HISTORICAL VEGETATION, FUEL LOADS, AND INTEGRATED RESOURCE INFORMATION SYSTEM FOR BRYCE CANYON NATIONAL PARK

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SUMMARY

This report describes a comprehensive approach to understanding the role and effects of fire in Bryce Canyon National Park. The study includes a reconstruction of the historic vegetation of Bryce Canyon National Park from historic photographs, inference from computer simulation models, and research in areas of similar vegetation. The successional pathways from the historic vegetation to the present are discussed and the landscape scale consequences of fire suppression and successional development are addressed.

To enable better management of fire (whether fire suppression or prescribed burning) a comprehensive fuel load assessment of all plant communities in the Park is provided. These fuel loads are pooled into "fuel types" based on similarity in predicted fire behavior, and the fuel types are mapped throughout the Park. For each fuel type, a series of fire behavior simulations is presented describing expected rates of spread and intensities for typical conditions in each month of the fire season and for worst case scenarios. These fire behavior predictions provide guidelines for writing prescribed burning prescriptions or for quickly assessing the need for possible fire suppression and the amount of effort required to suppress particular fires.

INTRODUCTION

The composition and distribution of plant communities across a natural landscape is determined by a complex interaction of environment, interspecies relations and disturbance. Environmental factors associated with particular locations, such as precipitation and temperature regimes, limit the species which can occur at a given site to those with a metabolism suited to the environmental conditions. These environmental factors, while variable across the landscape, are relatively constant at a fixed point in space. Consequently, environment acts as a relatively constant constraint on vegetation distribution and composition. Within the usually large set of species which can exist at a given point, interspecies competition further limits the species present at a given time. The ecological characteristics of the species are also rather fixed, and the interspecies relations lead to a fairly directional and predictable change with time, i.e. succession. Disturbance reduces or eliminates some species directly, and leads indirectly to changes in composition through changes in the competitive hierarchy. In contrast to environmental and interspecies effects, the occurrence and effects of disturbance are highly variable, and depend in a complex way on previous disturbance and the current and previous vegetation.

Historically, fire played an enormous role in determining the characteristics of vegetation in western forests. Large-scale fire history studies (Arno 1980, Arno and Gruell 1983, Cooper 1960, Gruell 1983, Habeck and Mutch 1973, Kilgore 1981, Mueggler 1976, Weaver 1967, Wright and Heinselman 1973) as well as numerous more local studies (Arno 1976, Barney and Frischknecht 1974, Biswell 1972, Blackburn and Bruner 1975, Conrad and Radosevich 1982, Fisher et al. 1986, Gruell 1980a, Gruell 1980b, Houston 1973, Kilgore and Taylor 1979, Kunzler and Harper 1980, Loope and Gruell 1973, Madany and West 1980, Madany and West

Kunzler and Harper 1980, Loope and Gruell 1973, Madany and West 1980, Madany and West 1983, McNeil and Zobel 1980, Miles and Singleton 1975, Romme 1979, Romme and Knight 1981, Taylor 1973) have documented that much of this area was subject to recurrent fires at fairly short intervals, and that these fires created or perpetuated vegetation very different from that now present. Fire suppression has preserved species which would have been reduced or eliminated under a regime of repeated burning, and has led to an increase in fuel loads in many natural communities. The high fuel loads cause relatively severe fires when fires do occur, causing relatively greater disturbance than occurred in the historical past. The results of these high intensity fires are very different from low intensity fires, with increased mortality of even fire-tolerant species, and occasionally catastrophic results.

To evaluate the current landscape with reference to the historic landscape information is needed in several related areas. First, more baseline information is required on the historic vegetation mosaic. Specifically, what was the distribution of plant communities on the historic landscape, and what was the typical composition of these communities? Second, how does the pattern compare to the current pattern and how is this relation affected by the vegetation potential of the environment and the interspecies relations? How can natural ecosystem processes, including fire, be reintroduced so as to return the vegetation mosaic to one more similar to the historic vegetation mosaic? How can the guidelines which emerge from this information be implemented in an operational and spatially-explicit manner? These information needs are best met through a comprehensive information system incorporating the basic ecological relations of the vegetation and environment, fuel load accumulation, and fire behavior

models. This document reports on the development of a comprehensive information system for Bryce Canyon National Park.

OBJECTIVES

The overall objective is to develop a comprehensive computer-based resource information system to provide spatially explicit information on historic, current, and potential vegetation composition, vegetation response to fire, fuel loads, and predicted fire behavior.

Specifically, the objectives are:

1) To develop a written and pictorial document to portray vegetation change in historical time.

2) To map Bryce Canyon National Park to historic vegetation type by use of relocated historical photographs, inference from similar regions, and results from computer simulations using estimated fire return intervals. The historical vegetation is classified using the successional community type classification employed for the current vegetation map.

3) To map fuel loads and fuel model types throughout Bryce Canyon National Park specifying weights for duff and litter, live and dead herbaceous vegetation, shrubs and small conifers by diameter class, and down woody material.

4) To integrate the fuel and fire response models into the existing vegetation simulation model to improve simulation predictions for different fire regimes.

STUDY AREA

Location

Bryce Canyon National Park occupies an area of approximately 14,250 hectares (35,240 acres) on the east face of the Paunsaugunt Plateau in south central Utah (Fig. 1). Bryce Canyon National Park was set aside for the spectacular erosional remnants (Hoodoos) along the scarp of the Plateau, and as a result the Park is generally long and narrow running primarily NNE to SSW. The Park consists of a strip of land on the Plateau top itself (varying from a few to several kilometers in width), the scarp of the Plateau, and a strip of land below the scarp to the east (also varying from a few to several kilometers in width).

Geology

Bryce Canyon National Park occurs in the portion of Utah included in the Colorado Plateau province (Thornbury 1965), an area dominated by broad plateaus of gently dipping sedimentary rock, carved at their edges by exceptionally effective erosion into retreating steeply-sloping scarps. The Paunsaugunt Plateau is a block-faulted sedimentary rock mass, typical of the landforms of this region. The Plateau is delimited on the west by the Sevier fault, and to the east by the Paunsaugunt fault. The geology of Bryce Canyon National Park (and the rest of the Paunsaugunt Plateau) was surveyed by Gregory (1951), from which the following account derives. The Plateau and area immediately below are composed of four primary geologic strata. The Plateau top and most of the scarp area are formed from a thick-bedded limestone termed the Wasatch formation by Gregory (1951), but more recently termed the Claron or Cedar Breaks formation. This strata is primarily massively bedded pink limestone, with inclusions of grey

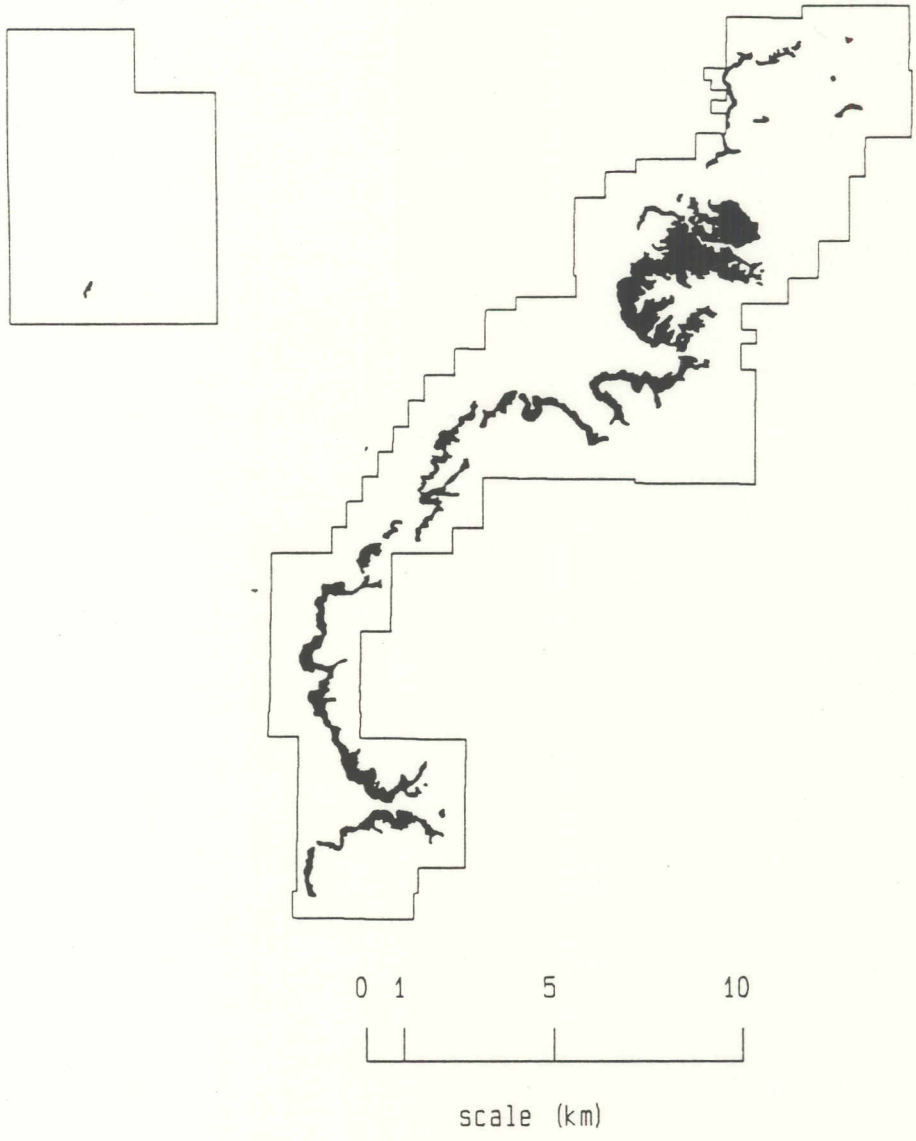


Fig. 1. Study area map. Map of Utah to the left shows the size and location of Bryce Canyon National Park in the State. Map to the right shows the size and configuration of Bryce Canyon National Park, and highlights the Breaks and Hoodoos for which the Park is famous.

limestone, conglomerate, sandstone, and siltstone. Despite the image of a massive homogeneous bed which viewers observe, Gregory (1951) comments on the extreme variability within this formation. The Wasatch formation also includes a strata of white limestone above the pink beds which has been removed in most areas by erosion. Remnants of this material still occur in the Park on Whiteman's Bench, an area of relatively high elevation. In the southern and central portion of the Park, the Wasatch formation lies on the Kaiparowits formation, a belt of primarily calcareous sandstone and shale, with inclusions of limestone and siltstone. This strata is relatively easily weathered, and often forms broad low mounds of weathered material. Below the Kaiparowits formation, and immediately below the Wasatch formation in the north end of the Park, lies a belt of calcareous sandstone called the Wahweap and Straight Cliffs sandstone. These strata include lenses of shale, many of which have weathered extensively. The sandstone is porous, which contributes to both excessive drainage and the presence of springs in certain locations.

The three strata described above comprise the vast majority of the Park. A small area in the northeast of the Park lies across the Paunsaugunt fault on Tropic shale, a dark grey or green-grey strata which supports little vegetation.

Topography

Paunsaugunt Plateau dips gently to the north and west, and forms the divide between the internal drainage to the Great Basin and the Colorado River. Areas on the Paunsaugunt Plateau itself drain into the East Fork of the Sevier River, and eventually into the Great Basin. Areas below the rim of the Plateau drain into the Paria River, and eventually into the Colorado River. Bryce Canyon National Park straddles this divide for nearly the length of the Park.

The topographic relief within the Park varies from broad areas of relatively little relief on the Plateau top to stunningly steep and complex slopes at the face of the scarp. Areas below the Plateau are generally of moderate relief with a rolling or dissected appearance. The lowest elevation in the Park (2018 m) occurs below the rim of the Plateau where Campbell Creek flows out of Fairyland Canyon into the town of Tropic. Elevations below the rim range from this low up to 2210 m, with local slopes commonly on the order of 100 to 200 meters of relief. The face of the exposed Plateau ranges from 100 to 200 meters of exposure along its length. Above the rim the Park increases steadily from a low elevation of 2315 meters at the north end to a maximum of 2775 meters at Rainbow Point in the southern end of the Park.

Soils

The soils of Bryce Canyon National Park have been surveyed and mapped by the U.S. Soil Conservation Service (SCS, no date). Soils within Bryce Canyon National Park typically fall into one of four orders, listed in order of abundance: entisols (recent soils), mollisols (grassland soils with dark surface horizons), alfisols (forest soils), and inceptisols (immature soils).

The entisols are developed primarily on alluvial deposits, and are subdivided on the basis of soil texture. In Bryce Canyon the entire range of textures from clayey to sandy is present; loamy or clayey soils predominate, however. Moisture regimes vary from dry in most years to permanently moist.

The residual soils of Bryce (soils developed from weathered in-place parent material) are primarily in the suborder boroll of the order mollisol or the suborder boralf of the order alfisol. These are soils with mean annual temperatures below 8°C. Borolls are typical of grassland sites, and boralfs are typical of the forest sites.

Climate

Precipitation

Bryce Canyon National Park lies near the transition from the zone of late-summer precipitation maximum typical of Arizona and New Mexico to the zone of winter precipitation maximum typical of the Great Basin, and exhibits elements of both zones. The maximum precipitation occurs in late summer (late July and August) with a drought occurring in late-spring/early-summer (May and June), as is typical for the Colorado Plateau and southwest. Maximum monthly precipitation is 57 cm in August; minimum precipitation is 18 cm in June. Winter precipitation is also fairly high, however, with precipitation in December through March averaging over 60% of the August maximum for each of the four months. The net result of the precipitation pattern is significant soil moisture recharge from snowmelt in most years, followed by soil drying until the late summer rains recharge the soil moisture of the upper layers.

Temperature

As is typical for arid areas of the southwest, Bryce Canyon National Park exhibits strong seasonal changes in mean monthly temperatures. January is the coldest month with a mean daily temperature of -5.9°C; July is the warmest month with a mean daily temperature of 17°C. Mean monthly temperatures hide a great deal of variation, however. Daily maximum temperatures over 32°C occur in each of the four months from June to September, with average daily maximums from 18°C to 27°C during the same period. Winter minimum temperatures range from -30°C to -28°C from November to February, with mean daily minimums from -9°C to -14°C during the same period.

Even during the warm summer months, diurnal cooling under the clear skies leads to low night temperatures. The mean minimum daily temperature is below freezing in all months except June through September, and frosts typically occur at least one day a month in all months except August.

Flora

The flora of Bryce Canyon National Park is a complex mixture of elements from the Colorado Plateau, Great Basin, and Cordilleran floristic regions. The flora of Bryce Canyon National Park has been described by Buchanan and Graybosch (1981) with addenda by Hallsten and Roberts (1988). Roberts et al. (1992) provide a list of all plant species known in Bryce Canyon National Park, alphabetized by common name as well as scientific name. Appendix A list the common and scientific names for all plant species in this report.

Vegetation

Roberts et al. (1992) provide a detailed description of the vegetation of Bryce Canyon National Park. These authors describe both the potential natural vegetation (habitat type [Daubenmire and Daubenmire 1968]) and the current existing vegetation (community type) for all lands in Bryce Canyon.

Classified broadly, the potential vegetation of Bryce Canyon National Park follows an elevational sequence from shrub communities through woodland to closed forest, with some communities occurring at particular sites determined by soil characteristics. At the lowest elevations of the Park in the Sheep Creek and Yellow Creek drainages, two shrub communities occur on clayey soils derived from the Tropic shale strata. These communities, CORYMB

BUCKWHEAT / SALINA WILDRYE and BIG SAGEBRUSH / FOUR-WING SALTBUSH, are distributed according to both elevation and soil characteristics. Outside this area, at slightly higher elevations throughout the north end and east side of the Park is a broad zone of pinyon-juniper woodland, classified as PINYON PINE / UTAH JUNIPER. Other low elevation areas below the rim of the Breaks typically support a mosaic of more mesic communities described below.

Above the rim of the Breaks, non-forest areas are dominated by a black sagebrush shrub community, classified as BLACK SAGEBRUSH / NEEDLE-AND-THREAD. This community covers a large area of the north end of the Park, and extends into the central portion of the Park along drainages. Adjacent meadows with seasonally saturated soils support the WIREGRASS / ROSS'S SEDGE community, with the diagnostic species being wiregrass.

The forests of Bryce Canyon are represented by a series of habitat types along a complex temperature/moisture gradient, with moisture increasing generally from north to south along the increase of elevation. The dry end of the gradient is represented by three ponderosa pine habitat types: PONDEROSA PINE / BLACK SAGE, PONDEROSA PINE / BITTERBRUSH, and PONDEROSA PINE / GREENLEAF MANZANITA. These communities are dominated by ponderosa pine, but may also include Rocky Mountain juniper. With additional moisture, Douglas-fir becomes important, and occurs as the climax dominant in two habitat types: DOUGLAS-FIR / GREENLEAF MANZANITA, and DOUGLAS-FIR / OREGON GRAPE. Associated species in these types include ponderosa pine, limber pine, Rocky Mountain juniper, and rarely, quaking aspen. With additional moisture, white fir becomes the climax dominant, represented by four habitat types, with a total of five types and phases.

Sites within the forest zone which occur on particular substrates support unique communities. In areas of cold air drainage, blue spruce communities may occur, represented by the BLUE SPRUCE / COMMON JUNIPER habitat type. In drainages below the rim, PONDEROSA PINE / GAMBEL OAK communities occur on the alluvial terraces and outwashes. Finally, on xeric, exposed sites, bristlecone pine and limber pine are dominant, represented by the LIMBER PINE / BRISTLECONE PINE habitat type.

Bryce Canyon National Park covers a fairly large range of potential vegetation types, each of which may be subjected to disturbances which produce different community types (or seral stages) within the habitat type. The more xeric habitat types in Bryce Canyon appear relatively homogeneous as to community type, and exist typically in later successional stages. There are relatively fewer potential community types within these xeric habitat types, and the later community types are adapted to a recurrent disturbance regime. The more mesic forested types exhibit a much broader range of community types within a habitat type, reflecting in part the wider range of community types possible, and the greater length of time these types take to return to later seral stages. Later stages in these types are not adapted to recurrent disturbance, and fire will generally initiate a new successional sequence. Specifically, we were unable to consistently distinguish community types within the CORYMB BUCKWHEAT / SALINA WILDRYE, BIG SAGEBRUSH / FOUR-WING SALTBUSH, PINYON PINE / UTAH JUNIPER, AND BLACK SAGE / NEEDLE-AND-THREAD habitat types due to a lack of variety in successional communities to sample. Accordingly, in these types the community type is the same as the habitat type.

Relatively few of the possible community types account for the vast majority of the area of the Park. The six most common community types cover approximately 80% of the area of the Park; none of the remaining types covers individually more than 2%. The common community types, listed in order of area covered are: (1) PONDEROSA PINE / PONDEROSA PINE, (2) PINYON PINE / UTAH JUNIPER, (3) ROCKY MOUNTAIN JUNIPER / PONDEROSA PINE, (4) PONDEROSA PINE / WHITE FIR, (5) BLACK SAGEBRUSH / NEEDLE-AND-THREAD, and (6) PONDEROSA PINE / DOUGLAS-FIR.

Several other community types are discussed because they are of interest despite, or because of, their relative minimal coverage. Specifically, the quaking aspen community types are discussed, as they are of significant interest with regards to successional dynamics.

METHODS

Historical Vegetation Reconstruction

To reconstruct the historical vegetation of Bryce Canyon National Park a three-fold approach was employed: (1) historical photograph relocation, (2) analysis of computer simulation, and (3) inference from similar regions. The three approaches are described in turn.

Historical Photograph Relocation

Bryce Canyon National Park archives were searched for historical photographs with sufficient geographic information to allow relocation in the field. In practice, this led to two groups of photographs: (1) general scenic photographs by W.B. Alcorn which exhibited sufficiently unique landmarks that relocation was possible by recognition of the specific landmark, and (2) photographs taken by Dr. Hale Buchanan as part of his dissertation research (Buchanan 1960).

The first group of photographs were estimated to be on the order of approximately a dozen, but in practice only four could actually be relocated. The geography of Bryce alternates between relatively level and featureless tablelands and extremely dissected headlands. Unfortunately, both types of geography are difficult to employ because the possible area to be examined in each case is large, and the features are either lacking or super-abundant. Only locations with a clear view of the horizon could actually be located. Negatives for these photographs are in the collection of the Bryce Canyon National Park archives.

The second group of photographs were clearly georeferenced on a map, but often lacked significant landmarks for relocation. These locations were relocated by pacing the original traverses from the map notes. After relocating a representative sample ($n = 15$) of these

locations and retaking the photographs, it was determined that the negatives for these photographs were no longer in the possession of the Park Service, and had been returned to Dr. Buchanan at some point in the past. The negatives were obtained with permission from Dr. Karl McKnight (St. Lawrence University, Canton, New York).

For both types of photographs, the original photopoint was relocated to the extent possible, following the guidelines of Rogers et al. (1984). In the case of the Buchanan dissertation photographs, a location precise to within a few feet was often obtained due to the precision of the field notes. For both the Alcorn and Buchanan photographs the original camera was a large-format camera with a moderate focal-length lens (exact values unknown). The relocated photographs were taken with a 35 mm single lens reflex camera with a 35-70 mm focal-length zoom lens. To the extent possible, the focal length of the zoom lens was adjusted to match the perspective obtained by the original camera, but because the aspect ratios of the two cameras differ it was not possible to exactly frame the original photograph with the 35 mm camera. Each photograph was taken with the camera on a tripod, using Kodak TMAX black-and-white film (ASA 100). Each photograph was taken three times bracketing the exposure plus-and-minus one f-stop to obtain the optimal contrast on the film. Appendix B lists the shutter speeds and f-stops for each exposure.

Notes on the extent of vegetation change were taken at each photograph location point to add detail to the observations possible from direct photograph comparisons.

Mapping the Historic Vegetation of Bryce Canyon National Park

Analysis of Computer Simulation

Roberts et al. (1992) describe a vital attributes-based simulation model developed for use in Bryce Canyon National Park. The model was qualitatively validated by comparison to existing vegetation and observed fire return intervals on sample plots of different habitat types (Roberts et al. 1992). The model was employed to analyze the successional dynamics of major vegetation types of Bryce Canyon to augment the information available from the historic photographs. Because the photographs only cover a limited portion of the successional pattern of vegetation of Bryce Canyon and include no burned areas, use of the model was essential in some areas. Specifically, the model was used to determine the set of compositions from which the current vegetation reported in Roberts et al. (1992) could have developed. Essentially, all of the forested portion of the Park was mapped according to a binomial classification: the first element is the least shade tolerant species still present in the stand, the second element is the dominant species (highest basal area). For the non-forest types, the successional community type was based simply on dominant indicator species. For each successional community type, the historic vegetation composition and structure was solved for by back calculation for approximately 100 years ago to produce the observed community patterns through simulation. Each successional community type polygon on the current vegetation classification map was then reclassified to the expected historic vegetation. Adjacent polygons which were reclassified to the same historic type had their boundary dissolved to form the final polygons.

Inference From Similar Regions

Numerous studies of fire regimes in the Intermountain West provide qualitative understanding of the consequences of both natural fire regimes and fire suppression policies. These studies were consulted for comparison to the results of the photographic relocation study and the computer simulation results.

Mapping Fuel Loads and Fuel Types

Five hundred fuel inventory plots, stratified by community type, were located throughout Bryce Canyon National Park. Fuel was inventoried using the technique outlined by Brown et al. (1982). Vegetation and fuels were divided into six subgroups: standing trees, shrubs, herbaceous material, litter, duff, and down woody material. Down woody material and duff were sampled using a planar intercept method. Intercepts of down woody material from 0 - 0.6 cm and from 0.6 - 2.5 cm in diameter were counted to a distance of two meters from plot center, intercepts of down woody material from 2.5 - 7.6 cm in diameter were counted out to 3 m from plot center, and intercepts of woody material > 7.6 cm were counted 15.2 m from plot center. Duff depths were measured at 0.3 m and 1.5 m along the plane. Standing trees < 3 m in height were sampled using a 1/300 acre plot, and the number and average height of each tree species was recorded.

Shrubs were sampled at two 1/4 milacre subplots per plot. Ocular estimates of the percent live and dead shrub cover were made at each plot. Stem diameters were measured and recorded by species over the two subplots.

For each fuel inventory plot four 30 X 60 cm. subplots were used to sample herbaceous material and litter. The four subplots were laid out 2.07 m from center and 2.07 m apart. The subplot that contained the most herbaceous material was designated as the base. The remaining three subplots were then rated as a percentage of the amount on the base plot. Ocular estimations of percent cover were then made on subplots one and two. Litter estimations of percent cover followed this same logic, but estimations were based only on the right half of each subplot. Litter and herbaceous material were collected from their respective base subplots. These samples were then oven-dried at 95 degrees C for 24 hours, and weighed to the nearest 0.01 of a gram. All data were then entered into the computer and analyzed, by community type, using a FORTRAN program modified specifically for Bryce Canyon from the program provided by Brown et al. (1982). This computer analysis provided estimates of fuel loads in tons per acre by fuel type. Downed woody material, litter, duff, standing trees, shrub, and herbaceous material tons per acre are treated separately then combined for an average fuel load per acre. Because fire managers are trained in English units, all fuel load values were reported in tons per acre rather than metric tons per hectare.

Estimates of biomass, by diameter class, were included in the original program for many of the shrub species found at BCNP. Two shrub species of importance, Gambel oak (Quercus gambelii) and greenleaf manzanita (Arctostaphylos patula), were not included in the computer program provided by Brown et al. (1982). Estimates of Gambel oak biomass, based on stem diameter, were adapted from Clary and Tiedemann (1987), and incorporated into the computer program. Since no equations or coefficients for estimation of greenleaf manzanita biomass were available, samples were collected to estimate biomass by the six diameter classes employed in

the biomass estimation program. Ten samples were taken in each diameter class and oven-dried for dry weight. Diameter class means were used to construct a linear regression ($r^2 = 0.79$) to provide estimates of biomass based on stem diameters. These estimates were then incorporated into the program provided by Brown.

Individual plot fuel load data were summarized by community type to produce community type-specific data on fuel loads by fuel type (Appendix C). Data for each community type were then used to produce fuel models using the Fuels subsystem of BEHAVE (Burgan and Rothermel 1984). Fire behavior predictions were produced for fire line intensity and rate of spread for an average July day in Bryce Canyon National Park for each community type. These data were then plotted on a log-log scatterplot (Fig. 2) to assess the range of variability and degree of clumping of the data.

Obvious discontinuities were present in the data, which aided in the grouping of community type fuel data into fuel type associations. A subjective line of division was drawn at the 200 BTU/FOOT/SEC line to allow for the separation of the more mesic community types into two fuel type associations. Logical separations were also made at the obvious discontinuities to produce a grid. Community types within each grid cell were then placed into a fuel type association. Fuel loads contained in the fuel models for each community type were then averaged to create the fuel type association model.

Four forest fuel type associations (1-4), three shrub-woodland fuel type a[illegible] 6, and 7), and one null fuel type association (0) were established using the proc[illegible] above.

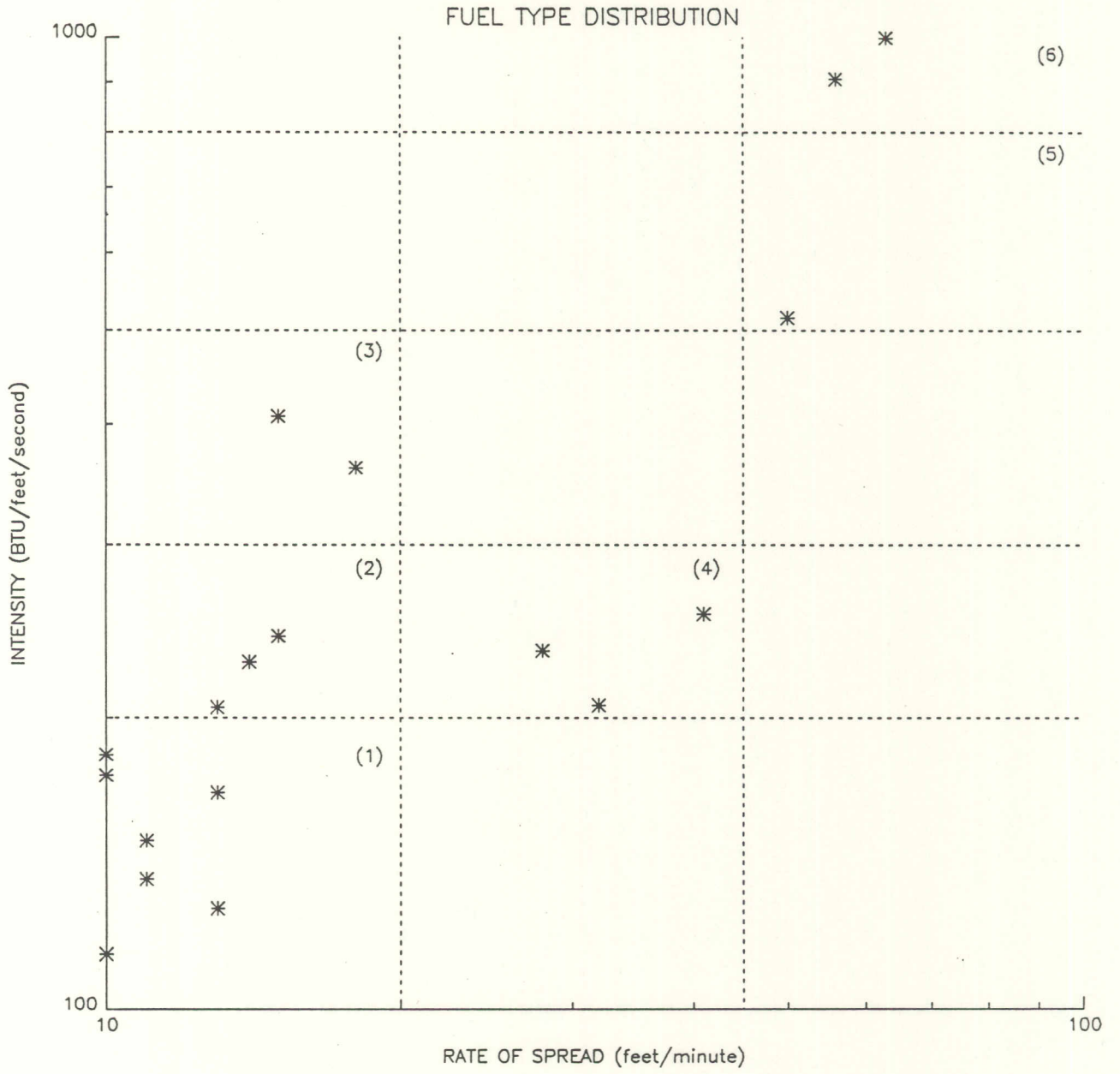


Figure 2. Individual community type fire behavior predictions and fuel type grid.

Incorporating the Fuel Load and Fire Behavior Results in the Simulation Model

Each community type occupies a particular position in the successional development of each habitat type (potential natural vegetation type). Accordingly, by knowing the order of community types in the successional development of each type, and knowing the fuel load characteristic of each community type, it is possible to predict the fuel accumulation curve for each habitat type. The fuel load severity step function for each habitat type in the simulation model (see Roberts et al. 1992) was set to correlate with the observed trends in fuel load for the community types characteristic of that habitat type.

RESULTS

Historical Photograph Relocation

We relocated two series of historical photographs of Bryce Canyon National Park. All of the retakes were photographed in late summer of 1989. Appendix B contains the details about photograph reference numbers and exposures for each plate. The first series was shot during 1958 by W.B. Alcorn, and show the general scenery around Bryce Canyon National Park. While these photographs were not georeferenced except in a very general way, four of the photographs included landmarks which could be relocated in the field.

The second series of photographs were shot by Dr. Hale Buchanan as part of his dissertation research in the year 1959. These photographs are typically of subjects closer to the camera, and show more detail but less overview than those by Alcorn. A total of 15 of Buchanan's photographs were relocated; 13 of those locations are presented in this report.

In the following plates the historical photograph is at the top and the relocated photograph is at the bottom.

Plate 1. Bristlecone Point

The photograph was taken from a road heading south out of the town of Tropic. It was not possible to relocate the exact position from which Alcorn took the original photograph, and the recent photograph was taken from a somewhat lower elevation. In the background along the slopes of Bristlecone Point the PINYON PINE / UTAH JUNIPER community type can be observed in both photographs. Even considering the distance from which the photographs were taken very little change is evident in the distant woodlands. In the foreground the PINYON PINE / UTAH JUNIPER community type appears to have increased significantly in density, but due to the change in photopoint and elevation such a conclusion is speculative.

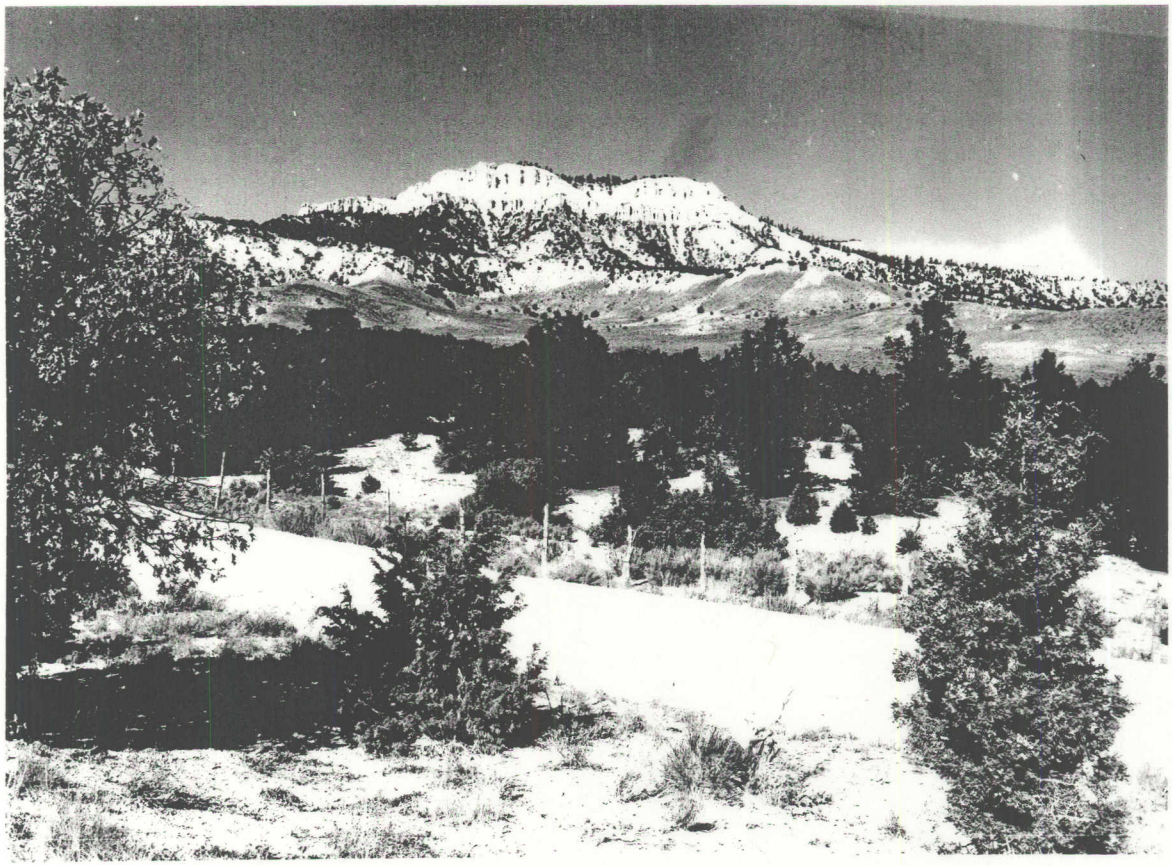




Plate 2. Water Canyon

The photograph was taken from an area just up the trail from the parking area at Water Canyon. The lower slopes are primarily covered with ponderosa pine in the overstory and greenleaf manzanita covering the ground. Very little growth of either ponderosa pine or greenleaf manzanita is observable, and the death of a few of the larger trees in the historic photograph can be observed, thus reducing any tendency for increasing density.





Plate 3. Paria River

The photograph was taken a short distance from the highway below where Water Canyon joins the river. Vegetation on the slopes is composed of several species, including ponderosa pine, limber pine, and pinyon pine. Some increase in shrub and Utah juniper density on the stream terrace is observable, but the forest exhibits very little change.





Plate 4. Swamp Canyon

The photograph was taken at the head of Swamp Canyon at a point overlooking the Breaks. The apparent increase in vegetation in the immediate foreground is possibly an artifact of the difference in focal lengths of the two cameras, and is difficult to interpret. The significant increase in conifers in the background, however, is evident. The hillock on the right shows a great increase in both tree size and number of trees present, while the slope to the left shows a significant increase in both tree size and canopy density. The three blue spruce observable at the center of the photograph have all died since 1958.

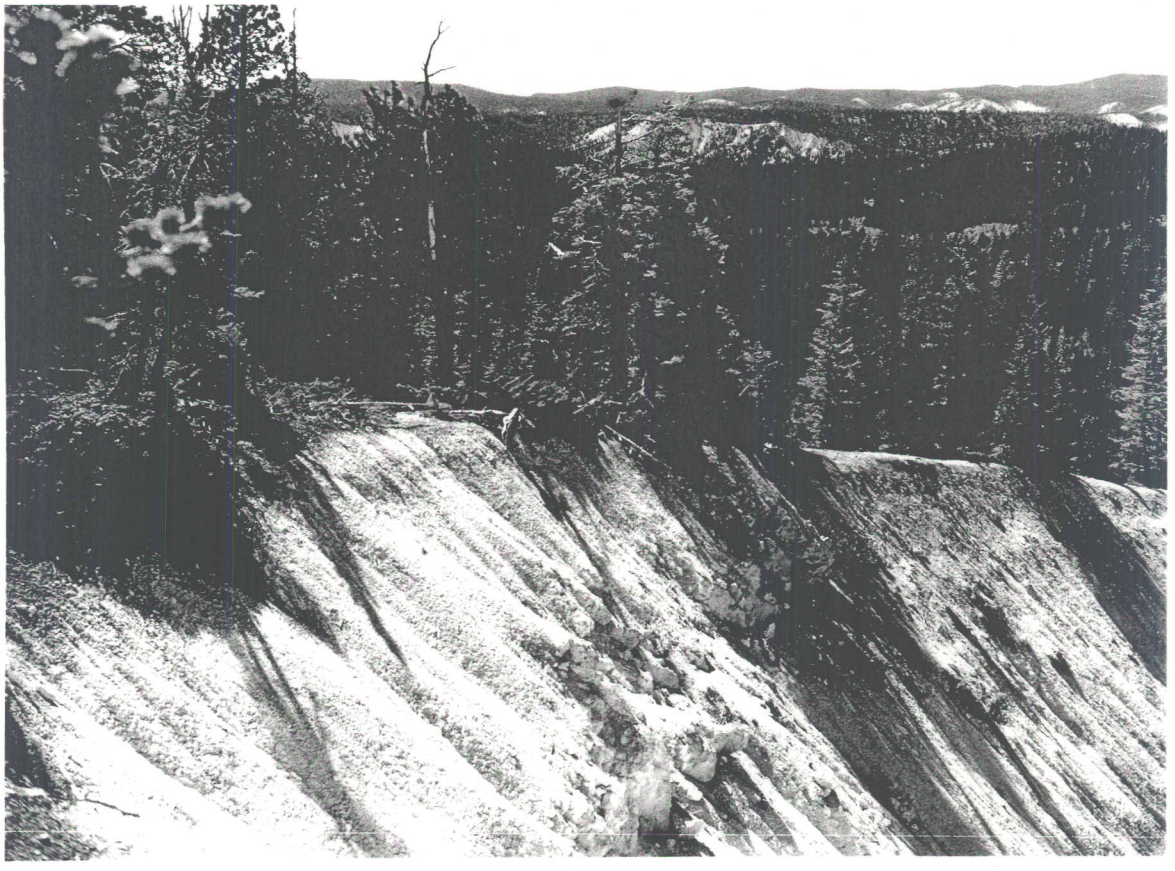




Plate 5. View From White Point

The photographs show a general overview looking northeast from White Point. While very little detail is observable in the photographs the view of the horizon shows that the general aspect has not changed significantly.





Plate 6. Low Elevation Ponderosa Pine Forest

Significant growth in the size and density of ponderosa pine is clearly visible, with less noticeable but still significant increase in Rocky Mountain juniper. Cover of bitterbrush and greenleaf manzanita has increased as well. The photographs clearly document the recruitment of a cohort of ponderosa pine saplings which were small enough in 1959 to have been eliminated by ground fires into the canopy in the mid-ground. Also observable in the foreground is a new generation of saplings. The current vegetation appears to heading toward a continuous all-aged forest, where the historical photograph shows a more dispersed woodland with discontinuous episodic recruitment into the canopy.





Plate 7. Low Elevation Ponderosa Pine Forest

In the retake the camera was placed a few feet in front of the original photopoint as the growth of a Rocky Mountain juniper totally obscured the original view. Again, as in the previous view, significant increases in Rocky Mountain juniper are observable. Increases in ponderosa pine are less obvious, however.

