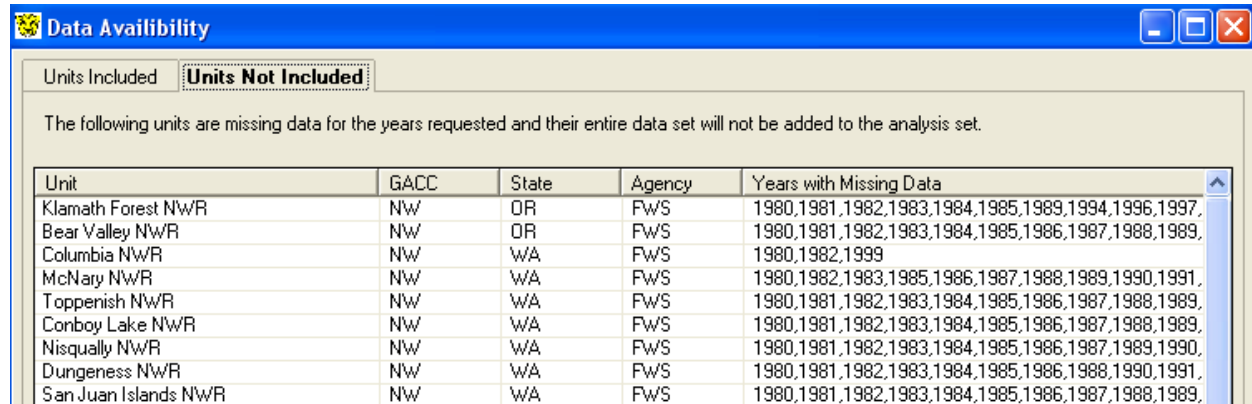
Sync State Selection with Geographic Area

To perform correctly, all States that have an organizational unit in a GACC must be selected.

It is recommended this box remain checked.

View Data Availability Button

This button allows for generation of a screen showing the Units Included and Units Not Included in the Analysis Set. To be included in the Analysis Set, a unit must have fire occurrence data including years with 0 fires for every year selected. The screen below shows an example of some units that were not included in an Analysis Set with years 1980 – 2002.



The screenshot shows a window titled "Data Availability" with two tabs: "Units Included" and "Units Not Included". The "Units Not Included" tab is active. Below the tabs, a message states: "The following units are missing data for the years requested and their entire data set will not be added to the analysis set." Below this message is a table with the following columns: Unit, GACC, State, Agency, and Years with Missing Data. The table lists ten units with their corresponding GACC, State, Agency, and the years for which data is missing.

Unit	GACC	State	Agency	Years with Missing Data
Klamath Forest NWR	NW	OR	FWS	1980,1981,1982,1983,1984,1985,1989,1994,1996,1997,
Bear Valley NWR	NW	OR	FWS	1980,1981,1982,1983,1984,1985,1986,1987,1988,1989,
Columbia NWR	NW	WA	FWS	1980,1982,1999
McNary NWR	NW	WA	FWS	1980,1982,1983,1985,1986,1987,1988,1989,1990,1991,
Toppenish NWR	NW	WA	FWS	1980,1981,1982,1983,1984,1985,1986,1987,1988,1989,
Conboy Lake NWR	NW	WA	FWS	1980,1981,1982,1983,1984,1985,1986,1987,1988,1989,
Nisqually NWR	NW	WA	FWS	1980,1981,1982,1983,1984,1985,1986,1987,1989,1990,
Dungeness NWR	NW	WA	FWS	1980,1981,1982,1983,1984,1985,1986,1988,1990,1991,
San Juan Islands NWR	NW	WA	FWS	1980,1981,1982,1983,1984,1985,1986,1987,1988,1989,

Unselect Years to Match Missing Year Button

For a unit's fire occurrence data to be included in an Analysis Set, there must be a complete fire data set for that unit for each of the years selected. This button allows the user to have the program change the years selected to coincide with the years of fire occurrence data for all of the units selected. Clicking on this button will change the years selected to be those years where fire occurrence data exists of all organizational units selected. Note that it is possible that no years will be selected. This can happen when there is no year when all of the units have fire occurrence data.

Build Analysis Set Button

To create the Analysis Set, press the Build Analysis Set button. Please note that if the fires database is large and many selections are made, it will take several minutes for the creation of the Analysis Set.

Selection by Predictive Service Area

Select the year(s) and the GACC PSA. Note that buttons are available to Check All and Uncheck All years.

Create PSA Button

To Create a PSA, click on the Create PSA Button. The process of creating a PSA will be defined using steps as follows.

Step 1: Name the PSA

A dialog box will be displayed to allow for the naming of the PSA Analysis Set. It is suggested that the user include the letters PSA the file name to assist the user in identifying Analysis Sets that as PSAs. After naming the PSA analysis, click OK.

Step 2: Select Organizational Units

Organizational units within the GACC will be displayed. An example is shown below.

PSA Member	Unit Name	GACC	State	Agency
<input type="checkbox"/>	Ankeny NWR	NW	OR	FWS
<input type="checkbox"/>	Baskett Slough NWR	NW	OR	FWS
<input type="checkbox"/>	Bear Valley NWR	NW	OR	FWS
<input type="checkbox"/>	Burns District	NW	OR	BLM
<input type="checkbox"/>	Cold Springs NWR	NW	OR	FWS
<input type="checkbox"/>	Columbia Cascades Cluster	NW	WA	NPS
<input type="checkbox"/>	Columbia NWR	NW	WA	FWS
<input type="checkbox"/>	Colville Agency	NW	WA	BIA
<input type="checkbox"/>	Colville National Forest	NW	WA	BLM

To select an organizational unit to be a member of the PSA, click in the check box to in the PSA Member column. For now, accept the default Epi-day parameters.

Step 3: Build and Save the PSA

To build the PSA, click on the Save and Close Button.

Step 4: Determine Epi-Day Parameters

Next, the Epi-Day Parameters need to be defined for the PSA.

In Cheetah 2, the term Epi-Day is used. Three criteria are defined to facilitate the definition of an Epi-Day. These criteria are:

- Criteria 1: The Minimum Number of Fires that Occurred in a Day
- Criteria 2: The Minimum Number of Fires that Occurred Over a 3 Day Period
- Criteria 3: The Previous Day Meets One of the Two Criteria Define Above

The first criterion is based on the number of fires that occurred on a day. If fire occurrence on a day is greater than the number of fires defined in Criteria 1, then the day is classified as an Epi-Day. The Epi-Day Parameter defaults used in the Cheetah 2 program were developed to represent the entire GACC. Users establishing PSA Analysis Sets will need to evaluate these defaults and determine appropriate values to be used for the PSA selected. The following steps will guide you through this process

Epi-Day Parameters
Minimum of Fires per Day
Minimum of Fires in 3 days

Step 4a: Select the PSA to Be the Active Analysis Set

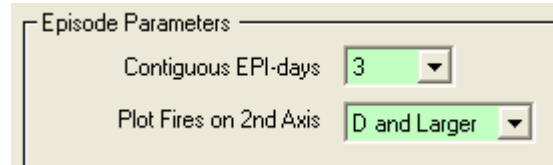
To define the Minimum Number of Fires that Occurred in a Day for a day to be an Epi-Day, Select the PSA as the Analysis Set on the Analysis Setup screen.

Step 4b: Perform Data Collection

Click on the Data Collection menu. Select all PSA data by clicking on the Collect button. The program will display the Occurrence/Episodes Reports menu.