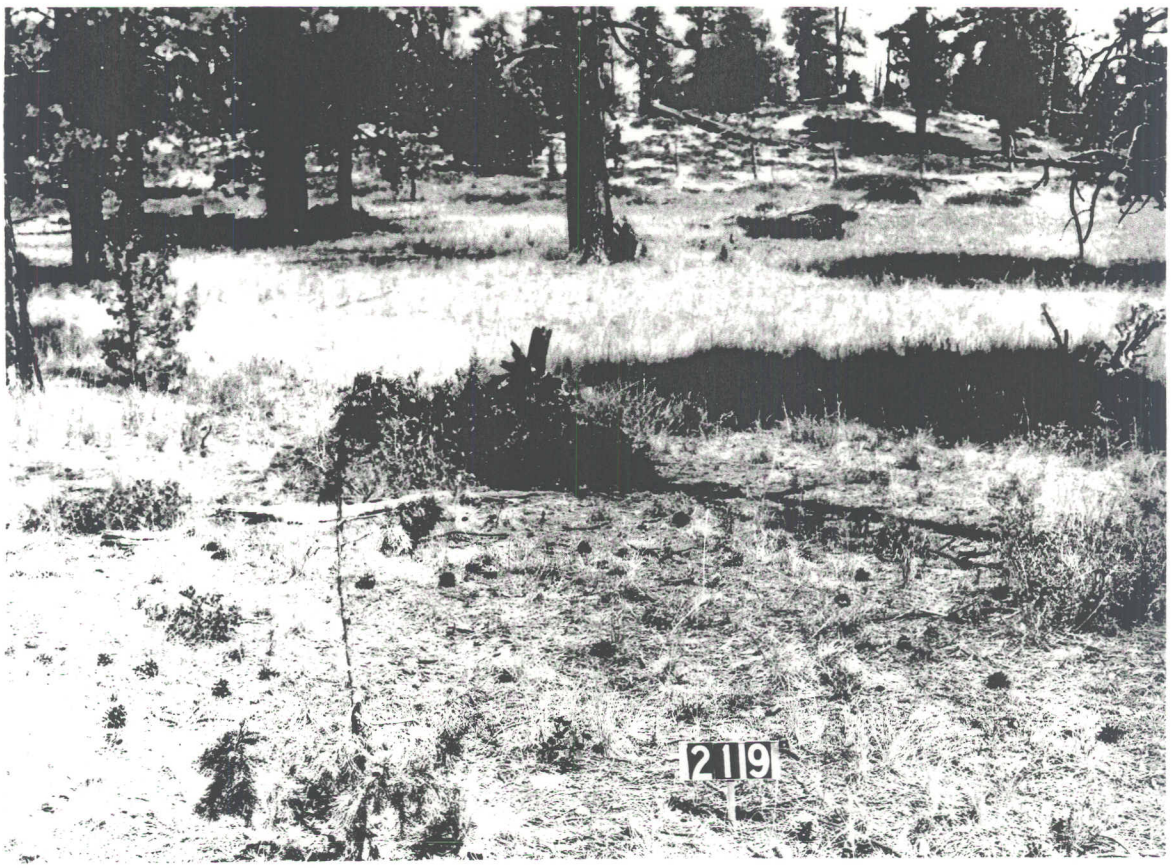

219



Plate 8. Low Elevation Ponderosa Pine Forest

As in plate 6, a very significant recruitment of ponderosa pine into the small tree stage is evident in the mid-ground and foreground, leading to a large increase in forest density.


215



Plate 9. Low Elevation Ponderosa Pine Forest

As in the previous photographs a significant increase in ponderosa pine recruitment is evident. A small grove of saplings now obscures the road in the left side of the photograph, and a dense clump of young trees fills the right side foreground. Both of the snags visible in the historic photograph have fallen.





Plate 10. Mid-elevation Mixed Conifer Forest

The detail in the photograph is difficult to interpret, but in combination with field notes several significant changes can be observed. The mature ponderosa pine and Douglas-fir in the photograph all exhibited fire scars at the base of the trunk, and there were no large white fir on the site. The regeneration is dominated by white fir, however, which is obscured in the photographs by greenleaf manzanita.


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Plate 11. Mid-elevation Mixed Conifer Forest

The photographs are somewhat difficult to interpret, but extensive growth of young Douglas-fir and white fir were evident in the field.





Plate 12. Mid-elevation Mixed Conifer Forest

The foreground is still relatively open, but the mid-ground has filled in very significantly to the point that ponderosa pine and Douglas-fir nearly obscure the road. Numerous small trees are evident on both the right and left sides of the photograph.


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Plate 13. Mixed Forest on Whiteman Bench

The most noticeable element of change is the presence of two large down trees in foreground and mid-ground. Several of the trees in the original photograph are now dead. Some filling of the meadow is evident.





Plate 14. Mixed Forest at Whiteman Cave

The most noticeable element is the filling in of Whiteman Cave in the middle of the photograph. Of significance, the aspen evident in the historic photograph are now dead. The conifer forest in the background shows evidence of increasing density, but the difference in contrast of the two photographs makes an assessment difficult.


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Plate 15. Mesic Mid-elevation Forest

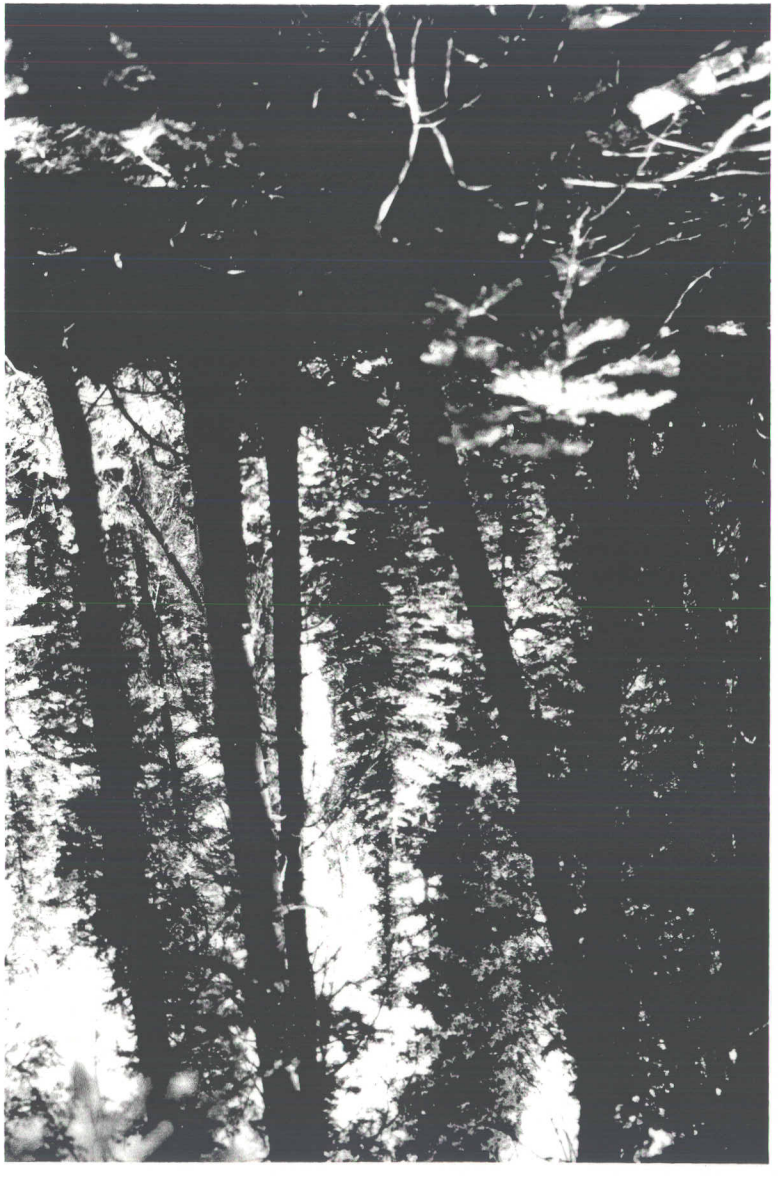
The increase in tree density and invasion of the meadow are both very prominent and easily observed. Less obvious is the loss of several of the large trees in the historic photograph. The regeneration is strongly dominated by white fir, even though the overstory is composed of other species.





Plate 16. Mesic Mid-elevation Forest

Relatively little change is observable in the photograph, and no obvious differences were observed in the field.



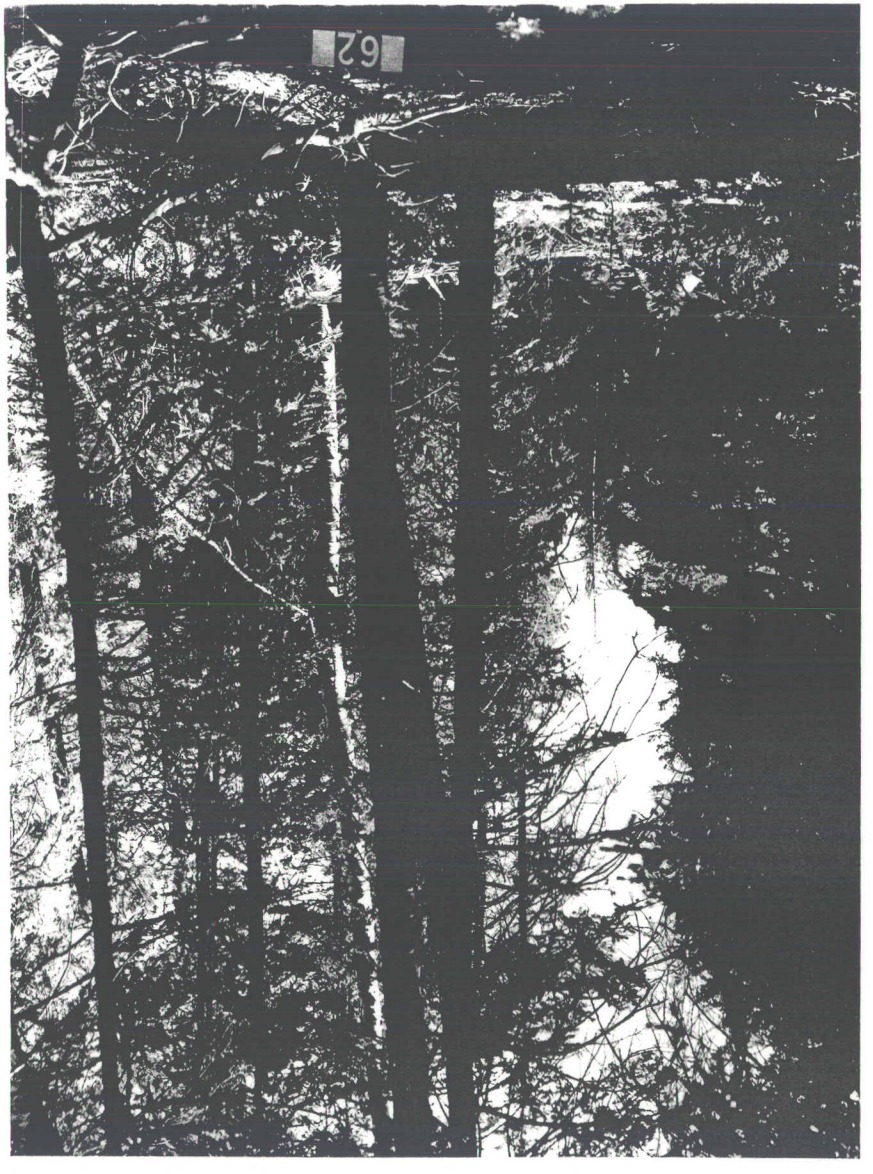

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Plate 17. Mesic Mid-elevation Forest

Most of the aspen in the historic photograph are now dead and no new aspen stems are present. The species showing the greatest increase is again white fir, despite the fact that few white fir are evident in the historic photograph. The meadow is filling in with conifer regeneration, and sun-loving forb species such as balsamroot (Balsamorhiza sagittata), prominent in the historic photograph, are absent from the recent photograph.





Reconstructing the Historical Vegetation of Bryce Canyon

Estimating the historical vegetation of Bryce Canyon required integrating information from three sources: (1) historical photographs, (2) computer simulation model outputs, and (3) inference from local and regional fire history studies.

In general, the vegetation of Bryce Canyon has shown a steady successional development throughout the Park. The rates and extent of this development, however, vary considerably depending primarily on the number of species adapted to specific environments and the relative moisture availability on specific sites. Because more moist sites are more productive they generally proceed faster than drier sites. Accordingly, the results will be discussed roughly in order of available moisture for those community types where sufficient information exists to estimate the historic vegetation.

In the lower areas of the Park on xeric non-forest sites relatively little change has occurred. These sites, mostly BIG SAGEBRUSH / FOUR-WING SALTBUSH and CORYMB BUCKWHEAT / SALINA WILDRYE community types, probably do not burn often due to the isolated location and relatively low fuel loads. Buchanan (1960) discusses the grazing impacts on these areas, and it is probably true that some increase in shrubs occurred at the expense of palatable grasses during this grazing, but there is no strong evidence that the existing community has not recovered from the grazing in the past. Occasional trespass grazing still occurs on these sites, but the overall impact on the vegetation is small.

The flood-plain communities along the streams below the Breaks have been and are still subjected to a regime of alternating high sediment deposition and erosion (Buchanan 1960).

Accordingly, these sites form a dynamic system of shifting vegetation, and are vegetated primarily by short-lived opportunistic species or long-lived woody plants such as ponderosa pine that withstand burial of the lower trunk. The environment on these sites is controlled primarily by the geology and climate, and has probably not been significantly affected by either changes in the fire or grazing regime.

The majority of the area below the rim of the plateau is dominated by the PINYON PINE / UTAH JUNIPER community type. In this type the photographic evidence suggests that slow but steady increases in the basal area occurred for both pinyon pine and Utah juniper. An analysis of fire scars and tree age class distributions in this type (Roberts et al. 1992) shows that fires have been relatively infrequent for the last several hundred years, and that the current vegetation is probably typical of the historical vegetation, although slightly denser. We do not believe that Park management has significantly influenced the pinyon juniper woodlands in Bryce Canyon National Park.

Above the rim the non-forest communities are dominated by the BLACK SAGE / NEEDLE-AND-THREAD community type. This community type was subjected to some grazing pressure up until fairly recently (Buchanan 1960), but has probably not significantly changed due to this influence. Clearly, this community type has not burned often in the recent past, as the dominant black sage is sensitive to fire. These is evidence of invasion of the BLACK SAGE / NEEDLE-AND-THREAD community type by ponderosa pine in the vicinity of the administration building, possibly as a consequence of fire suppression (Wight 1989). However, our impression is that this area has changed relatively little in historic time.

The lower elevation forest communities are dominated by ponderosa pine and Rocky Mountain juniper woodlands and forests. Here both the photographic evidence and the community composition indicate significant changes in historic times. Where in the past the regeneration has been primarily episodic with few cohorts escaping the frequent fires to achieve sufficient size to become fire resistant, we now observe significant waves of tree regeneration for much of the last 100 years. Where we would expect relatively sparse woodlands of mostly large ponderosa pine we now see relatively few large ponderosa pine in the overstory with abundant saplings and small trees in the understory. The community type classification is insensitive to the overall increase in tree abundance, however, and shows no change due to this increase alone. While ponderosa pine is relatively fire resistant, Rocky Mountain Juniper is much less so. In the absence of fire Rocky Mountain juniper appears to have increased its abundance throughout the ponderosa pine forest. Accordingly, we believe that fairly large areas (approximately 1800 hectares) of PONDEROSA PINE / PONDEROSA PINE community type have shifted to the ROCKY MOUNTAIN JUNIPER / PONDEROSA PINE community type in the recent past.

With increasing moisture ponderosa pine and Rocky Mountain juniper are joined by Douglas-fir. Throughout the Douglas-fir series (sites where Douglas-fir is the expected climax dominant) evidence of fire is observed. On sites with an understory dominated by greenleaf manzanita, evidence of fire is abundant (Roberts et al. 1992). Fire suppression over the last 100 years appears to have increased the abundance of relatively fire sensitive Douglas-fir on these sites at the expense of ponderosa pine (Roberts et al. 1992). Accordingly, we believe that areas (approximately 540 hectares) previously in the PONDEROSA PINE / PONDEROSA PINE

community type have shifted to the PONDEROSA PINE / DOUGLAS-FIR community type in the recent past.

On still more mesic sites white fir joins the other conifers, and quaking aspen occurs. White fir is the least fire tolerant conifer, and quaking aspen stems (but not root systems) are extremely fire sensitive. The two species differ, however, in their response to the fire regime. Frequent fires serve to regenerate the aspen, which would otherwise succumb to competition from the more shade tolerant conifers. Thus fire is essential for maintaining aspen on these landscapes. In contrast, frequent fires tend to remove white fir from an area, and may reduce the seed source for this species to the point that white fir may be eliminated from an area by frequent fires. In the absence of fire, white fir is the most shade tolerant species and will come to dominate most sites.

Evidence of fire in the white fir series (areas where white fir is the expected climax dominant) in Bryce Canyon National Park is variable (Roberts et al. 1992). On most sites with understories dominated by greenleaf manzanita, snowberry, or Oregon grape (Mahonia repens), evidence of fire is generally present. On more mesic sites with understories dominated by common juniper (Juniperus communis) evidence of fire is lacking. Evaluation of the historic photographs and analysis of the age class distributions (Roberts et al. 1992) demonstrates that throughout these mesic sites quaking aspen is succumbing to competition form conifers and being lost. Additionally, white fir appears to the species exhibiting the greatest increase in abundance. Accordingly, we believe that many areas which may once have had quaking aspen now have none, and that other areas where aspen was dominant or abundant now have relatively small amounts of aspen left. Accordingly, we believe that areas in the QUAKING ASPEN /

QUAKING ASPEN and QUAKING ASPEN / PONDEROSA PINE community types (approximately 110 hectares) have been significantly reduced in area, and have converted into QUAKING ASPEN / WHITE FIR, PONDEROSA PINE / WHITE FIR, or DOUGLAS-FIR / WHITE FIR community types.

Other areas in the white fir series lack aspen, and were probably historically dominated by ponderosa pine. These areas have experienced a decrease in regeneration of the relatively shade intolerant, fire tolerant ponderosa pine and an increase in the abundance of white fir. Accordingly, we believe that relatively large areas (approximately 1600 hectares) have converted from the PONDEROSA PINE / PONDEROSA PINE and PONDEROSA PINE / DOUGLAS-FIR community types to the PONDEROSA PINE / WHITE FIR community type.

In summary, successional development in the absence of fire has modified the Bryce Canyon Landscape to a significant extent. On dry sites, this development has been relatively slow, and species conversion has not generally occurred. On more moist sites the development has been significantly faster and species conversion has been common. Generally, there has been a decrease in quaking aspen and an increase in white fir across these mesic sites.

Mapping the Historic Vegetation Of Bryce Canyon

The map of historical vegetation of Bryce Canyon wa prepared by converting an existing digital community type map of Bryce Canyon (Roberts et al. 1992) according to the information described above. Specifically, we converted:

1) ROCKY MOUNTAIN JUNIPER / PONDEROSA PINE to PONDEROSA PINE / PONDEROSA PINE
2) PONDEROSA PINE / DOUGLAS-FIR to PONDEROSA PINE / PONDEROSA PINE
3) PONDEROSA PINE / WHITE FIR to PONDEROSA PINE / PONDEROSA PINE
4) ROCKY MOUNTAIN JUNIPER / WHITE FIR to PONDEROSA PINE / WHITE FIR
5) DOUGLAS-FIR / WHITE FIR to PONDEROSA PINE / WHITE FIR
6) LIMBER PINE / WHITE FIR to LIMBER PINE / PONDEROSA PINE
7) QUAKING ASPEN / DOUGLAS-FIR to QUAKING ASPEN / PONDEROSA PINE
8) QUAKING ASPEN / WHITE FIR to QUAKING ASPEN / PONDEROSA PINE
9) QUAKING ASPEN / BLUE SPRUCE to QUAKING ASPEN / QUAKING ASPEN

After conversion of specific community types we dissolved the boundaries between polygons which were previously different community types but which had been converted to the same community type. The resulting historic vegetation map is included as Map 1 in the map pocket.

The map shows that the historic vegetation of Bryce Canyon was probably much simpler than that which occurs at present. Specifically, where currently six different community types

in aggregate cover over 80% of the Park (Roberts et al. 1992), on the historic map only three community types are sufficient in aggregate to cover greater than 85% of the Park. Figures 3-5 show the distribution of the dominant three community types in the historic vegetation. Additionally, on the current community type map a total of 27 community types occur; on the historic map that number is reduced to 20. As a basis for comparing landscape diversity, we calculated the fraction of the Park area in each community type for each map and then calculated a Shannon-Weiner diversity index on those fractions. Where the current community type map has a diversity of 2.1205, the historic map has a diversity of only 1.4559.

The primary reason for this simplification is a homogenization of the landscape with frequent fires. Ponderosa pine is the dominant species on drier forest sites regardless of fire regime. On wetter sites ponderosa pine is the dominant species with frequent fire, while white fir is the dominant species in the absence of fire. Accordingly, frequent fires increase the similarity of wet and dry sites by favoring the dominance of ponderosa pine. While absence of fire appears to have reduced the abundance of quaking aspen, and thus reduced diversity, it has more than offset this reduction by allowing for the differentiation of wet sites into different community types. Theoretically, with continued fire suppression landscape diversity will again go down, when white fir dominates all the mesic sites, but this may never occur.

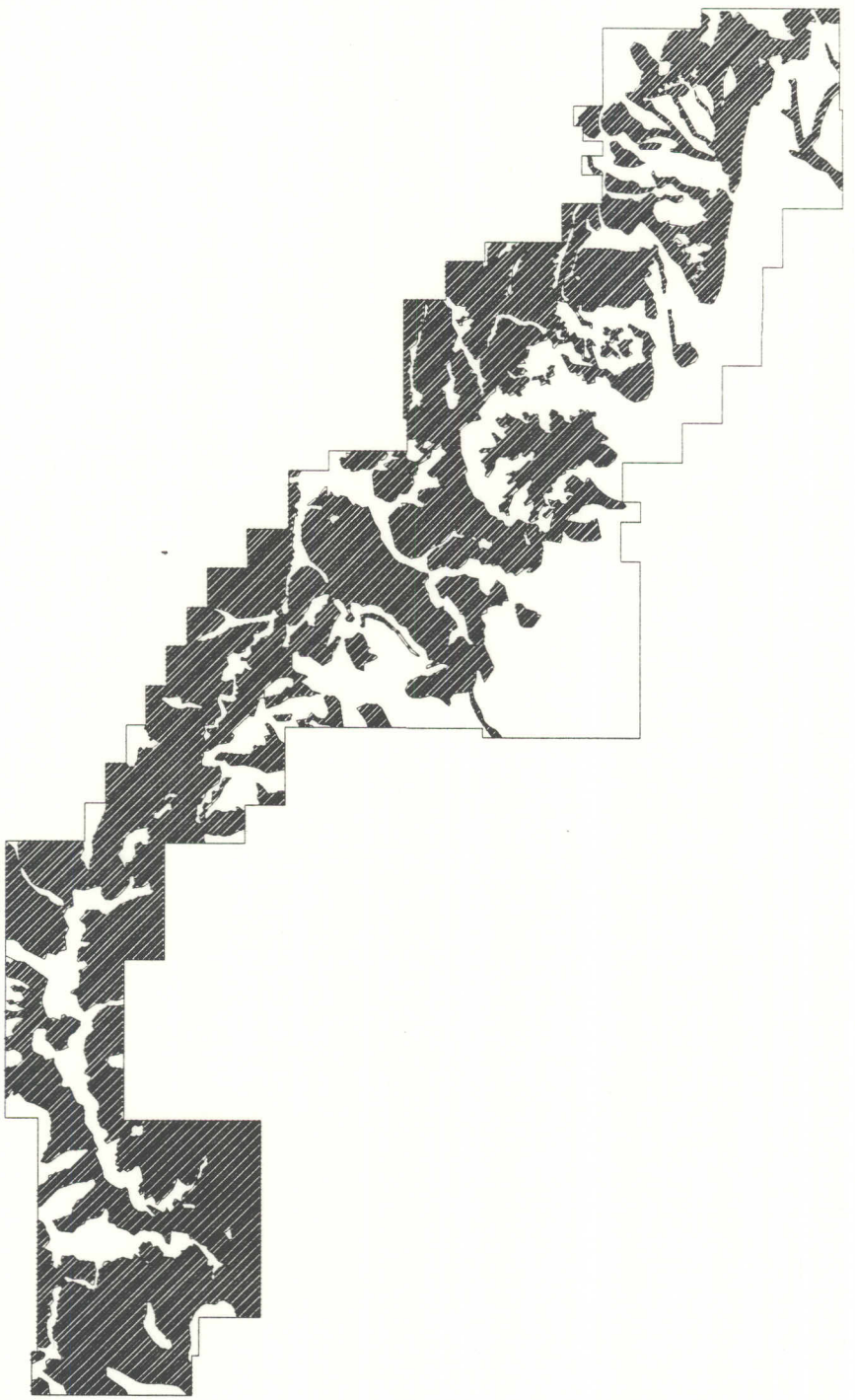


Figure 3. Historic distribution of the PONDEROSA PINE / PONDEROSA PINE community type.

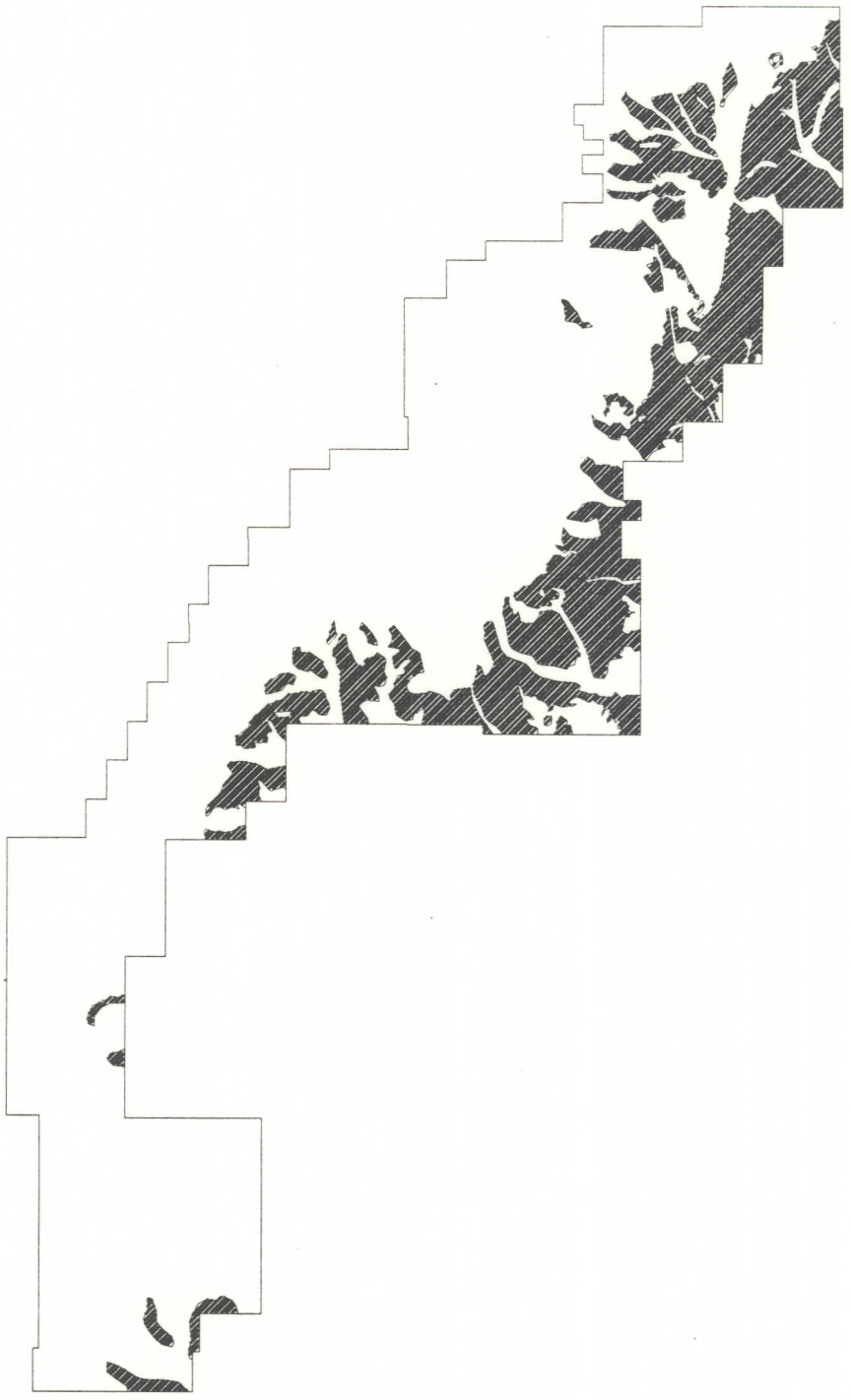


Figure 4. Historic distribution of the PINYON PINE / UTAH JUNIPER community type.



Figure 5. Historic distribution of the BLACK SAGE / NEEDLE-AND-THREAD community type.

FUEL TYPE DESCRIPTIONS

Fuel Type 1

Fuel type 1 is comprised of the QUAKING ASPEN / QUAKING ASPEN, QUAKING ASPEN / PONDEROSA PINE, QUAKING ASPEN / COLORADO BLUE SPRUCE, QUAKING ASPEN / WHITE FIR, LIMBER PINE / PONDEROSA PINE, PONDEROSA PINE / DOUGLAS-FIR, PONDEROSA PINE / WHITE FIR community types. The average total fuel load for fuel type 1 is 30.83 tons/acre. Fuel loads by time lag class, (dead, live and total) are summarized in Table 2. Detailed information on the fuel loads of community types within fuel type 1 is available in Appendix C

Table 2. Summarized Fuel Loads For Fuel Type 1

Fuel Type 1	
1 Hour	1.93 Tons/Acre
10 Hour	0.90 Tons/Acre
100 Hour	1.89 Tons/Acre
Dead Fuel Load	29.69 Tons/Acre
Live Fuel Load	1.14 Tons/Acre
Total Fuel Load	30.83 Tons/Acre
Fuel Model Static 21	

Fuel type 1 is widely distributed throughout the south end of the park with a total area of 2390 hectares (Fig. 6). This fuel type occurs on some of the most mesic sites in the park.

Fire behavior predictions for this fuel type are based on custom fuel model Static 21. Appendix D presents detailed average behavior predictions for May through September, along



Figure 6. Distribution of fuel type one.

with worst case fire behavior predictions. Predicted fire behavior for an average July day with a wind speed of 4 miles/hour are summarized in Table 3.

Table 3. Summarized Fire Behavior Predictions for Average July Day For Fuel Type 1 Using Fuel Model Static 21.

	Fuel Type 1
Average Slope	20%
Rate of Spread	11 Feet/Minute
Flame Length	5 Feet
Fire Line Intensity	154 BTU/Foot/Second

Fuel Type 2

Fuel type 2 is composed of the QUAKING ASPEN / DOUGLAS-FIR, LIMBER PINE / WHITE FIR, and the PONDEROSA PINE / PONDEROSA PINE community types within the Douglas-fir and White fir series community types. Fuel type 2 covers an area of 2200 hectares in the north section of the park, and in the south below the breaks (Fig. 7). Total fuel load is 30.90 tons/acre. Fuel loads by time lag class, (dead, live, and total) are summarized in Table 4. More detailed information on the fuel loads of the community types within fuel type 2 are contained in Appendix C.

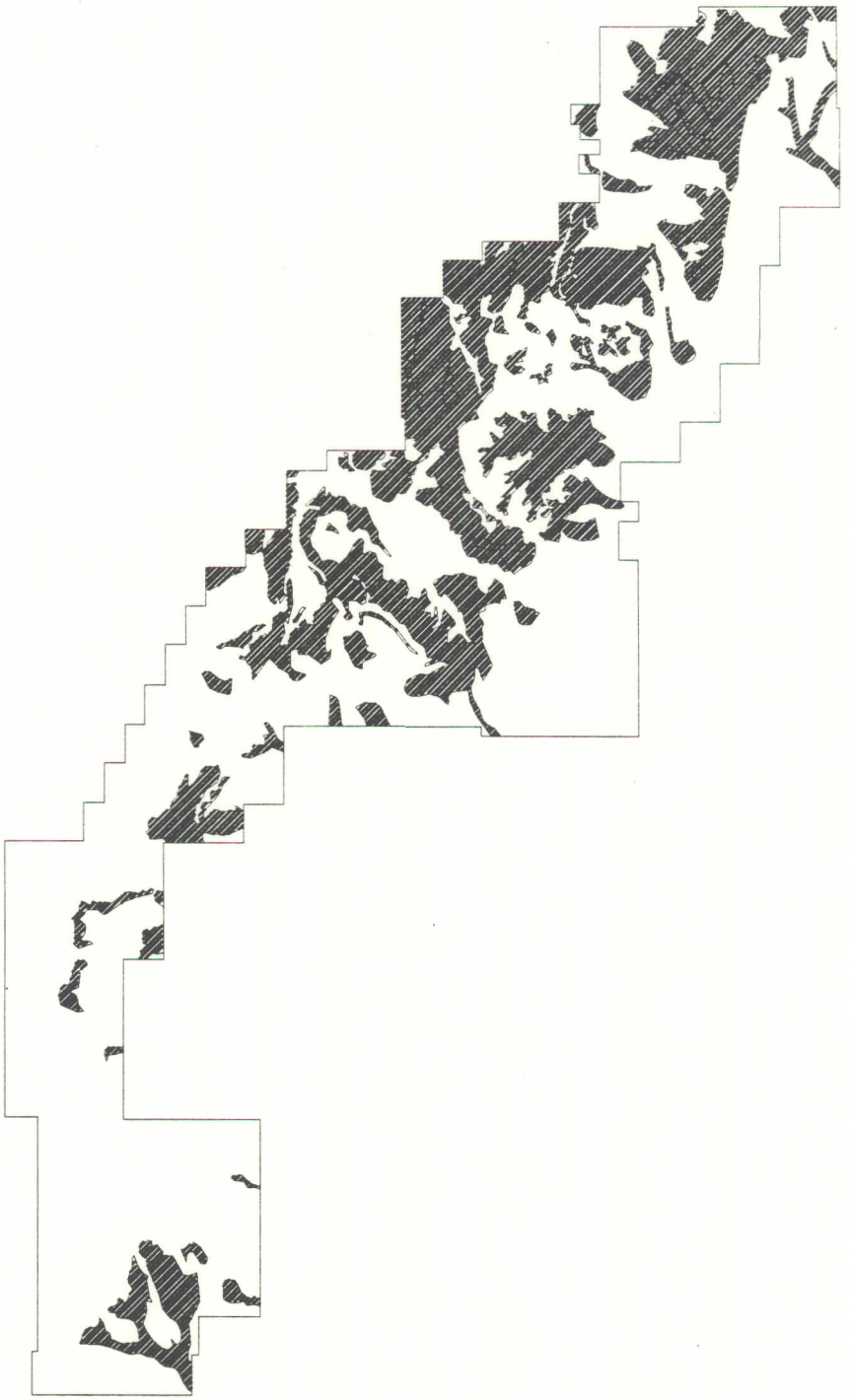


Figure 7. Distribution of fuel type 2.

Table 4. Summarized Fuel Loads For Fuel Type 2

Fuel Type 2	
1 Hour	2.52 Tons/Acre
10 Hour	0.77 Tons/Acre
100 Hour	1.61 Tons/Acre
Dead Fuel Load	29.91 Tons/Acre
Live Fuel Load	0.99 Tons/Acre
Total Fuel Load	30.90 Tons/Acre
Fuel Model Static 22	

Fire behavior predictions for this fuel type are based on custom fuel model Static 22. Appendix D presents detailed average behavior predictions for May through September, along with worst case fire behavior predictions. Predicted fire behavior for an average July day with a wind speed of 4 miles/hour are summarized in Table 5.

Table 5. Summarized Fire Behavior Predictions for Average July Day For Fuel Type 2 Using Static Model 22

Fuel Type 2	
Average Slope	20%
Rate of Spread	15 Feet/Minute
Flame Length	6 Feet
Fire Line Intensity	235 BTU/Foot/Second

Fuel Type 3

Fuel type 3 is comprised of the LIMBER PINE / DOUGLAS-FIR and DOUGLAS-FIR / WHITE FIR community types. The average total fuel load is 32.80 tons/acre. Fuel load by time lag class, (dead, live, and total) is summarized in Table 6. Detailed information is available on individual community type fuel loads in Appendix C.

Table 6. Summarized Fuel Loads For Fuel Type 3

Fuel Type 3	
1 Hour	3.85 Tons/Acre
10 Hour	0.76 Tons/Acre
100 Hour	1.55 Tons/Acre
Dead Fuel Load	31.50 Tons/Acre
Live Fuel Load	1.30 Tons/Acre
Total Fuel Load	32.80 Tons/Acre
Fuel Model Static 23	

Fuel type 3 is a small fuel type covering 62 hectares. Fuel type 3 occurs in small scattered patches in the southern and eastern sections of the park (Fig. 8). This type tends to be in moderately mesic sites. This type has the average highest fuel loads of any other fuel type association.

Fire behavior predictions for this fuel type were developed using custom fuel model Static 23. Appendix D presents detailed mean behavior predictions for May through September, along with worst case fire behavior predictions. Predicted fire behavior for an average July day with a wind speed of 4 miles/hour are summarized in Table 7. The fire line intensity predictions tend

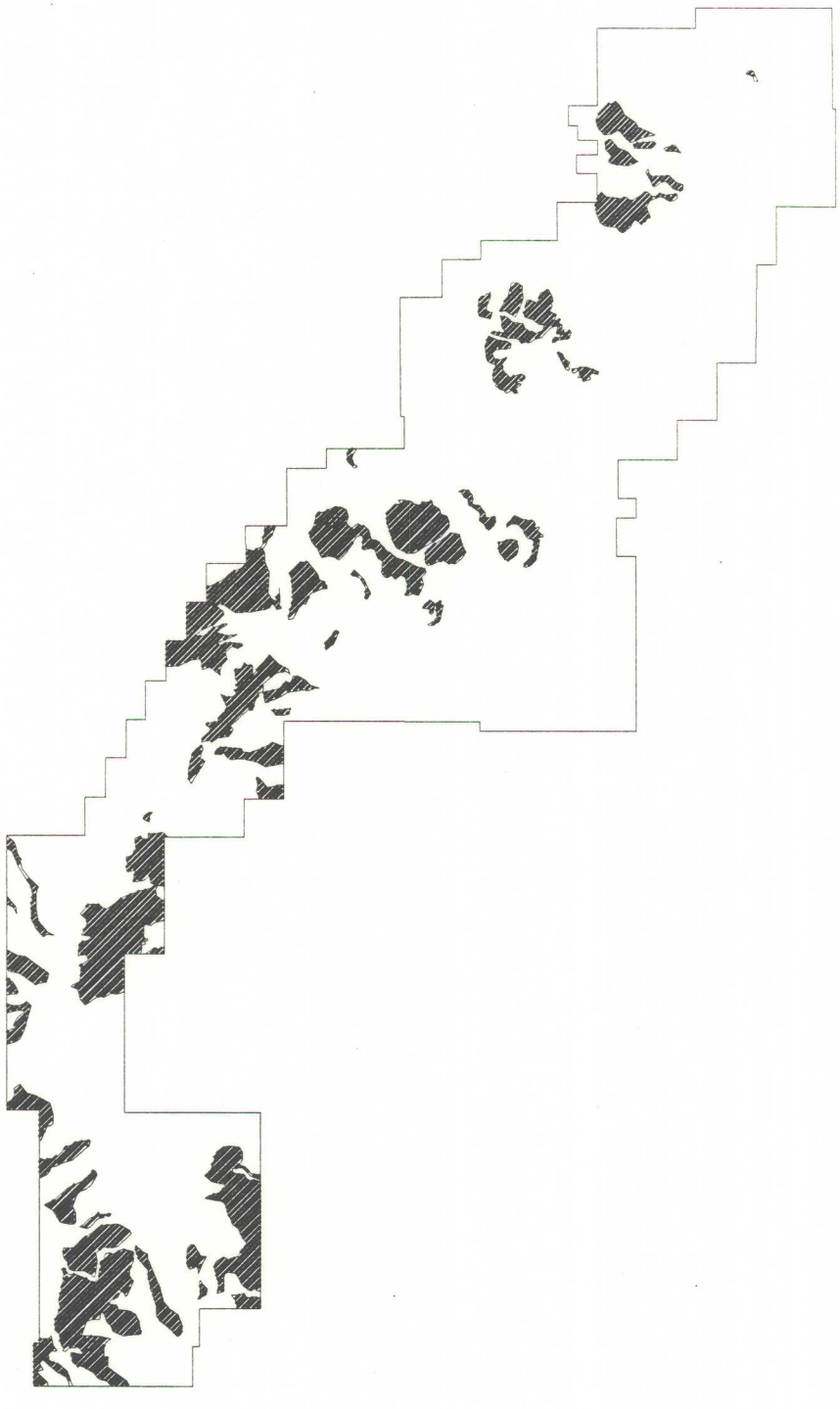


Figure 8. Distribution of fuel type 3.

to be higher than the other forest types, due to a high percentage of down and dead component within the stands.

Table 7. Summarized Fire Behavior Predictions for Average July Day For Fuel Type 3 Using Static Model 23

Fuel Type 3	
Average Slope	15%
Rate of Spread	15 Feet/Minute
Flame Length	6 Feet
Fire Line Intensity	331 BTU/Foot/Second

Fuel Type 4

Fuel type 4 is composed of PONDEROSA PINE / PONDEROSA PINE community type within the PONDEROSA PINE series, the ROCKY MOUNTAIN JUNIPER / PONDEROSA PINE, and the NULL / PONDEROSA PINE community types. The average total fuel load is 14.08 tons/acre. Fuel loads by time lag class, (dead, live and total) are summarized in Table 8. Also, more information on the fuel loads of the community types within this fuel load association are presented in Appendix C.

Table 8. Summarized Fuel Loads For Fuel Type 4

Fuel Type 4	
1 Hour	1.63 Tons/Acre
10 Hour	0.32 Tons/Acre
100 Hour	0.64 Tons/Acre
Dead Fuel Load	12.78 Tons/Acre
Live Fuel Load	1.30 Tons/Acre
Total Fuel Load	14.08 Tons/Acre
Fuel Model Static 24	

Fuel type 4 is an important fuel type of Bryce Canyon National Park covering 3985 hectares. The distribution of fuel type 4 is limited to the northern one half of the park. The south end of East Creek Meadow is the southern boundary of this type above the breaks, but fuel type 4 extends a little more south under the breaks (Fig. 9). The elevation range of this type is from 2330 to 2550 meters.

Fire behavior predictions for this fuel type are based on custom fuel model Static 24. Appendix D presents detailed average behavior predictions for May through September, along with worst case fire behavior predictions. Predicted fire behavior for an average July day with a wind speed of 4 miles/hour are summarized in Table 9.

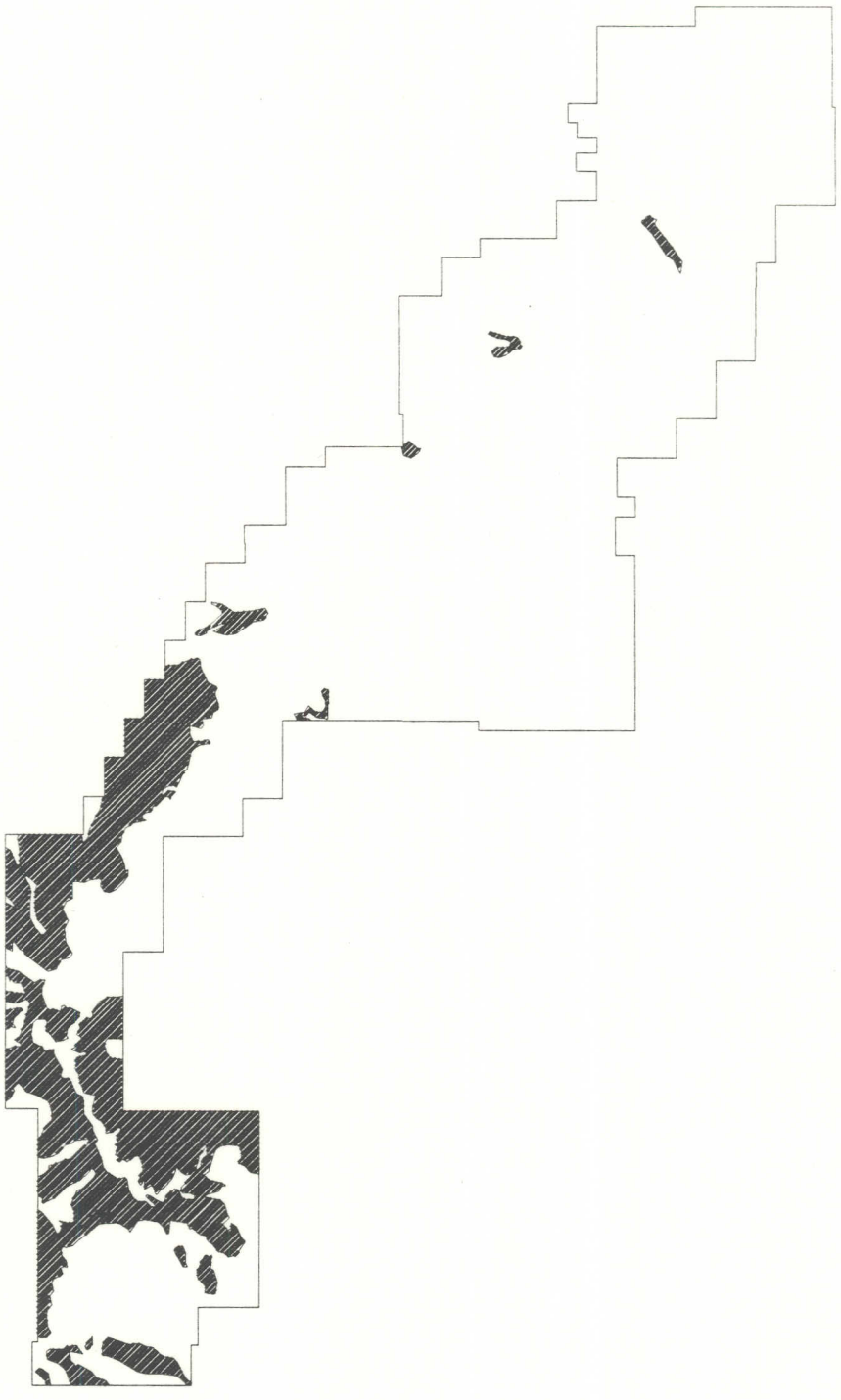


Figure 9. Distribution of fuel type 4.

Table 9. Summarized Fire Behavior Predictions for Average July Day For Fuel Type 4 Using Static Model 24

Fuel Type 4	
Average Slope	15%
Rate of Spread	33 Feet/Minute
Flame Length	6 Feet
Fire Line Intensity	248 BTU/Foot/Second

Fuel Type 5

Fuel type 5 is comprised of the PINYON PINE / UTAH JUNIPER community type of Bryce Canyon National Park. Fuel type 5 is a major fuel type of the park east of the breaks. Average total fuel load for this fuel type is 6.62 tons/acre. Fuel loads by time lag class, (dead, live, and total) are presented in Table 10. Detailed information on fuel load of the PINYON PINE/UTAH JUNIPER community type is given in Appendix C.

Table 10. Summarized Fuel Loads For Fuel Type 5

Fuel Type 5	
1 Hour	1.26 Tons/Acre
10 Hour	0.57 Tons/Acre
100 Hour	0.90 Tons/Acre
Dead Fuel Load	5.88 Tons/Acre
Live Fuel Load	0.74 Tons/Acre
Total Fuel Load	6.62 Tons/Acre
Fuel Model Static 25	

Fuel type 5 encompasses the pinyon juniper woodlands of Bryce Canyon National Park. This type of woodland is common throughout southern Utah and northern Arizona. The fuels in this type are discontinuous with numerous bare ground patches under the pinyon juniper overstory. Fuel dams in gullies in fuel type 5 contain much of the surface fuel and litter. These fuel dams are common in this fuel type. Fuel type 5 is distributed on the eastern edges of the park below the breaks (Fig. 10). Fuel type 5 covers the second largest area of any of the fuel types described at 3041 hectares.

Fire behavior predictions for this fuel type are based on custom fuel model Static 25. Appendix D presents detailed average behavior predictions for May through September, along with worst case fire behavior predictions. Predicted fire behavior for an average July day with a wind speed of 4 miles/hour are summarized in Table 11.

Table 11. Summarized Fire Behavior Predictions for Average July Day For Fuel Type 5 Using Static Model 25

	Fuel Type 5
Average Slope	12%
Rate of Spread	49 Feet/Minute
Flame Length	8 Feet
Fire Line Intensity	507 BTU/Foot/Second

Fuel Type 6

Fuel type 6 is comprised of the PONDEROSA PINE / GAMBLE OAK and GAMBEL OAK / GAMBEL OAK community types. The total average fuel load for this fuel type is 19.23 tons/acre. Table 12 summarizes the fuel loads by time lag classes, (dead, live, and total) for



Figure 10. Distribution of fuel type 5.

fuel type 6. Detailed information is available in Appendix C on the fuel loads of the community types within this association.

Table 12. Summarized Fuel Loads For Fuel Type 6

Fuel Type 6	
1 Hour	2.80 Tons/Acre
10 Hour	0.70 Tons/Acre
100 Hour	1.38 Tons/Acre
Dead Fuel Load	14.70 Tons/Acre
Live Fuel Load	4.57 Tons/Acre
Total Fuel Load	19.23 Tons/Acre
Fuel Model Static 26	

Fuel type 6 covers an area of 269 hectares east of the breaks. This type is characterized by a heavy shrub layer of Gambel oak. Ponderosa pine is the dominant overstory component, but the basal area of ponderosa pine is low. Fuel type 6 is located in stream alluvials under the breaks, and the dendritic distribution follows the stream beds (Fig. 11).

Fire behavior predictions for this fuel type are based on custom fuel model Static 26. Appendix D presents detailed average behavior predictions for May through September, along with worst case fire behavior predictions. Predicted fire behavior for an average July day with a wind speed of 4 miles/hour are summarized in Table 13.

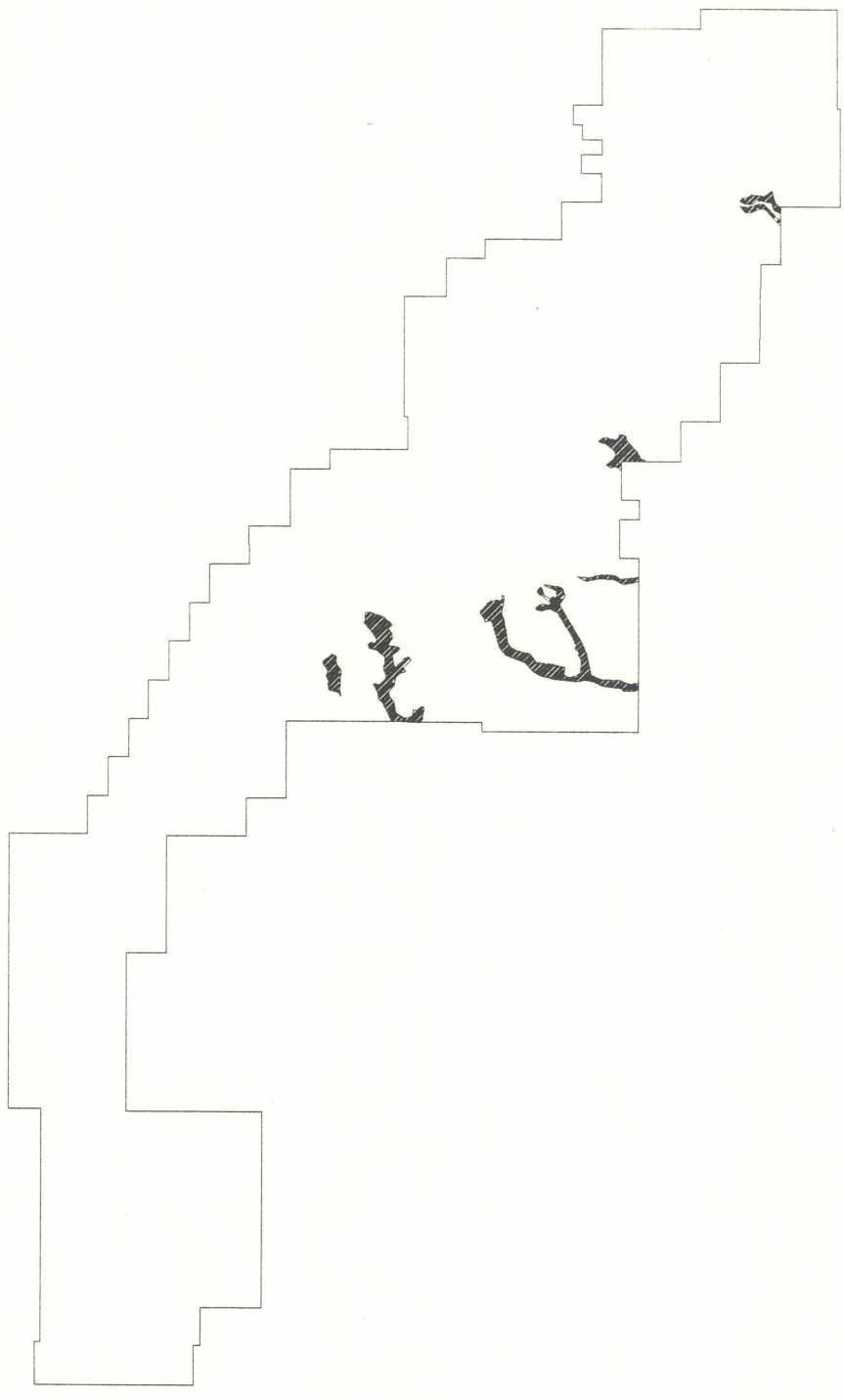


Figure 11. Distribution of fuel type 6.

Table 13. Summarized Fire Behavior Predictions for Average July Day For Fuel Type 6 Using Static Model 26

Fuel Type 6	
Average Slope	8%
Rate of Spread	75 Feet/Minute
Flame Length	19 Feet
Fire Line Intensity	3486 BTU/Foot/Second

Fuel Type 7

Fuel type 10 contains the BLACK SAGEBRUSH / NEEDLE-AND-THREAD and BIG SAGEBRUSH / FOUR-WINGED SALTBRUSH community types. The total average fuel load for fuel type 7 is 4.76 tons/acre. More detailed information on fuel type 7's community type fuel loads is available in Appendix C. Fuel loads by time lag class, (dead, live, and total) are summarized in Table 14.

Table 14. Summarized Fuel Loads For Fuel Type 7

Fuel Type 7	
1 Hour	0.93 Tons/Acre
10 Hour	0.38 Tons/Acre
100 Hour	0.58 Tons/Acre
Dead Fuel Load	2.71 Tons/Acre
Live Fuel Load	2.05 Tons/Acre
Total Fuel Load	4.76 Tons/Acre

Fuel Model Static 27

Fuel type 7 contains most of the meadow area of the park, and is widely distributed throughout the park. Most of the hectares contained in this type occur in the northern section of the park above the breaks. The remaining hectares are located east of the breaks (Fig. 12). Meadow encroachment by tree species is evident throughout the meadow forest interface. Buchanan (1981), through the use of aerial photo comparisons, determined that the meadows of the park have been shrinking in size. Fuel type 7 covers an area of 900 hectares.

Fire behavior predictions for this fuel type were based on custom fuel model Static 27. Appendix D presents detailed average behavior predictions for May through September, along with worst case fire behavior predictions. Predicted fire behavior for an average July day with a wind speed of 4 miles/hour are summarized in Table 15.

Table 15. Summarized Fire Behavior Predictions for Average July Day For Fuel Type 7 Using Static Model 27.

	Fuel Type 7
Average Slope	7%
Rate of Spread	4 Feet/Minute
Flame Length	2 Feet
Fire Line Intensity	17 BTU/Foot/Second



Figure 12. Distribution of fuel type type 7.

Fuel Type 0

Fuel type 0 is comprised of the CORYMB BUCKWHEAT / SALINA WILDRYE and WIREGRASS / ROSS'S SEDGE community types. Fuel type 0 total average fuel load is 1.11 tons/acre. Fuel type 0 detailed information on fuel loads by community type is available in Appendix C.

Fuel type 0 is characterized by very low fuel loads. These communities have very little chance of burning due to the nature of the fuel complex. The CORYMB BUCKWHEAT / SALINA WILDRYE community type is sparsely vegetated with large patches of bare soil between plants making it virtually impossible for fire to spread or even ignite. The WIREGRASS/ROSS'S SEDGE community type is found in wet meadow areas and also has a low possibility of burning except in very dry years. If a number of very dry years occur this community type could burn if surrounding fuel type 7 ignites. The distribution of fuel type 0 is widely scattered throughout the park and covers an area of 150 hectares (Fig. 13). A custom fuel model was not developed for fuel type 0 because it is unlikely that any portion of this type will burn. Fuel loads for the community types in fuel type association 0 are contained in Appendix D. These could be used to develop a custom model for these types if a series of dry years does occur.

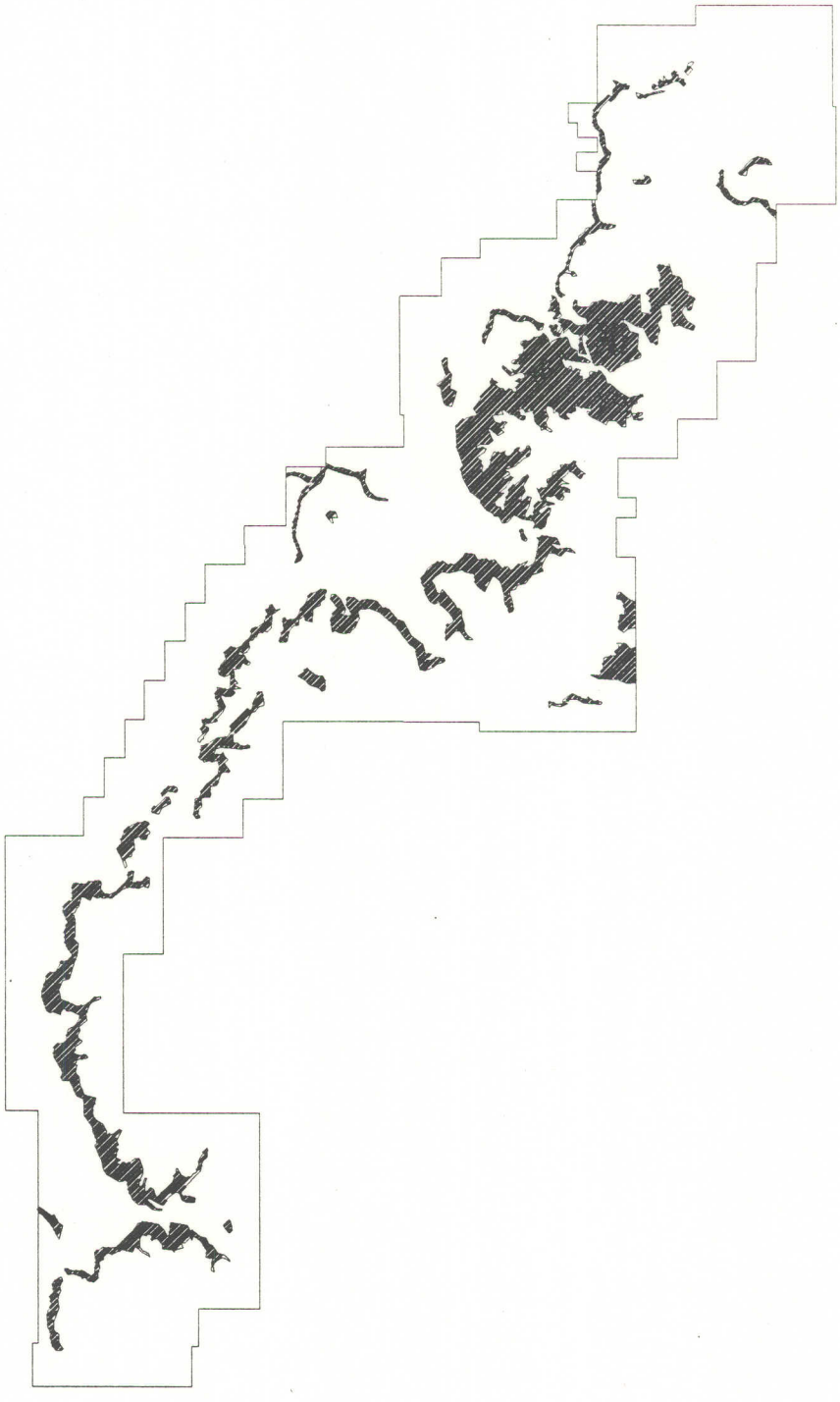


Figure 13. Distribution of fuel type 0.

Mapping Fuel Loads and Fuel Models Throughout Bryce Canyon

Fuel loads were estimated for each fuel class in each community type. Because of the number of potential fuel maps, we did not produce individual fuel load maps. Rather, we added the fuel load data to the community type map data base. Any fuel class load can be found by determining the community type and looking up the fuel load values in Appendix C.

Since each community type corresponds to a specific fuel type, we constructed a fuel type map for Bryce Canyon by recoding the community type map to fuel type and dissolving boundaries between adjacent polygons which converted to the same fuel type. The fuel type map is included as map 2 in the map pocket.

Integrating the Fuel Model and Fire Behavior Predictions into the Simulation Model

Roberts et al. (1992) described a vital attributes-based forest simulation developed for Bryce Canyon. A key element of the model is that fire intensities are estimated for each habitat type as a function of fuel accumulation, which is in turn estimated from site productivity and time since last fire. In the initial development of the model the fire severities were estimated qualitatively from minimal data.

The key to integrating the fuel load and fire behavior predictions from this study into the simulation model is cross-referencing the community types. Specifically, each community type belongs to a specific fuel type with characteristic fuel loads by fuel class, rates of spread, and

fire intensity. Each community type also occupies a specific position in the successional development of communities on each habitat type. Accordingly, it is possible to estimate the time at which each community type occurs in the successional development of specific habitat types from the succession model, and to employ the fuel load estimates from this study as the available fuel in the simulation model.

The fuel load program provides specific values for fuel loads in each fuel class, and the fire behavior program predicts specific values for rate of spread and fire intensity under specific environmental conditions. Unfortunately, these values do directly relate to biological response of vegetation. Accordingly, the successional simulation model was used to estimate years of transition from one community type to another, and the fuel model data were used to estimate qualitatively the biological response of the simulated tree species. Despite the lack of quantitative correspondence, the fuel load data resulted in a significant improvement to the behavior of the succession model.

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Appendix A. Species Names

Trees:

blue spruce	*Picea pungens*
bristlecone pine	*Pinus longaeva*
Douglas-fir	*Pseudotsuga menziesii*
limber pine	*Pinus flexilis*
pinyon pine	*Pinus edulis*
ponderosa pine	*Pinus ponderosa*
quaking aspen	*Populus tremuloides*
Rocky Mountain juniper	*Juniperus scopulorum*
Utah juniper	*Juniperus osteosperma*
white fir	*Abies concolor*

Other:

balsamroot	*Balsamorhiza sagittata*
big sagebrush	*Artemisia tridentata*
bitterbrush	*Purshia tridentata*
black sage	*Artemisia nova*
common juniper	*Juniperus communis*
corymb buckwheat	*Eriogonum corymbosum*
four-wing saltbush	*Atriplex canescens*
Gambel oak	*Quercus gambelii*
greenleaf manzanita	*Arctostaphylos patula*
needle-and-thread	*Stipa comata*
Oregon grape	*Mahonia repens*
Ross's sedge	*Carex rossii*
Salina wildrye	*Elymus salinus*
wiregrass	*Juncus arcticus*

Appendix B Photographic Data

All photographs taken on Kodak TMAX (ASA 100) black-and-white film.

Plate 1) W.B. Alcorn original. Bristlecone Point.
BCNP refernce 551.581 BRCA-66
f8 @ 1/30

Plate 2) W.B. Alcorn original. Water Canyon.
BCNP reference 1200 069.5
f8 @ 1/30

Plate 3) W.B. Alcorn original. Paria River.
BCNP reference 551.57 50-BRCA
f8 @ 1/30

Plate 4) W.B. Alcorn original. Swamp Canyon.
BCNP reference 551.57 1588
f8 @ 1/125

Plate 5) H. Buchanan original. View From White Point

Plate 6) H. Buchanan original. Low Elevation Ponderosa Pine Forest
transect 8, plot 254, photopoint 218
f 5.6 @ 1/60

Plate 7) H. Buchanan original. Low Elevation Ponderosa Pine Forest
transect 8, plot 254, photopoint 219
f8 @ 1/30

Plate 8) H. Buchanan original. Low Elevation Ponderosa Pine Forest
transect 8, plot 251, photopoint 215
f5.6 @ 1/30

Plate 9) H. Buchanan original. Low Elevation Ponderosa Pine Forest
transect 8, plot 248, photopoint 213
f8 @ 1/60

Plate 10) H. Buchanan original. Mid-elevation Mixed Conifer Forest
transect 3, plot 71, photopoint 51
f4 @ 1/60

Plate 11) H. Buchanan original. Mid-elevation Mixed Conifer Forest
transect 3, plot 71, photopoint 52
f3.3 @ 1/60

Plate 12) H. Buchanan original. Mid-elevation Mixed Conifer Forest
transect 3, plot 74, photopoint 5
f5.6 @ 1/30

Plate 13) H. Buchanan original. Mixed Forest on Whiteman Bench
transect 3, plot 79, photopoint 58
f5.6 @ 1/30

Plate 14) H. Buchanan original. Mixed Forest at Whiteman Bench
transect 3, plot 79, photopoint 59
f5.6 @ 1/30

Plate 15) H. Buchanan original. Mesic Mid-elevation Forest
transect 4, plot 87, photopoint 63
f4 @ 1/60

Plate 16) H. Buchanan original. Mesic Mid-elevation Forest
transect 4, plot 87, photopoint 62
f3.3 @ 1/60

Plate 17) H. Buchanan original. Mesic Mid-elevation Forest
transect 4, plot 83, photopoint 84
f4 @ 1/60

APPENDIX C
ARNO/STCO COMMUNITY TYPE FUEL DATA

FUEL LOADING SUMMARY

SIZE CLASS	LOADING IN OVEN-DRY POUNDS/ACRE AVERAGE		STD-DEV	%ERROR	KG/SQ-M
0-.25		126	101	17.9	0.014
.25-1		275	463	37.7	0.031
LITTER		35	71	46.1	0.004
DEAD HERBS					
FINES	530		513	21.6	0.059
1-3		437	1426	72.9	0.049
LESS THAN 3	968		1558	36.0	0.108
3+ TOTAL	0		0	0.0	0.000
SOUND 3-6		0	0	0.0	0.000
SOUND 6-10		0	0	0.0	0.000
SOUND 10-20		0	0	0.0	0.000
SOUND 20+		0	0	0.0	0.000
3+ SOUND TOTAL	0		0	0.0	0.000
ROTTEN 3-6		0	0	0.0	0.000
ROTTEN 6-10		0	0	0.0	0.000
ROTTEN 10-20		0	0	0.0	0.000
ROTTEN 20+		0	0	0.0	0.000
3+ ROTTEN TOT.	0		0	0.0	0.000
DUFF		1724			0.193
DEAD SHRUB		771	1272	26.1	0.086
DEADFUEL LOAD	3463		2414	15.6	0.388
LIVE HERBS		599	350	13.1	0.067
LIVE SHRUB		4932	7750	24,8	0.553
TREE NEEDLES		0	0	0.0	0.000
0-25		0	0	0.0	0.000
.25+		0	0	0.0	0.000
TOTAL TREE	0		0	0.0	0.000
TOTAL LOAD	8994		5511	13.7	1.008

DEPTH

	AVERAGE	MIN.	MAX.	STD-DEV
DUFF	0.05	0.00	0.20	0.06
SHRUB	8.08	0.00	17.00	3.25

TOPOGRAPHIC CONDITIONS

	AVERAGE	MINIMUM	MAXIMUM	STD-DEV
SLOPE	5.1	4.0	8.0	1.50
ASPECT	244.0			
ELEVATION	7642	7460	7860	

AVERAGE LIVE AND DEAD SHRUB FUEL LOADINGS

SPECIES	0-.5	.5-1	1-1.5	1.5-2	2-3	3-5	5+	TOTAL
LOW	83.5	413.1	579.9	2290.4	2336.2	0.0	0.0	5703.1
TOTAL	83.5	413.1	579.9	2290.4	2336.2	0.0	0.0	5703.1

PERCENTAGE ESTIMATES

SHRUB		HERBS	
%COVER	%DEAD	%COVER	%DEAD
35.3	13.3	25.4	12.5

3+ VOLUME AND DIAMETER

SOUND		ROTTEN	
CU-FT	AVG.DIA	CU-FT	AVG.DIA
0	0.00	0	0.00

SMALL TREES

SPECIES	TREES/ARCE	AVG.HT.FT
TOTAL	0	

FIRE MODELING INPUT DATA FOR SHRUBS

	LEAF WT.	STEM WT.			
SPECIES	(LBS/ACRE)	0-.5CM	.5-2CM	2+CM	TOT STM
LOW	1255.8	1181.8	2900.7	364.8	4447.3
TOTAL	1255.8	1181.8	2900.7	364.8	4447.3

APPENDIX C
ERCO/ELSA COMMUNITY TYPE FUEL DATA

FUEL LOADING SUMMARY

SIZE CLASS	LOADING IN OVEN-DRY POUNDS/ACRE AVERAGE	STD-DEV	%ERROR	KG/SQ-M
0-.25	173	240	30.9	0.019
.25-1	246	611	55.5	0.028
LITTER	0	0	0.0	0.000
DEAD HERBS	10	36	78.6	0.001
FINES	430	672	35.0	0.048
1-3	0	0	0.0	0.000
LESS THAN 3	430	672	35.0	0.048
3+ TOTAL	175	782	100.0	0.020
SOUND 3-6	0	0	0.0	0.000
SOUND 6-10	0	0	0.0	0.000
SOUND 10-20	0	0	0.0	0.000
SOUND 20+	0	0	0.0	0.000
3+ SOUND TOTAL	175	782	100.0	0.020
ROTTEN 3-6	0	0	0.0	0.000
ROTTEN 6-10	0	0	0.0	0.000
ROTTEN 10-20	0	0	0.0	0.000
ROTTEN 20+	0	0	0.0	0.000
3+ ROTTEN TOT.	175	782	100.0	0.020
DUFF	0			0.000
DEAD SHRUB	318	520	25.9	0.036
DEADFUEL LOAD	922	914	22.2	0.103
LIVE HERBS	59	126	47.3	0.007
LIVE SHRUB	1534	2100	21.6	0.172
TREE NEEDLES	0	0	0.0	0.000
0-25	0	0	0.0	0.000
.25+	0	0	0.0	0.000
TOTAL TREE	0	0	0.0	0.000
TOTAL LOAD	2516	1465	13.0	0.282

	DEPTH			
	AVERAGE	MIN.	MAX.	STD-DEV
DUFF	0.00	0.00	0.00	0.00
SHRUB	10.41	0.00	18.00	3.83

TOPOGRAPHIC CONDITIONS

	AVERAGE	MINIMUM	MAXIMUM	STD-DEV
SLOPE	19.8	14.0	35.0	7.02
ASPECT	172.5			
ELEVATION	6712	6640	6750	

AVERAGE LIVE AND DEAD SHRUB FUEL LOADINGS

SIZE CLASS IN CENTIMETERS

SPECIES	0-.5	.5-1	1-1.5	1.5-2	2-3	3-5	5+	TOTAL
LOW	46.9	489.5	416.9	424.2	459.4	0.0	0.0	1837.0
MEDIUM	0.0	0.0	15.1	0.0	0.0	0.0	0.0	15.1
TOTAL	46.9	489.5	432.0	424.2	459.4	0.0	0.0	1852.1

PERCENTAGE ESTIMATES

SHRUB		HERBS	
%COVER	%DEAD	%COVER	%DEAD
17.6	17.3	3.0	2.9

3+ VOLUME AND DIAMETER

SOUND		ROTTEN	
CU-FT	AVG.DIA	CU-FT	AVG.DIA
0	0.00	9	5.00

SMALL TREES

SPECIES	TREES/ARCE	AVG.HT.FT
TOTAL	0	

FIRE MODELING INPUT DATA FOR SHRUBS

SPECIES	LEAF WT. (LBS/ACRE)	STEM WT. 0-.5CM	.5-2CM	2+CM	TOT STM
LOW	465.4	502.3	797.5	71.7	1371.6
MEDIUM	3.7	3.8	7.7	0.0	11.4
TOTAL	469.1	506.0	805.2	71.7	1383.0

APPENDIX C
ARTR/ATCA COMMUNITY TYPE FUEL DATA

FUEL LOADING SUMMARY

SIZE CLASS	LOADING IN OVEN-DRY POUNDS/ACRE AVERAGE		STD-DEV	%ERROR	KG/SQ-M
0-.25		140	126	18.0	0.016
.25-1		1073	752	14.0	0.120
LITTER		98	213	43.4	0.011
DEAD HERBS		55	55	20.0	0.006
FINES	1366		827	12.1	0.153
1-3		1632	2535	31.1	0.183
LESS THAN 3	2998		2980	19.9	0.336
3+ TOTAL	2499		7109	56.9	0.280
SOUND 3-6		0	0	0.0	0.000
SOUND 6-10		0	0	0.0	0.000
SOUND 10-20		0	0	0.0	0.000
SOUND 20+		0	0	0.0	0.000
3+ SOUND TOTAL	0		0	0.0	0.000
ROTTEN 3-6		1068	1600	30.0	0.120
ROTTEN 6-10		0	0	0.0	0.000
ROTTEN 10-20		1431	7153	100.0	0.160
ROTTEN 20+		0	0	0.0	0.000
3+ ROTTEN TOT.	2499		7109	56.9	0.280
DUFF		145			0.016
DEAD SHRUB		1096	2449	31.6	0.123
DEADFUEL LOAD	6739		8637	25.6	0.755
LIVE HERBS		392	288	14.7	0.044
LIVE SHRUB		3423	5598	23.1	0.384
TREE NEEDLES		0	0	0.0	0.000
0-25		0	0	0.0	0.000
.25+		0	0	0.0	0.000
TOTAL TREE	0		0	0.0	0.000
TOTAL LOAD	10554		9316	17.7	1.183

DEPTH

	AVERAGE	MIN.	MAX.	STD-DEV
DUFF	0.00	0.00	0.20	0.03
SHRUB	20.26	0.00	40.00	9.15

TOPOGRAPHIC CONDITIONS

	AVERAGE	MINIMUM	MAXIMUM	STD-DEV
SLOPE	8.0	8.0	8.0	0.00
ASPECT	130.0			
ELEVATION	6752	6740	6800	

AVERAGE LIVE AND DEAD SHRUB FUEL LOADINGS

	SIZE CLASS IN CENTIMETERS							
SPECIES	0-.5	.5-1	1-1.5	1.5-2	2-3	3-5	5+	TOTAL
SAGEBRUSH	0.0	19.7	68.8	234.2	488.6	970.7	2003.4	3785.5
MEDIUM	14.0	231.9	299.9	188.0	0.0	0.0	0.0	733.8
TOTAL	14.0	251.6	368.7	422.2	488.6	970.7	2003.4	4519.2

PERCENTAGE ESTIMATES

SHRUB		HERBS	
%COVER	%DEAD	%COVER	%DEAD
21.4	18.3	22.3	9.9

3+ VOLUME AND DIAMETER

SOUND		ROTTEN	
CU-FT	AVG.DIA	CU-FT	AVG.DIA
0	0.00	133	4.47

SMALL TREES

SPECIES	TREES/ARCE	AVG.HT.FT
TOTAL	0	

FIRE MODELING INPUT DATA FOR SHRUBS

	LEAF WT.	STEM WT.			
SPECIES	(LBS/ACRE)	0-.5CM	.5-2CM	2+CM	TOT STM
SAGEBRUSH	698.2	1030.2	1133.1	923.9	3087.3
MEDIUM	191.1	225.1	317.5	0.0	542.6
TOTAL	889.4	1255.3	1450.6	923.9	3629.9

APPENDIX C
JUAR/CARO COMMUNITY TYPE FUEL DATA

FUEL LOADING SUMMARY

SIZE CLASS	LOADING IN OVEN-DRY POUNDS/ACRE AVERAGE	STD-DEV	%ERROR	KG/SQ-M
0-.25	12	34	100.0	0.001
.25-1	0	0	0.0	0.000
LITTER	0	0	0.0	0.000
DEAD HERBS	468	356	27.0	0.052
FINES	480	363	26.7	0.054
1-3	0	0	0.0	0.000
LESS THAN 3	480	363	26.7	0.054
3+ TOTAL	0	0	0.0	0.000
SOUND 3-6	0	0	0.0	0.000
SOUND 6-10	0	0	0.0	0.000
SOUND 10-20	0	0	0.0	0.000
SOUND 20+	0	0	0.0	0.000
3+ SOUND TOTAL	0	0	0.0	0.000
ROTTEN 3-6	0	0	0.0	0.000
ROTTEN 6-10	0	0	0.0	0.000
ROTTEN 10-20	0	0	0.0	0.000
ROTTEN 20+	0	0	0.0	0.000
3+ ROTTEN TOT.	0	0	0.0	0.000
DUFF	0			0.000
DEAD SHRUB	0	0	0.0	0.000
DEADFUEL LOAD	480	363	26.7	0.054
LIVE HERBS	1318	379	10.2	0.148
LIVE SHRUB	0	0	0.0	0.000
TREE NEEDLES	0	0	0.0	0.000
0-25	0	0	0.0	0.000
.25+	0	0	0.0	0.000
TOTAL TREE	0	0	0.0	0.000
TOTAL LOAD	1797	649	12.8	0.201

DEPTH

	AVERAGE	MIN.	MAX.	STD-DEV
DUFF	0.00	0.00	0.00	0.00
SHRUB	0.00	0.00	0.00	0.00

TOPOGRAPHIC CONDITIONS

	AVERAGE	MINIMUM	MAXIMUM	STD-DEV
SLOPE	5.0	5.0	5.0	0.00
ASPECT	130.0			
ELEVATION	7913	7910	7920	

AVERAGE LIVE AND DEAD SHRUB FUEL LOADINGS

	SIZE CLASS IN CENTIMETERS							
SPECIES	0-.5	.5-1	1-1.5	1.5-2	2-3	3-5	5+	TOTAL
TOTAL	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

PERCENTAGE ESTIMATES

SHRUB		HERBS	
%COVER	%DEAD	%COVER	%DEAD
2.5	2.5	75.3	23.7

3+ VOLUME AND DIAMETER

SOUND		ROTTEN	
CU-FT	AVG.DIA	CU-FT	AVG.DIA
0	0.00	0	0.00

SMALL TREES

SPECIES	TREES/ARCE	AVG.HT.FT
TOTAL	0	

FIRE MODELING INPUT DATA FOR SHRUBS

	LEAF WT.	STEM WT.			
SPECIES	(LBS/ACRE)	0-.5CM	.5-2CM	2+CM	TOT STM
TOTAL	0.0	0.0	0.0	0.0	0.0

APPENDIX C
POTR/PSME COMMUNITY TYPE FUEL DATA

FUEL LOADING SUMMARY

SIZE CLASS	LOADING IN OVEN-DRY POUNDS/ACRE AVERAGE		STD-DEV	%ERROR	KG/SQ-M
0-.25		634	533	31.8	0.071
.25-1		2212	1265	21.6	0.248
LITTER		5294	7754	55.4	0.593
DEAD HERBS		58	93	60.2	0.007
FINES	8198		8010	36.9	0.919
1-3		5550	5074	34.6	0.622
LESS THAN 3	13748		10669	29.3	1.541
3+ TOTAL	30176		30051	37.6	3.382
SOUND 3-6		5225	7142	51.7	0.586
SOUND 6-10		2242	5932	100.0	0.251
SOUND 10-20		15160	20528	51.2	1.699
SOUND 20+		0	0	0.0	0.000
3+ SOUND TOTAL	22627		28300	47.3	2.536
ROTTEN 3-6		508	913	68.0	0.057
ROTTEN 6-10		4065	6150	57.2	0.456
ROTTEN 10-20		2976	7875	100.0	0.334
ROTTEN 20+		0	0	0.0	0.000
3+ ROTTEN TOT.	7548		10014	50.1	0.846
DUFF		18409			2.063
DEAD SHRUB		49	167	91.2	0.005
DEADFUEL LOAD	62382		41453	25.1	6.992
LIVE HERBS		239	287	45.3	0.027
LIVE SHRUB		713	2073	77.8	0.080
TREE NEEDLES		163	229	53.1	0.018
0-25		76	108	53.4	0.009
.25+		217	297	51.6	0.024
TOTAL TREE	457		629	52.0	0.051
TOTAL LOAD	63791		41865	24.8	7.150

DEPTH

	AVERAGE	MIN.	MAX.	STD-DEV
DUFF	0.51	0.00	2.40	0.73
SHRUB	9.11	0.00	30.00	8.72

TOPOGRAPHIC CONDITIONS

	AVERAGE	MINIMUM	MAXIMUM	STD-DEV
SLOPE	29.3	4.0	50.0	18.08
ASPECT	130.0			
ELEVATION	6752	6740	6800	

AVERAGE LIVE AND DEAD SHRUB FUEL LOADINGS

	SIZE CLASS IN CENTIMETERS							
SPECIES	0-.5	.5-1	1-1.5	1.5-2	2-3	3-5	5+	TOTAL
JUNIPER	0.0	0.0	68.1	559.8	0.0	0.0	0.0	628.0
SNOWBERRY	78.5	0.0	0.0	0.0	0.0	0.0	0.0	78.5
HUCKLEBERRY	10.3	0.0	0.0	0.0	0.0	0.0	0.0	10.3
ROSE	15.7	0.0	0.0	0.0	0.0	0.0	0.0	15.7
OREGON-GRAPE	29.0	0.0	0.0	0.0	0.0	0.0	0.0	29.0
TOTAL	133.5	0.0	68.1	559.8	0.0	0.0	0.0	761.4

PERCENTAGE ESTIMATES

SHRUB		HERBS	
%COVER	%DEAD	%COVER	%DEAD
8.6	3.2	6.3	7.2

3+ VOLUME AND DIAMETER

SOUND		ROTTEN	
CU-FT	AVG.DIA	CU-FT	AVG.DIA
906	6.31	403	6.71

SMALL TREES

SPECIES	TREES/ARCE	AVG.HT.FT
DF	729	2.75
PP	129	4.50
TOTAL	857	

FIRE MODELING INPUT DATA FOR SHRUBS

	LEAF WT.	STEM WT.			
SPECIES	(LBS/ACRE)	0-.5CM	.5-2CM	2+CM	TOT STM
JUNIPER	253.0	130.3	244.6	0.0	374.9
SNOWBERRY	32.6	45.8	0.0	0.0	45.8
HUCKLEBERRY	3.4	6.9	0.0	0.0	6.9
ROSE	7.0	8.7	0.0	0.0	8.7
OREGON-GRAPE	22.9	6.1	0.0	0.0	6.1
TOTAL	319.1	197.8	244.6	0.0	442.4

APPENDIX C
PIPO/PIPO COMMUNITY TYPE WITHIN PSME AND ABCO SERIES FUEL DATA

FUEL LOADING SUMMARY

SIZE CLASS	LOADING IN OVEN-DRY POUNDS/ACRE AVERAGE		STD-DEV	%ERROR	KG/SQ-M
0-.25		197	206	15.3	0.022
.25-1		863	960	16.2	0.097
LITTER		4023	3743	13.6	0.451
DEAD HERBS		10	20	28.8	0.001
FINES	5093		4069	11.7	0.571
1-3		1693	3035	26.2	0.190
LESS THAN 3	6785		5092	10.9	0.761
3+ TOTAL	33415		48762	21.3	3.745
SOUND 3-6		892	2266	37.0	0.100
SOUND 6-10		1980	4699	34.6	0.222
SOUND 10-20		3355	11142	48.4	0.376
SOUND 20+		3952	18950	69.9	0.443
3+ SOUND TOTAL	10180		25711	36.8	1.141
ROTTEN 3-6		687	1478	31.4	0.077
ROTTEN 6-10		1272	3237	37.1	0.143
ROTTEN 10-20		8416	17515	30.4	0.943
ROTTEN 20+		12860	36870	41.8	1.441
3+ ROTTEN TOT.	23235		41259	25.9	2.604
DUFF		17918			2.008
DEAD SHRUB		478	2252	48.6	0.054
DEADFUEL LOAD	58597		57111	14.2	6.568
LIVE HERBS		70	91	19.2	0.008
LIVE SHRUB		2341	6122	27.0	0.262
TREE NEEDLES		93	160	25.1	0.010
0-25		42	72	24.9	0.005
.25+		147	276	27.4	0.016
TOTAL TREE	282		507	26.2	0.032
TOTAL LOAD	61290		57082	13.6	6.870