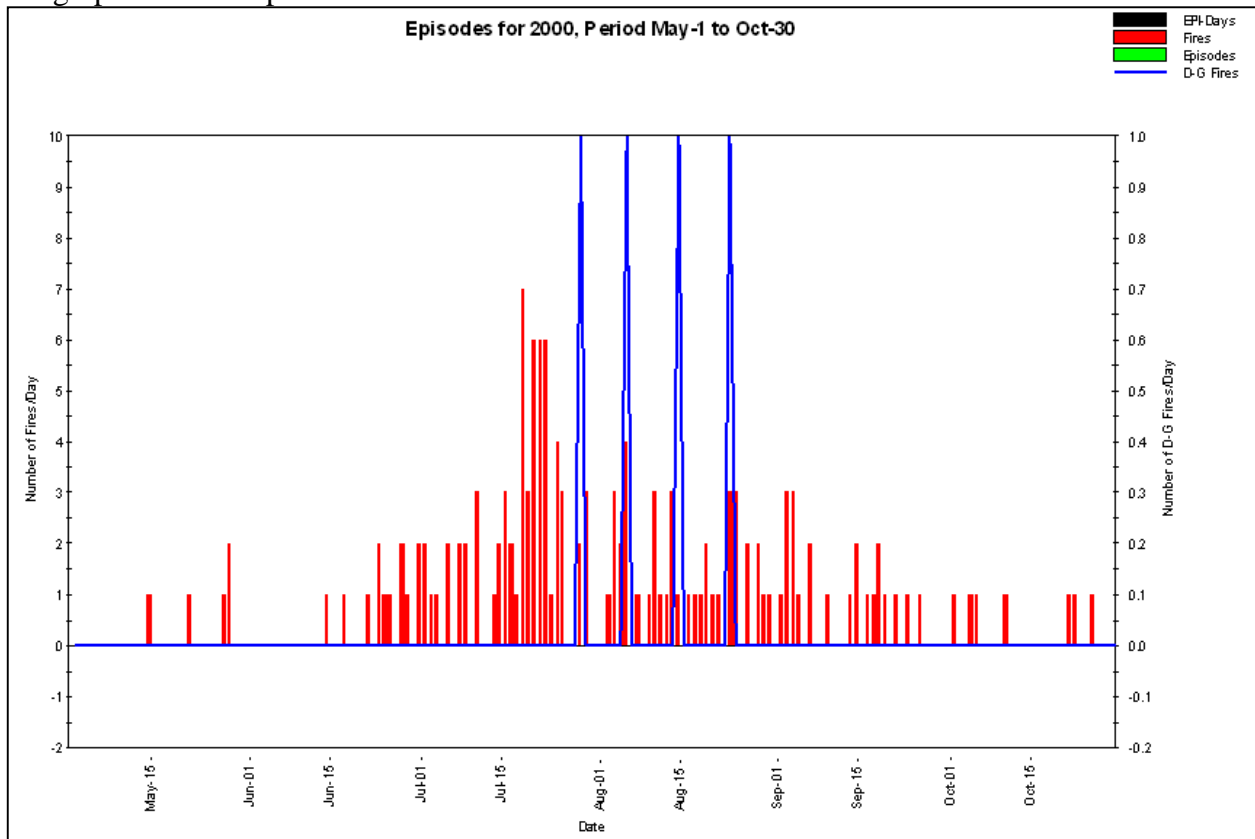
Step 4c: Define Large Fires

On the Occurrence/Episodes Reports menu, select the minimum fire size class for the definition of a large fire for that PSA. The default is size class D and larger.



Step 3d: Review the Relationship Between Daily Fire Occurrence and Multiple Fire Occurrence

Select the GRAPH-Fire Occurrences and Episodes and a year. Then Click Run to see the graph. An example follows below.



Observe the periods when multiple fire occurrences happen. When more than one fire occurs on a day, estimate the average of fires per day. In the example above, the number of daily fires on multiple fire days varies from 2 to 7 with a mean of about 3. This value is the Minimum Number of Fire per Day for a day to be an EpiDay.

Continue to do this for determination for a number of years to be comfortable with the determination of the Minimum Number of Fire per Day for a day to be defined as an Epi-day applies across a range of years.

The second criteria for a day to be an Epi-Day is:

- Criteria 2: The Minimum Number of Fires that Occurred Over a 3 Day Period

Epi-Day Parameters		
Minimum of	<input type="text" value="3"/>	Fires per Day
Minimum of	<input type="text" value="9"/>	Fires in 3 days

Define the Minimum Number of Fires over a 3-day period that are needed to qualify each of these 3 days as an Epi-Day. Cheetah 2 calculates for each day a 3-day running mean. If a day has its 3-day running mean greater than Minimum Number of Fires over a 3 day period, than that day is an Epi-Day. It is suggested that this number be approximately 3 times the Minimum Daily Number of Fire per Day.

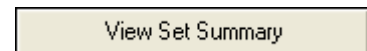
Step 4e: Enter the Epi-Day Parameters for the PSA

Click on the Analysis Setup Menu. Select the PSA and the click on the Build Analysis Set button. Select the Selection by Predictive Service Area tab. Select the PSA of interest and click on the Edit PSA button. In the upper right corner of the screen, enter the Epi-Day parameters and click on the Save and Close button. On the next screen, click on the Close button. The Epi-Day parameters are now saved within the parameters set for the PSA.

To proceed with analysis in Cheetah 2 Analyzer, an Analysis Set must be selected in Step 1.

View Set Summary Button

Once an Analysis Set is built, a summary of the fire occurrence in the analysis set can be reviewed. Three tabs are available:



- Summary of Available Records
- Yearly Record Total Graph
- Units Used in PSA

The last tab is only active if the Analysis Set is a PSA.

Summary of Available Records

On the next page is an example of what is displayed on this tab. Notice the fire occurrence is summarized by:

- Year
- GACC
- State
- Agency
- Fire Size Class

Summary of Available Records | Yearly Record Total Graph | Units Used in PSA

Analysis Set: C:\Cheetah2\Sets\California.mdb
 Parameters used to build this set:
 GACCs: NO, SO
 States: CA
 Agencies: BIA, BLM, FWS, FS, NPS
 Years: 1980, 1981, 1982, 1983, 1984, 1985, 1986, 1987, 1988, 1989, 1990, 1991, 1992, 1993, 1994, 1995, 1996, 1997, 1998, 1999, 2000, 2001, 2002

Fire Records by Year, GACC, State, Agency, and Size Class												
FireYear	GACC	State	Agency	A	B	C	D	E	F	G	Total	
1980	NO	CA	BIA	344	21	0	0	0	0	0	365	
1981	NO	CA	BIA	170	17	5	0	0	0	0	192	
1982	NO	CA	BIA	68	14	0	0	0	0	0	82	
1983	NO	CA	BIA	67	6	1	0	0	0	0	74	
1984	NO	CA	BIA	46	16	3	1	0	0	0	66	
1985	NO	CA	BIA	41	27	4	0	0	0	0	72	
1986	NO	CA	BIA	55	30	3	0	0	0	0	88	
1987	NO	CA	BIA	72	28	6	1	0	0	0	107	
1988	NO	CA	BIA	35	20	3	0	0	0	0	58	
1989	NO	CA	BIA	42	27	1	0	0	0	0	70	
1990	NO	CA	BIA	53	50	2	1	0	0	0	106	
1991	NO	CA	BIA	106	53	4	0	0	0	0	163	
1992	NO	CA	BIA	93	76	1	0	0	0	0	170	
1993	NO	CA	BIA	80	49	1	0	0	0	0	130	
1994	NO	CA	BIA	66	45	3	1	0	0	0	115	
1995	NO	CA	BIA	173	75	1	0	0	0	0	249	
1996	NO	CA	BIA	51	34	2	1	0	0	0	88	
1997	NO	CA	BIA	41	39	0	0	0	0	0	80	
1998	NO	CA	BIA	70	55	1	0	0	0	0	126	