DEPTH

	AVERAGE	MIN.	MAX.	STD-DEV
DUFF	0.49	0.00	2.80	0.59
SHRUB	8.90	0.00	28.00	5.16

TOPOGRAPHIC CONDITIONS

	AVERAGE	MINIMUM	MAXIMUM	STD-DEV
SLOPE	17.9	1.0	43.0	12.82
ASPECT	153.4			
ELEVATION	8251	7800	8680	

AVERAGE LIVE AND DEAD SHRUB FUEL LOADINGS
SIZE CLASS IN CENTIMETERS

SPECIES	0-.5	.5-1	1-1.5	1.5-2	2-3	3-5	5+	TOTAL
SERVICEBERRY	1.3	0.0	0.0	0.0	0.0	0.0	0.0	1.3
MANZANITA	254.3	539.2	528.8	364.7	519.1	0.0	0.0	2206.0
CEANOTHUS	7.3	13.3	7.0	0.0	0.0	0.0	0.0	27.6
JUNIPER	0.0	8.8	27.7	115.1	0.0	0.0	0.0	151.7
SNOWBERRY	75.6	12.8	0.0	0.0	0.0	0.0	0.0	88.4
HUCKLEBERRY	39.3	45.8	5.6	0.0	0.0	0.0	0.0	90.7
ROSE	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.7
OREGON-GRAPE	29.1	0.0	0.0	0.0	0.0	0.0	0.0	29.1
MEDIUM	27.4	67.5	77.8	51.3	0.0	0.0	0.0	223.9
TOTAL	435.0	687.4	646.8	531.1	519.1	0.0	0.0	2819.4

PERCENTAGE ESTIMATES

SHRUB		HERBS	
%COVER	%DEAD	%COVER	%DEAD
18.8	7.9	2.8	4.3

3+ VOLUME AND DIAMETER

SOUND		ROTTEN	
CU-FT	AVG.DIA	CU-FT	AVG.DIA
408	7.34	1241	11.33

SMALL TREES

SPECIES	TREES/ARCE	AVG.HT.FT
DF	166	2.76
PP	109	4.43
TOTAL	274	

FIRE MODELING INPUT DATA FOR SHRUBS

SPECIES	LEAF WT. (LBS/ACRE)	STEM WT. 0-.5CM	.5-2CM	2+CM	TOT STM
SERVICEBERRY	0.4	0.9	0.0	0.0	0.9
MANZANITA	198.6	885.6	1030.5	91.2	2007.4
CEANOTHUS	14.3	9.5	3.8	0.0	13.3
JUNIPER	64.1	32.1	55.5	0.0	87.6
SNOWBERRY	34.9	50.6	3.0	0.0	53.5
HUCKLEBERRY	23.5	52.6	14.6	0.0	67.2
ROSE	0.3	0.4	0.0	0.0	0.4
OREGON-GRAPE	23.0	6.1	0.0	0.0	6.1
MEDIUM	62.5	75.9	85.5	0.0	161.4
TOTAL	421.6	113.6	1193.0	91.2	2397.8

APPENDIX C
PIPO/QUGA COMMUNITY TYPE FUEL DATA

FUEL LOADING SUMMARY

SIZE CLASS	LOADING IN OVEN-DRY POUNDS/ACRE AVERAGE		STD-DEV	%ERROR	KG/SQ-M
0-.25		387	207	16.9	0.043
.25-1		859	881	32.4	0.096
LITTER		4148	2535	19.3	0.465
DEAD HERBS		26	50	61.0	0.003
FINES	5420		2497	14.6	0.607
1-3		1758	2051	36.9	0.197
LESS THAN 3	7178		3266	14.4	0.804
3+ TOTAL	770		1673	68.7	0.086
SOUND 3-6		770	1673	68.7	0.086
SOUND 6-10		0	0	0.0	0.000
SOUND 10-20		0	0	0.0	0.000
SOUND 20+		0	0	0.0	0.000
3+ SOUND TOTAL	770		1673	68.7	0.086
ROTTEN 3-6		0	0	0.0	0.000
ROTTEN 6-10		0	0	0.0	0.000
ROTTEN 10-20		0	0	0.0	0.000
ROTTEN 20+		0	0	0.0	0.000
3+ ROTTEN TOT.	0		0	0.0	0.000
DUFF		24684			2.767
DEAD SHRUB		1571	2440	34.7	0.176
DEADFUEL LOAD	34202		44665	41.3	3.833
LIVE HERBS		295	381	40.8	0.033
LIVE SHRUB		17224	26154	34.0	1.931
TREE NEEDLES		0	0	0.0	0.000
0-25		0	0	0.0	0.000
.25+		0	0	0.0	0.000
TOTAL TREE	0		0	0.0	0.000
TOTAL LOAD	51721		46650	28.5	5.797

	DEPTH			
	AVERAGE	MIN.	MAX.	STD-DEV
DUFF	0.68	0.00	4.50	1.18
SHRUB	38.11	0.00	84.00	24.98

TOPOGRAPHIC CONDITIONS

	AVERAGE	MINIMUM	MAXIMUM	STD-DEV
SLOPE	11.0	5.0	22.0	5.54
ASPECT	101.2			
ELEVATION	6968	6930	7020	

AVERAGE LIVE AND DEAD SHRUB FUEL LOADINGS
SIZE CLASS IN CENTIMETERS

SPECIES	0-.5	.5-1	1-1.5	1.5-2	2-3	3-5	5+	TOTAL
SERVICEBERRY	0.0	120.8	372.6	0.0	0.0	0.0	0.0	493.3
MANZANITA	0.0	19.5	0.0	121.9	0.0	0.0	0.0	141.4
GAMBEL-OAK	363.7	1567.4	891.6	894.3	3695.2	2504.2	7647.9	17515.2
CEANOTHUS	5.1	7.7	0.0	0.0	0.0	0.0	0.0	12.8
SNOWBERRY	194.9	37.8	0.0	0.0	0.0	0.0	0.0	232.7
ROSE	24.2	15.0	0.0	0.0	0.0	0.0	0.0	39.1
OREGON-GRAPE	10.0	0.0	41.5	0.0	0.0	0.0	0.0	51.5
MEDIUM	10.5	84.0	120.2	0.0	0.0	0.0	0.0	214.7
HIGH	0.0	13.6	80.8	0.0	0.0	0.0	0.0	94.4
TOTAL	608.3	1865.6	1506.6	967.1	3695.2	2504.2	7647.9	18795.0

PERCENTAGE ESTIMATES

SHRUB		HERBS	
%COVER	%DEAD	%COVER	%DEAD
55.9	8.0	13.2	4.3

3+ VOLUME AND DIAMETER

SOUND		ROTTEN	
CU-FT	AVG.DIA	CU-FT	AVG.DIA
31	4.50	0	0.00

SMALL TREES

SPECIES	TREES/ARCE	AVG.HT.FT
TOTAL	0	

FIRE MODELING INPUT DATA FOR SHRUBS

SPECIES	LEAF WT. (LBS/ACRE)	STEM WT. 0-.5CM	.5-2CM	2+CM	TOT STM
SERVICEBERRY	80.1	168.6	244.7	0.0	413.3
MANZANITA	11.6	38.8	91.0	0.0	129.8
GAMBEL-OAK	1438.9	16076.3	0.0	0.0	16076.3
CEANOTHUS	7.2	4.6	1.0	0.0	5.6
SNOWBERRY	91.1	132.7	8.9	0.0	141.6
ROSE	14.7	20.9	3.5	0.0	24.4
OREGON-GRAPE	24.8	26.7	0.0	0.0	26.7
MEDIUM	60.2	74.6	79.8	0.0	154.4
HIGH	20.4	27.7	46.3	0.0	73.9
TOTAL	1749.0	16570.8	475.2	0.0	17046.0

APPENDIX C
PIED/JUOS COMMUNITY TYPE FUEL DATA

FUEL LOADING SUMMARY

SIZE CLASS	LOADING IN OVEN-DRY POUNDS/ACRE AVERAGE		STD-DEV	%ERROR	KG/SQ-M
0-.25		378	355	9.4	0.042
.25-1		1133	1165	10.3	0.127
LITTER		2138	2004	9.4	0.240
DEAD HERBS		7	34	50.9	0.001
FINES	3656		2390	6.6	0.410
1-3		1799	2998	16.8	0.202
LESS THAN 3	5455		4212	7.8	0.611
3+ TOTAL	4700		8913	19.1	0.527
SOUND 3-6		975	2451	25.3	0.109
SOUND 6-10		1703	4343	25.6	0.191
SOUND 10-20		1338	5371	40.3	0.150
SOUND 20+		0	0	0.0	0.000
3+ SOUND TOTAL	4016		8201	20.5	0.450
ROTTEN 3-6		281	893	32.0	0.031
ROTTEN 6-10		121	857	71.2	0.014
ROTTEN 10-20		282	1976	70.3	0.032
ROTTEN 20+		0	0	0.0	0.000
3+ ROTTEN TOT.	684		2383	35.0	0.077
DUFF		1320			0.148
DEAD SHRUB		294	995	24.0	0.033
DEADFUEL LOAD	11769		11295	9.6	1.319
LIVE HERBS		59	153	26.0	0.007
LIVE SHRUB		1427	3913	19.5	0.160
TREE NEEDLES		0	0	0.0	0.000
0-25		0	0	0.0	0.000
.25+		0	0	0.0	0.000
TOTAL TREE	0		0	0.0	0.000
TOTAL LOAD	13255		11147	8.5	1.486

DEPTH

	AVERAGE	MIN.	MAX.	STD-DEV
DUFF	0.04	0.00	1.20	0.16
SHRUB	20.53	0.00	55.00	14.87

TOPOGRAPHIC CONDITIONS

	AVERAGE	MINIMUM	MAXIMUM	STD-DEV
SLOPE	12.2	2.0	45.0	8.84
ASPECT	119.5			
ELEVATION	6862	6650	7110	

AVERAGE LIVE AND DEAD SHRUB FUEL LOADINGS
SIZE CLASS IN CENTIMETERS

SPECIES	0-.5	.5-1	1-1.5	1.5-2	2-3	3-5	5+	TOTAL
GAMBEL-OAK	19.8	46.8	214.9	34.1	0.0	0.0	0.0	315.7
CEANOTHUS	0.0	0.0	0.0	8.6	0.0	68.2	0.0	76.8
SAGEBRUSH	0.0	0.0	0.0	11.1	0.0	18.8	155.4	185.3
SNOWBERRY	2.7	4.6	0.0	0.0	0.0	0.0	0.0	7.3
LOW	0.1	8.8	28.6	56.1	36.4	0.0	0.0	130.0
MEDIUM	12.9	87.7	134.3	71.2	0.0	62.9	0.0	369.0
HIGH	9.2	77.3	285.3	151.3	0.0	0.0	114.4	637.4
TOTAL	44.8	225.1	663.1	332.4	36.4	149.9	269.8	1721.5

PERCENTAGE ESTIMATES

SHRUB		HERBS	
%COVER	%DEAD	%COVER	%DEAD
12.0	8.8	1.5	2.2

3+ VOLUME AND DIAMETER

SOUND		ROTTEN	
CU-FT	AVG.DIA	CU-FT	AVG.DIA
161	5.63	37	4.88

SMALL TREES

SPECIES	TREES/ARCE	AVG.HT.FT
TOTAL	0	

FIRE MODELING INPUT DATA FOR SHRUBS

SPECIES	LEAF WT. (LBS/ACRE)	STEM WT. 0-.5CM	.5-2CM	2+CM	TOT STM
GAMBEL-OAK	13.8	301.8	0.0	0.0	301.8
CEANOTHUS	20.4	2.2	3.4	50.8	56.4
SAGEBRUSH	33.5	50.2	49.7	51.9	151.8
SNOWBERRY	2.4	3.9	1.1	0.0	4.9
LOW	29.3	27.5	67.5	5.7	100.7
MEDIUM	89.9	102.3	142.0	34.9	279.2
HIGH	118.9	161.9	287.5	68.9	518.5
TOTAL	308.2	649.7	551.4	212.1	1413.3

APPENDIX C
QUGA/QUGA COMMUNITY TYPE FUEL DATA

FUEL LOADING SUMMARY

SIZE CLASS	LOADING IN OVEN-DRY POUNDS/ACRE AVERAGE		STD-DEV	%ERROR	KG/SQ-M
0-.25		810	253	11.8	0.091
.25-1		1917	1552	30.6	0.215
LITTER		5837	1559	10.1	0.654
DEAD HERBS		0	0	0.0	0.000
FINES	8564		2389	10.5	0.960
1-3		3745	3241	32.7	0.420
LESS THAN 3	12309		4175	12.8	1.380
3+ TOTAL	1146		1994	65.7	0.129
SOUND 3-6		1146	1994	65.7	0.129
SOUND 6-10		0	0	0.0	0.000
SOUND 10-20		0	0	0.0	0.000
SOUND 20+		0	0	0.0	0.000
3+ SOUND TOTAL	1146		1994	65.7	0.129
ROTTEN 3-6		0	0	0.0	0.000
ROTTEN 6-10		0	0	0.0	0.000
ROTTEN 10-20		0	0	0.0	0.000
ROTTEN 20+		0	0	0.0	0.000
3+ ROTTEN TOT.	0		0	0.0	0.000
DUFF		11149			1.250
DEAD SHRUB		38	106	74.9	0.004
DEADFUEL LOAD	24643		9484	14.5	2.762
LIVE HERBS		8	13	64.6	0.001
LIVE SHRUB		558	899	43.0	0.063
TREE NEEDLES		0	0	0.0	0.000
0-25		0	0	0.0	0.000
.25+		0	0	0.0	0.000
TOTAL TREE	0		0	0.0	0.000
TOTAL LOAD	25208		9597	14.4	2.825

DEPTH

	AVERAGE	MIN.	MAX.	STD-DEV
DUFF	0.31	0.00	0.70	0.21
SHRUB	32.00	0.00	60.00	15.20

TOPOGRAPHIC CONDITIONS

	AVERAGE	MINIMUM	MAXIMUM	STD-DEV
SLOPE	8.0	8.0	8.0	0.00
ASPECT	130.0			
ELEVATION	6683	6680	6690	

AVERAGE LIVE AND DEAD SHRUB FUEL LOADINGS
SIZE CLASS IN CENTIMETERS

SPECIES	0-.5	.5-1	1-1.5	1.5-2	2-3	3-5	5+	TOTAL
ROSE	7.1	32.1	0.0	0.0	0.0	0.0	0.0	39.2
MEDIUM	43.2	299.3	214.2	0.0	0.0	0.0	0.0	556.8
TOTAL	50.3	331.4	214.2	0.0	0.0	0.0	0.0	596.0

PERCENTAGE ESTIMATES

SHRUB		HERBS	
%COVER	%DEAD	%COVER	%DEAD
22.0	3.9	0.5	0.7

3+ VOLUME AND DIAMETER

SOUND		ROTTEN	
CU-FT	AVG.DIA	CU-FT	AVG.DIA
46	3.67	0	0.00

SMALL TREES

SPECIES	TREES/ARCE	AVG.HT.FT
TOTAL	0	

FIRE MODELING INPUT DATA FOR SHRUBS

SPECIES	LEAF WT. (LBS/ACRE)	STEM WT. 0-.5CM	.5-2CM	2+CM	TOT STM
ROSE	11.6	20.0	7.6	0.0	27.6
MEDIUM	43.2	215.8	176.2	0.0	391.9
TOTAL	50.3	235.8	183.7	0.0	419.5

APPENDIX C
PIFL/ABCO COMMUNITY TYPE FUEL DATA

FUEL LOADING SUMMARY

SIZE CLASS	LOADING IN OVEN-DRY POUNDS/ACRE AVERAGE		STD-DEV	%ERROR	KG/SQ-M
0-.25		474	289	18.4	0.053
.25-1		1516	1241	24.7	0.170
LITTER		4429	3332	22.7	0.496
DEAD HERBS		1	3	66.5	0.000
FINES	6420		3843	18.0	0.720
1-3		2403	2558	32.1	0.269
LESS THAN 3	8824		4821	16.5	0.989
3+ TOTAL	27874		25683	27.8	3.124
SOUND 3-6		2698	2685	30.0	0.302
SOUND 6-10		6038	7793	38.9	0.677
SOUND 10-20		4613	10301	67.3	0.517
SOUND 20+		0	0	0.0	0.000
3+ SOUND TOTAL	13349		12032	27.2	1.496
ROTTEN 3-6		1216	2162	53.6	0.136
ROTTEN 6-10		462	1533	100.0	0.052
ROTTEN 10-20		7156	13311	56.1	0.802
ROTTEN 20+		5690	18871	100.0	0.638
3+ ROTTEN TOT.	14525		20742	43.1	1.628
DUFF		20955			2.349
DEAD SHRUB		851	3968	99.5	0.095
DEADFUEL LOAD	58503		31367	16.2	6.557
LIVE HERBS		14	30	64.6	0.002
LIVE SHRUB		1658	6959	89.5	0.186
TREE NEEDLES		39	117	89.8	0.004
0-25		18	53	89.4	0.002
.25+		68	209	93.0	0.008
TOTAL TREE	125		379	91.4	0.014
TOTAL LOAD	60300		30716	15.4	6.759

DEPTH

	AVERAGE	MIN.	MAX.	STD-DEV
DUFF	0.58	0.00	2.30	0.64
SHRUB	4.93	0.00	12.00	3.01

TOPOGRAPHIC CONDITIONS

	AVERAGE	MINIMUM	MAXIMUM	STD-DEV
SLOPE	23.3	9.0	44.0	10.89
ASPECT	208.6			
ELEVATION	8698	85500	8840	

AVERAGE LIVE AND DEAD SHRUB FUEL LOADINGS
SIZE CLASS IN CENTIMETERS

SPECIES	0-.5	.5-1	1-1.5	1.5-2	2-3	3-5	5+	TOTAL
MANZANITA	26.2	128.5	98.2	0.0	1011.1	1070.6	0.0	2334.6
JUNIPER	13.0	51.9	0.0	0.0	0.0	0.0	0.0	64.9
SNOWBERRY	5.9	0.0	0.0	0.0	0.0	0.0	0.0	5.9
HUCKLEBERRY	9.3	0.0	0.0	0.0	0.0	0.0	0.0	9.3
ROSE	1.6	0.0	0.0	0.0	0.0	0.0	0.0	1.6
OREGON-GRAPE	91.9	0.0	0.0	0.0	0.0	0.0	0.0	91.9
TOTAL	147.8	180.4	98.2	0.0	1011.1	1070.6	0.0	2508.1

PERCENTAGE ESTIMATES

SHRUB		HERBS	
%COVER	%DEAD	%COVER	%DEAD
11.1	5.6	1.0	1.4

3+ VOLUME AND DIAMETER

SOUND		ROTTEN	
CU-FT	AVG.DIA	CU-FT	AVG.DIA
535	6.18	776	9.30

SMALL TREES

SPECIES	TREES/ARCE	AVG.HT.FT
DF	218	4.80
TOTAL	218	

FIRE MODELING INPUT DATA FOR SHRUBS

SPECIES	LEAF WT. (LBS/ACRE)	STEM WT. 0-.5CM	.5-2CM	2+CM	TOT STM
MANZANITA	181.5	456.1	876.3	820.7	2153.0
JUNIPER	44.2	14.7	6.0	0.0	20.7
SNOWBERRY	2.5	3.5	0.0	0.0	3.5
HUCKLEBERRY	3.1	6.2	0.0	0.0	6.2
ROSE	0.7	0.9	0.0	0.0	0.9
OREGON-GRAPE	72.6	19.3	0.0	0.0	19.3
TOTAL	304.6	500.6	882.3	820.7	2203.5

APPENDIX C
PSME/ABCO COMMUNITY TYPE FUEL DATA

FUEL LOADING SUMMARY

SIZE CLASS	LOADING IN OVEN-DRY POUNDS/ACRE AVERAGE	STD-DEV	%ERROR	KG/SQ-M
0-.25	535	500	35.3	0.060
.25-1	1406	1266	34.0	0.158
LITTER	6479	9336	54.5	0.726
DEAD HERBS	5	12	90.8	0.001
FINES	8425	10432	46.8	0.944
1-3	2957	3446	44.1	0.331
LESS THAN 3	11382	9560	31.7	1.276
3+ TOTAL	39774	41618	39.5	4.458
SOUND 3-6	2007	3678	69.3	0.225
SOUND 6-10	4035	5281	49.5	0.452
SOUND 10-20	2666	7053	100.0	0.299
SOUND 20+	0	0	0.0	0.000
3+ SOUND TOTAL	8707	8592	37.3	0.976
ROTTEN 3-6	1682	3179	71.4	0.189
ROTTEN 6-10	0	0	0.0	0.000
ROTTEN 10-20	19715	20512	39.3	2.210
ROTTEN 20+	9670	25584	100.0	1.084
3+ ROTTEN TOT.	31067	41447	50.4	3.482
DUFF	13742			1.540
DEAD SHRUB	75	142	50.6	0.008
DEADFUEL LOAD	64973	70827	41.2	7.283
LIVE HERBS	25	45	68.2	0.003
LIVE SHRUB	1505	3702	65.7	0.169
TREE NEEDLES	58	147	96.8	0.006
0-25	26	67	96.7	0.003
.25+	101	262	97.9	0.011
TOTAL TREE	185	476	97.4	0.021
TOTAL LOAD	66688	73654	41.7	7.475

DEPTH

	AVERAGE	MIN.	MAX.	STD-DEV
DUFF	0.38	0.00	2.00	0.62
SHRUB	9.23	0.00	24.00	6.19

TOPOGRAPHIC CONDITIONS

	AVERAGE	MINIMUM	MAXIMUM	STD-DEV
SLOPE	24.6	5.0	40.0	12.29
ASPECT	195.7			
ELEVATION	8729	8540	8880	

AVERAGE LIVE AND DEAD SHRUB FUEL LOADINGS
SIZE CLASS IN CENTIMETERS

SPECIES	0-.5	.5-1	1-1.5	1.5-2	2-3	3-5	5+	TOTAL
JUNIPER	60.3	159.3	367.4	531.5	280.8	0.0	0.0	1399.4
SNOWBERRY	120.0	0.0	0.0	0.0	0.0	0.0	0.0	120.0
HUCKLEBERRY	6.3	0.0	0.0	0.0	0.0	0.0	0.0	6.3
OREGON-GRAPE	54.4	0.0	0.0	0.0	0.0	0.0	0.0	54.4
TOTAL	241.0	159.3	367.4	531.5	280.8	0.0	0.0	1580.1

PERCENTAGE ESTIMATES

SHRUB		HERBS	
%COVER	%DEAD	%COVER	%DEAD
18.0	5.2	0.4	2.8

3+ VOLUME AND DIAMETER

SOUND		ROTTEN	
CU-FT	AVG.DIA	CU-FT	AVG.DIA
349	5.20	1659	10.17

SMALL TREES

SPECIES	TREES/ARCE	AVG.HT.FT
DF	86	5.00
TOTAL	86	

FIRE MODELING INPUT DATA FOR SHRUBS

	LEAF WT.	STEM WT.			
SPECIES	(LBS/ACRE)	0-.5CM	.5-2CM	2+CM	TOT STM
JUNIPER	628.5	300.7	434.1	36.1	770.9
SNOWBERRY	49.9	70.1	0.0	0.0	70.1
HUCKLEBERRY	2.1	4.2	0.0	0.0	4.2
OREGON-GRAPE	43.0	11.4	0.0	0.0	11.4
TOTAL	723.5	386.5	434.1	36.1	856.6

APPENDIX C
POTR/ABCO COMMUNITY TYPE FUEL DATA

FUEL LOADING SUMMARY

SIZE CLASS	LOADING IN OVEN-DRY POUNDS/ACRE AVERAGE		STD-DEV	%ERROR	KG/SQ-M
0-.25		812	670	21.3	0.091
.25-1		1274	1067	21.6	0.143
LITTER		2851	2791	25.3	0.320
DEAD HERBS		4	6	47.3	0.000
FINES	4940		2620	13.7	0.554
1-3		3528	5633	41.2	0.395
LESS THAN 3	8468		5570	17.0	0.949
3+ TOTAL	50360		40275	20.6	5.645
SOUND 3-6		5542	6407	29.9	0.621
SOUND 6-10		2754	6152	57.7	0.309
SOUND 10-20		10614	24110	58.6	1.190
SOUND 20+		5074	19653	100.0	0.569
3+ SOUND TOTAL	23985		34773	37.4	2.688
ROTTEN 3-6		1188	1575	34.2	0.133
ROTTEN 6-10		1796	3183	45.8	0.201
ROTTEN 10-20		8796	15158	44.5	0.986
ROTTEN 20+		14595	31095	55.0	1.636
3+ ROTTEN TOT.	26375		29887	29.3	2.956
DUFF		15730			1.763
DEAD SHRUB		356	964	49.4	0.040
DEADFUEL LOAD	74914		46804	16.1	8.397
LIVE HERBS		50	80	40.9	0.006
LIVE SHRUB		2124	4955	42.6	0.238
TREE NEEDLES		63	115	47.0	0.007
0-25		30	55	47.0	0.003
.25+		73	134	47.0	0.008
TOTAL TREE	167		304	47.0	0.019
TOTAL LOAD	77255		47431	15.9	8.659

DEPTH

	AVERAGE	MIN.	MAX.	STD-DEV
DUFF	0.43	0.00	1.70	0.53
SHRUB	12.03	0.00	52.00	11.46

TOPOGRAPHIC CONDITIONS

	AVERAGE	MINIMUM	MAXIMUM	STD-DEV
SLOPE	23.8	5.0	50.0	12.55
ASPECT	159.7			
ELEVATION	8642	8360	8840	

AVERAGE LIVE AND DEAD SHRUB FUEL LOADINGS
SIZE CLASS IN CENTIMETERS

SPECIES	0-.5	.5-1	1-1.5	1.5-2	2-3	3-5	5+	TOTAL
MANZANITA	0.0	13.6	36.3	0.0	0.0	0.0	0.0	49.9
CEANOTHUS	0.0	5.2	0.0	0.0	0.0	0.0	0.0	5.2
JUNIPER	109.2	182.9	406.9	609.0	929.6	0.0	0.0	2237.5
SNOWBERRY	47.1	5.2	0.0	0.0	0.0	0.0	0.0	52.2
HUCKLEBERRY	15.9	0.0	0.0	0.0	0.0	0.0	0.0	15.9
ROSE	6.3	0.0	0.0	0.0	0.0	0.0	0.0	6.3
ORE-GRAPE	113.1	0.0	0.0	0.0	0.0	0.0	0.0	113.1
TOTAL	291.7	206.8	443.3	609.0	929.6	0.0	0.0	2480.3

PERCENTAGE ESTIMATES

SHRUB		HERBS	
%COVER	%DEAD	%COVER	%DEAD
26.8	7.6	6.1	3.0

3+ VOLUME AND DIAMETER

SOUND		ROTTEN	
CU-FT	AVG.DIA	CU-FT	AVG.DIA
961	5.86	1409	10.76

SMALL TREES

SPECIES	TREES/ARCE	AVG.HT.FT
DF	340	2.50
PP	80	3.00
TOTAL	420	

FIRE MODELING INPUT DATA FOR SHRUBS

SPECIES	LEAF WT. (LBS/ACRE)	STEM WT. 0-.5CM	.5-2CM	2+CM	TOT STM
MANZANITA	4.6	19.1	26.1	0.0	49.9
CEANOTHUS	2.6	1.9	0.7	0.0	2.6
JUNIPER	945.9	481.6	690.5	119.5	1291.6
SNOWBERRY	20.9	30.1	1.2	0.0	31.3
HUCKLEBERRY	5.3	10.6	0.0	0.0	10.6
ROSE	2.8	3.5	0.0	0.0	3.5
OREGON-GRAPE	89.4	23.7	0.0	0.0	23.7
TOTAL	1071.7	570.6	718.5	119.5	1408.6

APPENDIX C
PIPO/PSME COMMUNITY TYPE FUEL DATA

FUEL LOADING SUMMARY

SIZE CLASS	LOADING IN OVEN-DRY POUNDS/ACRE AVERAGE		STD-DEV	%ERROR	KG/SQ-M
0-.25		721	634	20.2	0.081
.25-1		1971	1790	20.8	0.221
LITTER		4129	2670	14.8	0.463
DEAD HERBS		2	6	53.4	0.000
FINES	6823		3461	11.6	0.765
1-3		4618	6481	32.2	0.518
LESS THAN 3	11442		8723	17.5	1.282
3+ TOTAL	13512		28393	48.2	1.514
SOUND 3-6		1099	1982	41.4	0.123
SOUND 6-10		1594	3819	55.0	0.179
SOUND 10-20		3083	9269	69.0	0.346
SOUND 20+		4353	18973	100.0	0.488
3+ SOUND TOTAL	10128		27033	61.2	1.135
ROTTEN 3-6		368	1101	68.7	0.041
ROTTEN 6-10		0	0	0.0	0.000
ROTTEN 10-20		3016	7185	54.6	0.338
ROTTEN 20+		0	0	0.0	0.000
3+ ROTTEN TOT.	3384		7106	48.2	0.379
DUFF		25983			2.912
DEAD SHRUB		430	1688	63.7	0.048
DEADFUEL LOAD	51367		43689	19.5	5.757
LIVE HERBS		28	36	29.3	0.003
LIVE SHRUB		3747	11704	50.7	0.420
TREE NEEDLES		96	178	42.6	0.011
0-25		44	80	42.2	0.005
.25+		155	312	46.0	0.017
TOTAL TREE	295		569	44.2	0.033
TOTAL LOAD	55437		42101	17.4	6.214

	DEPTH			
	AVERAGE	MIN.	MAX.	STD-DEV
DUFF	0.72	0.00	2.70	0.75
SHRUB	9.61	0.00	24.00	5.98

TOPOGRAPHIC CONDITIONS

	AVERAGE	MINIMUM	MAXIMUM	STD-DEV
SLOPE	15.1	2.0	46.0	13.41
ASPECT	210.5			
ELEVATION	8548	8160	8760	

AVERAGE LIVE AND DEAD SHRUB FUEL LOADINGS
SIZE CLASS IN CENTIMETERS

SPECIES	0-.5	.5-1	1-1.5	1.5-2	2-3	3-5	5+	TOTAL
MANZANITA	97.7	236.7	137.5	384.3	708.8	1504.7	0.0	3069.6
CEANOTHUS	2.7	5.2	0.0	0.0	0.0	0.0	0.0	2.7
JUNIPER	51.8	118.2	203.3	47.3	414.7	0.0	0.0	835.2
SNOWBERRY	158.8	7.9	0.0	0.0	0.0	0.0	0.0	166.7
HUCKLEBERRY	15.9	0.0	0.0	0.0	0.0	0.0	0.0	15.9
ROSE	1.4	0.0	0.0	0.0	0.0	0.0	0.0	1.4
ORE-GRAPE	26.1	0.0	0.0	0.0	0.0	0.0	0.0	26.1
MEDIUM	14.4	45.1	0.0	0.0	0.0	0.0	0.0	59.5
TOTAL	368.8	407.9	340.7	431.5	1123.5	1504.7	0.0	4177.1

PERCENTAGE ESTIMATES

SHRUB		HERBS	
%COVER	%DEAD	%COVER	%DEAD
20.1	4.0	4.7	2.9

3+ VOLUME AND DIAMETER

SOUND		ROTTEN	
CU-FT	AVG.DIA	CU-FT	AVG.DIA
406	6.60	181	9.00

SMALL TREES

SPECIES	TREES/ARCE	AVG.HT.FT
DF	474	3.17
PP	79	3.83
TOTAL	553	

FIRE MODELING INPUT DATA FOR SHRUBS

	LEAF WT.	STEM WT.			
SPECIES	(LBS/ACRE)	0-.5CM	.5-2CM	2+CM	TOT STM
MANZANITA	245.2	681.4	1114.8	1028.2	2824.5
CEANOTHUS	1.8	0.9	0.0	0.0	0.9
JUNIPER	369.6	183.1	229.1	53.3	465.6
SNOWBERRY	68.1	96.7	1.9	0.0	98.5
HUCKLEBERRY	5.3	10.6	0.0	0.0	10.6
ROSE	0.6	0.8	0.0	0.0	0.8
OREGON-GRAPE	20.6	5.5	0.0	0.0	5.5
MEDIUM	20.0	29.1	10.3	0.0	39.5
TOTAL	731.2	1008.3	1356.1	1081.5	3445.1

APPENDIX C
PIPO/ABCO COMMUNITY TYPE FUEL DATA

FUEL LOADING SUMMARY

SIZE CLASS	LOADING IN OVEN-DRY POUNDS/ACRE AVERAGE	STD-DEV	%ERROR	KG/SQ-M
0-.25	408	342	16.8	0.046
.25-1	2013	2067	20.5	0.226
LITTER	4288	4772	22.3	0.481
DEAD HERBS	4	15	74.9	0.000
FINES	6712	5231	15.6	0.752
1-3	7001	8466	24.2	0.785
LESS THAN 3	13714	11593	16.9	1.537
3+ TOTAL	47357	64241	27.1	5.308
SOUND 3-6	2908	2280	15.7	0.326
SOUND 6-10	3341	6809	40.8	0.374
SOUND 10-20	7551	19113	50.6	0.846
SOUND 20+	6878	34391	100.0	0.771
3+ SOUND TOTAL	20678	41655	40.3	2.318
ROTTEN 3-6	742	1091	29.4	0.083
ROTTEN 6-10	1625	3638	44.8	0.182
ROTTEN 10-20	12772	21746	34.1	1.432
ROTTEN 20+	11541	32996	57.2	1.294
3+ ROTTEN TOT.	26680	50739	38.0	2.990
DUFF	25991			2.913
DEAD SHRUB	248	1642	93.6	0.028
DEADFUEL LOAD	87310	76601	17.5	9.786
LIVE HERBS	51	175	68.7	0.006
LIVE SHRUB	586	2061	49.7	0.066
TREE NEEDLES	28	107	77.8	0.003
0-25	13	48	77.0	0.001
.25+	45	190	84.2	0.005
TOTAL TREE	85	346	81.0	0.010
TOTAL LOAD	88032	76085	17.3	9.867

DEPTH

	AVERAGE	MIN.	MAX.	STD-DEV
DUFF	0.72	0.00	4.20	0.89
SHRUB	7.03	0.00	40.00	8.23

TOPOGRAPHIC CONDITIONS

	AVERAGE	MINIMUM	MAXIMUM	STD-DEV
SLOPE	22.6	3.0	43.0	11.49
ASPECT	187.4			
ELEVATION	8690	8460	8920	

AVERAGE LIVE AND DEAD SHRUB FUEL LOADINGS
SIZE CLASS IN CENTIMETERS

SPECIES	0-.5	.5-1	1-1.5	1.5-2	2-3	3-5	5+	TOTAL
SERV.BERRY	4.5	6.0	0.0	0.0	0.0	0.0	0.0	10.4
MANZANITA	0.0	0.0	0.0	0.0	0.0	464.7	0.0	464.7
NINEBARK	11.8	59.7	130.8	0.0	0.0	0.0	0.0	202.3
CEANOTHUS	13.3	15.3	0.0	0.0	0.0	0.0	0.0	28.5
SNOWBERRY	41.4	0.0	0.0	0.0	0.0	0.0	0.0	41.4
HUCKLEBERRY	17.0	2.3	10.9	33.1	0.0	0.0	0.0	63.3
ROSE	3.1	0.0	0.0	0.0	0.0	0.0	0.0	3.1
ORE.GRAPE	20.4	0.0	0.0	0.0	0.0	0.0	0.0	20.4
TOTAL	111.5	83.2	141.7	33.1	0.0	464.7	0.0	834.2

PERCENTAGE ESTIMATES

SHRUB		HERBS	
%COVER	%DEAD	%COVER	%DEAD
8.6	5.5	1.9	2.8

3+ VOLUME AND DIAMETER

SOUND		ROTTEN	
CU-FT	AVG.DIA	CU-FT	AVG.DIA
828	6.74	1425	10.22

SMALL TREES

SPECIES	TREES/ARCE	AVG.HT.FT
DF	360	2.58
TOTAL	360	

FIRE MODELING INPUT DATA FOR SHRUBS

SPECIES	LEAF WT. (LBS/ACRE)	STEM WT. 0-.5CM	.5-2CM	2+CM	TOT STM
SERV.BERRY	2.7	6.2	1.5	0.0	7.7
MANZANITA	35.3	60.1	90.2	279.1	429.4
NINEBARK	51.9	73.1	77.4	0.0	150.4
CEANOTHUS	16.4	10.2	2.0	0.0	12.2
SNOWBERRY	17.2	24.2	0.0	0.0	24.2
HUCKLEBERRY	11.9	25.0	26.4	0.0	51.4
ROSE	1.4	1.7	0.0	0.0	1.7
OREGON-GRAPE	16.1	4.3	0.0	0.0	4.3
TOTAL	152.9	204.7	197.5	279.1	681.3

TOPOGRAPHIC CONDITIONS

	AVERAGE	MINIMUM	MAXIMUM	STD-DEV
SLOPE	31.0	20.0	40.0	7.94
ASPECT	228.0			
ELEVATION	8392	8120	8760	

AVERAGE LIVE AND DEAD SHRUB FUEL LOADINGS
SIZE CLASS IN CENTIMETERS

SPECIES	0-.5	.5-1	1-1.5	1.5-2	2-3	3-5	5+	TOTAL
JUNIPER	0.0	0.0	90.1	189.1	0.0	0.0	0.0	279.2
SNOWBERRY	205.5	0.0	0.0	0.0	0.0	0.0	0.0	205.5
HUCKLEBERRY	10.0	0.0	0.0	0.0	0.0	0.0	0.0	10.0
ROSE	3.6	0.0	0.0	0.0	0.0	0.0	0.0	3.6
ORE.GRAPE	29.8	0.0	0.0	0.0	0.0	0.0	0.0	29.8
TOTAL	248.9	0.0	90.1	189.1	0.0	0.0	0.0	528.1

PERCENTAGE ESTIMATES

SHRUB		HERBS	
%COVER	%DEAD	%COVER	%DEAD
17.5	2.5	14.7	7.6

3+ VOLUME AND DIAMETER

SOUND		ROTTEN	
CU-FT	AVG.DIA	CU-FT	AVG.DIA
472	5.50	215	12.00

SMALL TREES

SPECIES	TREES/ARCE	AVG.HT.FT
PP	60	2.60
TOTAL	60	

FIRE MODELING INPUT DATA FOR SHRUBS

SPECIES	LEAF WT. (LBS/ACRE)	STEM WT. 0-.5CM	.5-2CM	2+CM	TOT STM
JUNIPER	117.3	58.8	103.1	0.0	161.9
SNOWBERRY	85.4	120.1	0.0	0.0	120.1
HUCKLEBERRY	3.3	6.7	0.0	0.0	6.7
ROSE	1.6	2.0	0.0	0.0	2.0
OREGON-GRAPE	23.5	6.2	0.0	0.0	6.2
TOTAL	231.2	193.8	103.1	0.0	296.9

APPENDIX C
POTR/POTR COMMUNITY TYPE FUEL DATA

FUEL LOADING SUMMARY

SIZE CLASS	LOADING IN OVEN-DRY POUNDS/ACRE AVERAGE	STD-DEV	%ERROR	KG/SQ-M
0-.25	367	268	36.5	0.041
.25-1	2747	2567	46.7	0.308
LITTER	3056	1775	29.0	0.343
DEAD HERBS	10	14	71.0	0.001
FINES	6181	4408	35.7	0.693
1-3	2185	2787	63.8	0.245
LESS THAN 3	8366	6611	39.5	0.938
3+ TOTAL	6361	8845	69.5	0.713
SOUND 3-6	3415	3171	46.4	0.383
SOUND 6-10	1685	3369	100.0	0.189
SOUND 10-20	0	0	0.0	0.000
SOUND 20+	0	0	0.0	0.000
3+ SOUND TOTAL	5100	6367	62.4	0.572
ROTTEN 3-6	0	0	0.0	0.000
ROTTEN 6-10	1261	2522	100.0	0.141
ROTTEN 10-20	0	0	0.0	0.000
ROTTEN 20+	0	0	0.0	0.000
3+ ROTTEN TOT.	1261	2522	100.0	0.141
DUFF	34031			3.814
DEAD SHRUB	217	595	97.0	0.024
DEADFUEL LOAD	48975	67042	68.4	5.489
LIVE HERBS	54	40	36.4	0.006
LIVE SHRUB	1310	3046	82.0	0.147
TREE NEEDLES	106	73	34.3	0.012
0-25	49	33	33.6	0.006
.25+	151	128	42.5	0.017
TOTAL TREE	306	231	37.7	0.034
TOTAL LOAD	50646	66194	65.3	5.677

	DEPTH			
	AVERAGE	MIN.	MAX.	STD-DEV
DUFF	0.94	0.10	3.70	1.41
SHRUB	14.25	0.00	26.00	12.45

TOPOGRAPHIC CONDITIONS

	AVERAGE	MINIMUM	MAXIMUM	STD-DEV
SLOPE	13.3	5.0	20.0	7.89
ASPECT	270.0			
ELEVATION	8438	8350	8480	

AVERAGE LIVE AND DEAD SHRUB FUEL LOADINGS
SIZE CLASS IN CENTIMETERS

SPECIES	0-.5	.5-1	1-1.5	1.5-2	2-3	3-5	5+	TOTAL
JUNIPER	69.5	242.9	534.2	672.1	0.0	0.0	0.0	1518.8
HUCKLEBERRY	1.1	0.0	0.0	0.0	0.0	0.0	0.0	1.1
ORE.GRAPE	6.9	0.0	0.0	0.0	0.0	0.0	0.0	6.9
TOTAL	77.5	242.9	534.2	672.1	0.0	0.0	0.0	1526.9