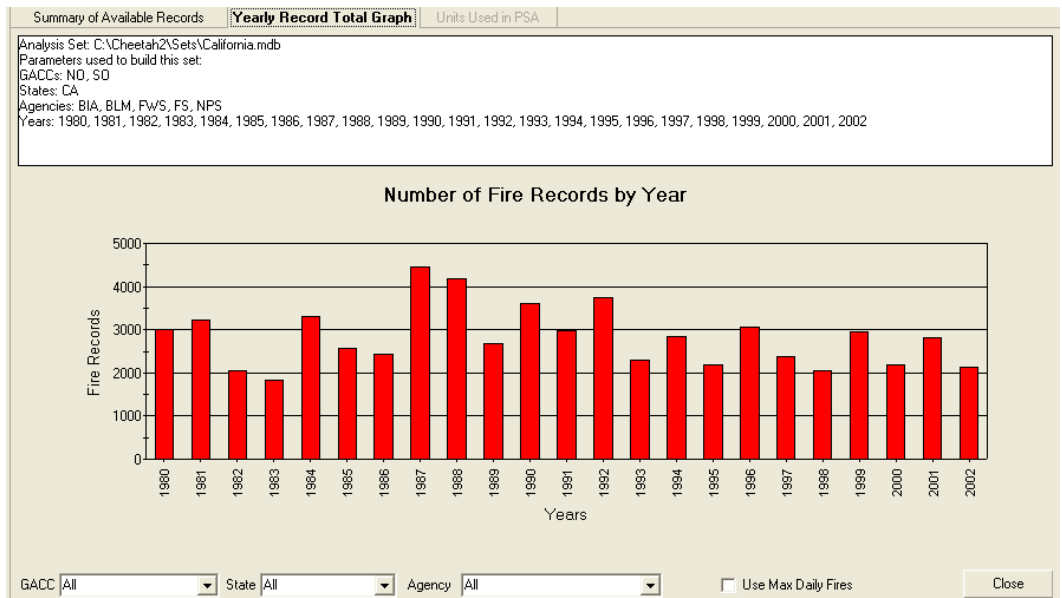
Close

Yearly Record Total Graph

Below is an example of what is displayed on this tab. Notice the fire occurrence is summarized by:

- Year
- GACC
- State
- Agency

The last three items can be specified by the pulldowns at the bottom of the screen.



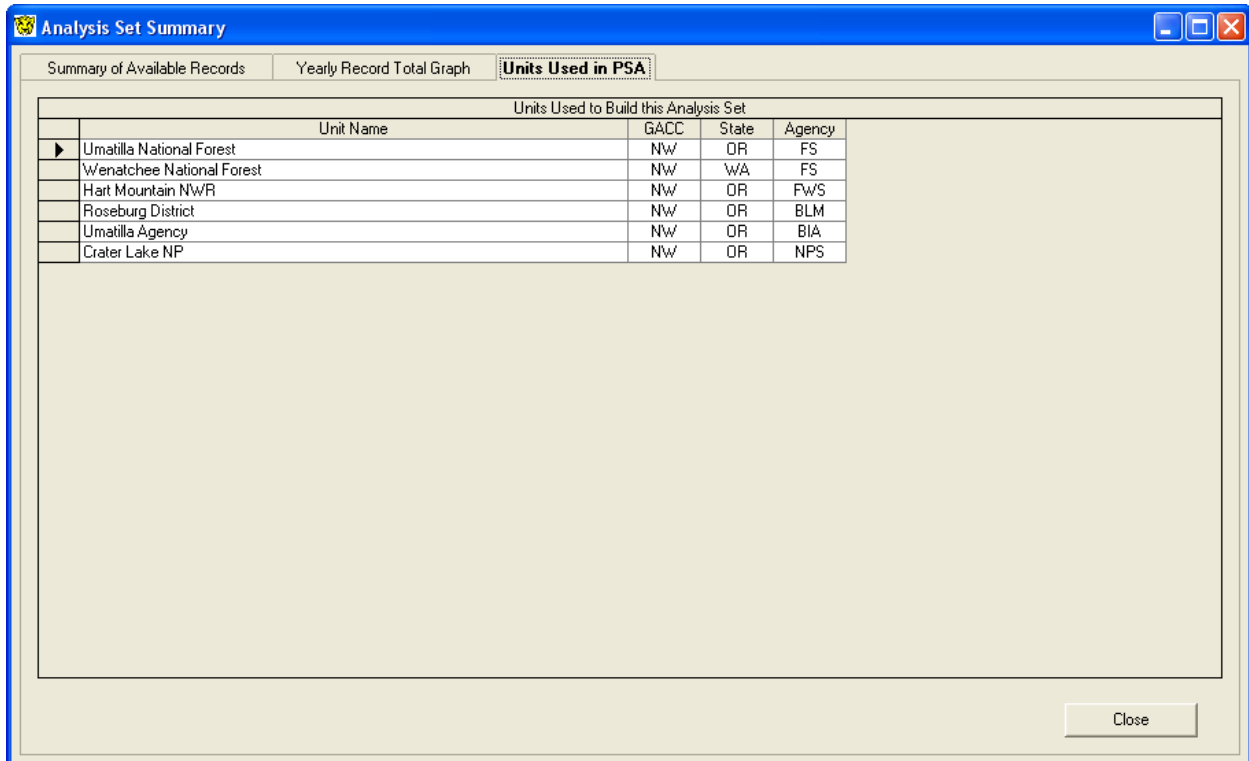
To compare graphs, it is often valuable to have the scale on the vertical axis remain constant. This can be done by checking the box to the left of the Use Max Daily Fires at the bottom of the screen.

Use Max Daily Fires

Units Used in PSA

Below is an example of what is displayed on this tab. Notice the included units are summarized by:

- Unit Name
- GACC
- State
- Agency



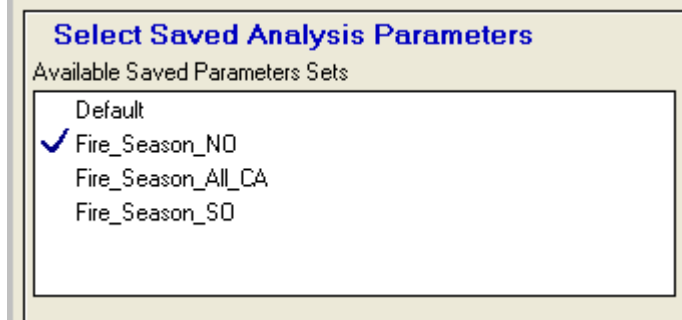
Units Used to Build this Analysis Set			
Unit Name	GACC	State	Agency
▶ Umatilla National Forest	NW	OR	FS
Wenatchee National Forest	NW	WA	FS
Hart Mountain NWR	NW	OR	FWS
Roseburg District	NW	OR	BLM
Umatilla Agency	NW	OR	BIA
Crater Lake NP	NW	OR	NPS



Analysis Parameters

An Analysis Parameters Set includes the following:

- Years Selected
- Start Analysis Date
- End Analysis Date
- GACCs Selected
- Agencies Selected
- States Selected
- Percent of Fires by Fuel Type
- Resource Use Coefficients



An Analysis Parameters Set is associated with an Analysis Set. Multiple Analysis Parameters Sets can be saved for use with an Analysis Set. In the example above, three additional Parameter Sets have been defined in California. The one that is active (has the check by it) has a defined fire season (start and stop dates) and includes only the NO GACC. The Parameter Set below that has the same fire season but has both the NO and SO GACC's.

To create a Parameter set, select the Analysis Set on the Analysis Setup screen. Go to the Data Collection and select the following (

- Years Selected
- Start Analysis Date
- End Analysis Date
- GACCs Selected
- Agencies Selected
- States Selected

See description on the following pages for the processes to select values for each.



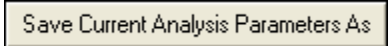
Hot Tip

The following two sets of values are used in the Analyze Resource Needs section of the program:

- Percent of Fires by Fuel Type
- Resource Use Coefficients

These items are also defined in a Parameters Set and the process to do so is described in section of this Users' Guide where the Analyze Resource Needs is described.

Go back to the Analysis Setup screen and click on the Save Current Analysis Parameters As button. Name the Parameter Set and optionally, you can provide a narrative description.



Analyzing Fire Occurrence and Episodes

After completing Step 1: Analysis Set selected by the user, this option allows for the display of fire occurrence by day during an Analysis Period. This display can be for a series of years in the fires database. A variety of graphs and reports are available. Overlaid on the graph is a line showing the daily occurrence of fires greater than a user-defined fire size class. Analysis of correlations between total fire occurrence and large fire occurrence can be done.

Step 1: Analysis Setup

On the Analysis Setup screen, select an Analysis Set.



Step 2: Data Collection

On the menu, select Data Collection. After clicking on the Data Collection menu, a screen similar to the one below will appear.



Step 2. Collect Fire Occurrence Records for Analysis

Years and Analysis Period Date Ranges

Years

<input checked="" type="checkbox"/> 1980	<input checked="" type="checkbox"/> 1987	<input checked="" type="checkbox"/> 1994	<input checked="" type="checkbox"/> 2001
<input checked="" type="checkbox"/> 1981	<input checked="" type="checkbox"/> 1988	<input checked="" type="checkbox"/> 1995	<input checked="" type="checkbox"/> 2002
<input checked="" type="checkbox"/> 1982	<input checked="" type="checkbox"/> 1989	<input checked="" type="checkbox"/> 1996	
<input checked="" type="checkbox"/> 1983	<input checked="" type="checkbox"/> 1990	<input checked="" type="checkbox"/> 1997	
<input checked="" type="checkbox"/> 1984	<input checked="" type="checkbox"/> 1991	<input checked="" type="checkbox"/> 1998	
<input checked="" type="checkbox"/> 1985	<input checked="" type="checkbox"/> 1992	<input checked="" type="checkbox"/> 1999	
<input checked="" type="checkbox"/> 1986	<input checked="" type="checkbox"/> 1993	<input checked="" type="checkbox"/> 2000	

Start Analysis Period (m/d)

End Analysis Period (m/d)

Organizations

Geographic Areas

<input checked="" type="checkbox"/> Northern California
<input checked="" type="checkbox"/> Southern California

Agencies

<input checked="" type="checkbox"/> Bureau of Indian Affairs
<input checked="" type="checkbox"/> Bureau of Land Management
<input checked="" type="checkbox"/> Fish & Wildlife Service
<input checked="" type="checkbox"/> Forest Service
<input checked="" type="checkbox"/> National Park Service

States

<input checked="" type="checkbox"/> California
--

The user needs to define the fire occurrence records to be used in the analysis by specifying:

- The Year(s) to be Included
- The Analysis Period Date Range
- The Geographic Area(s) to be Included
- The Agency(s) to be Included
- The State(s) to be Included

The Year(s) to be Included

The Cheetah 2 fire occurrence database contains fire records by fire size class (A, B, C, D, E, F and G) for each day. To select a year, click in the box to the left of the year. One can also double click on the year to select a year. To select all of the years, click on the Check All button. To de-select all years, click on the Uncheck All button.

Size Class	Acres
A	0 – 0.24
B	0.25 - 9.9
C	10 - 99
D	100 – 299
E	300 - 999
F	1000 - 4999
G	5000+

The Analysis Period Date Range (The Start and Stop Dates)

Normally, analysis is desired for a specific range of calendar dates within a year. The start date and the ending day in date/month format are entered in the boxes provided for each. The dates between the start and stop date including of the start and stop date is called the Analysis Period.

The Geographic Area(s) to be Included

The Cheetah program analysis set database contains fire report data for the 11 geographic areas: Alaska, Eastern, Eastern Great Basin, Northern California, Northern Rockies, Northwest, Rocky Mountain, Southern, Southern California, Southwest and Western Great Basin.

To select Geographic Area(s), click in the box to the left of the Geographic Area name. One can also double click on the Geographic Area name to select a Geographic Area. To select all of the Geographic Areas, click on the Check All button. To de-select all Geographic Areas, click on the Uncheck All button.

The Agencies to be Included

Fire occurrence data from the following agencies is included in the database: USDA-Forest Service, USDI-Bureau of Land Management, USDI-National Park Service, USDI-Bureau of Indian Affairs and USDI-Fish and Wildlife Service. If additional agencies are added such as a state protection agency, that agency will also show up here.

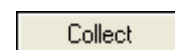
To include fire occurrence for an Agency, click in the box to the left of the Agency. One can also double click on the Agency Name to select an Agency. To select all of the Agencies, click on the Check All button. To de-select all Agencies, click on the Uncheck All button.

The States to be Included

Within the GACC(s) selected, the states will be shown in the State box. To restrict fire occurrence to selected states, click in the box to the left of each state to included and uncheck states that will not be included. One can also double click on the State Name to select a State. To select all of the States, click on the Check All button. To de-select all States, click on the Uncheck All button.

Collecting Fire Records

Once the Years, Dates, Organizations and Agencies are selected, click on the Collect Button to allow Cheetah to retrieve from the fire occurrence database the fire occurrence records that meet the defined criteria.



Step 3: Fire Occurrence and Episode Reports

Analysis is done via graphs and reports. There are four graphs and two reports available.

1. Analysis Setup

2. Data Collection

3. Occurrence/Episode Reports

Analysis of Fire Occurrence

To analyze fire occurrence, two graphs and one report are provided.

One graph is by year and the other is by cause. The report is for all years selected.

GRAPH – Fire Occurrence Only

The Fire Occurrence Graph shows the number of fires per day for the Analysis Period selected in Step 2. From the pulldown in the upper left part of the screen, select GRAPH – Fire Occurrence Only. Select the year to be graphed. The user needs to define the following information to produce a Fire Occurrence and Episode graph:

- Year
- Fire Occurrence Parameters

Year

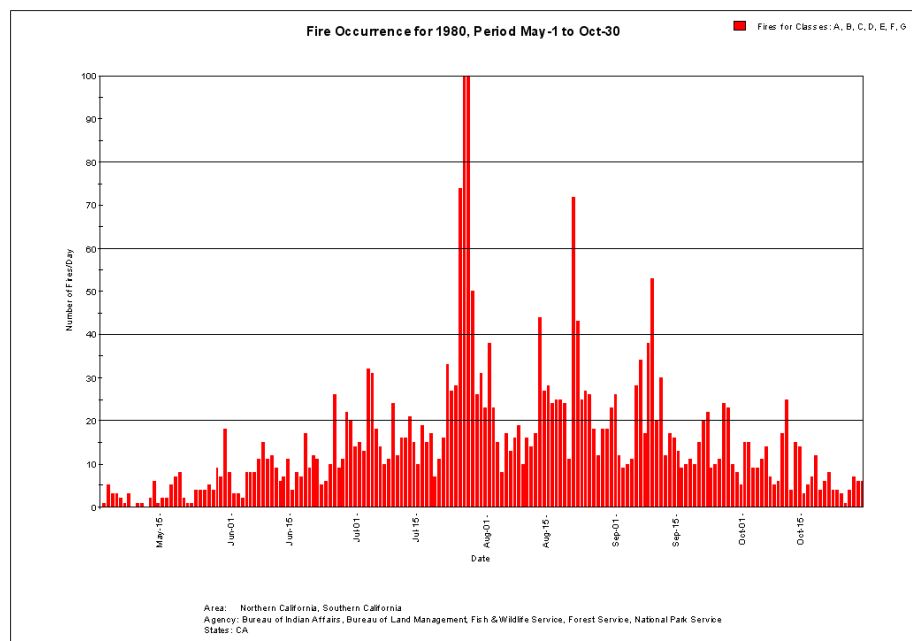
Select the year desired.