PERCENTAGE ESTIMATES

SHRUB		HERBS	
%COVER	%DEAD	%COVER	%DEAD
20.3	5.9	19.0	8.3

3+ VOLUME AND DIAMETER

SOUND		ROTTEN	
CU-FT	AVG.DIA	CU-FT	AVG.DIA
204	4.60	67	6.00

SMALL TREES

SPECIES	TREES/ARCE	AVG.HT.FT
DF	225	4.20
PP	75	4.00
TOTAL	300	

FIRE MODELING INPUT DATA FOR SHRUBS

SPECIES	LEAF WT. (LBS/ACRE)	STEM WT. 0-.5CM	.5-2CM	2+CM	TOT STM
JUNIPER	733.0	326.2	459.6	0.0	785.8
HUCKLEBERRY	0.4	0.7	0.0	0.0	0.7
OREGON-GRAPE	5.5	1.5	0.0	0.0	1.5
TOTAL	738.9	328.4	459.6	0.0	788.0

APPENDIX C
POTR/PIPU COMMUNITY TYPE FUEL DATA

FUEL LOADING SUMMARY

SIZE CLASS	LOADING IN OVEN-DRY POUNDS/ACRE AVERAGE	STD-DEV	%ERROR	KG/SQ-M
0-.25	424	347	40.9	0.048
.25-1	1377	589	21.4	0.154
LITTER	2375	1979	41.7	0.266
DEAD HERBS	37	72	98.0	0.004
FINES	4213	2522	29.9	0.472
1-3	2926	4158	70.8	0.328
LESS THAN 3	7139	4665	32.7	0.800
3+ TOTAL	21346	23763	55.7	2.393
SOUND 3-6	3610	4661	64.5	0.405
SOUND 6-10	13164	11155	42.4	1.475
SOUND 10-20	0	0	0.0	0.000
SOUND 20+	0	0	0.0	0.000
3+ SOUND TOTAL	16774	15302	45.6	1.880
ROTTEN 3-6	317	633	100.0	0.035
ROTTEN 6-10	0	0	0.0	0.000
ROTTEN 10-20	4256	8511	100.0	0.477
ROTTEN 20+	0	0	0.0	0.000
3+ ROTTEN TOT.	4572	9144	100.0	0.512
DUFF	23141			2.594
DEAD SHRUB	237	354	52.8	0.027
DEADFUEL LOAD	51864	48895	47.1	5.813
LIVE HERBS	104	156	74.8	0.012
LIVE SHRUB	2568	3485	48.0	0.288
TREE NEEDLES	0	0	0.0	0.000
0-25	0	0	0.0	0.000
.25+	0	0	0.0	0.000
TOTAL TREE	0	0	0.0	0.000
TOTAL LOAD	54537	47958	44.0	6.113

DEPTH

	AVERAGE	MIN.	MAX.	STD-DEV
DUFF	0.64	0.10	2.00	0.63
SHRUB	19.20	0.00	44.00	15.27

TOPOGRAPHIC CONDITIONS

	AVERAGE	MINIMUM	MAXIMUM	STD-DEV
SLOPE	17.5	5.0	32.0	13.08
ASPECT	170.0			
ELEVATION	8358	8320	8400	

AVERAGE LIVE AND DEAD SHRUB FUEL LOADINGS
SIZE CLASS IN CENTIMETERS

SPECIES	0-.5	.5-1	1-1.5	1.5-2	2-3	3-5	5+	TOTAL
JUNIPER	195.2	540.8	214.0	1805.5	0.0	0.0	0.0	2755.5
HUCKLEBERRY	13.6	0.0	0.0	0.0	0.0	0.0	0.0	13.6
ORE.GRAPE	11.7	24.9	0.0	0.0	0.0	0.0	0.0	36.6
TOTAL	220.5	565.7	214.0	1805.5	0.0	0.0	0.0	2805.7

PERCENTAGE ESTIMATES

SHRUB		HERBS	
%COVER	%DEAD	%COVER	%DEAD
30.0	8.4	14.8	8.3

3+ VOLUME AND DIAMETER

SOUND		ROTTEN	
CU-FT	AVG.DIA	CU-FT	AVG.DIA
672	5.00	244	7.00

SMALL TREES

SPECIES	TREES/ARCE	AVG.HT.FT
TOTAL	0	

FIRE MODELING INPUT DATA FOR SHRUBS

	LEAF WT.	STEM WT.			
SPECIES	(LBS/ACRE)	0-.5CM	.5-2CM	2+CM	TOT STM
JUNIPER	1327.2	579.0	849.3	0.0	1428.3
HUCKLEBERRY	4.5	9.1	0.0	0.0	9.1
OREGON-GRAPE	22.4	14.2	0.0	0.0	14.2
TOTAL	1354.1	602.3	849.3	0.0	1451.6

APPENDIX C
PIFL/PIPO COMMUNITY TYPE FUEL DATA

FUEL LOADING SUMMARY

SIZE CLASS	LOADING IN OVEN-DRY POUNDS/ACRE AVERAGE	STD-DEV	%ERROR	KG/SQ-M
0-.25	259	301	27.4	0.029
.25-1	1950	1856	22.4	0.219
LITTER	3601	3423	22.4	0.404
DEAD HERBS	8	17	47.5	0.001
FINES	5818	4563	18.5	0.652
1-3	2126	2812	31.2	0.238
LESS THAN 3	7944	5752	17.1	0.890
3+ TOTAL	25455	36749	34.0	2.853
SOUND 3-6	1194	3200	63.2	0.134
SOUND 6-10	2842	8485	70.4	0.319
SOUND 10-20	6374	15689	58.0	0.714
SOUND 20+	5592	23727	100.0	0.627
3+ SOUND TOTAL	16002	35966	53.0	1.794
ROTTEN 3-6	453	1450	75.5	0.051
ROTTEN 6-10	2052	5671	65.1	0.230
ROTTEN 10-20	3840	8970	55.1	0.430
ROTTEN 20+	3108	13186	100.0	0.348
3+ ROTTEN TOT.	9453	17527	43.7	1.060
DUFF	19864			2.226
DEAD SHRUB	297	785	44.1	0.033
DEADFUEL LOAD	53560	52383	23.1	6.003
LIVE HERBS	76	102	31.6	0.009
LIVE SHRUB	3383	8066	39.7	0.379
TREE NEEDLES	84	160	45.0	0.009
0-25	38	72	44.8	0.004
.25+	142	281	46.7	0.016
TOTAL TREE	264	513	45.9	0.030
TOTAL LOAD	57283	54974	22.6	6.421

	DEPTH			
	AVERAGE	MIN.	MAX.	STD-DEV
DUFF	0.55	0.00	3.60	0.82
SHRUB	8.78	0.00	30.00	5.56

TOPOGRAPHIC CONDITIONS

	AVERAGE	MINIMUM	MAXIMUM	STD-DEV
SLOPE	23.4	2.0	40.0	11.93
ASPECT	168.9			
ELEVATION	8388	7850	8870	

AVERAGE LIVE AND DEAD SHRUB FUEL LOADINGS
SIZE CLASS IN CENTIMETERS

SPECIES	0-.5	.5-1	1-1.5	1.5-2	2-3	3-5	5+	TOTAL
MANZANITA	170.9	541.2	385.2	490.7	764.5	325.5	0.0	2678.1
CEANOTHUS	2.9	39.9	0.0	0.0	0.0	0.0	0.0	42.8
JUNIPER	83.2	47.5	49.1	0.0	115.2	0.0	0.0	294.9
SNOWBERRY	85.8	4.4	0.0	0.0	0.0	0.0	0.0	90.2
HUCKLEBERRY	10.9	9.4	0.0	0.0	0.0	0.0	0.0	20.3
ORE-GRAPE	20.9	0.0	0.0	0.0	0.0	0.0	0.0	20.9
LOW	2.4	0.0	0.0	0.0	0.0	0.0	0.0	2.4
MEDIUM	30.9	104.6	33.2	0.0	360.9	0.0	0.0	529.7
TOTAL	408.0	747.1	340.7	490.7	1240.6	325.5	0.0	3679.4

PERCENTAGE ESTIMATES

SHRUB		HERBS	
%COVER	%DEAD	%COVER	%DEAD
16.7	4.9	4.4	3.3

3+ VOLUME AND DIAMETER

SOUND		ROTTEN	
CU-FT	AVG.DIA	CU-FT	AVG.DIA
641	7.78	505	9.36

SMALL TREES

SPECIES	TREES/ARCE	AVG.HT.FT
DF	83	4.90
PP	50	5.00
TOTAL	133	

FIRE MODELING INPUT DATA FOR SHRUBS

SPECIES	LEAF WT. (LBS/ACRE)	STEM WT. 0-.5CM	.5-2CM	2+CM	TOT STM
MANZANITA	228.1	886.5	1233.7	329.8	2450.0
CEANOTHUS	21.9	15.7	5.2	0.0	20.9
JUNIPER	164.5	57.8	57.8	14.8	130.5
SNOWBERRY	36.8	52.3	1.0	0.0	53.3
HUCKLEBERRY	5.6	12.3	2.4	0.0	14.7
OREGON-GRAPE	16.5	4.4	0.0	0.0	4.4
LOW	1.2	1.3	0.0	0.0	1.3
MEDIUM	117.0	133.7	222.4	56.6	412.7
TOTAL	591.6	1164.1	1522.5	401.3	3087.8

APPENDIX C
PIFL/PSME COMMUNITY TYPE FUEL DATA

FUEL LOADING SUMMARY

SIZE CLASS	LOADING IN OVEN-DRY POUNDS/ACRE AVERAGE		STD-DEV	%ERROR	KG/SQ-M
0-.25		649	545	25.3	0.073
.25-1		1644	2172	39.9	0.184
LITTER		7708	8726	34.1	0.864
DEAD HERBS		0	1	54.6	0.000
FINES	10001		8837	26.6	1.121
1-3		3221	4055	38.0	0.361
LESS THAN 3	13222		9918	22.6	1.482
3+ TOTAL	28071		42144	45.3	3.146
SOUND 3-6		1978	4274	65.1	0.222
SOUND 6-10		3196	4644	43.8	0.358
SOUND 10-20		2455	8142	100.0	0.275
SOUND 20+		7499	24872	100.0	0.841
3+ SOUND TOTAL	15129		26390	52.6	1.696
ROTTEN 3-6		831	1556	56.4	0.093
ROTTEN 6-10		625	2075	100.0	0.070
ROTTEN 10-20		0	0	0.0	0.000
ROTTEN 20+		11485	38093	100.0	1.287
3+ ROTTEN TOT.	12942		37681	87.8	1.451
DUFF		19635			2.201
DEAD SHRUB		182	430	50.5	0.020
DEADFUEL LOAD	61109		43136	21.3	6.849
LIVE HERBS		14	26	54.6	0.002
LIVE SHRUB		3034	6822	47.9	0.340
TREE NEEDLES		114	171	45.2	0.013
0-25		52	77	44.6	0.006
.25+		178	302	51.0	0.020
TOTAL TREE	344		548	48.0	0.039
TOTAL LOAD	64501		43843	20.5	7.230

	DEPTH			
	AVERAGE	MIN.	MAX.	STD-DEV
DUFF	0.54	0.00	1.40	0.40
SHRUB	7.80	0.00	20.00	5.84

TOPOGRAPHIC CONDITIONS

	AVERAGE	MINIMUM	MAXIMUM	STD-DEV
SLOPE	25.0	5.0	50.0	12.39
ASPECT	223.2			
ELEVATION	8581	8430	8680	

AVERAGE LIVE AND DEAD SHRUB FUEL LOADINGS
SIZE CLASS IN CENTIMETERS

SPECIES	0-.5	.5-1	1-1.5	1.5-2	2-3	3-5	5+	TOTAL
MANZANITA	68.2	71.5	149.8	569.8	992.7	0.0	0.0	1852.0
CEANOTHUS	2.4	0.0	0.0	0.0	0.0	0.0	0.0	2.4
JUNIPER	312.4	337.7	205.4	182.0	182.0	0.0	0.0	1219.4
SNOWBERRY	62.9	7.2	0.0	0.0	0.0	0.0	0.0	70.1
HUCKLEBERRY	26.6	0.0	0.0	0.0	0.0	0.0	0.0	26.6
ROSE	3.2	0.0	0.0	0.0	0.0	0.0	0.0	3.2
ORE-GRAPE	41.7	0.0	0.0	0.0	0.0	0.0	0.0	41.7
TOTAL	517.3	416.3	355.2	751.7	1174.8	0.0	0.0	3215.4

PERCENTAGE ESTIMATES

SHRUB		HERBS	
%COVER	%DEAD	%COVER	%DEAD
20.6	3.9	1.8	1.1

3+ VOLUME AND DIAMETER

SOUND		ROTTEN	
CU-FT	AVG.DIA	CU-FT	AVG.DIA
606	7.17	691	8.83

SMALL TREES

SPECIES	TREES/ARCE	AVG.HT.FT
DF	900	3.37
PP	27	9.00
TOTAL	927	

FIRE MODELING INPUT DATA FOR SHRUBS

SPECIES	LEAF WT. (LBS/ACRE)	STEM WT. 0-.5CM	.5-2CM	2+CM	TOT STM
MANZANITA	149.8	457.3	1070.5	174.4	1702.2
CEANOTHUS	1.6	0.8	0.0	0.0	0.8
JUNIPER	718.5	244.1	233.4	23.4	500.9
SNOWBERRY	28.1	40.3	1.7	0.0	42.0
HUCKLEBERRY	8.9	17.7	0.0	0.0	17.7
ROSE	1.4	1.8	0.0	0.0	1.8
OREGON-GRAPE	32.9	8.7	0.0	0.0	8.7
TOTAL	941.2	770.4	1305.5	197.8	2274.2

APPENDIX C
JUSC/PIPO COMMUNITY TYPE FUEL DATA

FUEL LOADING SUMMARY

LOADING IN OVEN-DRY POUNDS/ACRE

SIZE CLASS	AVERAGE	STD-DEV	%ERROR	KG/SQ-M
0-.25	99	82	14.4	0.011
.25-1	649	1040	27.9	0.073
LITTER	2540	2410	16.5	0.285
DEAD HERBS	22	31	24.7	0.002
FINES	3310	2551	13.4	0.371
1-3	1243	3011	42.2	0.139
LESS THAN 3	4552	4079	15.6	0.510
3+ TOTAL	22132	44754	35.2	2.481
SOUND 3-6	750	1903	44.2	0.084
SOUND 6-10	1047	2962	49.2	0.117
SOUND 10-20	3785	12937	59.5	0.424
SOUND 20+	2265	13009	100.0	0.254
3+ SOUND TOTAL	7846	19748	43.8	0.879
ROTTEN 3-6	363	1028	49.4	0.041
ROTTEN 6-10	861	2075	48.3	0.096
ROTTEN 10-20	2319	6359	47.7	0.260
ROTTEN 20+	10743	31568	51.2	1.204
3+ ROTTEN TOT.	14285	32327	39.4	1.601
DUFF	4345			0.487
DEAD SHRUB	309	767	30.6	0.035
DEADFUEL LOAD	31338	49111	27.3	3.512
LIVE HERBS	184	164	15.5	0.021
LIVE SHRUB	2585	5028	23.9	0.290
TREE NEEDLES	78	146	32.7	0.009
0-25	36	68	32.6	0.004
.25+	97	188	33.8	0.011
TOTAL TREE	211	400	33.0	0.024
TOTAL LOAD	34319	49337	25.0	3.847

DEPTH

	AVERAGE	MIN.	MAX.	STD-DEV
DUFF	0.12	0.00	0.80	0.21
SHRUB	9.25	0.00	26.00	4.69

TOPOGRAPHIC CONDITIONS

	AVERAGE	MINIMUM	MAXIMUM	STD-DEV
SLOPE	13.4	2.0	55.0	12.25
ASPECT	151.7			
ELEVATION	7945	7680	8370	

AVERAGE LIVE AND DEAD SHRUB FUEL LOADINGS
SIZE CLASS IN CENTIMETERS

SPECIES	0-.5	.5-1	1-1.5	1.5-2	2-3	3-5	5+	TOTAL
MANZANITA	97.0	337.7	503.8	530.0	0.0	0.0	0.0	1468.5
GAMBEL-OAK	16.7	42.5	0.0	0.0	0.0	0.0	0.0	59.2
CEANOTHUS	15.5	66.6	0.0	0.0	0.0	0.0	0.0	82.2
SNOWBERRY	10.3	0.0	0.0	0.0	0.0	0.0	0.0	10.3
HUCKLEBERRY	1,7	0.0	0.0	0.0	0.0	0.0	0.0	1.7
ORE-GRAPE	20.7	0.0	0.0	0.0	0.0	0.0	0.0	20.7
LOW	5.2	65.9	34.3	0.0	0.0	0.0	0.0	105.4
MEDIUM	29.8	187.3	218.5	189.9	332.5	188.4	0.0	1146.3
TOTAL	196.9	700.0	756.6	719.8	332.5	188.4	0.0	2894.2

PERCENTAGE ESTIMATES

SHRUB		HERBS	
%COVER	%DEAD	%COVER	%DEAD
19.9	6.7	10.4	6.9

3+ VOLUME AND DIAMETER

SOUND		ROTTEN	
CU-FT	AVG.DIA	CU-FT	AVG.DIA
314	8.50	763	11.94

SMALL TREES

SPECIES	TREES/ARCE	AVG.HT.FT
PP	173	3.64
TOTAL	173	

FIRE MODELING INPUT DATA FOR SHRUBS

SPECIES	LEAF WT. (LBS/ACRE)	STEM WT. 0-.5CM	.5-2CM	2+CM	TOT STM
MANZANITA	132.7	558.3	777.5	0.0	1335.8
GAMBEL-OAK	2.4	56.8	0.0	0.0	56.8
CEANOTHUS	43.6	30.0	8.7	0.0	38.6
SNOWBERRY	4.3	6.0	0.0	0.0	6.0
HUCKLEBERRY	0.6	1.1	0.0	0.0	1.1
OREGON-GRAPE	16.3	4.3	0.0	0.0	4.3
LOW	32.7	40.9	31.8	0.0	72.7
MEDIUM	249.7	271.2	468.7	156.7	896.6
TOTAL	482.2	968.7	1286.6	156.7	2412.0

APPENDIX C
NULL/PIPO COMMUNITY TYPE FUEL DATA

FUEL LOADING SUMMARY

SIZE CLASS	LOADING IN OVEN-DRY POUNDS/ACRE AVERAGE	STD-DEV	%ERROR	KG/SQ-M
0-.25	91	140	58.3	0.010
.25-1	182	311	64.6	0.020
LITTER	2259	4593	76.9	0.253
DEAD HERBS	42	57	51.5	0.005
FINES	2573	4492	66.0	0.288
1-3	0	0	0.0	0.000
LESS THAN 3	2573	4492	66.0	0.288
3+ TOTAL	3336	7591	86.0	0.374
SOUND 3-6	667	1200	68.0	0.075
SOUND 6-10	0	0	0.0	0.000
SOUND 10-20	2669	7062	100.0	0.299
SOUND 20+	0	0	0.0	0.000
3+ SOUND TOTAL	3336	7591	86.0	0.374
ROTTEN 3-6	0	0	0.0	0.000
ROTTEN 6-10	0	0	0.0	0.000
ROTTEN 10-20	0	0	0.0	0.000
ROTTEN 20+	0	0	0.0	0.000
3+ ROTTEN TOT.	0	0	0.0	0.000
DUFF	778			0.087
DEAD SHRUB	311	579	49.7	0.035
DEADFUEL LOAD	6998	11622	62.8	0.784
LIVE HERBS	196	195	37.7	0.022
LIVE SHRUB	2214	4171	50.4	0.248
TREE NEEDLES	99	215	81.9	0.011
0-25	45	97	81.3	0.005
.25+	166	382	87.1	0.019
TOTAL TREE	311	695	84.5	0.035
TOTAL LOAD	9719	11350	44.1	1.089

	DEPTH			
	AVERAGE	MIN.	MAX.	STD-DEV
DUFF	0.02	0.00	0.10	0.04
SHRUB	9.92	0.00	21.00	5.63

TOPOGRAPHIC CONDITIONS

	AVERAGE	MINIMUM	MAXIMUM	STD-DEV
SLOPE	15.0	5.0	58.0	19.10
ASPECT	202.9			
ELEVATION	8021	7650	8560	

AVERAGE LIVE AND DEAD SHRUB FUEL LOADINGS
SIZE CLASS IN CENTIMETERS

SPECIES	0-.5	.5-1	1-1.5	1.5-2	2-3	3-5	5+	TOTAL
MANZANITA	22.9	128.7	0.0	400.5	0.0	0.0	0.0	552.2
SNOWBERRY	24.4	0.0	0.0	0.0	0.0	0.0	0.0	24.4
ROSE	4.1	0.0	0.0	0.0	0.0	0.0	0.0	4.1
ORE-GRAPE	25.9	0.0	0.0	0.0	0.0	0.0	0.0	25.9
LOW	3.8	124.5	121.7	99.5	257.0	0.0	0.0	606.5
MEDIUM	78.1	79.8	85.7	448.4	620.2	0.0	0.0	1312.3
TOTAL	159.2	333.0	207.4	948.5	877.2	0.0	0.0	2525.3

PERCENTAGE ESTIMATES

SHRUB		HERBS	
%COVER	%DEAD	%COVER	%DEAD
17.1	13.9	5.2	6.3

3+ VOLUME AND DIAMETER

SOUND		ROTTEN	
CU-FT	AVG.DIA	CU-FT	AVG.DIA
134	5.67	0	0.00

SMALL TREES

SPECIES	TREES/ARCE	AVG.HT.FT
PP	129	6.00
TOTAL	129	

FIRE MODELING INPUT DATA FOR SHRUBS

SPECIES	LEAF WT. (LBS/ACRE)	STEM WT. 0-.5CM	.5-2CM	2+CM	TOT STM
MANZANITA	46.7	187.0	318.5	0.0	505.5
SNOWBERRY	10.1	14.2	0.0	0.0	14.2
ROSE	1.8	2.3	0.0	0.0	2.3
OREGON-GRAPE	20.5	5.4	0.0	0.0	5.4
LOW	141.4	148.9	276.0	40.1	465.1
MEDIUM	280.3	290.6	644.0	97.3	1032.0
TOTAL	500.8	648.4	1238.6	137.5	2024.5

APPENDIX C
PIPO/PIPO COMMUNITY TYPE WITHIN PIPO SERIES FUEL DATA

FUEL LOADING SUMMARY

SIZE CLASS	LOADING IN OVEN-DRY POUNDS/ACRE AVERAGE		STD-DEV	%ERROR	KG/SQ-M
0-.25		94	107	22.2	0.011
.25-1		1126	1480	25.8	0.126
LITTER		4586	4259	18.2	0.514
DEAD HERBS		32	32	19.3	0.004
FINES	5838		4760	16.0	0.654
1-3		2576	5356	40.8	0.289
LESS THAN 3	8414		7787	18.2	0.943
3+ TOTAL	16215		42586	51.5	1.817
SOUND 3-6		2205	3694	32.9	0.247
SOUND 6-10		1845	5712	60.7	0.207
SOUND 10-20		3053	11026	70.8	0.342
SOUND 20+		6462	32950	100.0	0.724
3+ SOUND TOTAL	13565		42064	60.8	1.520
ROTTEN 3-6		489	1472	59.0	0.055
ROTTEN 6-10		457	1634	70.2	0.051
ROTTEN 10-20		1704	6201	71.4	0.191
ROTTEN 20+		0	0	0.0	0.000
3+ ROTTEN TOT.	2650		6433	47.6	0.297
DUFF		13054			1.463
DEAD SHRUB		643	2034	43.9	0.072
DEADFUEL LOAD	38326		52129	26.7	4.296
LIVE HERBS		270	211	15.3	0.030
LIVE SHRUB		1698	3658	29.9	0.190
TREE NEEDLES		63	156	48.2	0.007
0-25		29	70	47.9	0.003
.25+		107	275	50.5	0.012
TOTAL TREE	199		501	49.4	0.022
TOTAL LOAD	40494		52196	25.3	4.539

	DEPTH			
	AVERAGE	MIN.	MAX.	STD-DEV
DUFF	0.36	0.00	3.90	0.86
SHRUB	9.26	0.00	22.00	5.44

TOPOGRAPHIC CONDITIONS

	AVERAGE	MINIMUM	MAXIMUM	STD-DEV
SLOPE	5.9	2.0	10.0	2.10
ASPECT	100.4			
ELEVATION	7743	7640	8010	

AVERAGE LIVE AND DEAD SHRUB FUEL LOADINGS
SIZE CLASS IN CENTIMETERS

SPECIES	0-.5	.5-1	1-1.5	1.5-2	2-3	3-5	5+	TOTAL
BUFF-BERRY	0.6	2.8	0.0	0.0	0.0	0.0	0.0	
ORE-GRAPE	4.2	0.0	0.0	0.0	0.0	0.0	0.0	4.2
LOW	6.8	167.2	174.2	213.5	414.8	0.0	0.0	976.5
MEDIUM	2.7	69.7	172.7	300.8	332.9	478.6	0.0	1357.4
TOTAL	14.2	239.7	346.9	514.3	747.6	478.6	0.0	2341.4

PERCENTAGE ESTIMATES

SHRUB		HERBS	
%COVER	%DEAD	%COVER	%DEAD
17.7	14.9	11.1	7.8

3+ VOLUME AND DIAMETER

SOUND		ROTTEN	
CU-FT	AVG.DIA	CU-FT	AVG.DIA
543	6.03	142	5.73

SMALL TREES

SPECIES	TREES/ARCE	AVG.HT.FT
PP	92	5.60
TOTAL	92	

FIRE MODELING INPUT DATA FOR SHRUBS

SPECIES	LEAF WT. (LBS/ACRE)	STEM WT. 0-.5CM	.5-2CM	2+CM	TOT STM
BUFF-BERRY	1.0	1.9	0.5	0.0	2.4
OREGON-GRAPE	3.3	0.9	0.0	0.0	0.9
LOW	223.9	229.8	458.0	64.8	752.5
MEDIUM	255.6	246.0	537.9	317.9	1101.8
TOTAL	483.8	478.6	996.4	382.6	1857.6

MAY

STATIC 21. CUSTOM MODEL FOR FUEL TYPE 1 BY: WIGHT

LOADS, T/AC		S/V RATIOS, 1/FT		OTHER	
1 HR	1.93	1 HR	1873.	DEPTH, FT	1.00
10 HR	0.90	LIVE HERB	190.	HEAT CONTENT, BTU/LB	8000.
100 HR	1.89	LIVE WOODY	1500.	EXT MOISTURE, %	25.
LIVE HERB	0.05	SIGMA	1709.	PACKING RATIO	0.00834
LIVE WOODY	1.04			PR/OPR	1.11

ENVIRONMENTAL DATA	
1 HR FM	7.
10 HR FM	10.
100 HR FM	13.
LIVE HERB FM	118.
LIVE WOODY FM	122.
SLOPE, %	20.

FIRE BEHAVIOR RESULTS

FIRE VARIABLE	MIDFLAME WIND, MI/H 2.	4.	10.
ROS (FT/M)	4.	9.	30.
FL (FEET)	3.	4.	7.
IR (BTU/SQFT/M)	3891.	3891.	3891.
H/A (BTU/SQFT)	874.	874.	874.
FLI (BTU/FT/S)	65.	136.	434.

STATIC 21. CUSTOM MODEL FOR FUEL TYPE 1 BY: WIGHT

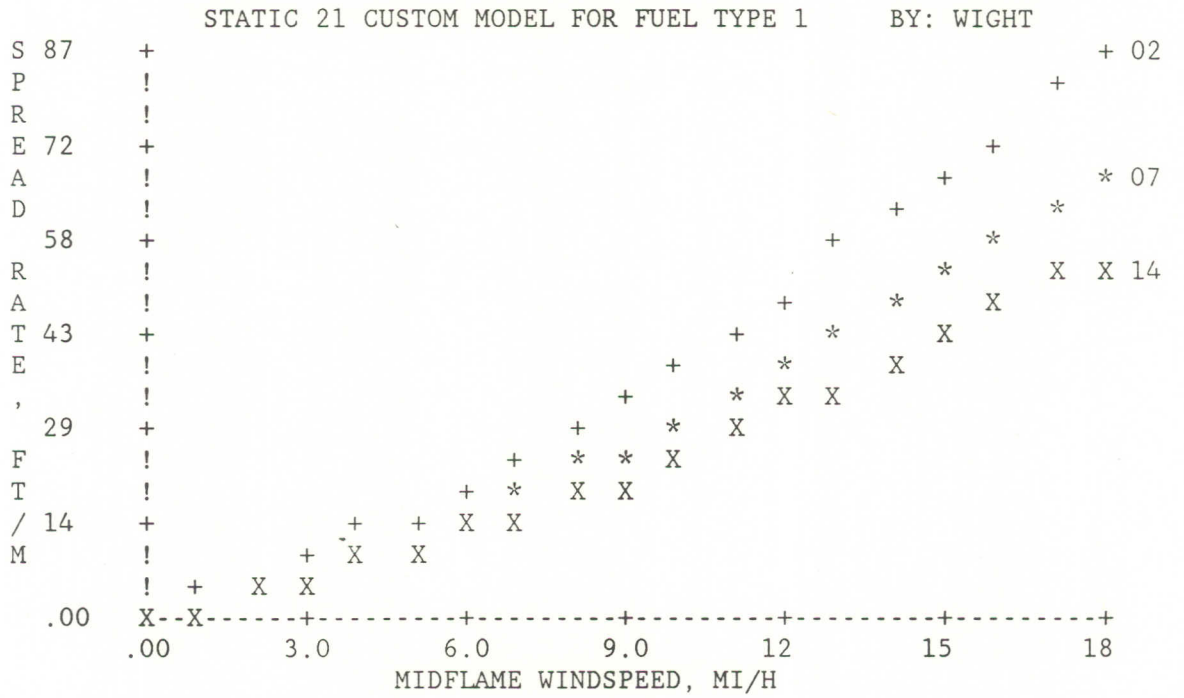
LOADS, T/AC		S/V RATIOS, 1/FT		OTHER	
1 HR	1.93	1 HR	1873.	DEPTH, FT	1.00
10 HR	0.90	LIVE HERB	190.	HEAT CONTENT, BTU/LB	8000.
100 HR	1.89	LIVE WOODY	1500.	EXT MOISTURE, %	25.
LIVE HERB	0.05	SIGMA	1709.	PACKING RATIO	0.00834
LIVE WOODY	1.04			PR/OPR	1.11

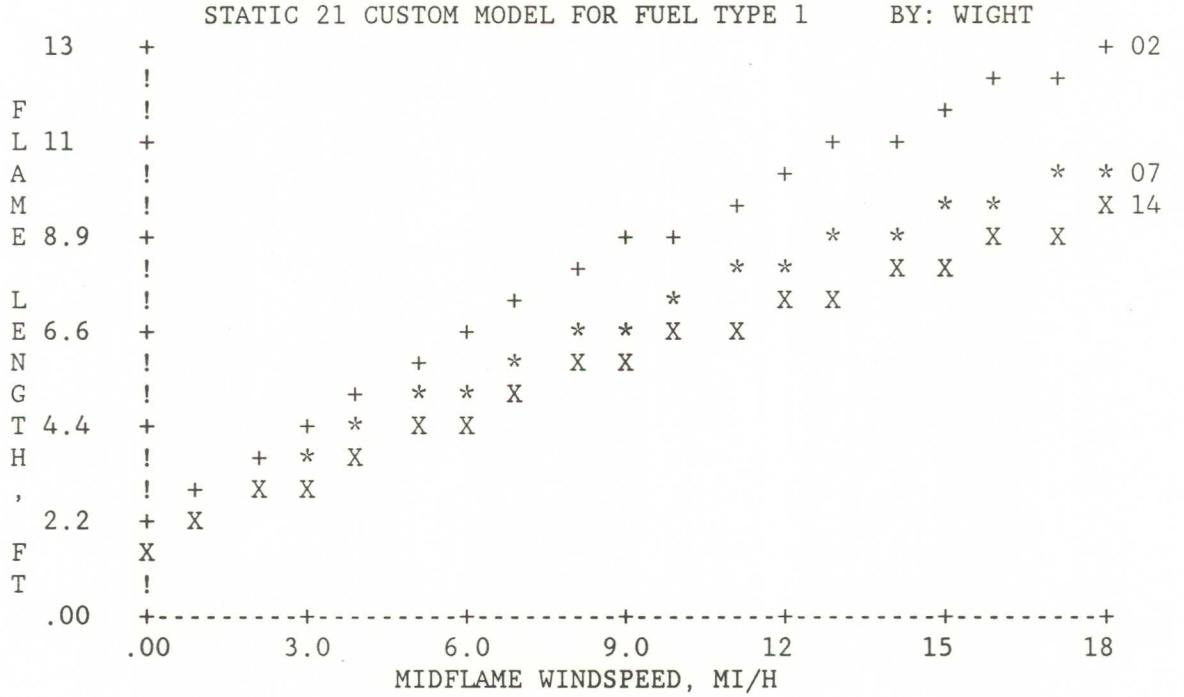
ENVIRONMENTAL DATA	
1 HR FM	7.
10 HR FM	10.
100 HR FM	13.
LIVE HERB FM	118.
LIVE WOODY FM	122.
WIND, MI/H	4.

FIRE BEHAVIOR RESULTS

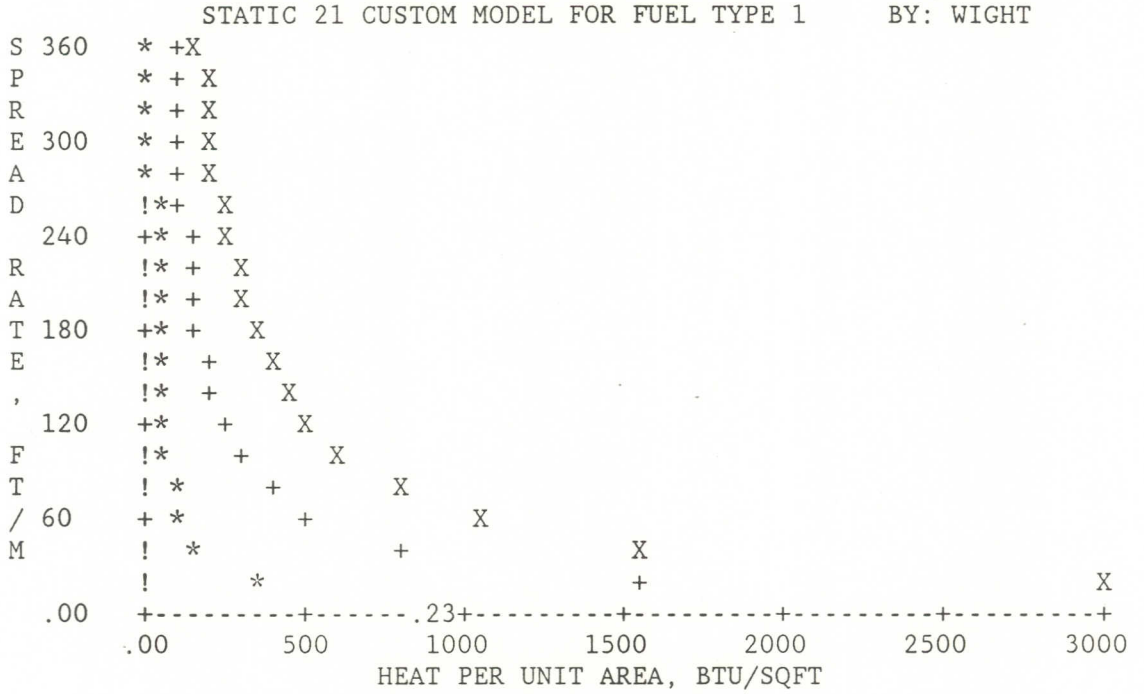
FIRE VARIABLE	SLOPE, % 2.	20.	50.
ROS (FT/M)	9.	9.	13.
FL (FEET)	4.	4.	5.
IR (BTU/SQFT/M)	3891.	3891.	3891.
H/A (BTU/SQFT)	874.	874.	874.
FLI (BTU/FT/S)	125.	136.	192.

MAY


STATIC 21 CUSTOM MODEL FOR FUEL TYPE 1 BY: WIGHT
SPREAD RATE, FT/M
87
72
58
43
29
14
.00
02
07
14
.00
3.0
6.0
9.0
12
15
18
MIDFLAME WINDSPEED, MI/H


STATIC 21 CUSTOM MODEL FOR FUEL TYPE 1 BY: WIGHT
FLAME LENGTH, FT
13
11
8.9
6.6
4.4
2.2
.00
02
07
14
.00
3.0
6.0
9.0
12
15
18
MIDFLAME WINDSPEED, MI/H

MAY


STATIC 21 CUSTOM MODEL FOR FUEL TYPE 1 BY: WIGHT
SPREAD RATE, FT/MIN
360
300
240
180
120
60
.00
.00
500
1000
1500
2000
2500
3000
HEAT PER UNIT AREA, BTU/SQFT

JUNE

STATIC 21. CUSTOM MODEL FOR FUEL TYPE 1 BY: WIGHT

LOADS, T/AC		S/V RATIOS, 1/FT		OTHER	
1 HR	1.93	1 HR	1873.	DEPTH, FT	1.00
10 HR	0.90	LIVE HERB	190.	HEAT CONTENT, BTU/LB	8000.
100 HR	1.89	LIVE WOODY	1500.	EXT MOISTURE, %	25.
LIVE HERB	0.05	SIGMA	1709.	PACKING RATIO	0.00834
LIVE WOODY	1.04			PR/OPR	1.11

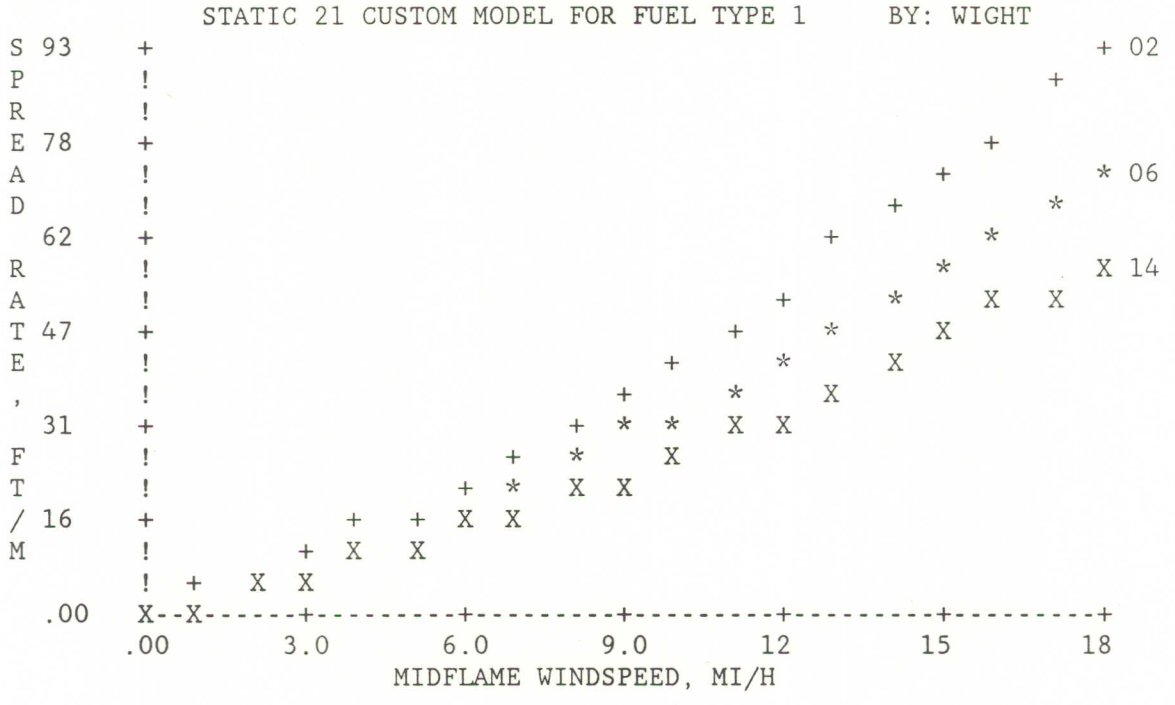
ENVIRONMENTAL DATA		FIRE BEHAVIOR RESULTS			
		FIRE	MIDFLAME WIND, MI/H		
1 HR FM	6.	VARIABLE	2.	4.	10.
10 HR FM	8.	ROS (FT/M)	5.	10.	33.
100 HR FM	10.	FL (FEET)	3.	5.	8.
LIVE HERB FM	101.	IR (BTU/SQFT/M)	4069.	4069.	4069.
LIVE WOODY FM	111.	H/A (BTU/SQFT)	914.	914.	914.
SLOPE, %	20.	FLI (BTU/FT/S)	76.	159.	506.