Fire Occurrence Parameters

The fire occurrence per day is graphed by fire size class. The size classes to be displayed are selected by clicking in the check boxes in the Fire Occurrence Parameters section of the screen. Checking the Plot Total Fires box will result in two bars being plotted per day; one for the total fires within the size classes selected and the second for the total fire occurrence on that day.

Create Graph

Click on the Run Button to see the graph. Each graph is displayed in a standalone window. Each graph can be printed. The user can close a Graph Window by clicking on the Close Button or by clicking on the X in the upper right corner. By clicking on the Close All Button, all of the open windows with graphs and reports will be closed. Graphs can be saved in rtf or pdf formats.



GRAPH – Fire Cause (Human and Natural)

The Fire Cause Graph shows the number of fires per day for the Analysis Period selected in Step 2 by human and natural causes. From the pulldown in the upper left part of the screen, select GRAPH – Fire Cause (Human and Natural). Select the year to be graphed. The user needs to define the following information to produce a graph:

- Year
- Fire Occurrence Parameters

Year

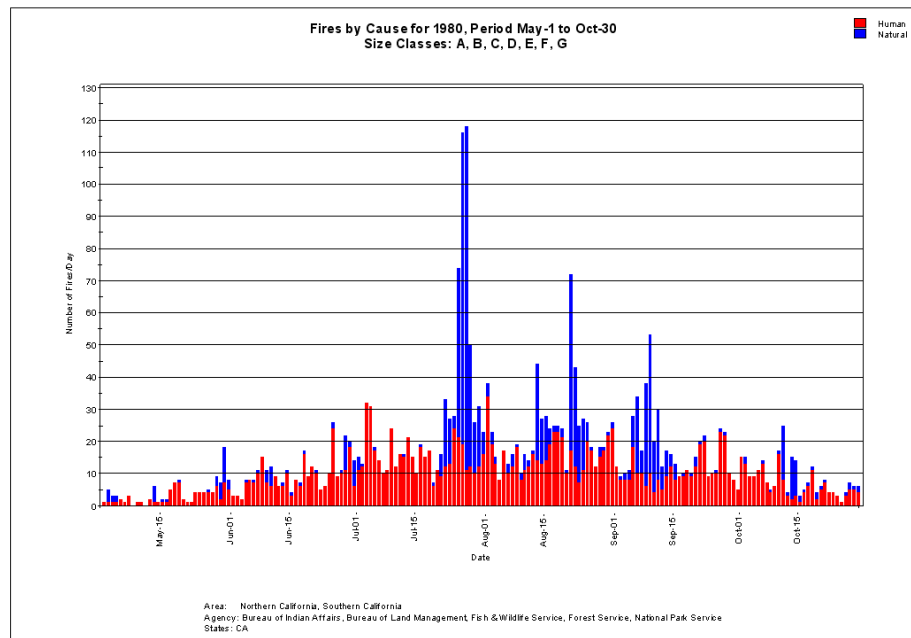
Select the year desired.

Fire Occurrence Parameters

The fire occurrence per day is graphed by fire size class. The size classes to be displayed are selected by clicking in the check boxes in the Fire Occurrence Parameters section of the screen. Checking the Plot Total Fires box will result in two bars being plotted per day; one for the total fires within the size classes selected and the second for the total fire occurrence on that day.

Create Graph

Click on the Run Button to see the graph. Each graph is displayed in a standalone window. Each graph can be printed. The user can close a Graph Window by clicking on the Close Button or by clicking on the X in the upper right corner. By clicking on the Close All Button, all of the open windows with graphs and reports will be closed. Graphs can be saved in rtf or pdf formats.



REPORT – Fire Occurrence

From the pulldown in the upper left part of the screen, select REPORT – Fire Occurrence. The Fire Occurrence Report shows the number of fires by size class by year for the Analysis Period and Years selected in Step 2. The maximum, minimum and average daily number of fires by size class for the analysis period is shown by year. If multiple years are selected, the report has a summary at the bottom.

Create Report

Click on the Run Button to see the report. Each report can be printed and saved in rtf file format. Each report is displayed in a standalone window. The user can close a Report Window by clicking on the Close Button or by clicking on the X in the upper right corner. By clicking on the Close All Button, all of the open windows with graphs and reports will be closed. An example fire occurrence report follows:

Period: 5/1 to 10/30
GACCs: Northern California, Southern California
States: CA
Agencies: Bureau of Indian Affairs, Bureau of Land Management, Fish & Wildlife Service, Forest Service, National Park Service

Year	Fire Size Classes							Total
	A	B	C	D	E	F	G	
1986								
Period Total	1541.0	500.0	106.0	32.0	18.0	8.0	1.0	2206.0
Daily Maximum	47.0	22.0	4.0	2.0	3.0	2.0	1.0	67.0
Daily Minimum	.0	.0	.0	.0	.0	.0	.0	.0
Daily Average	8.4	2.7	.6	.2	.1	.0	.0	12.1
1987								
Period Total	2733.0	1074.0	169.0	49.0	46.0	37.0	38.0	4146.0
Daily Maximum	145.0	123.0	20.0	5.0	11.0	11.0	23.0	335.0
Daily Minimum	.0	.0	.0	.0	.0	.0	.0	1.0
Daily Average	14.9	5.9	.9	.3	.3	.2	.2	22.7
1988								
Period Total	2720.0	864.0	130.0	51.0	35.0	25.0	7.0	3832.0
Daily Maximum	125.0	29.0	5.0	3.0	3.0	4.0	2.0	156.0
Daily Minimum	.0	.0	.0	.0	.0	.0	.0	.0
Daily Average	14.9	4.7	.7	.3	.2	.1	.0	20.9
1989								
Period Total	1807.0	474.0	74.0	26.0	16.0	16.0	8.0	2421.0
Daily Maximum	285.0	22.0	3.0	4.0	2.0	3.0	4.0	308.0
Daily Minimum	.0	.0	.0	.0	.0	.0	.0	.0
Daily Average	9.9	2.6	.4	.1	.1	.1	.0	13.2
1990								
Period Total	2399.0	685.0	77.0	24.0	17.0	16.0	9.0	3227.0
Daily Maximum	143.0	47.0	6.0	2.0	3.0	2.0	6.0	199.0
Daily Minimum	.0	.0	.0	.0	.0	.0	.0	.0
Daily Average	13.1	3.7	.4	.1	.1	.1	.0	17.6
Averages for All Years								
Period Total	2240.0	719.4	111.2	36.4	26.4	20.4	12.6	3166.4
Daily Max.	149.0	48.6	7.6	3.2	4.4	4.4	7.2	213.0
Daily Min.	.0	.0	.0	.0	.0	.0	.0	.2
Daily Avg.	12.2	3.9	.6	.2	.1	.1	.1	17.3

Analysis of Fire Occurrence and Episodes

Earlier in this document, it was noted that three criteria are used to define an Epi-Day. These criteria are:

- Criteria 1: The Minimum Number of Fires that Occurred in a Day
- Criteria 2: The Minimum Number of Fires that Occurred Over a 3 Day Period
- Criteria 3: The Previous Day Meets One of the Two Criteria Define Above

The default number of fires per day for each Geographic Area is shown in Table 1. These default values were established using the process described in the Analysis Setup section.

Table 1

GACC	Min. Fires per Day for Criteria 1	Min. Fires over 3 Days for Criteria 2
Alaska	10	30
Eastern	14	42
Eastern Great Basin	15	45
Northern California	20	60
Northern Rockies	25	75
Northwest	50	150
Rocky Mountain	20	50
Southern	15	45
Southern California	20	60
Southwest	30	90
Western Great	15	45

When an Analysis Area is created, there is a selection of the following in addition to the start and stop dates and years:

- GACC(s)
- State(s)
- Agency(s)

Based on the selection of GACC(s), State(s) and Agency(s), the Minimum Number of Fires that Occurred in a Day and the Minimum Number of Fires that Occurred Over a 3 Day Period, the default values are prorated for the Analysis Area from the fire occurrence within the GACC(s), State(s) and Agency(s) selected.

For Example, assume an Analysis Set defined below. Both Northern California and Southern California GACCs, all Agencies and the state of California are selected.

Step 2. Collect Fire Occurrence Records for Analysis

Years and Analysis Period Date Ranges

Years

Check All Uncheck All

<input checked="" type="checkbox"/> 1980	<input checked="" type="checkbox"/> 1987	<input checked="" type="checkbox"/> 1994	<input checked="" type="checkbox"/> 2001
<input checked="" type="checkbox"/> 1981	<input checked="" type="checkbox"/> 1988	<input checked="" type="checkbox"/> 1995	<input checked="" type="checkbox"/> 2002
<input checked="" type="checkbox"/> 1982	<input checked="" type="checkbox"/> 1989	<input checked="" type="checkbox"/> 1996	
<input checked="" type="checkbox"/> 1983	<input checked="" type="checkbox"/> 1990	<input checked="" type="checkbox"/> 1997	
<input checked="" type="checkbox"/> 1984	<input checked="" type="checkbox"/> 1991	<input checked="" type="checkbox"/> 1998	
<input checked="" type="checkbox"/> 1985	<input checked="" type="checkbox"/> 1992	<input checked="" type="checkbox"/> 1999	
<input checked="" type="checkbox"/> 1986	<input checked="" type="checkbox"/> 1993	<input checked="" type="checkbox"/> 2000	

Start Analysis Period (m/d) 1/1

End Analysis Period (m/d) 12/31

Organizations

Geographic Areas

Check All Uncheck All

- Northern California
- Southern California

Agencies

Check All Uncheck All

- Bureau of Indian Affairs
- Bureau of Land Management
- Fish & Wildlife Service
- Forest Service
- National Park Service

States

Check All Uncheck All

- California

The Epi-Day parameters are shown at the right. The minimum Number of Fires per Day for the NO GACC is 20 and the number for the SO GACC is 20 (Table 1), hence the Minimum Number of Fires per Day for the Analysis Area is 40. The Minimum Number of Fires in 3 Days is 60 for each GACC so this value for the Analysis Area is a Minimum of 120 Fires in 3 Days. The default Parameter Set will always use the assigned Epi-Day and Episode parameters but the user can define different Epi-Day and Episode parameters in a custom Parameter Set.

Epi-Day Parameters

Minimum of Fires per Day

Minimum of Fires in Days

Note: These numbers were automatically populated from default GACC values.

To analyze fire occurrence and fire occurrence episodes, one report and two graphs are provided. The graphs are by year whereas the report is for all years selected.

GRAPH – Fire Occurrence and Episodes

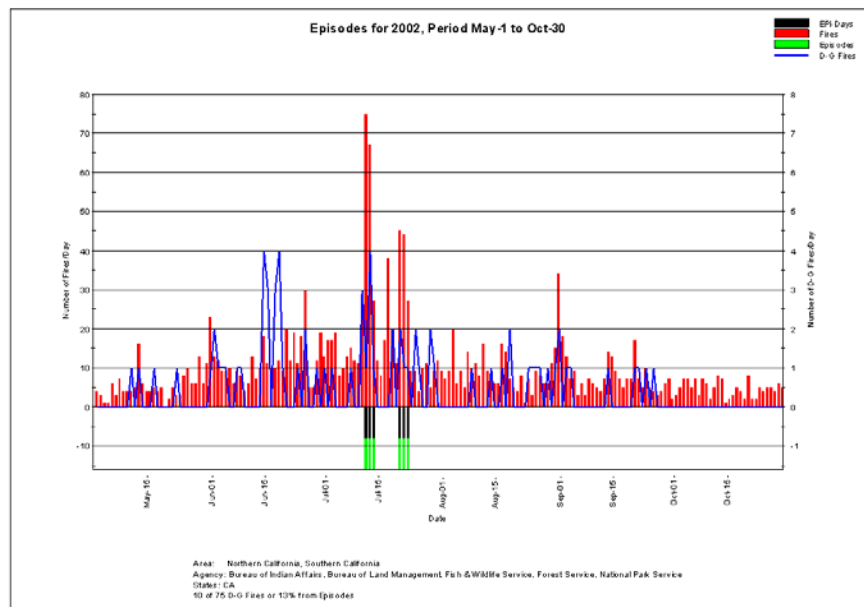
The Fire Occurrence and Episode Graph shows as a bar graph the number of fires per day for the Analysis Period selected in Step 1. In addition, the number of fires within and larger than a size class is shown with a line using the scale on the second y-axis. Shown for each day is a bar at the bottom of the graph designating whether a day qualifies as an Epi-Day or is part of a fire occurrence Episode or both.

From the pulldown in the upper left part of the screen, select GRAPH – Fire Occurrence and Episodes. The user needs to define the following information to produce a Fire Occurrence and Episode graph:

- Year
- Epi-Day Parameters
- Episode Parameters

Create Graph

Click on the Run Button to see the graph. Each graph is displayed in a standalone window. Each graph can be printed. The user can close a Graph Window by clicking on the Close Button or by clicking on the X in the upper right corner. By clicking on the Close All Button, all of the open windows with graphs and reports will be closed.