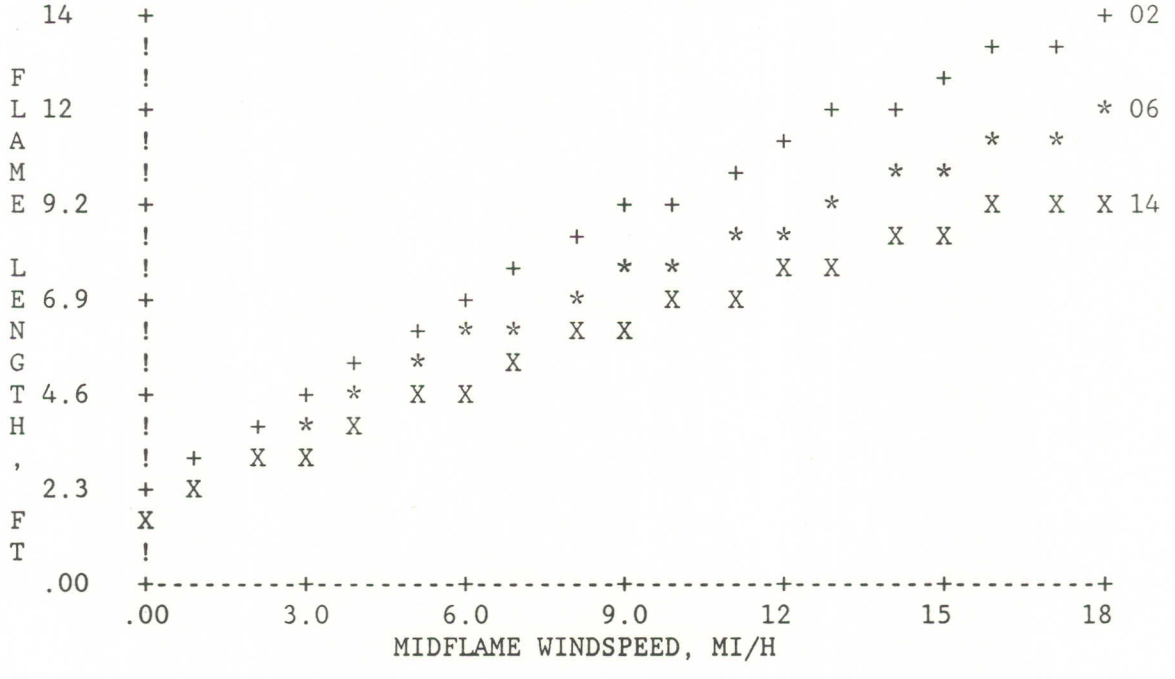
STATIC 21. CUSTOM MODEL FOR FUEL TYPE 1 BY: WIGHT

LOADS, T/AC		S/V RATIOS, 1/FT		OTHER	
1 HR	1.93	1 HR	1873.	DEPTH, FT	1.00
10 HR	0.90	LIVE HERB	190.	HEAT CONTENT, BTU/LB	8000.
100 HR	1.89	LIVE WOODY	1500.	EXT MOISTURE, %	25.
LIVE HERB	0.05	SIGMA	1709.	PACKING RATIO	0.00834
LIVE WOODY	1.04			PR/OPR	1.11

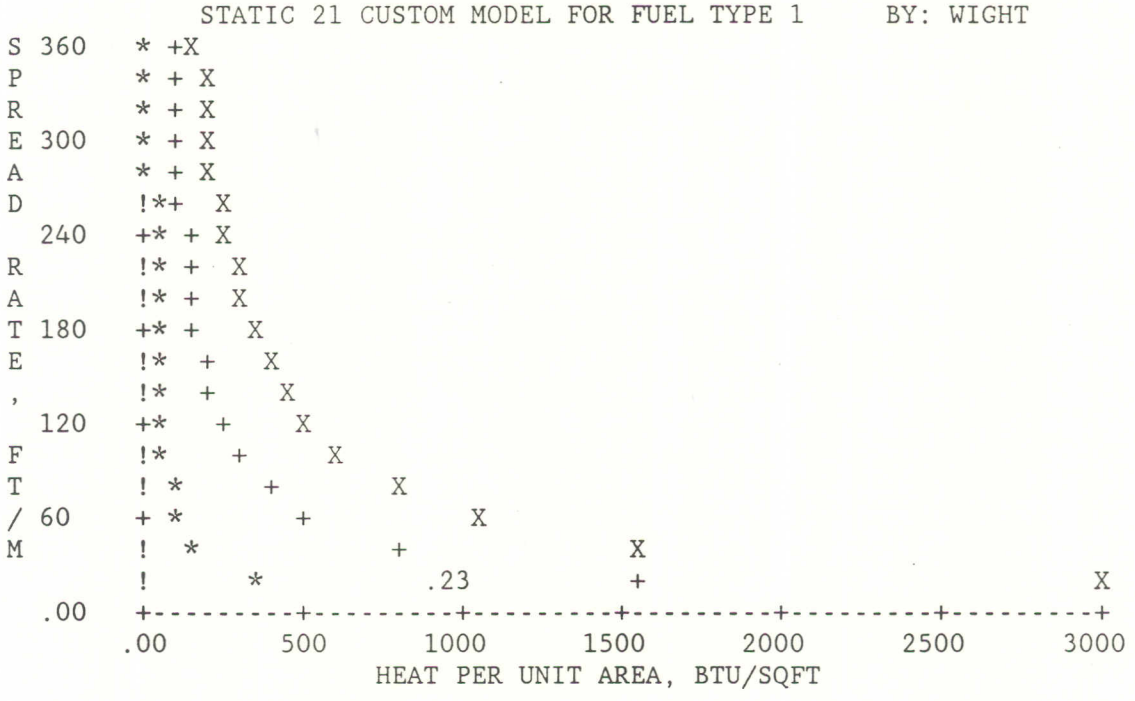
ENVIRONMENTAL DATA		FIRE BEHAVIOR RESULTS			
		FIRE	SLOPE, %		
1 HR FM	6.	VARIABLE	2.	20.	50.
10 HR FM	8.	ROS (FT/M)	10.	10.	15.
100 HR FM	10.	FL (FEET)	4.	5.	5.
LIVE HERB FM	101.	IR (BTU/SQFT/M)	4069.	4069.	4069.
LIVE WOODY FM	111.	H/A (BTU/SQFT)	914.	914.	914.
WIND, MI/H	4.	FLI (BTU/FT/S)	146.	159.	224.

JUNE


STATIC 21 CUSTOM MODEL FOR FUEL TYPE 1 BY: WIGHT
SPREAD RATE, FT/M
93
78
62
47
31
16
.00
02
06
14
MIDFLAME WINDSPEED, MI/H
.00
3.0
6.0
9.0
12
15
18


STATIC 21 CUSTOM MODEL FOR FUEL TYPE 1 BY: WIGHT
FLAME LENGTH, FT
14
12
9.2
6.9
4.6
2.3
.00
02
06
14
MIDFLAME WINDSPEED, MI/H
.00
3.0
6.0
9.0
12
15
18

JUNE


STATIC 21 CUSTOM MODEL FOR FUEL TYPE 1 BY: WIGHT
SPREAD RATE, FT/MIN
360
300
240
180
120
60
.00
.23
.00
500
1000
1500
2000
2500
3000
HEAT PER UNIT AREA, BTU/SQFT

JULY

STATIC 21. CUSTOM MODEL FOR FUEL TYPE 1 BY: WIGHT

LOADS, T/AC		S/V RATIOS, 1/FT		OTHER	
1 HR	1.93	1 HR	1873.	DEPTH, FT	1.00
10 HR	0.90	LIVE HERB	190.	HEAT CONTENT, BTU/LB	8000.
100 HR	1.89	LIVE WOODY	1500.	EXT MOISTURE, %	25.
LIVE HERB	0.05	SIGMA	1709.	PACKING RATIO	0.00834
LIVE WOODY	1.04			PR/OPR	1.11

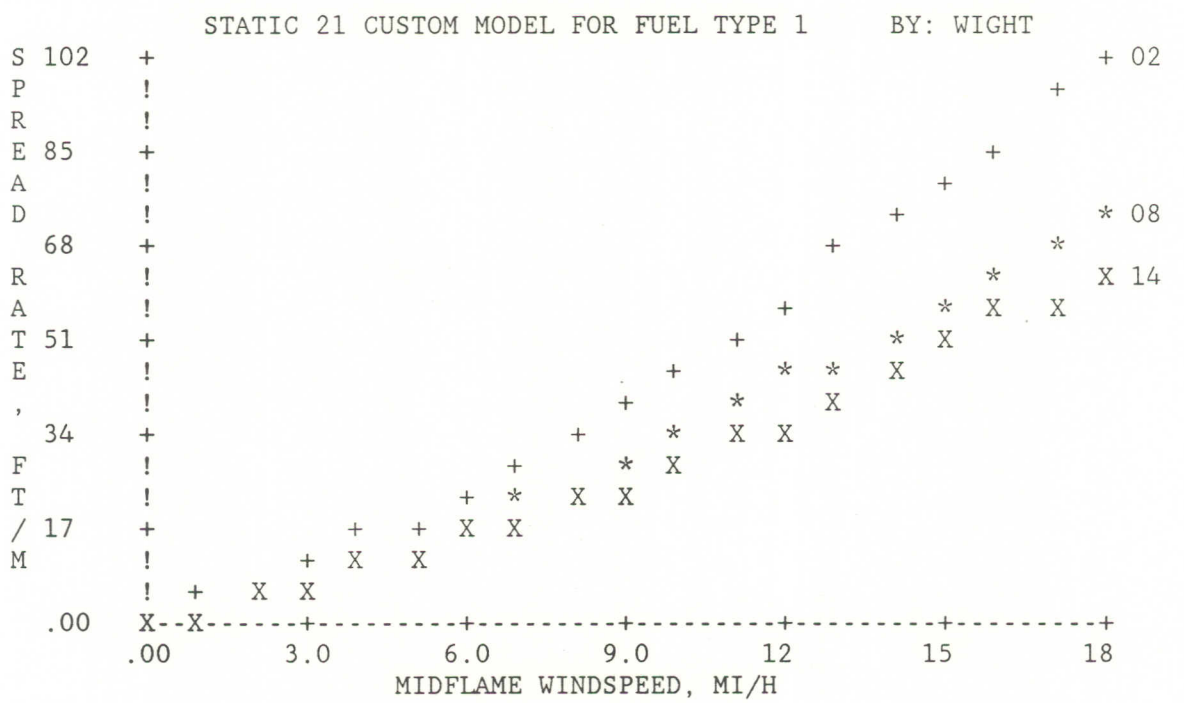
ENVIRONMENTAL DATA		FIRE BEHAVIOR RESULTS			
		FIRE	MIDFLAME WIND, MI/H		
1 HR FM	8.	VARIABLE	2.	4.	10.
10 HR FM	13.	ROS (FT/M)	5.	11.	34.
100 HR FM	12.	FL (FEET)	3.	5.	8.
LIVE HERB FM	79.	IR (BTU/SQFT/M)	3891.	3891.	3891.
LIVE WOODY FM	95.	H/A (BTU/SQFT)	874.	874.	874.
SLOPE, %	20.	FLI (BTU/FT/S)	74.	154.	490.

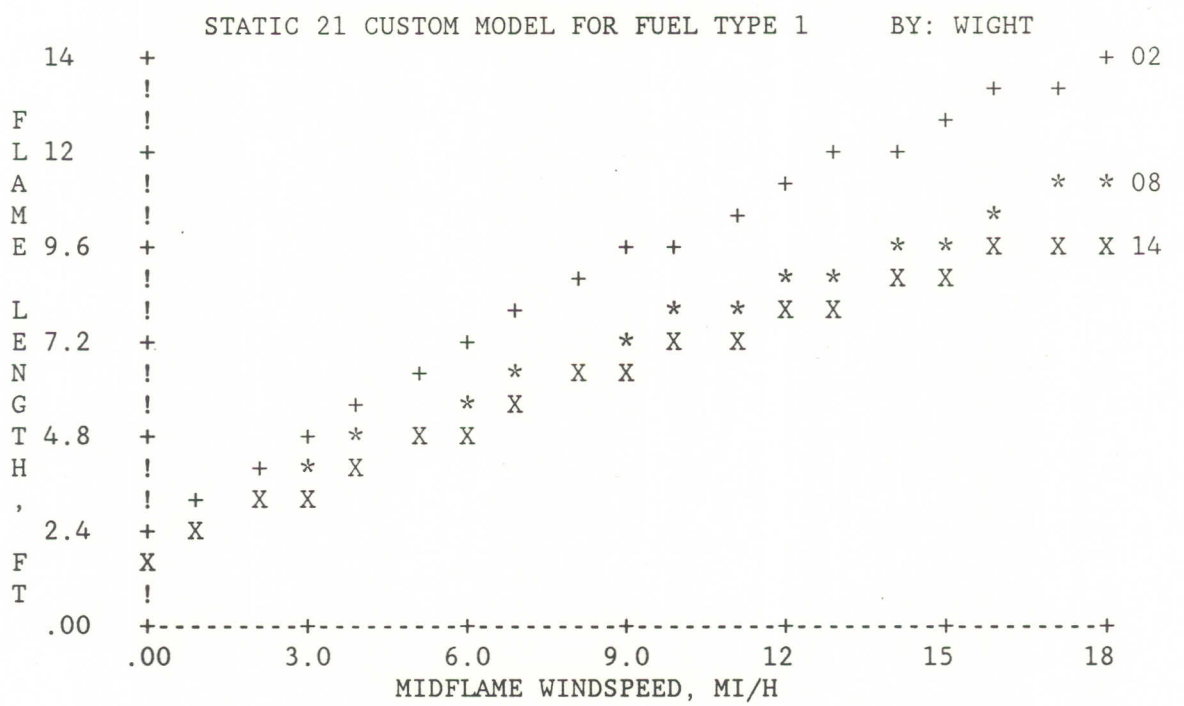
STATIC 21. CUSTOM MODEL FOR FUEL TYPE 1 BY: WIGHT

LOADS, T/AC		S/V RATIOS, 1/FT		OTHER	
1 HR	1.93	1 HR	1873.	DEPTH, FT	1.00
10 HR	0.90	LIVE HERB	190.	HEAT CONTENT, BTU/LB	8000.
100 HR	1.89	LIVE WOODY	1500.	EXT MOISTURE, %	25.
LIVE HERB	0.05	SIGMA	1709.	PACKING RATIO	0.00834
LIVE WOODY	1.04			PR/OPR	1.11

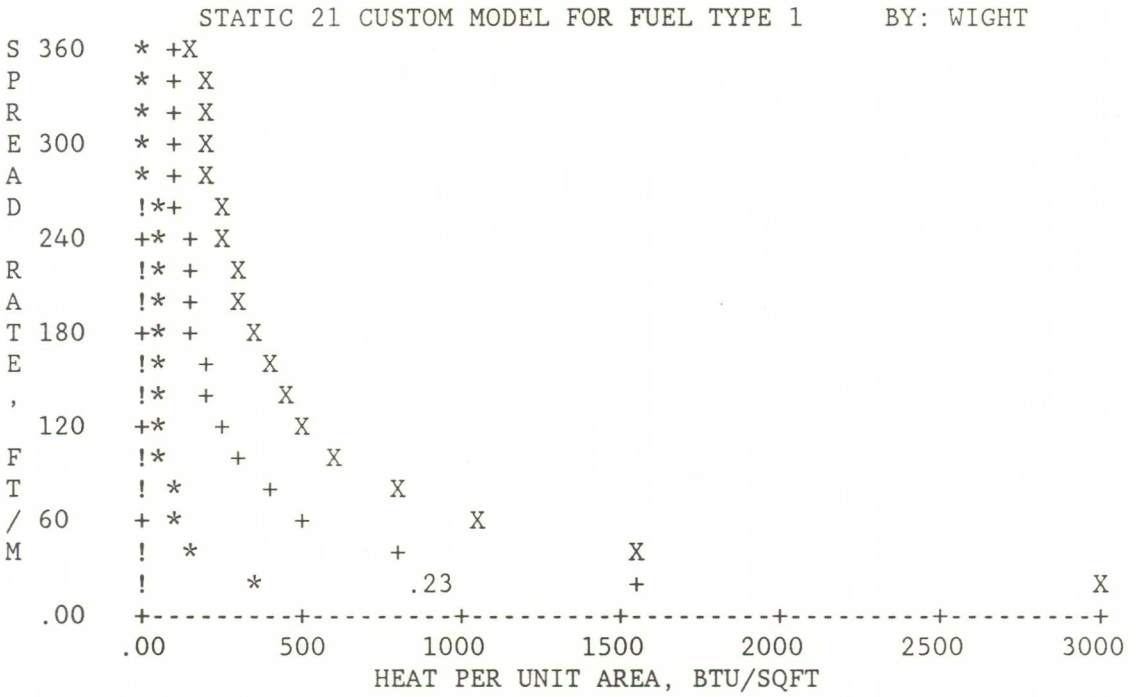
ENVIRONMENTAL DATA		FIRE BEHAVIOR RESULTS			
		FIRE	SLOPE, %		
1 HR FM	8.	VARIABLE	2.	20.	50.
10 HR FM	13.	ROS (FT/M)	10.	11.	15.
100 HR FM	12.	FL (FEET)	4.	5.	5.
LIVE HERB FM	79.	IR (BTU/SQFT/M)	3891.	3891.	3891.
LIVE WOODY FM	95.	H/A (BTU/SQFT)	874.	874.	874.
WIND, MI/H	4.	FLI (BTU/FT/S)	142.	154.	217.

JULY


STATIC 21 CUSTOM MODEL FOR FUEL TYPE 1 BY: WIGHT
SPREAD RATE, FT/M
102
85
68
51
34
17
.00
02
08
14
MIDFLAME WINDSPEED, MI/H
.00
3.0
6.0
9.0
12
15
18


STATIC 21 CUSTOM MODEL FOR FUEL TYPE 1 BY: WIGHT
FLAME LENGTH, FT
14
12
9.6
7.2
4.8
2.4
.00
02
08
14
MIDFLAME WINDSPEED, MI/H
.00
3.0
6.0
9.0
12
15
18

JULY


STATIC 21 CUSTOM MODEL FOR FUEL TYPE 1 BY: WIGHT
S 360
P
R
E 300
A
D
240
R
A
T 180
E
,
120
F
T
/ 60
M
.00
.23
.00
500
1000
1500
2000
2500
3000
HEAT PER UNIT AREA, BTU/SQFT

AUGUST

STATIC 21. CUSTOM MODEL FOR FUEL TYPE 1 BY: WIGHT

LOADS, T/AC		S/V RATIOS, 1/FT		OTHER	
1 HR	1.93	1 HR	1873.	DEPTH, FT	1.00
10 HR	0.90	LIVE HERB	190.	HEAT CONTENT, BTU/LB	8000.
100 HR	1.89	LIVE WOODY	1500.	EXT MOISTURE, %	25.
LIVE HERB	0.05	SIGMA	1709.	PACKING RATIO	0.00834
LIVE WOODY	1.04			PR/OPR	1.11

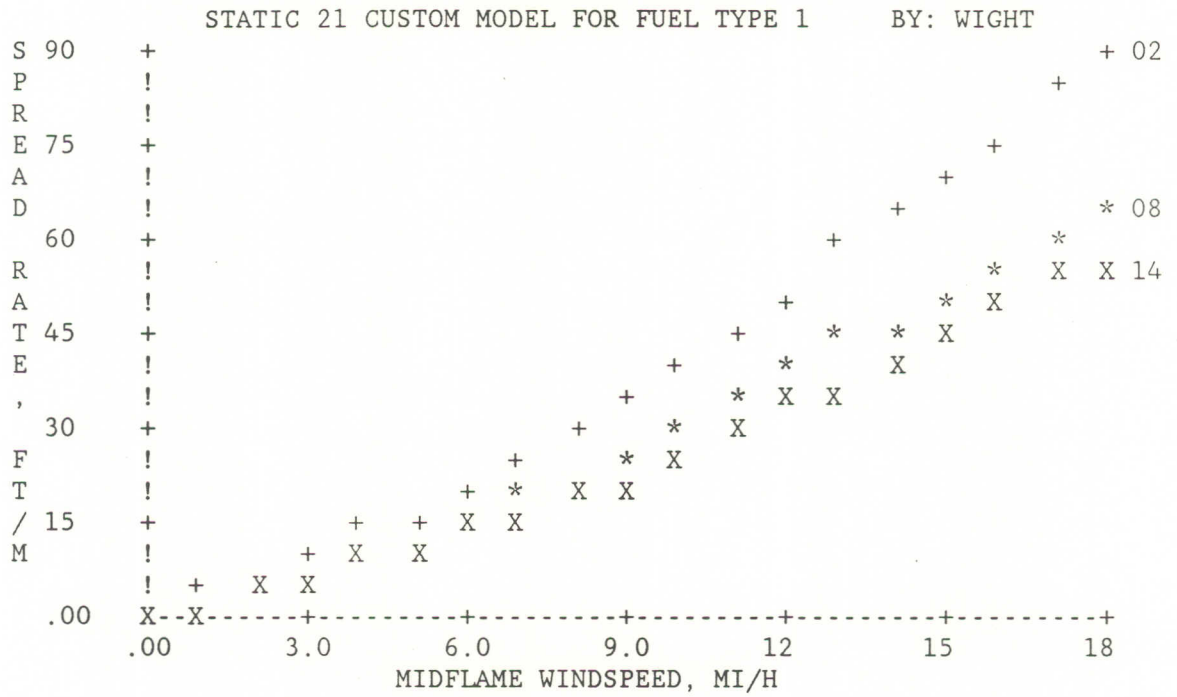
ENVIRONMENTAL DATA		FIRE BEHAVIOR RESULTS			
		FIRE	MIDFLAME WIND, MI/H		
1 HR FM	8.	VARIABLE	2.	4.	10.
10 HR FM	13.	ROS (FT/M)	4.	9.	30.
100 HR FM	14.	FL (FEET)	3.	4.	7.
LIVE HERB FM	78.	IR (BTU/SQFT/M)	3807.	3807.	3807.
LIVE WOODY FM	115.	H/A (BTU/SQFT)	855.	855.	855.
SLOPE, %	20.	FLI (BTU/FT/S)	64.	133.	424.

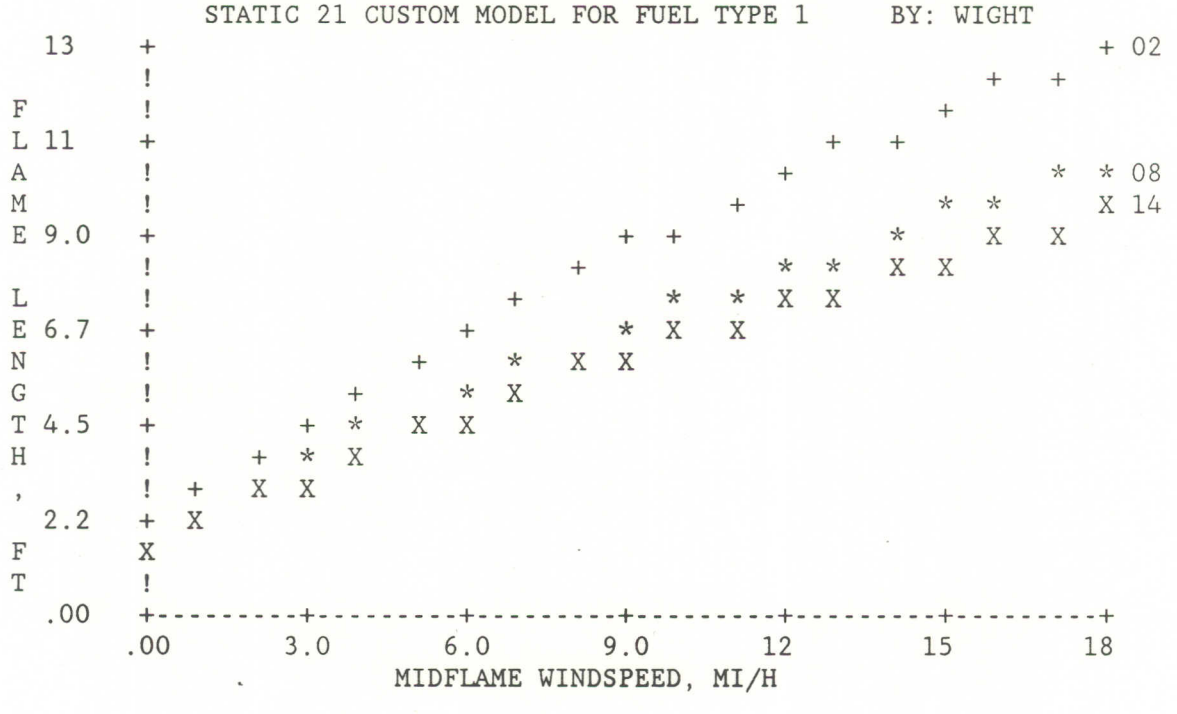
STATIC 21. CUSTOM MODEL FOR FUEL TYPE 1 BY: WIGHT

LOADS, T/AC		S/V RATIOS, 1/FT		OTHER	
1 HR	1.93	1 HR	1873.	DEPTH, FT	1.00
10 HR	0.90	LIVE HERB	190.	HEAT CONTENT, BTU/LB	8000.
100 HR	1.89	LIVE WOODY	1500.	EXT MOISTURE, %	25.
LIVE HERB	0.05	SIGMA	1709.	PACKING RATIO	0.00834
LIVE WOODY	1.04			PR/OPR	1.11

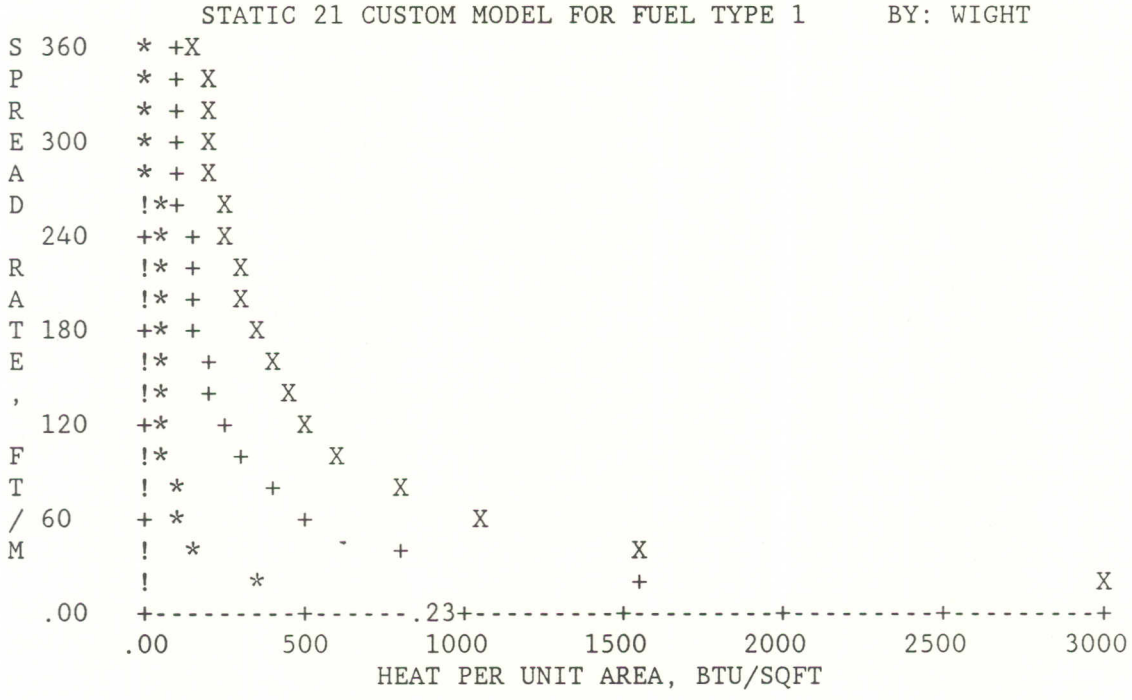
ENVIRONMENTAL DATA		FIRE BEHAVIOR RESULTS			
		FIRE	SLOPE, %		
1 HR FM	8.	VARIABLE	2.	20.	50.
10 HR FM	13.	ROS (FT/M)	9.	9.	13.
100 HR FM	14.	FL (FEET)	4.	4.	5.
LIVE HERB FM	78.	IR (BTU/SQFT/M)	3807.	3807.	3807.
LIVE WOODY FM	115.	H/A (BTU/SQFT)	855.	855.	855.
WIND, MI/H	4.	FLI (BTU/FT/S)	123.	133.	188.

AUGUST


STATIC 21 CUSTOM MODEL FOR FUEL TYPE 1 BY: WIGHT
SPREAD RATE, FT/MIN
90
75
60
45
30
15
.00
02
08
14
.00
3.0
6.0
9.0
12
15
18
MIDFLAME WINDSPEED, MI/H


STATIC 21 CUSTOM MODEL FOR FUEL TYPE 1 BY: WIGHT
FLAME LENGTH, FT
13
11
9.0
6.7
4.5
2.2
.00
02
08
14
.00
3.0
6.0
9.0
12
15
18
MIDFLAME WINDSPEED, MI/H

AUGUST


STATIC 21 CUSTOM MODEL FOR FUEL TYPE 1 BY: WIGHT
S 360
P
R
E 300
A
D
240
R
A
T 180
E
,
120
F
T
/ 60
M
.00
.00
500
1000
1500
2000
2500
3000
HEAT PER UNIT AREA, BTU/SQFT

SEPTEMBER

STATIC 21. CUSTOM MODEL FOR FUEL TYPE 1 BY: WIGHT

LOADS, T/AC		S/V RATIOS, 1/FT		OTHER	
1 HR	1.93	1 HR	1873.	DEPTH, FT	1.00
10 HR	0.90	LIVE HERB	190.	HEAT CONTENT, BTU/LB	8000.
100 HR	1.89	LIVE WOODY	1500.	EXT MOISTURE, %	25.
LIVE HERB	0.05	SIGMA	1709.	PACKING RATIO	0.00834
LIVE WOODY	1.04			PR/OPR	1.11

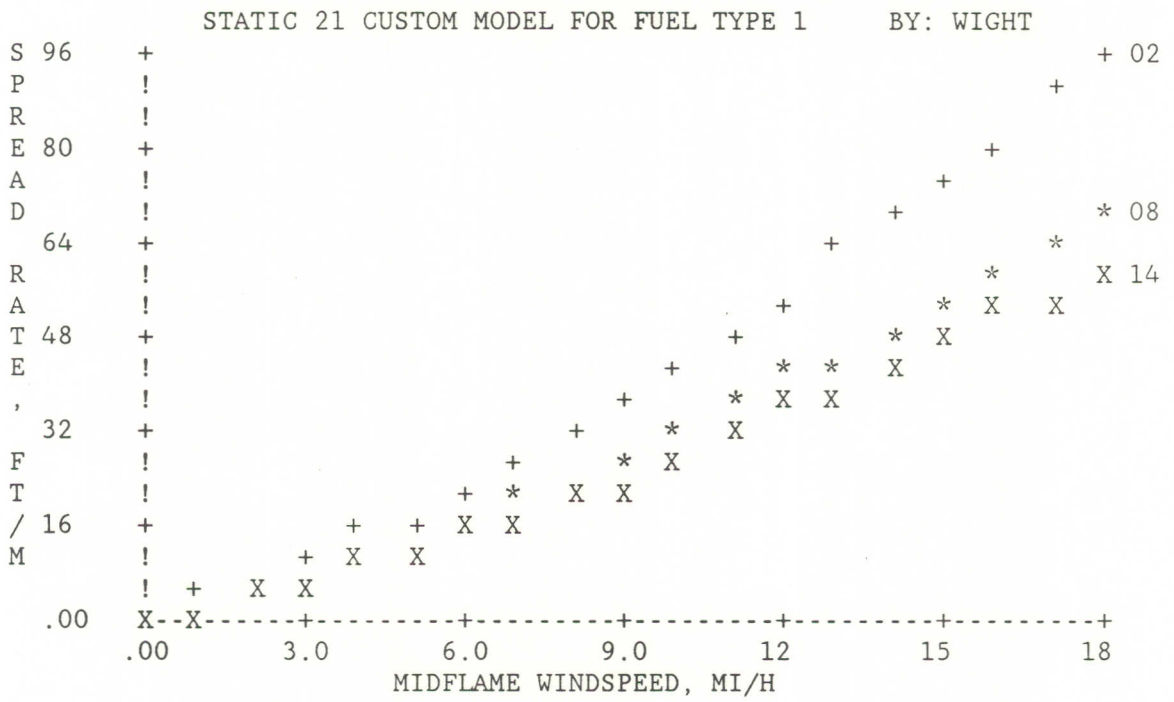
ENVIRONMENTAL DATA		FIRE BEHAVIOR RESULTS			
		FIRE	MIDFLAME WIND, MI/H		
1 HR FM	8.	VARIABLE	2.	4.	10.
10 HR FM	14.	---	---	---	---
100 HR FM	14.	ROS (FT/M)	5.	10.	32.
LIVE HERB FM	58.	FL (FEET)	3.	4.	8.
LIVE WOODY FM	103.	IR (BTU/SQFT/M)	3849.	3849.	3849.
		H/A (BTU/SQFT)	865.	865.	865.
SLOPE, %	20.	FLI (BTU/FT/S)	69.	144.	460.

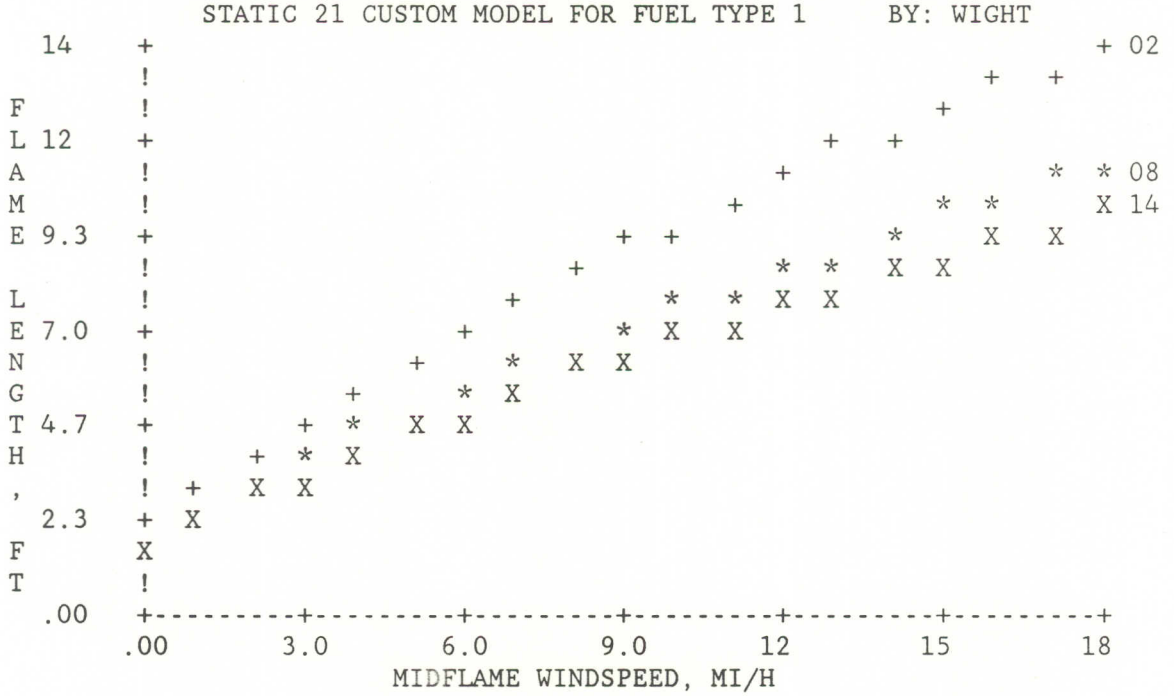
STATIC 21. CUSTOM MODEL FOR FUEL TYPE 1 BY: WIGHT

LOADS, T/AC		S/V RATIOS, 1/FT		OTHER	
1 HR	1.93	1 HR	1873.	DEPTH, FT	1.00
10 HR	0.90	LIVE HERB	190.	HEAT CONTENT, BTU/LB	8000.
100 HR	1.89	LIVE WOODY	1500.	EXT MOISTURE, %	25.
LIVE HERB	0.05	SIGMA	1709.	PACKING RATIO	0.00834
LIVE WOODY	1.04			PR/OPR	1.11

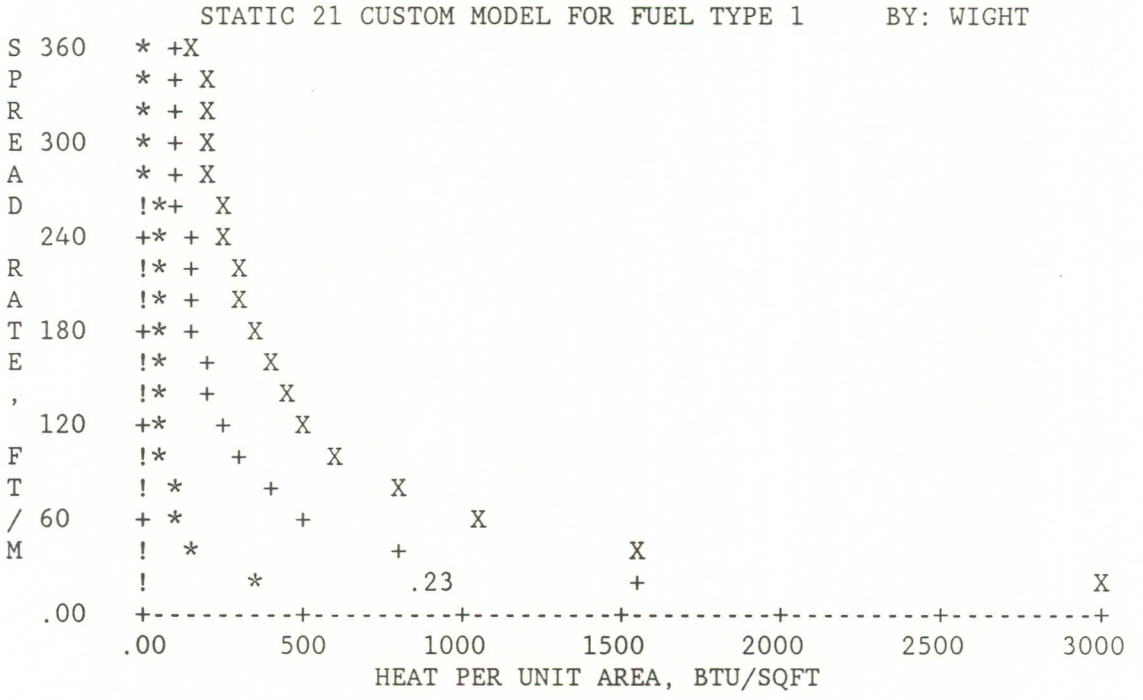
ENVIRONMENTAL DATA		FIRE BEHAVIOR RESULTS			
		FIRE	SLOPE, %		
1 HR FM	8.	VARIABLE	2.	20.	50.
10 HR FM	14.	---	---	---	---
100 HR FM	14.	ROS (FT/M)	9.	10.	14.
LIVE HERB FM	58.	FL (FEET)	4.	4.	5.
LIVE WOODY FM	103.	IR (BTU/SQFT/M)	3849.	3849.	3849.
WIND, MI/H	4.	H/A (BTU/SQFT)	865.	865.	865.
		FLI (BTU/FT/S)	133.	144.	204.

SEPTEMBER


STATIC 21 CUSTOM MODEL FOR FUEL TYPE 1 BY: WIGHT
SPREAD RATE, FT/M
96
80
64
48
32
16
.00
02
08
14
.00
3.0
6.0
9.0
12
15
18
MIDFLAME WINDSPEED, MI/H


STATIC 21 CUSTOM MODEL FOR FUEL TYPE 1 BY: WIGHT
FLAME LENGTH, FT
14
12
9.3
7.0
4.7
2.3
.00
02
08
14
.00
3.0
6.0
9.0
12
15
18
MIDFLAME WINDSPEED, MI/H

SEPTEMBER


STATIC 21 CUSTOM MODEL FOR FUEL TYPE 1 BY: WIGHT
SPREAD RATE, FT/MIN
360
300
240
180
120
60
.00
.23
.00
500
1000
1500
2000
2500
3000
HEAT PER UNIT AREA, BTU/SQFT

WORST CASE SCENARIO

STATIC 21. CUSTOM MODEL FOR FUEL TYPE 1 BY: WIGHT

LOADS, T/AC		S/V RATIOS, 1/FT		OTHER	
1 HR	1.93	1 HR	1873.	DEPTH, FT	1.00
10 HR	0.90	LIVE HERB	190.	HEAT CONTENT, BTU/LB	8000.
100 HR	1.89	LIVE WOODY	1500.	EXT MOISTURE, %	25.
LIVE HERB	0.05	SIGMA	1709.	PACKING RATIO	0.00834
LIVE WOODY	1.04			PR/OPR	1.11

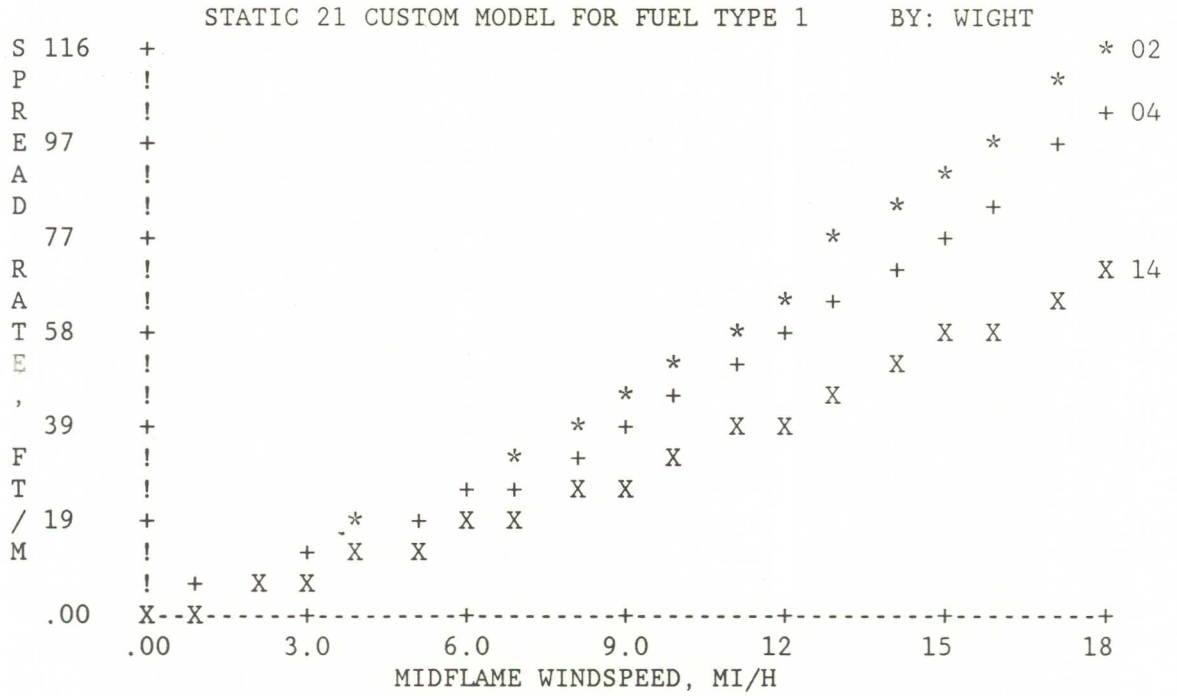
ENVIRONMENTAL DATA		FIRE BEHAVIOR RESULTS			
		FIRE	MIDFLAME WIND, MI/H		
1 HR FM	2.	VARIABLE	6.	10.	12.
10 HR FM	2.	ROS (FT/M)	27.	52.	67.
100 HR FM	7.	FL (FEET)	8.	11.	12.
LIVE HERB FM	60.	IR (BTU/SQFT/M)	5118.	5118.	5118.
LIVE WOODY FM	80.	H/A (BTU/SQFT)	1150.	1150.	1150.
SLOPE, %	20.	FLI (BTU/FT/S)	516.	1003.	1281.