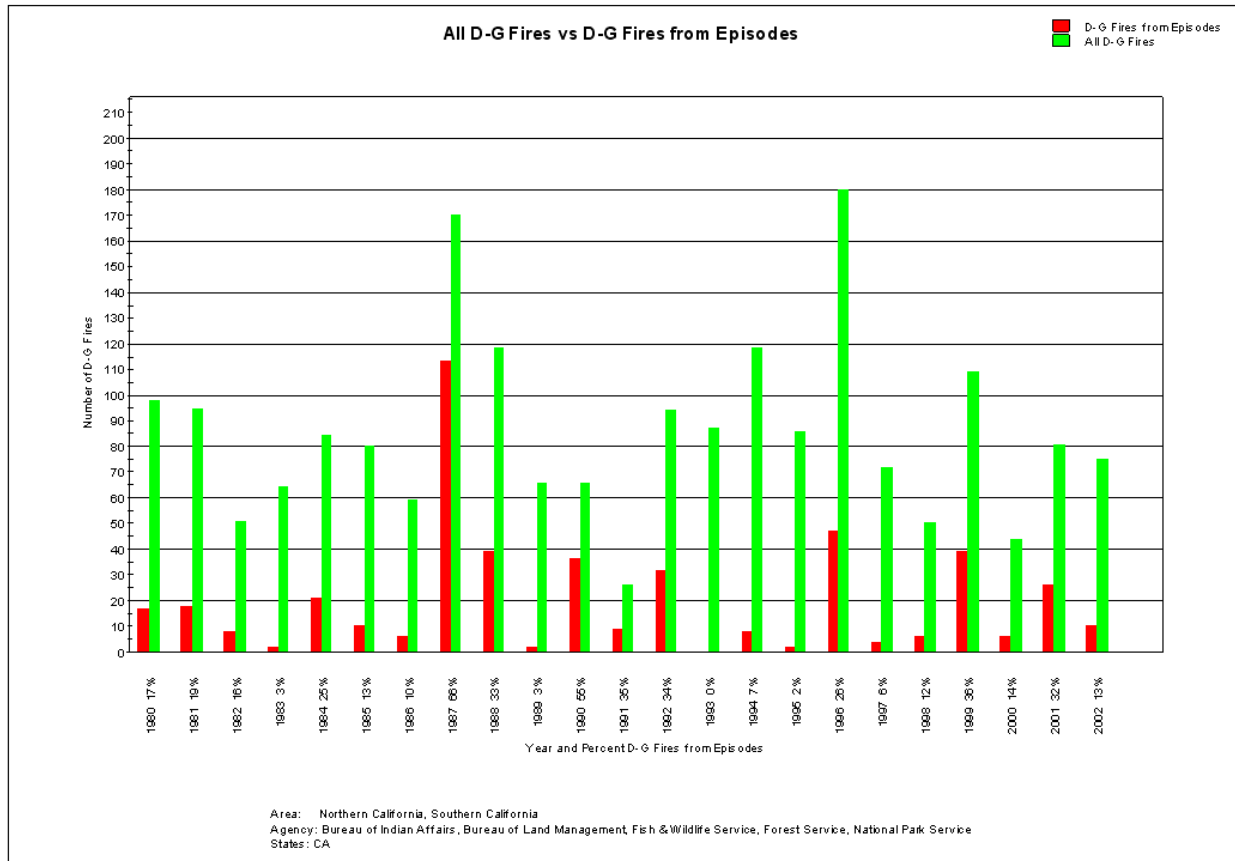
GRAPH – Yearly Episode Summary

First, the user needs to define the minimum size class of fires that will be plotted from episodes with the total fires for the time period with the minimum size class defined. In the example at the right, the minimum size class is D and Larger. An example of the generated side-by-side bar graph follows.

Episode Parameters

Contiguous EPI-days:

Plot Fires on 2nd Axis:



In the example, the red bar represents the number of size class D and larger fires that occurred during episodes. The green bar represents the total number of size class D and larger fires that occurred during the time period. Also shown along the horizontal axis is the percent of all size class D and larger fires that occurred during the time period during episodes.

REPORT – Episodes

Use the pull-down in the upper left part of the screen to select REPORT – Episode. The fire occurrence Episode Report shows, by year, information for each fire occurrence Episode that occurred. Shown are the start date, the stop date, number of days in length, total number of fires and total number of large fires. Before creating a fire occurrence Episode Report, the user needs to select the Epi-Day Parameters and Episode Parameters (see descriptions above).

Create Report

Click on the Run Button to see the report. Each report is displayed in a standalone window. Each report can be printed and saved in rtf or pdf file format. Each report is displayed in a standalone. The user can close a Report Window by clicking on the Close Button or by clicking on the X in the upper right corner. By clicking on the Close All Button, all of the open windows with graphs and reports will be closed.

An example Episodes Report follows:

Years: 1989, 1994, 1996
Period: 5/1 to 10/30
GACCs: Northern California, Southern California
States: CA
Agencies: Bureau of Indian Affairs, Bureau of Land Management, Fish & Wildlife Service, Forest Service, National Park Service

EPI-Day: 40 fires a day or 120 fires in 3 day period.
Episode: 3 contiguous EPI-Days.

Episodes					
Year	Episode Start Date	Episode End Date	No. Of Days	Total Fires	D-G Fires
1989	Aug-6	Aug-11	6	608	2
1994	Jul-20	Jul-24	5	301	8
1994	Sep-24	Sep-30	7	380	0
1996	Jul-11	Jul-16	6	284	9
1996	Aug-11	Aug-16	6	450	24
1996	Aug-24	Aug-27	4	133	14

Summary			
Year	D-G Fires From Episodes	D-G Fires All	Percent
1989	2	66	3.0%
1994	8	118	6.8%
1996	47	180	26.1%
Total	57	364	15.7%

Statistics			
	Fires Per Episode	Days Per Episode	D-G Fires Per Episode
Maximum	608.0	7.0	24.0
Average	359.3	5.7	9.5
Minimum	133.0	4.0	.0

Probability of one of more episodes: 100% (3 years with episodes in 3 years)
Average first episode date for years with episodes: Jul-23
Average last episode date for years with episodes: Sep-03

Analyzing Resource Needs

This option allows for the user to gather the historic fire occurrence by agency for the analysis period. Adjustments can be made by the user to define the current fire occurrence by agency and hence for all agencies for the analysis period. Once current fire occurrence is defined, the resource needs per fire-by-fire size class can be entered. Resources types in Cheetah 2 are Wildland Engines, 20-Person Crews, Type-I Helicopters, T-II Helicopters and along with an “Other” category that can be used for resource types not listed above. The entering of the current fire occurrence allows for calibration of resource needs by adjusting the resource use per fire-by-fire size class based on current use data.

Adjustments to the model can then be made by the user to define the expected fire occurrence by agency and hence for all agencies for the analysis period. Use of the calibrated resource use parameters allows for the projection of expected resource needs for the analysis period.

Analysis Flow

Analysis is performed using the following Steps:

- Step 1: Analysis Setup
- Step 2: Collect Fire Occurrence Records
- Step 3: Define Fire Occurrence
- Step 4: Define Resource Needs
- Step 5: Resource Needs Reports

Step 1: Analysis Setup

For information on Analysis Setup, refer to the Analysis Setup explanation in the section titled Analyzing Fire Occurrence and Episodes earlier in this document. Select an Analysis Set.

1. Analysis Setup
2. Data Collection
3. Define Fire Occurrence
4. Define Resource Needs
5. Resource Needs Reports

Step 2: Data Collection

For information on Data Collection, refer to the Data Collection explanation in the section titled Analyzing Fire Occurrence and Episodes earlier in this document.

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5. Resource Needs Reports

Step 3: Define Fire Occurrence

The average fire occurrence by fire size class for each of the agencies can be displayed. The average is for the years selected in Step 2. Also displayed is the maximum and minimum number of fires by size class for the analysis period for each of the agencies. Two steps need action by the user. These are:

1. Analysis Setup
2. Data Collection
3. Define Fire Occurrence
4. Define Resource Needs
5. Resource Needs Reports

- Step 3a: Define fire occurrence by agency
- Step 3b: Define the percent of fire by fuel type by agency

Step 3a - Define fire occurrence by agency

This done by agency using the pulldown at the top of the screen and making adjustments to the fire occurrence that appears in the top section the four sections of data on the screen. Use the pulldown at the upper left to select an agency. For each agency, the user can select to use the maximum, minimum, average or their own set of values for the fire occurrence by fire size class. Clicking on the radio button to the left of the Use Maximum, Use Minimum or Use Mean will cause the selected values to be entered in the Use Own row. Clicking on the radio button to the left of the Use Own row will allow for user defined changes to the values in the cells.