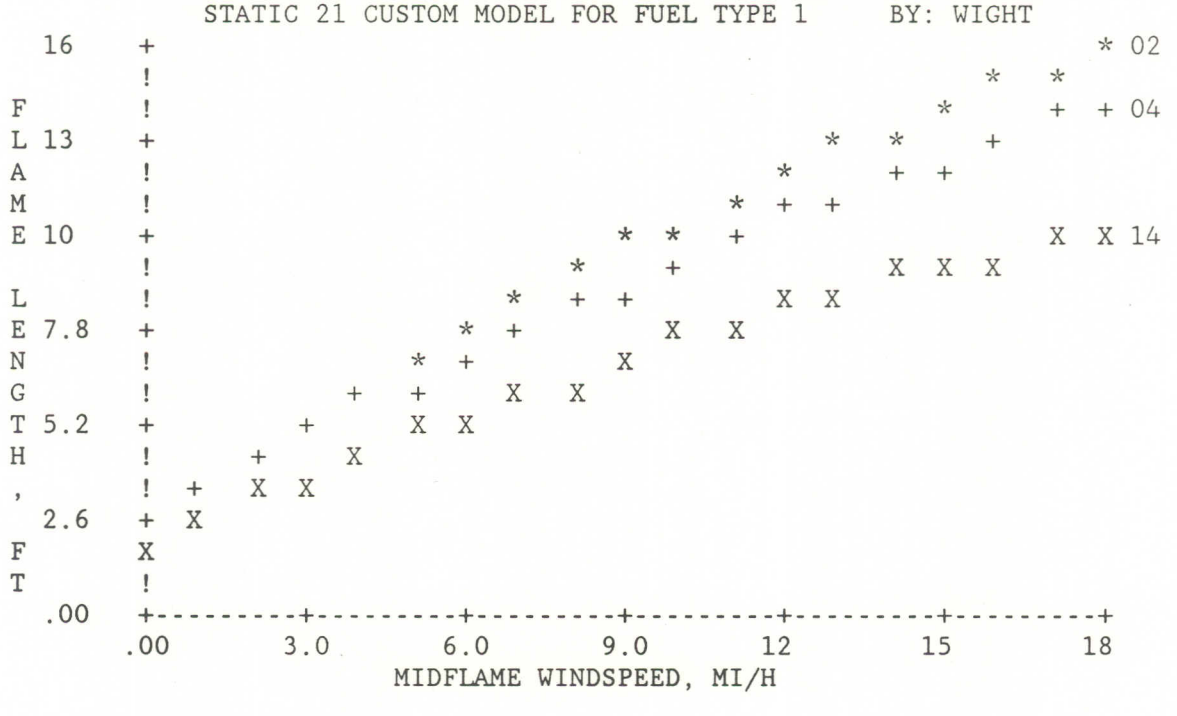
STATIC 21. CUSTOM MODEL FOR FUEL TYPE 1 BY: WIGHT

LOADS, T/AC		S/V RATIOS, 1/FT		OTHER	
1 HR	1.93	1 HR	1873.	DEPTH, FT	1.00
10 HR	0.90	LIVE HERB	190.	HEAT CONTENT, BTU/LB	8000.
100 HR	1.89	LIVE WOODY	1500.	EXT MOISTURE, %	25.
LIVE HERB	0.05	SIGMA	1709.	PACKING RATIO	0.00834
LIVE WOODY	1.04			PR/OPR	1.11

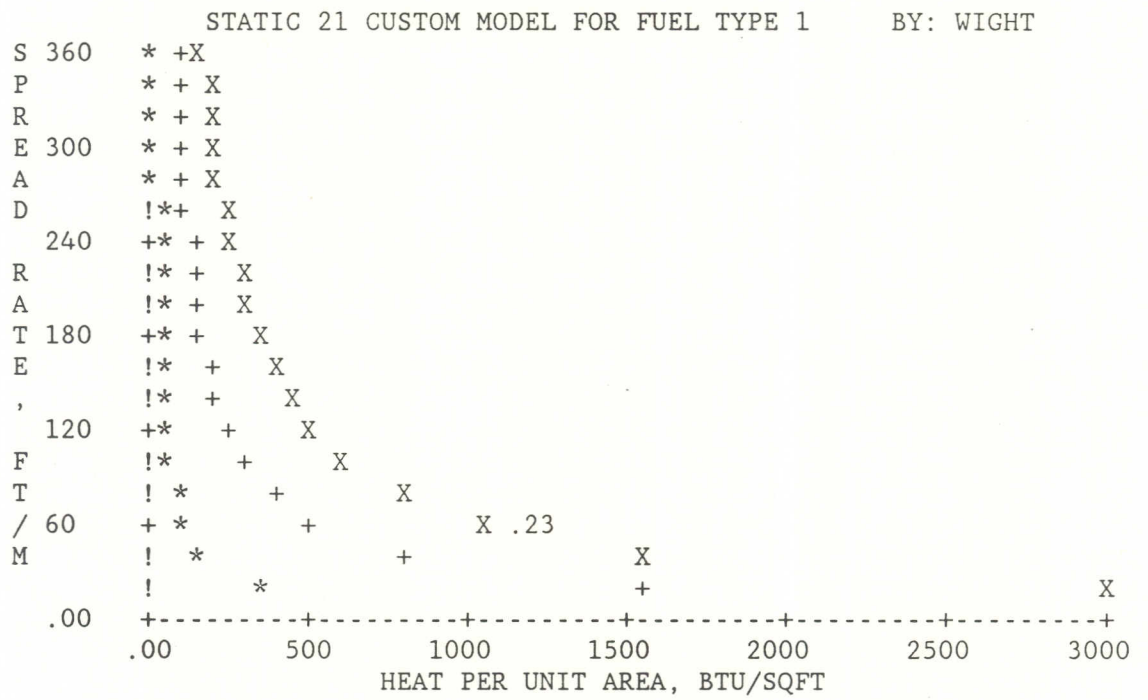
ENVIRONMENTAL DATA		FIRE BEHAVIOR RESULTS			
		FIRE	SLOPE, %		
1 HR FM	2.	VARIABLE	2.	20.	50.
10 HR FM	2.	ROS (FT/M)	51.	52.	59.
100 HR FM	7.	FL (FEET)	11.	11.	11.
LIVE HERB FM	60.	IR (BTU/SQFT/M)	5118.	5118.	5118.
LIVE WOODY FM	80.	H/A (BTU/SQFT)	1150.	1150.	1150.
WIND, MI/H	10.	FLI (BTU/FT/S)	979.	1003.	1133.

WORST CASE SCENARIO





WORST CASE SCENARIO



MAY

STATIC 22. CUSTOM MODEL FOR FUEL TYPE 2 BY: WIGHT

LOADS, T/AC		S/V RATIOS, 1/FT		OTHER	
1 HR	2.52	1 HR	1871.	DEPTH, FT	1.00
10 HR	0.77	LIVE HERB	190.	HEAT CONTENT, BTU/LB	8000.
100 HR	1.61	LIVE WOODY	1500.	EXT MOISTURE, %	25.
LIVE HERB	0.06	SIGMA	1756.	PACKING RATIO	0.00825
LIVE WOODY	0.79			PR/OPR	1.12

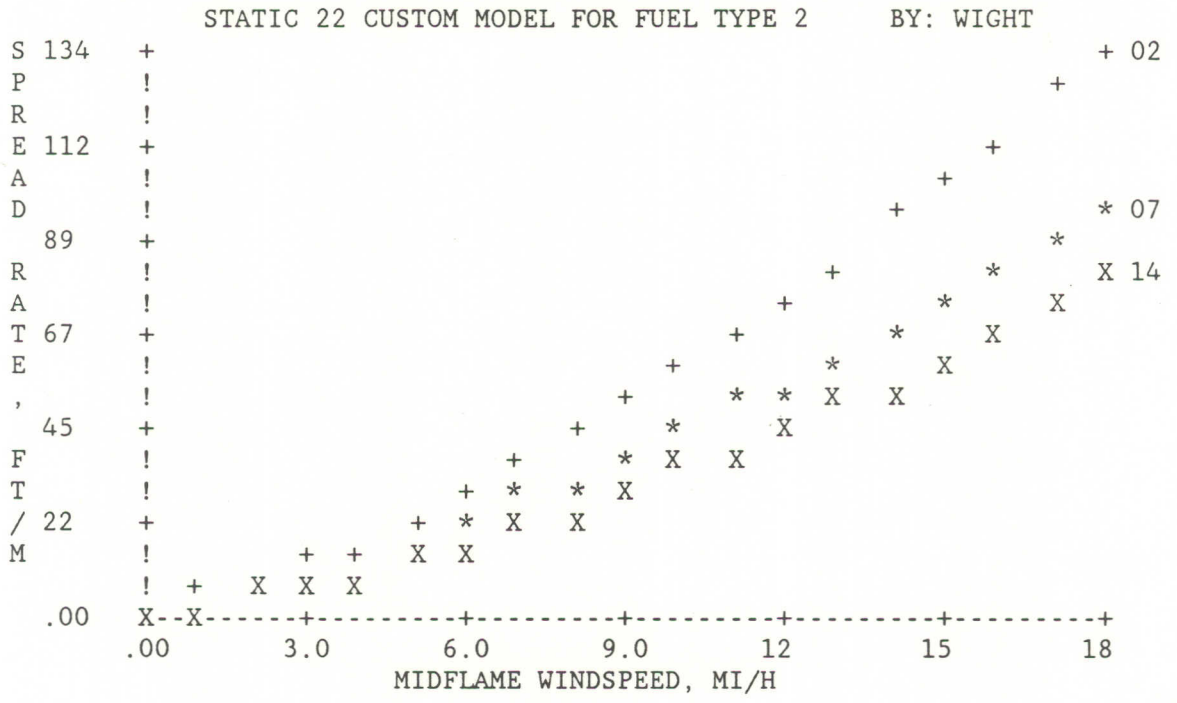
ENVIRONMENTAL DATA		FIRE BEHAVIOR RESULTS			
		FIRE	MIDFLAME WIND, MI/H		
1 HR FM	7.	VARIABLE	2.	4.	10.
10 HR FM	10.	ROS (FT/M)	6.	13.	43.
100 HR FM	13.	FL (FEET)	4.	5.	9.
LIVE HERB FM	118.	IR (BTU/SQFT/M)	4486.	4486.	4486.
LIVE WOODY FM	122.	H/A (BTU/SQFT)	981.	981.	981.
SLOPE, %	20.	FLI (BTU/FT/S)	104.	219.	710.

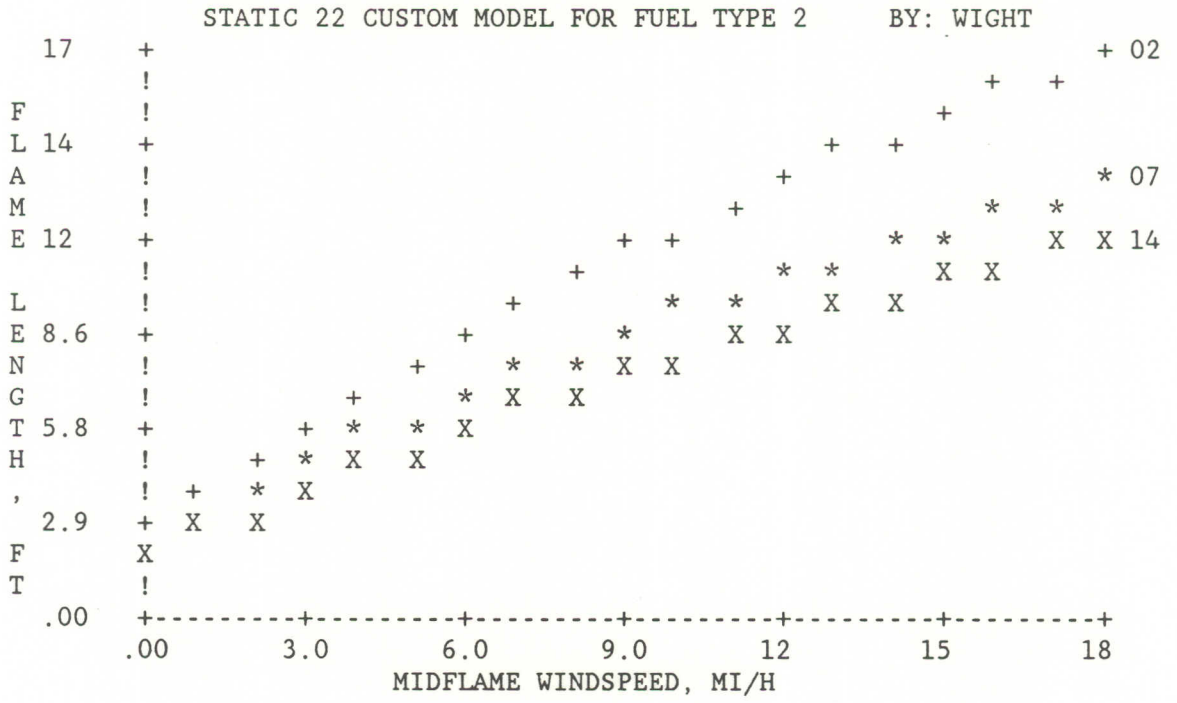
STATIC 22. CUSTOM MODEL FOR FUEL TYPE 2 BY: WIGHT

LOADS, T/AC		S/V RATIOS, 1/FT		OTHER	
1 HR	2.52	1 HR	1871.	DEPTH, FT	1.00
10 HR	0.77	LIVE HERB	190.	HEAT CONTENT, BTU/LB	8000.
100 HR	1.61	LIVE WOODY	1500.	EXT MOISTURE, %	25.
LIVE HERB	0.06	SIGMA	1756.	PACKING RATIO	0.00825
LIVE WOODY	0.79			PR/OPR	1.12

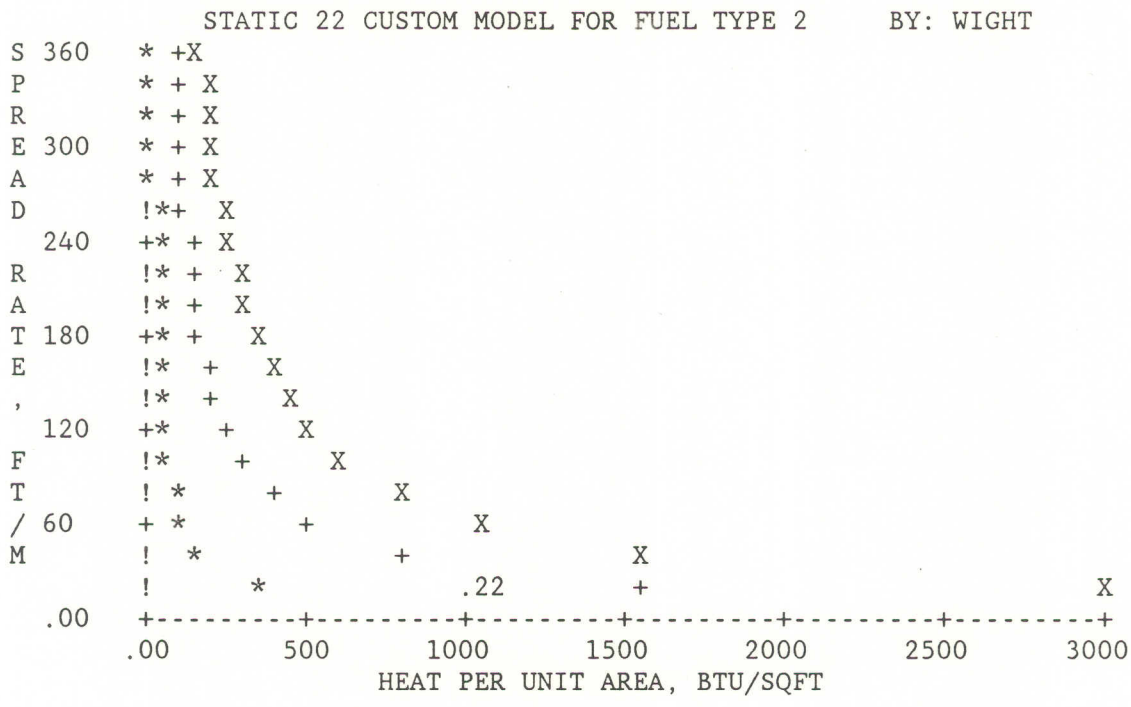
ENVIRONMENTAL DATA		FIRE BEHAVIOR RESULTS			
		FIRE	SLOPE, %		
1 HR FM	7.	VARIABLE	5.	20.	45.
10 HR FM	10.	ROS (FT/M)	12.	13.	18.
100 HR FM	13.	FL (FEET)	5.	5.	6.
LIVE HERB FM	118.	IR (BTU/SQFT/M)	4486.	4486.	4486.
LIVE WOODY FM	122.	H/A (BTU/SQFT)	981.	981.	981.
WIND, MI/H	4.	FLI (BTU/FT/S)	203.	219.	289.

MAY


STATIC 22 CUSTOM MODEL FOR FUEL TYPE 2 BY: WIGHT
SPREAD RATE, FT/M
134
112
89
67
45
22
.00
02
07
14
.00
3.0
6.0
9.0
12
15
18
MIDFLAME WINDSPEED, MI/H


STATIC 22 CUSTOM MODEL FOR FUEL TYPE 2 BY: WIGHT
FLAME LENGTH, FT
17
14
12
8.6
5.8
2.9
.00
02
07
14
.00
3.0
6.0
9.0
12
15
18
MIDFLAME WINDSPEED, MI/H

MAY


STATIC 22 CUSTOM MODEL FOR FUEL TYPE 2 BY: WIGHT
SPREAD RATE, FT/MIN
360
300
240
180
120
60
.00
.22
.00
500
1000
1500
2000
2500
3000
HEAT PER UNIT AREA, BTU/SQFT

JUNE

STATIC 22. CUSTOM MODEL FOR FUEL TYPE 2 BY: WIGHT

LOADS, T/AC		S/V RATIOS, 1/FT		OTHER	
1 HR	2.52	1 HR	1871.	DEPTH, FT	1.00
10 HR	0.77	LIVE HERB	190.	HEAT CONTENT, BTU/LB	8000.
100 HR	1.61	LIVE WOODY	1500.	EXT MOISTURE, %	25.
LIVE HERB	0.06	SIGMA	1756.	PACKING RATIO	0.00825
LIVE WOODY	0.79			PR/OPR	1.12

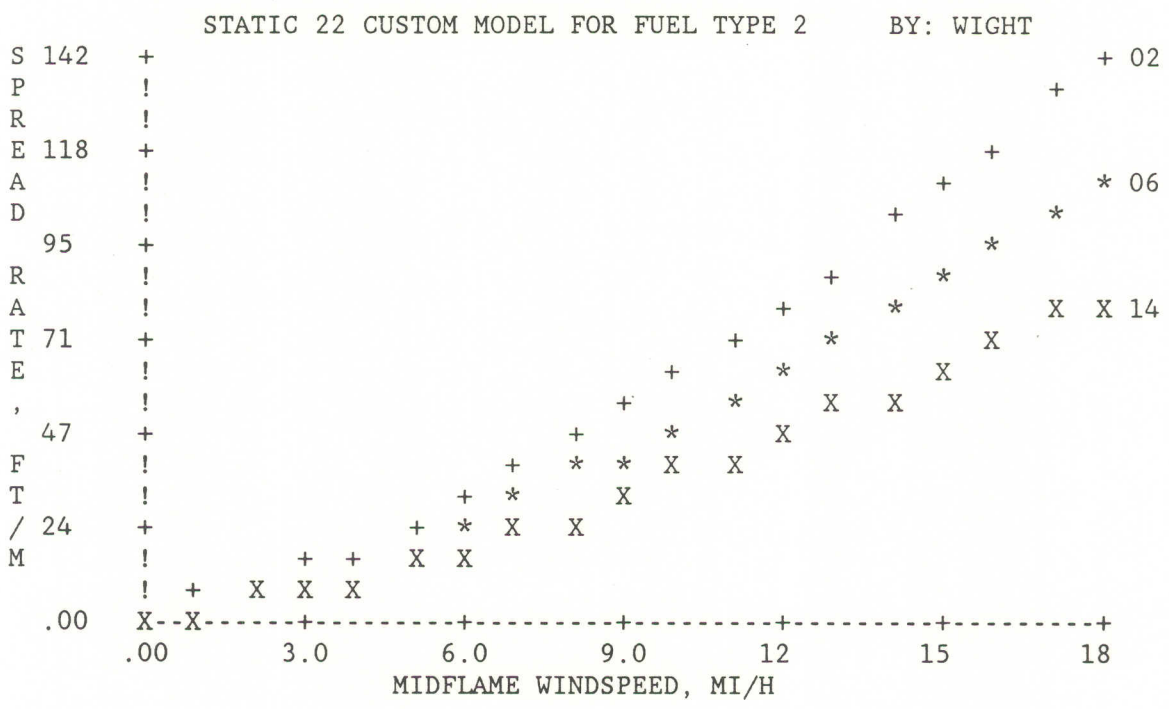
ENVIRONMENTAL DATA		FIRE BEHAVIOR RESULTS			
		FIRE	MIDFLAME WIND, MI/H		
1 HR FM	6.	VARIABLE	2.	4.	10.
10 HR FM	8.	ROS (FT/M)	7.	15.	48.
100 HR FM	10.	FL (FEET)	4.	6.	10.
LIVE HERB FM	101.	IR (BTU/SQFT/M)	4677.	4677.	4677.
LIVE WOODY FM	111.	H/A (BTU/SQFT)	1023.	1023.	1023.
SLOPE, %	20.	FLI (BTU/FT/S)	120.	252.	819.

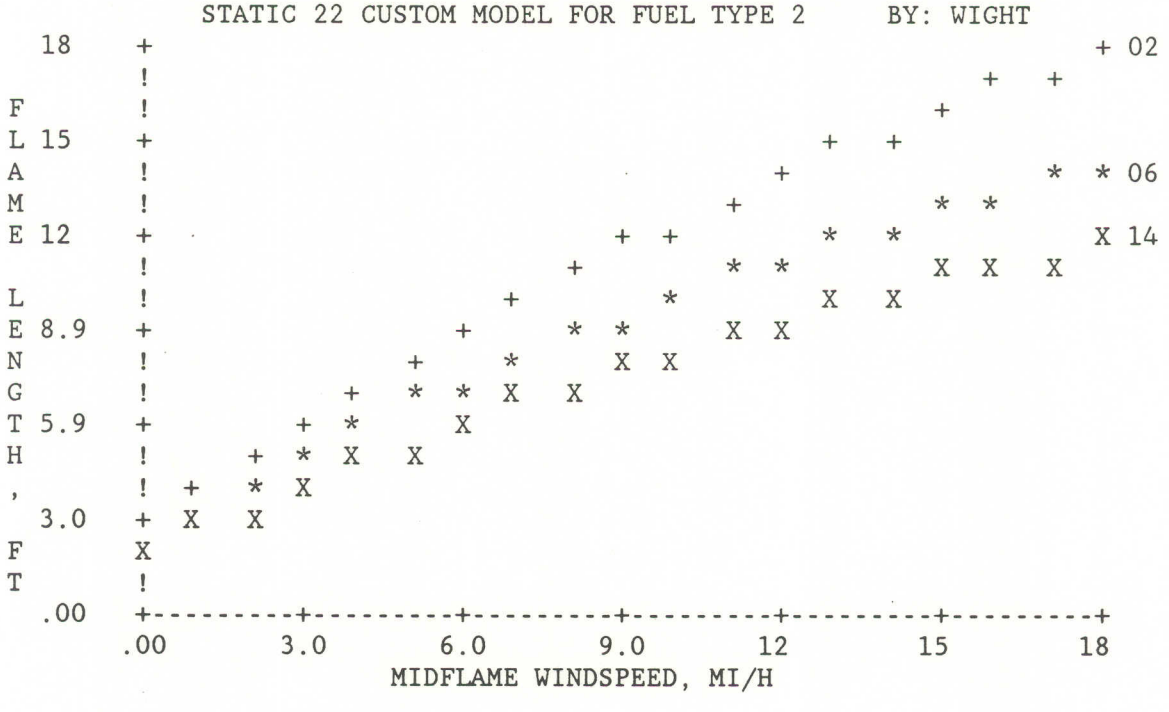
STATIC 22. CUSTOM MODEL FOR FUEL TYPE 2 BY: WIGHT

LOADS, T/AC		S/V RATIOS, 1/FT		OTHER	
1 HR	2.52	1 HR	1871.	DEPTH, FT	1.00
10 HR	0.77	LIVE HERB	190.	HEAT CONTENT, BTU/LB	8000.
100 HR	1.61	LIVE WOODY	1500.	EXT MOISTURE, %	25.
LIVE HERB	0.06	SIGMA	1756.	PACKING RATIO	0.00825
LIVE WOODY	0.79			PR/OPR	1.12

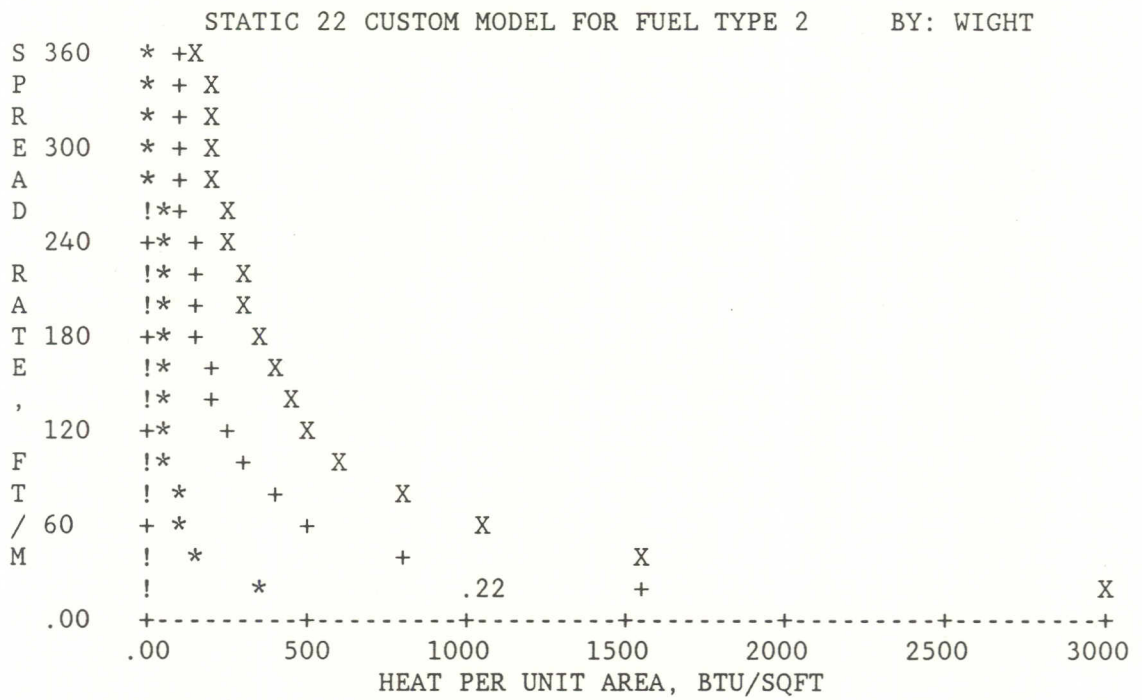
ENVIRONMENTAL DATA		FIRE BEHAVIOR RESULTS			
		FIRE	SLOPE, %		
1 HR FM	6.	VARIABLE	5.	20.	45.
10 HR FM	8.	ROS (FT/M)	14.	15.	20.
100 HR FM	10.	FL (FEET)	6.	6.	7.
LIVE HERB FM	101.	IR (BTU/SQFT/M)	4677.	4677.	4677.
LIVE WOODY FM	111.	H/A (BTU/SQFT)	1023.	1023.	1023.
WIND, MI/H	4.	FLI (BTU/FT/S)	234.	252.	333.

JUNE


STATIC 22 CUSTOM MODEL FOR FUEL TYPE 2 BY: WIGHT
SPREAD RATE, FT/M
142
118
95
71
47
24
.00
02
06
14
.00
3.0
6.0
9.0
12
15
18
MIDFLAME WINDSPEED, MI/H


STATIC 22 CUSTOM MODEL FOR FUEL TYPE 2 BY: WIGHT
FLAME LENGTH, FT
18
15
12
8.9
5.9
3.0
.00
02
06
14
.00
3.0
6.0
9.0
12
15
18
MIDFLAME WINDSPEED, MI/H

JUNE


STATIC 22 CUSTOM MODEL FOR FUEL TYPE 2 BY: WIGHT
SPREAD RATE, FT/MIN
360
300
240
180
120
60
.00
.22
.00
500
1000
1500
2000
2500
3000
HEAT PER UNIT AREA, BTU/SQFT

JULY

STATIC 22. CUSTOM MODEL FOR FUEL TYPE 2 BY: WIGHT

LOADS, T/AC		S/V RATIOS, 1/FT		OTHER	
1 HR	2.52	1 HR	1871.	DEPTH, FT	1.00
10 HR	0.77	LIVE HERB	190.	HEAT CONTENT, BTU/LB	8000.
100 HR	1.61	LIVE WOODY	1500.	EXT MOISTURE, %	25.
LIVE HERB	0.06	SIGMA	1756.	PACKING RATIO	0.00825
LIVE WOODY	0.79			PR/OPR	1.12

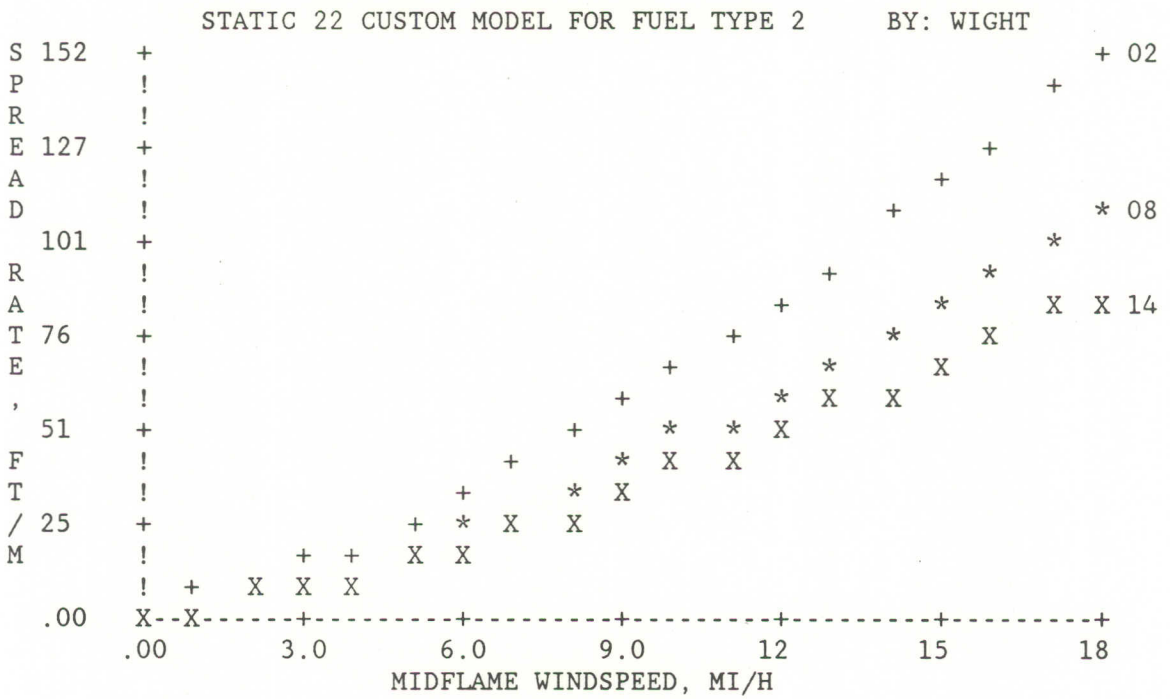
ENVIRONMENTAL DATA		FIRE BEHAVIOR RESULTS			
		FIRE	MIDFLAME WIND, MI/H		
1 HR FM	8.	VARIABLE	2.	4.	10.
10 HR FM	13.		---	---	---
100 HR FM	12.	ROS (FT/M)	7.	15.	47.
LIVE HERB FM	79.	FL (FEET)	4.	6.	10.
LIVE WOODY FM	95.	IR (BTU/SQFT/M)	4442.	4442.	4442.
		H/A (BTU/SQFT)	971.	971.	971.
SLOPE, %	20.	FLI (BTU/FT/S)	112.	235.	763.

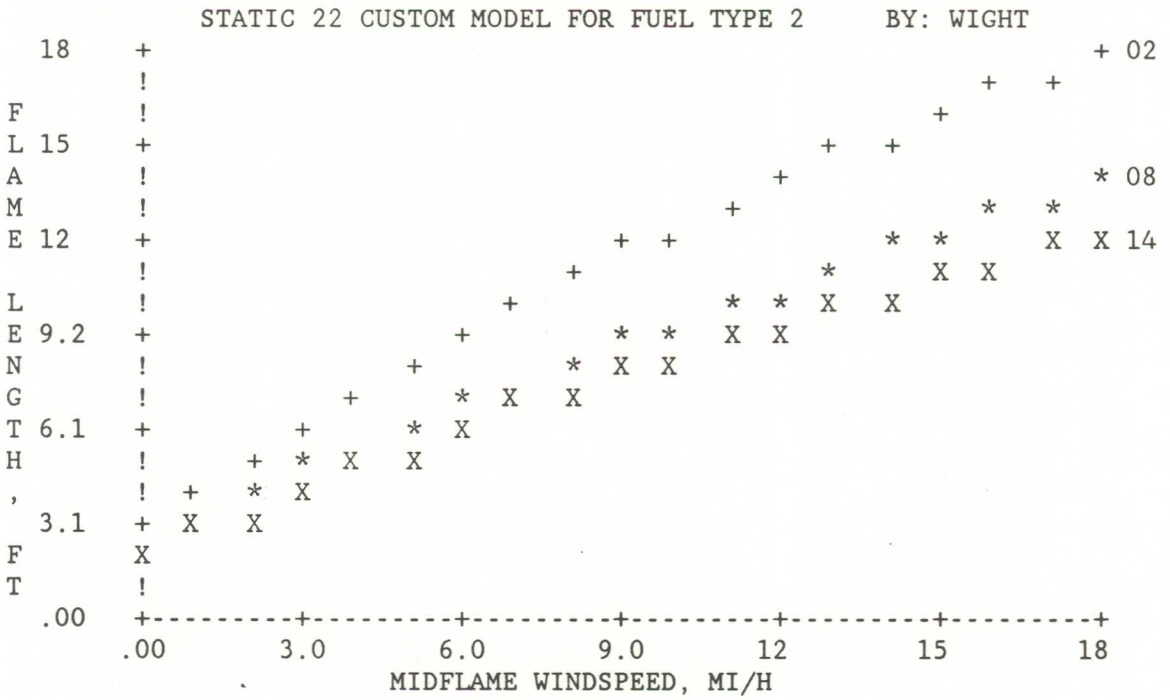
STATIC 22. CUSTOM MODEL FOR FUEL TYPE 2 BY: WIGHT

LOADS, T/AC		S/V RATIOS, 1/FT		OTHER	
1 HR	2.52	1 HR	1871.	DEPTH, FT	1.00
10 HR	0.77	LIVE HERB	190.	HEAT CONTENT, BTU/LB	8000.
100 HR	1.61	LIVE WOODY	1500.	EXT MOISTURE, %	25.
LIVE HERB	0.06	SIGMA	1756.	PACKING RATIO	0.00825
LIVE WOODY	0.79			PR/OPR	1.12

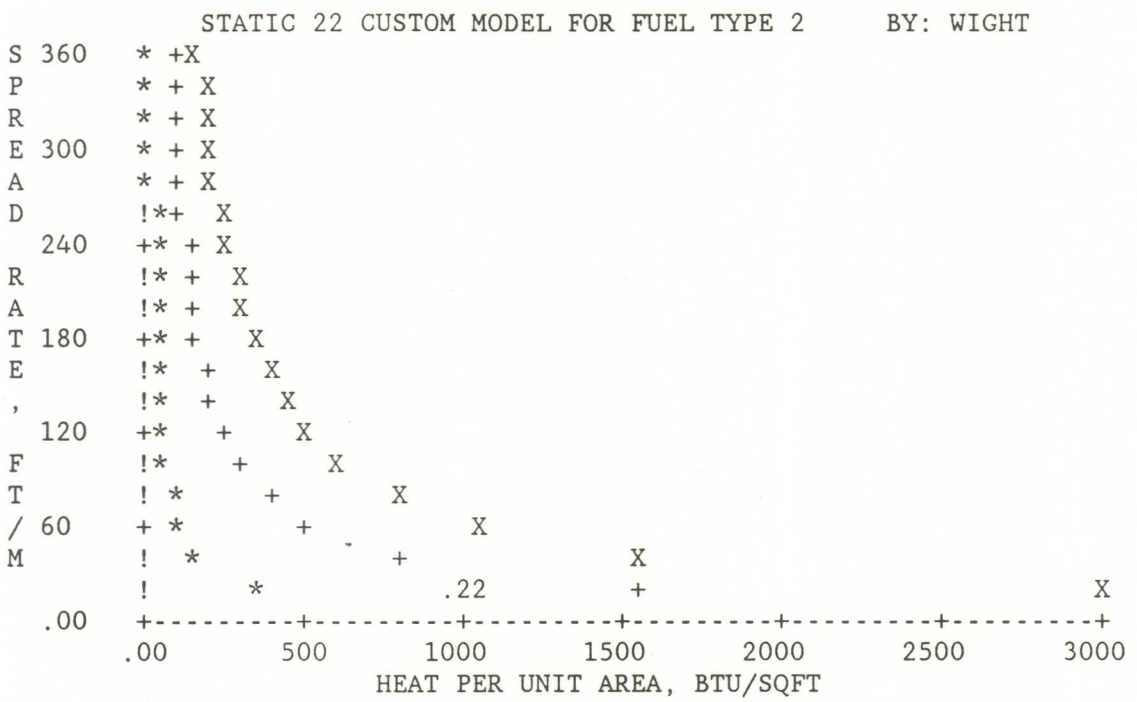
ENVIRONMENTAL DATA		FIRE BEHAVIOR RESULTS			
		FIRE	SLOPE, %		
1 HR FM	8.	VARIABLE	5.	20.	45.
10 HR FM	13.		---	---	---
100 HR FM	12.	ROS (FT/M)	13.	15.	19.
LIVE HERB FM	79.	FL (FEET)	5.	6.	6.
LIVE WOODY FM	95.	IR (BTU/SQFT/M)	4442.	4442.	4442.
WIND, MI/H	4.	H/A (BTU/SQFT)	971.	971.	971.
		FLI (BTU/FT/S)	218.	235.	310.

JULY


STATIC 22 CUSTOM MODEL FOR FUEL TYPE 2 BY: WIGHT
S 152
P
R
E 127
A
D
101
R
A
T 76
E
,
51
F
T
/ 25
M
.00
.00
3.0
6.0
9.0
12
15
18
MIDFLAME WINDSPEED, MI/H
02
08
14


STATIC 22 CUSTOM MODEL FOR FUEL TYPE 2 BY: WIGHT
18
F
L 15
A
M
E 12
L
E 9.2
N
G
T 6.1
H
,
3.1
F
T
.00
.00
3.0
6.0
9.0
12
15
18
MIDFLAME WINDSPEED, MI/H
02
08
14

JULY


STATIC 22 CUSTOM MODEL FOR FUEL TYPE 2 BY: WIGHT
SPREAD RATE, FT/MIN
360
300
240
180
120
60
.00
.22
.00
500
1000
1500
2000
2500
3000
HEAT PER UNIT AREA, BTU/SQFT

AUGUST

STATIC 22. CUSTOM MODEL FOR FUEL TYPE 2 BY: WIGHT

LOADS, T/AC		S/V RATIOS, 1/FT		OTHER	
1 HR	2.52	1 HR	1871.	DEPTH, FT	1.00
10 HR	0.77	LIVE HERB	190.	HEAT CONTENT, BTU/LB	8000.
100 HR	1.61	LIVE WOODY	1500.	EXT MOISTURE, %	25.
LIVE HERB	0.06	SIGMA	1756.	PACKING RATIO	0.00825
LIVE WOODY	0.79			PR/OPR	1.12

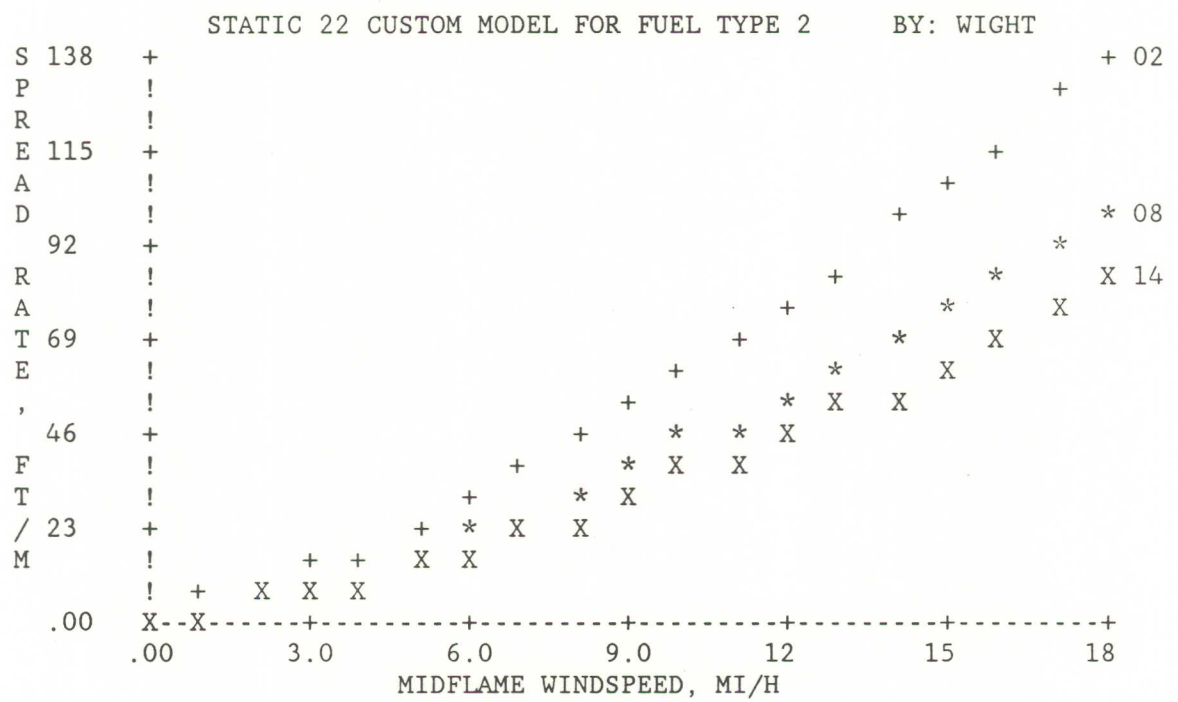
ENVIRONMENTAL DATA		FIRE BEHAVIOR RESULTS			
		FIRE	MIDFLAME WIND, MI/H		
1 HR FM	8.	VARIABLE	2.	4.	10.
10 HR FM	13.	ROS (FT/M)	6.	13.	43.
100 HR FM	14.	FL (FEET)	4.	5.	9.
LIVE HERB FM	78.	IR (BTU/SQFT/M)	4381.	4381.	4381.
LIVE WOODY FM	115.	H/A (BTU/SQFT)	958.	958.	958.
SLOPE, %	20.	FLI (BTU/FT/S)	101.	211.	685.