Agency	BIA								
		A	B	C	D	E	F	G	Total
Use Minimum	<input type="radio"/>	45.0	26.0	3.0	0.0	0.0	0.0	0.0	74.0
Use Maximum	<input type="radio"/>	406.0	117.0	33.0	7.0	5.0	3.0	2.0	573.0
Use Mean	<input type="radio"/>	117.5	67.9	8.4	1.4	1.0	0.8	0.3	197.3
Step 3a Use Own	<input checked="" type="radio"/>	117.5	67.9	8.4	1.4	1.0	0.8	0.3	197.3

Step 3b - Define the percent of fire by fuel type by agency

Resource needs normally vary by resource type and number based on fuel type. In Cheetah, three fuel types are defined: Grass/Brush, Timber/Slash and Wildland Urban Interface (WUI). Once Step 3a has been completed, the user needs to distribute fires in size classes to fuel types. Default assignments are 100% of fires in the Timber/Slash fuel type for the Forest Service, National Park Service and Bureau of Land Management. Default assignments are 100% of fires in the Grass/Brush fuel type for the Bureau of Land Management and Fish and Wildlife Service.

		A	B	C	D	E	F	G
Step 3b	Percent Fires - Timber	100	100	100	100	100	100	100
	Percent Fires - Grass	0	0	0	0	0	0	0
	Percent Fires - WUI	0	0	0	0	0	0	0
	Percent Fires - Total	100	100	100	100	100	100	100

Step 4: Define Resource Needs

For each of the resources (Wildland Engines, 20-Person Crews, Type-I Helicopters and T-II Helicopters and Other), resource needs are defined here. The Other category is included to allow the planner to estimate needs for any other resource. Resource need is defined by fire size class and fuel type. Not all fire size classes need to have a defined resource need. For example, one may only be concerned in the resource need for fires in size class C and larger. In this case, entering of zeros for the resource need for size class A and B would be appropriate.

1. Analysis Setup
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Resource-Days

The need for a given resource is calculated in resource-days. One resource-day is the use of one resource for one full day. If three resources days were needed on a fire, that could be filled with one resource for three days or three resources for one day.

Determining Resource-Days Needed

To estimate resource-days needed, the user needs to enter the number of resources needed and the number of days these resources are needed by fire size class by fuel type. This is accomplished during this step of the process.

Current default values in Cheetah do not differ by fuel type but with additional research, they most likely will differ. Current defaults are based on experience from past assessments and past studies of National Shared Resources. Defaults for the four resource types are given in Table 2.

Resource		Wildland Engines							
		A	B	C	D	E	F	G	
Timber/Slash	Number of Days	0.5	1.0	3.0	5.0	7.0	8.0	11.0	
	Quantity per Day	1.0	1.0	5.0	8.0	8.0	10.0	25.0	
Grass/Brush	Number of Days	0.5	1.0	3.0	5.0	7.0	8.0	11.0	
	Quantity per Day	1.0	1.0	5.0	8.0	8.0	10.0	25.0	
WUI	Number of Days	0.5	1.0	3.0	5.0	7.0	8.0	11.0	
	Quantity per Day	1.0	1.0	5.0	8.0	8.0	10.0	25.0	
Avg. No. Res. Days / Fire		0.5	1.0	15.0	40.0	56.0	80.0	275.0	Total
No. Res. Needed for Fires		172.3	50.3	40.5	23.2	18.4	21.0	25.0	350.7
Total Res. Days for Fires		86.2	50.3	121.5	116.0	128.8	168.0	275.0	945.8

Table 2

Resource Type		Class Fire Size						
		A	B	C	D	E	F	G
Wildland Engines	Number of Days	0.5	1.0	3.0	5.0	7.0	8.0	11.0
	Quantity per Day	1.0	1.0	5.0	8.0	8.0	10.0	25.0
20-Person Crews	Number of Days	0.0	0.0	3.0	5.0	7.0	9.0	11.0
	Quantity per Day	0.0	0.0	2.0	9.0	11.0	12.0	22.0
Type-I Helicopters	Number of Days	0.0	0.0	0.0	6.3	6.6	7.4	8.5
	Quantity per Day	0.0	0.0	0.0	1.1	0.4	1.0	1.5
Type-II Helicopters	Number of Days	0.0	0.0	0.0	3.8	7.3	7.6	11.4
	Quantity per Day	0.0	0.0	0.0	0.2	1.4	1.3	2.1
Other	Number of Days	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Quantity per Day	0.0	0.0	0.0	0.0	0.0	0.0	0.0



Hot Tip

Local tracking of resource use (number of resources and number of days) by fire size class can highly improve the prediction of resource needs.

The cell in yellow provides an estimate of the quantity of a resource that needs to be staffed within the analysis period (start and stop dates) assuming the fire occurrence as defined in Steps 2 and 3. Below this row is an example display of the Total Wildland Engine Resource Days needed by size class and total for the fire occurrence defined in Steps 2 and 3.

Resource		Wildland Engines							
		A	B	C	D	E	F	G	
Timber/Slash	Number of Days	0.5	1.0	3.0	5.0	7.0	8.0	11.0	
	Quantity per Day	1.0	1.0	5.0	8.0	8.0	10.0	25.0	
Grass/Brush	Number of Days	0.5	1.0	3.0	5.0	7.0	8.0	11.0	
	Quantity per Day	1.0	1.0	5.0	8.0	8.0	10.0	25.0	
WUI	Number of Days	0.5	1.0	3.0	5.0	7.0	8.0	11.0	
	Quantity per Day	1.0	1.0	5.0	8.0	8.0	10.0	25.0	
Avg. No. Res. Days / Fire		0.5	1.0	15.0	40.0	56.0	80.0	275.0	Total
No. Res. Needed for Fires		1842.3	561.4	493.0	239.2	196.0	201.0	280.0	3812.9
Total Res. Days for Fires		921.2	561.4	1479.0	1196.0	1372.0	1608.0	3080.0	10217.6

Step 5: Resource Needs Reports

There is only one Resource Needs Report. The report is organized by resource type. Select the resource types to be included in the report by clicking in the boxes to the left of the Resource name.

1. Analysis Setup
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Create Report

Select the Resource Type(s) desired and then click on the Run Button to see the report. Each report can be printed and saved in rtf file format. Each report is displayed in a standalone window. The user can close a Report Window by clicking on the Close Button or by clicking on the X in the upper right corner. By clicking on the Close All Button, all of the open windows with graphs and reports will be closed. An example of a Resource Needs Report follows on the next page.

For Resource Type

- Wildland Engines
- 20 Person Crews
- Type I Helicopters
- Type II Helicopters
- Other

Period: 8/1 to 8/10
GACCs: Northern California, Southern California
States: CA
Agencies: Bureau of Indian Affairs, Bureau of Land Management, Fish & Wildlife Service, Forest Service, National Park Service

		Fire Size Classes							
		A	B	C	D	E	F	G	Total
Fires									
	Timber/Slash	21.1	9.5	1.4	0.4	0.4	0.2	0.1	33.1
	Grass/Brush	151.2	40.8	6.7	2.5	1.9	1.9	0.9	205.9
	WUI	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Total	172.3	50.3	8.1	2.9	2.3	2.1	1.0	239.0
Wildland Engines									
Timber/Slash									
	Days	0.5	1.0	3.0	5.0	7.0	8.0	11.0	
	Quantity Per Fire	1.0	1.0	5.0	8.0	8.0	10.0	25.0	
Grass/Brush									
	Days	0.5	1.0	3.0	5.0	7.0	8.0	11.0	
	Quantity Per Fire	1.0	1.0	5.0	8.0	8.0	10.0	25.0	
WUI									
	Days	0.5	1.0	3.0	5.0	7.0	8.0	11.0	
	Quantity Per Fire	1.0	1.0	5.0	8.0	8.0	10.0	25.0	
Total									
	Avg. No. Res. Days / Fire	0.5	1.0	15.0	40.0	56.0	80.0	275.0	
	No. Res. Needed for Fires	172.3	50.3	40.5	23.2	18.4	21.0	25.0	350.7
	Total Res. Days for Fires	86.2	50.3	121.5	116.0	128.8	168.0	275.0	945.8