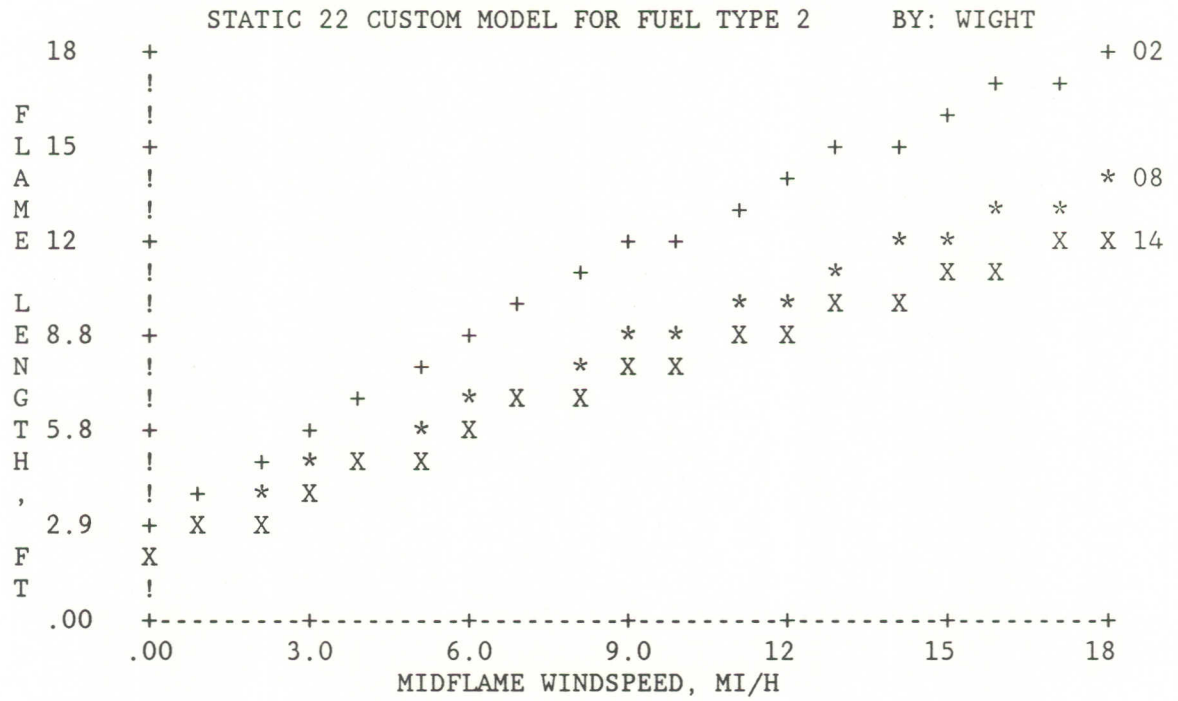
STATIC 22. CUSTOM MODEL FOR FUEL TYPE 2 BY: WIGHT

LOADS, T/AC		S/V RATIOS, 1/FT		OTHER	
1 HR	2.52	1 HR	1871.	DEPTH, FT	1.00
10 HR	0.77	LIVE HERB	190.	HEAT CONTENT, BTU/LB	8000.
100 HR	1.61	LIVE WOODY	1500.	EXT MOISTURE, %	25.
LIVE HERB	0.06	SIGMA	1756.	PACKING RATIO	0.00825
LIVE WOODY	0.79			PR/OPR	1.12

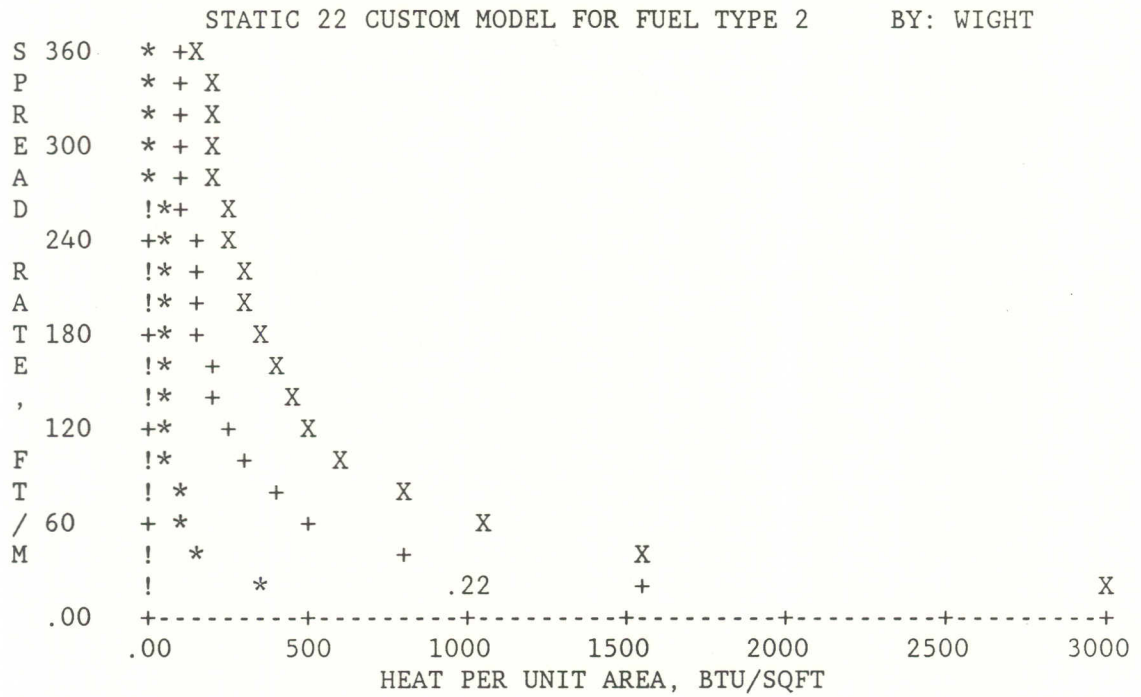
ENVIRONMENTAL DATA		FIRE BEHAVIOR RESULTS			
		FIRE	SLOPE, %		
1 HR FM	8.	VARIABLE	5.	20.	45.
10 HR FM	13.	ROS (FT/M)	12.	13.	17.
100 HR FM	14.	FL (FEET)	5.	5.	6.
LIVE HERB FM	78.	IR (BTU/SQFT/M)	4381.	4381.	4381.
LIVE WOODY FM	115.	H/A (BTU/SQFT)	958.	958.	958.
WIND, MI/H	4.	FLI (BTU/FT/S)	196.	211.	279.

AUGUST


STATIC 22 CUSTOM MODEL FOR FUEL TYPE 2 BY: WIGHT
SPREAD RATE, CHAINS/HR
138
115
92
69
46
23
.00
02
08
14
.00
3.0
6.0
9.0
12
15
18
MIDFLAME WINDSPEED, MI/H


STATIC 22 CUSTOM MODEL FOR FUEL TYPE 2 BY: WIGHT
FLAME LENGTH, FT
18
15
12
8.8
5.8
2.9
.00
02
08
14
.00
3.0
6.0
9.0
12
15
18
MIDFLAME WINDSPEED, MI/H

AUGUST


STATIC 22 CUSTOM MODEL FOR FUEL TYPE 2 BY: WIGHT
SPREAD RATE, FT/MIN
360
300
240
180
120
60
.00
.22
.00
500
1000
1500
2000
2500
3000
HEAT PER UNIT AREA, BTU/SQFT

SEPTEMBER

STATIC 22. CUSTOM MODEL FOR FUEL TYPE 2 BY: WIGHT

LOADS, T/AC		S/V RATIOS, 1/FT		OTHER	
1 HR	2.52	1 HR	1871.	DEPTH, FT	1.00
10 HR	0.77	LIVE HERB	190.	HEAT CONTENT, BTU/LB	8000.
100 HR	1.61	LIVE WOODY	1500.	EXT MOISTURE, %	25.
LIVE HERB	0.06	SIGMA	1756.	PACKING RATIO	0.00825
LIVE WOODY	0.79			PR/OPR	1.12

ENVIRONMENTAL DATA	
1 HR FM	8.
10 HR FM	14.
100 HR FM	14.
LIVE HERB FM	58.
LIVE WOODY FM	103.
SLOPE, %	20.

FIRE BEHAVIOR RESULTS

FIRE VARIABLE	MIDFLAME WIND, MI/H 2.	4.	10.
ROS (FT/M)	7.	14.	45.
FL (FEET)	4.	5.	9.
IR (BTU/SQFT/M)	4413.	4413.	4413.
H/A (BTU/SQFT)	965.	965.	965.
FLI (BTU/FT/S)	107.	225.	729.

STATIC 22. CUSTOM MODEL FOR FUEL TYPE 2 BY: WIGHT

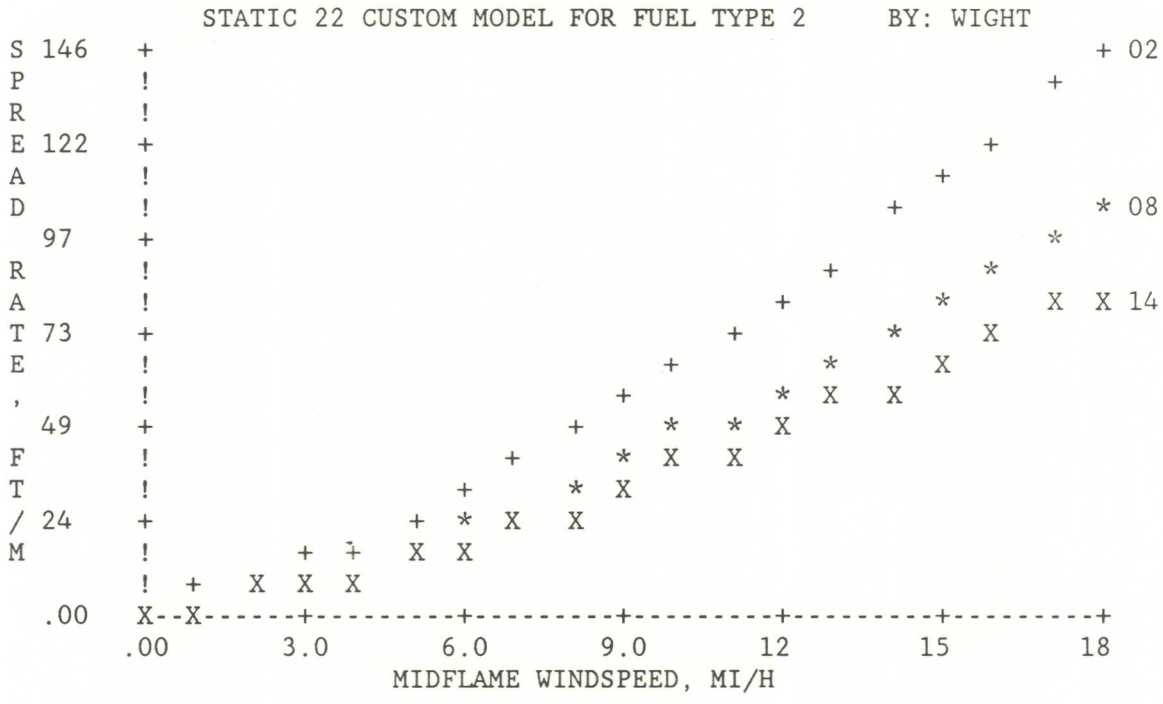
LOADS, T/AC		S/V RATIOS, 1/FT		OTHER	
1 HR	2.52	1 HR	1871.	DEPTH, FT	1.00
10 HR	0.77	LIVE HERB	190.	HEAT CONTENT, BTU/LB	8000.
100 HR	1.61	LIVE WOODY	1500.	EXT MOISTURE, %	25.
LIVE HERB	0.06	SIGMA	1756.	PACKING RATIO	0.00825
LIVE WOODY	0.79			PR/OPR	1.12

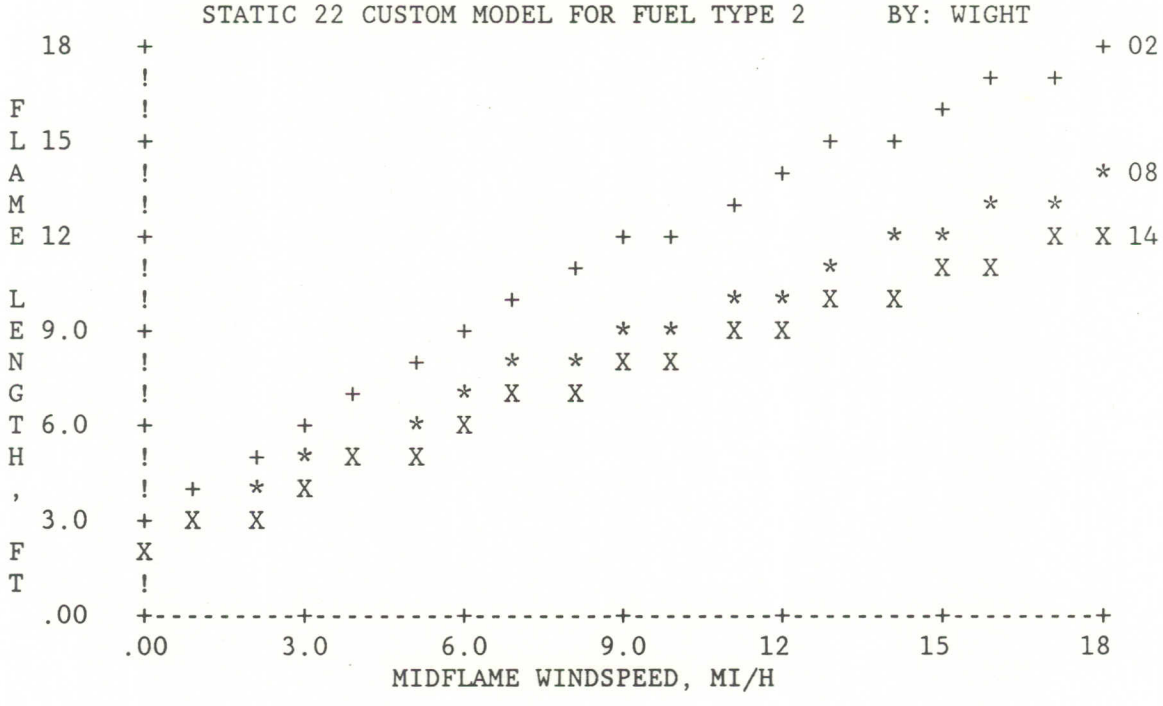
ENVIRONMENTAL DATA	
1 HR FM	8.
10 HR FM	14.
100 HR FM	14.
LIVE HERB FM	58.
LIVE WOODY FM	103.
WIND, MI/H	4.

FIRE BEHAVIOR RESULTS

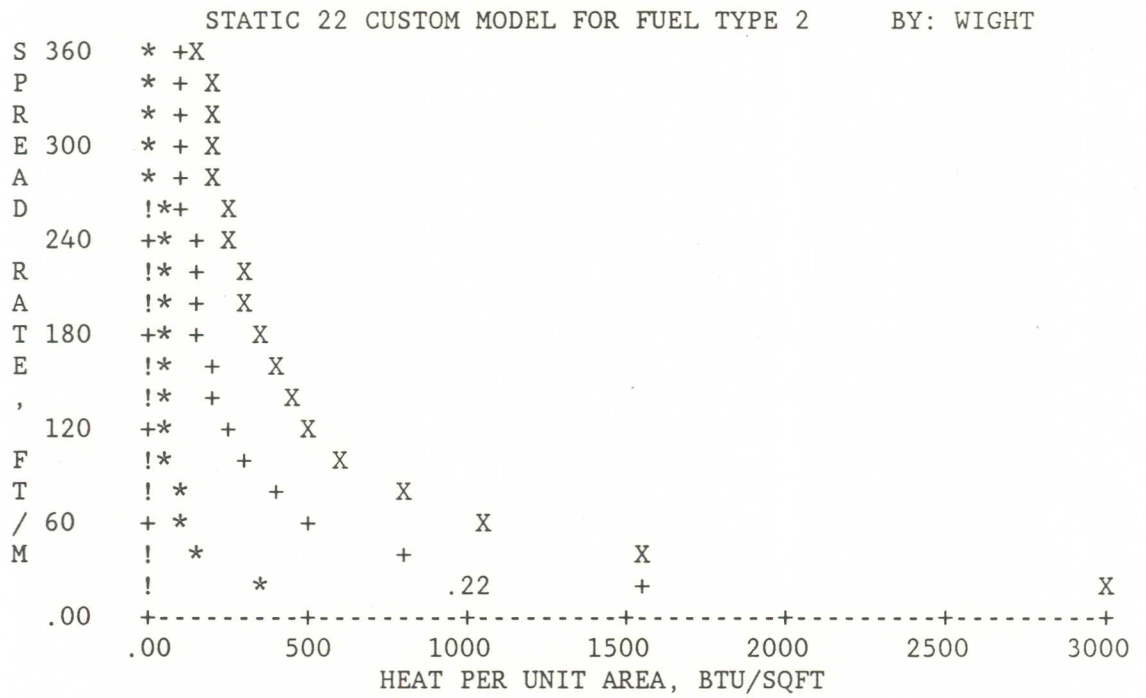
FIRE VARIABLE	SLOPE, % 5.	20.	45.
ROS (FT/M)	13.	14.	18.
FL (FEET)	5.	5.	6.
IR (BTU/SQFT/M)	4413.	4413.	4413.
H/A (BTU/SQFT)	965.	965.	965.
FLI (BTU/FT/S)	208.	225.	297.

SEPTEMBER


STATIC 22 CUSTOM MODEL FOR FUEL TYPE 2 BY: WIGHT
SPREAD RATE, FT/MIN
146
122
97
73
49
24
.00
02
08
14
.00
3.0
6.0
9.0
12
15
18
MIDFLAME WINDSPEED, MI/H


STATIC 22 CUSTOM MODEL FOR FUEL TYPE 2 BY: WIGHT
FLAME LENGTH, FT
18
15
12
9.0
6.0
3.0
.00
02
08
14
.00
3.0
6.0
9.0
12
15
18
MIDFLAME WINDSPEED, MI/H

SEPTEMBER


STATIC 22 CUSTOM MODEL FOR FUEL TYPE 2 BY: WIGHT
S 360
P
R
E 300
A
D
240
R
A
T 180
E
,
120
F
T
/ 60
M
.22
.00
.00
500
1000
1500
2000
2500
3000
HEAT PER UNIT AREA, BTU/SQFT

WORST CASE SCENARIO

STATIC 22. CUSTOM MODEL FOR FUEL TYPE 2 BY: WIGHT

LOADS, T/AC		S/V RATIOS, 1/FT		OTHER	
1 HR	2.52	1 HR	1871.	DEPTH, FT	1.00
10 HR	0.77	LIVE HERB	190.	HEAT CONTENT, BTU/LB	8000.
100 HR	1.61	LIVE WOODY	1500.	EXT MOISTURE, %	25.
LIVE HERB	0.06	SIGMA	1756.	PACKING RATIO	0.00825
LIVE WOODY	0.79			PR/OPR	1.12

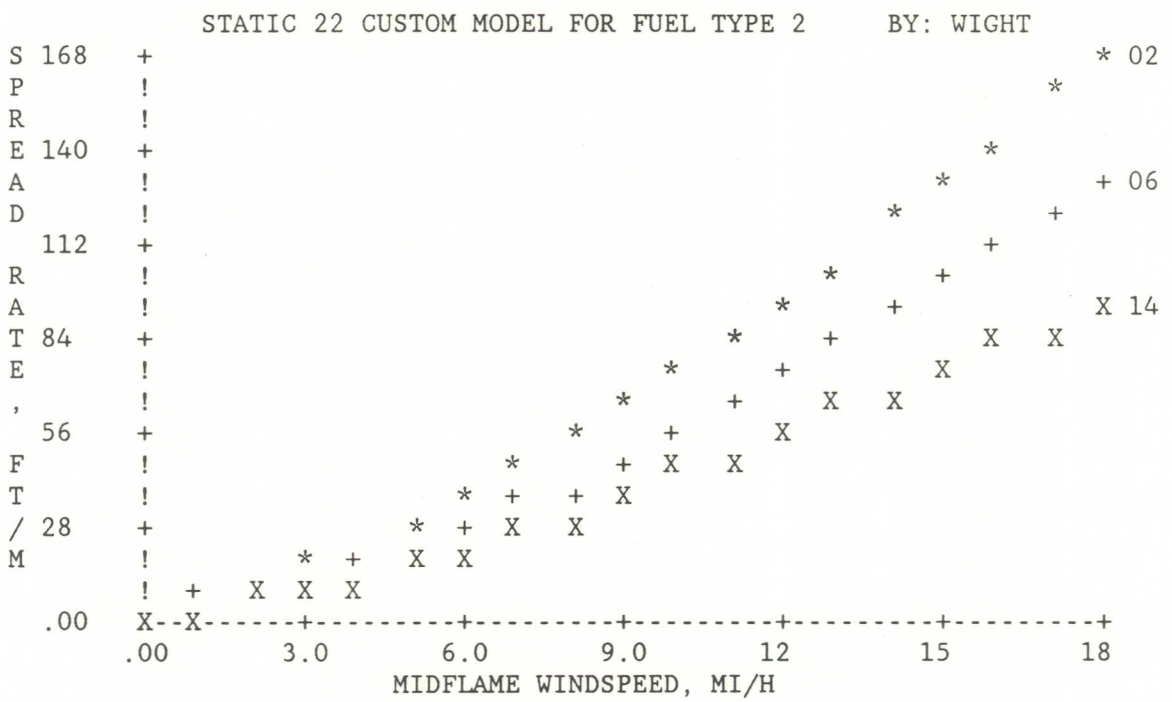
ENVIRONMENTAL DATA		FIRE BEHAVIOR RESULTS			
		FIRE	MIDFLAME WIND, MI/H		
1 HR FM	2.	VARIABLE	2.	4.	10.
10 HR FM	2.	ROS (FT/M)	11.	23.	75.
100 HR FM	7.	FL (FEET)	6.	8.	13.
LIVE HERB FM	60.	IR (BTU/SQFT/M)	5893.	5893.	5893.
LIVE WOODY FM	80.	H/A (BTU/SQFT)	1289.	1289.	1289.
SLOPE, %	20.	FLI (BTU/FT/S)	236.	495.	1606.

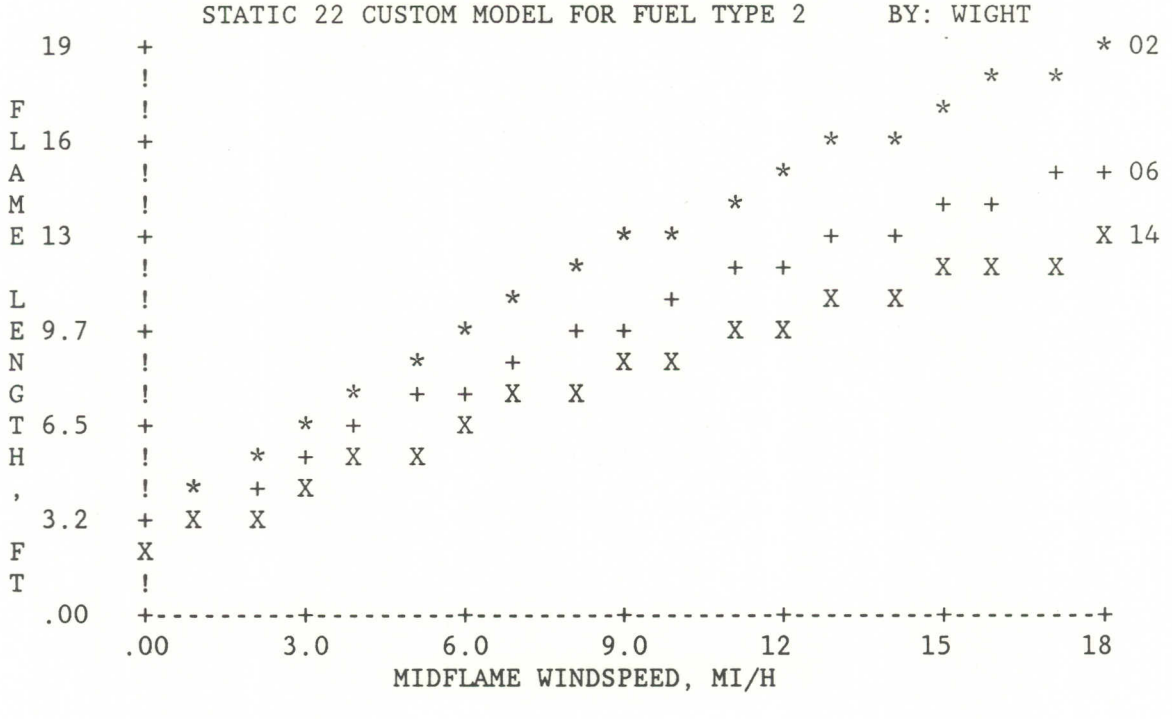
STATIC 22. CUSTOM MODEL FOR FUEL TYPE 2 BY: WIGHT

LOADS, T/AC		S/V RATIOS, 1/FT		OTHER	
1 HR	2.52	1 HR	1871.	DEPTH, FT	1.00
10 HR	0.77	LIVE HERB	190.	HEAT CONTENT, BTU/LB	8000.
100 HR	1.61	LIVE WOODY	1500.	EXT MOISTURE, %	25.
LIVE HERB	0.06	SIGMA	1756.	PACKING RATIO	0.00825
LIVE WOODY	0.79			PR/OPR	1.12

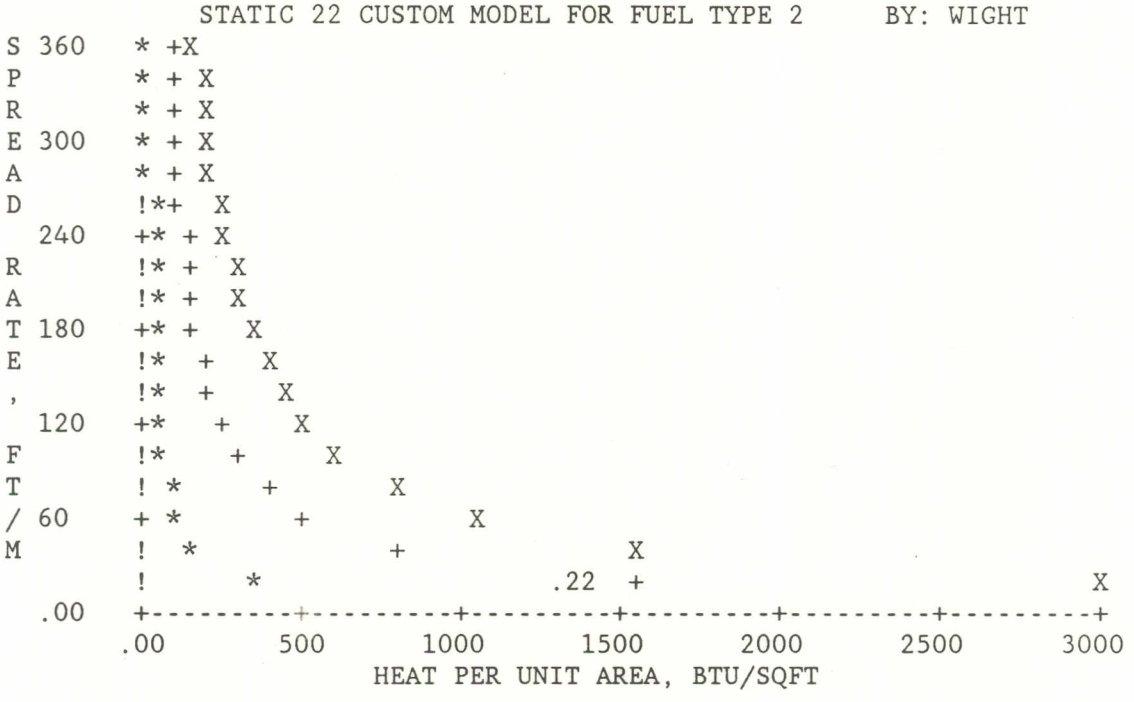
ENVIRONMENTAL DATA		FIRE BEHAVIOR RESULTS			
		FIRE	SLOPE, %		
1 HR FM	2.	VARIABLE	5.	20.	45.
10 HR FM	2.	ROS (FT/M)	21.	23.	30.
100 HR FM	7.	FL (FEET)	8.	8.	9.
LIVE HERB FM	60.	IR (BTU/SQFT/M)	5893.	5893.	5893.
LIVE WOODY FM	80.	H/A (BTU/SQFT)	1289.	1289.	1289.
WIND, MI/H	4.	FLI (BTU/FT/S)	458.	495.	653.

WORST CASE SCENARIO





WORST CASE SCENARIO



MAY

STATIC 23. CUSTOM MODEL FOR FUEL TYPE 3 BY: WIGHT

LOADS, T/AC		S/V RATIOS, 1/FT		OTHER	
1 HR	3.85	1 HR	1870.	DEPTH, FT	1.00
10 HR	0.76	LIVE HERB	190.	HEAT CONTENT, BTU/LB	8000.
100 HR	1.55	LIVE WOODY	1500.	EXT MOISTURE, %	15.
LIVE HERB	0.01	SIGMA	1777.	PACKING RATIO	0.01040
LIVE WOODY	1.08			PR/OPR	1.42

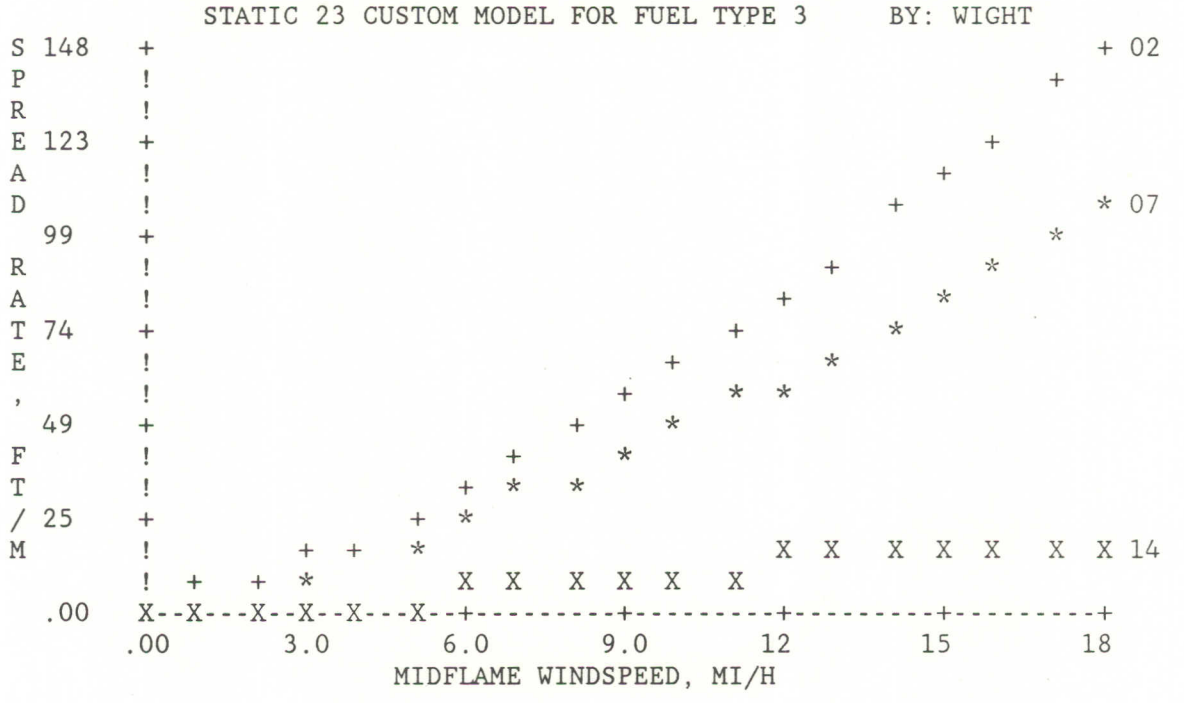
ENVIRONMENTAL DATA		FIRE BEHAVIOR RESULTS			
		FIRE	MIDFLAME WIND, MI/H		
1 HR FM	7.	VARIABLE	2.	4.	10.
10 HR FM	10.	ROS (FT/M)	7.	14.	47.
100 HR FM	13.	FL (FEET)	4.	6.	11.
LIVE HERB FM	118.	IR (BTU/SQFT/M)	6031.	6031.	6031.
LIVE WOODY FM	122.	H/A (BTU/SQFT)	1303.	1303.	1303.
SLOPE, %	15.	FLI (BTU/FT/S)	142.	307.	1022.

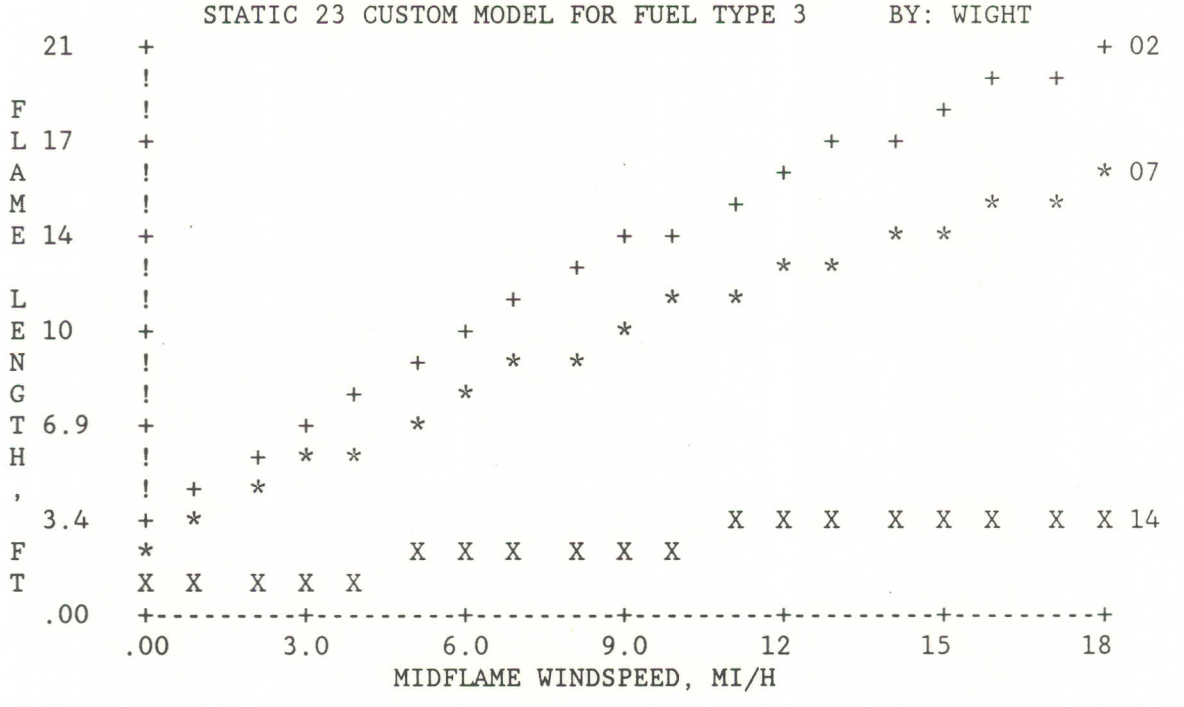
STATIC 23. CUSTOM MODEL FOR FUEL TYPE 3 BY: WIGHT

LOADS, T/AC		S/V RATIOS, 1/FT		OTHER	
1 HR	3.85	1 HR	1870.	DEPTH, FT	1.00
10 HR	0.76	LIVE HERB	190.	HEAT CONTENT, BTU/LB	8000.
100 HR	1.55	LIVE WOODY	1500.	EXT MOISTURE, %	15.
LIVE HERB	0.01	SIGMA	1777.	PACKING RATIO	0.01040
LIVE WOODY	1.08			PR/OPR	1.42

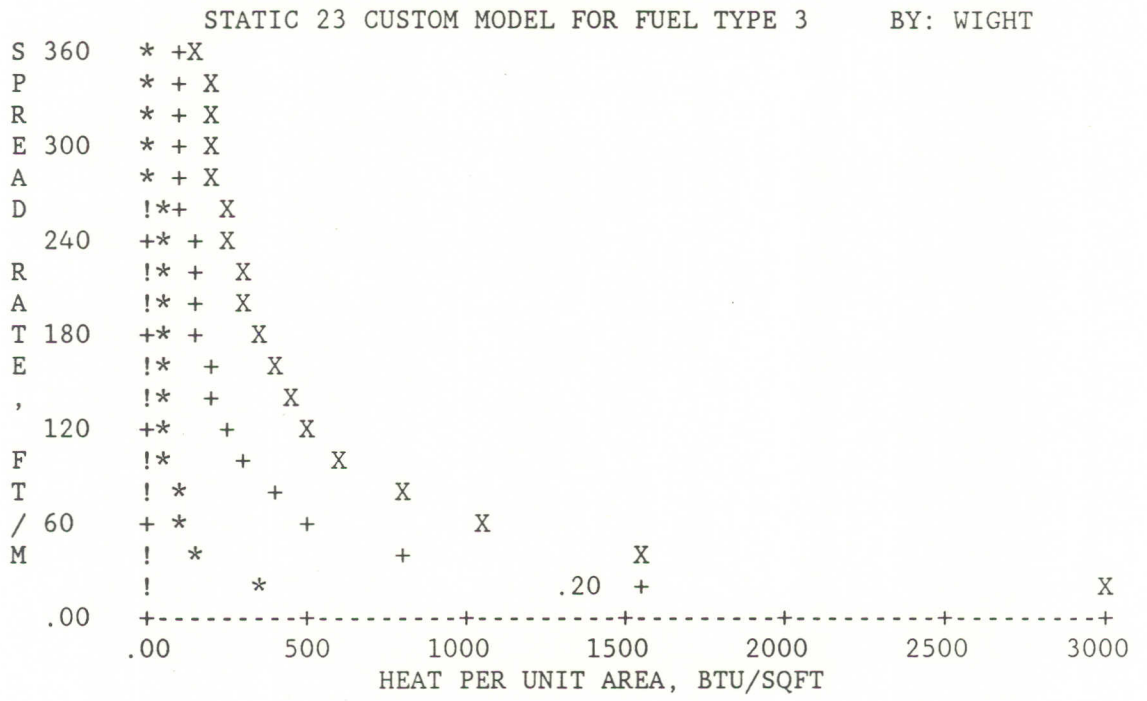
ENVIRONMENTAL DATA		FIRE BEHAVIOR RESULTS			
		FIRE	SLOPE, %		
1 HR FM	7.	VARIABLE	5.	15.	40.
10 HR FM	10.	ROS (FT/M)	14.	14.	18.
100 HR FM	13.	FL (FEET)	6.	6.	7.
LIVE HERB FM	118.	IR (BTU/SQFT/M)	6031.	6031.	6031.
LIVE WOODY FM	122.	H/A (BTU/SQFT)	1303.	1303.	1303.
WIND, MI/H	4.	FLI (BTU/FT/S)	294.	307.	394.

MAY


STATIC 23 CUSTOM MODEL FOR FUEL TYPE 3 BY: WIGHT
SPREAD RATE, FT/M
148
123
99
74
49
25
.00
02
07
14
.00
3.0
6.0
9.0
12
15
18
MIDFLAME WINDSPEED, MI/H


STATIC 23 CUSTOM MODEL FOR FUEL TYPE 3 BY: WIGHT
FLAME LENGTH, FT
21
17
14
10
6.9
3.4
.00
02
07
14
.00
3.0
6.0
9.0
12
15
18
MIDFLAME WINDSPEED, MI/H

MAY


STATIC 23 CUSTOM MODEL FOR FUEL TYPE 3 BY: WIGHT
SPREAD RATE, FT/MIN
360
300
240
180
120
60
.00
.20
.00
500
1000
1500
2000
2500
3000
HEAT PER UNIT AREA, BTU/SQFT

JUNE

STATIC 23. CUSTOM MODEL FOR FUEL TYPE 3 BY: WIGHT

LOADS, T/AC		S/V RATIOS, 1/FT		OTHER	
1 HR	3.85	1 HR	1870.	DEPTH, FT	1.00
10 HR	0.76	LIVE HERB	190.	HEAT CONTENT, BTU/LB	8000.
100 HR	1.55	LIVE WOODY	1500.	EXT MOISTURE, %	15.
LIVE HERB	0.01	SIGMA	1777.	PACKING RATIO	0.01040
LIVE WOODY	1.08			PR/OPR	1.42

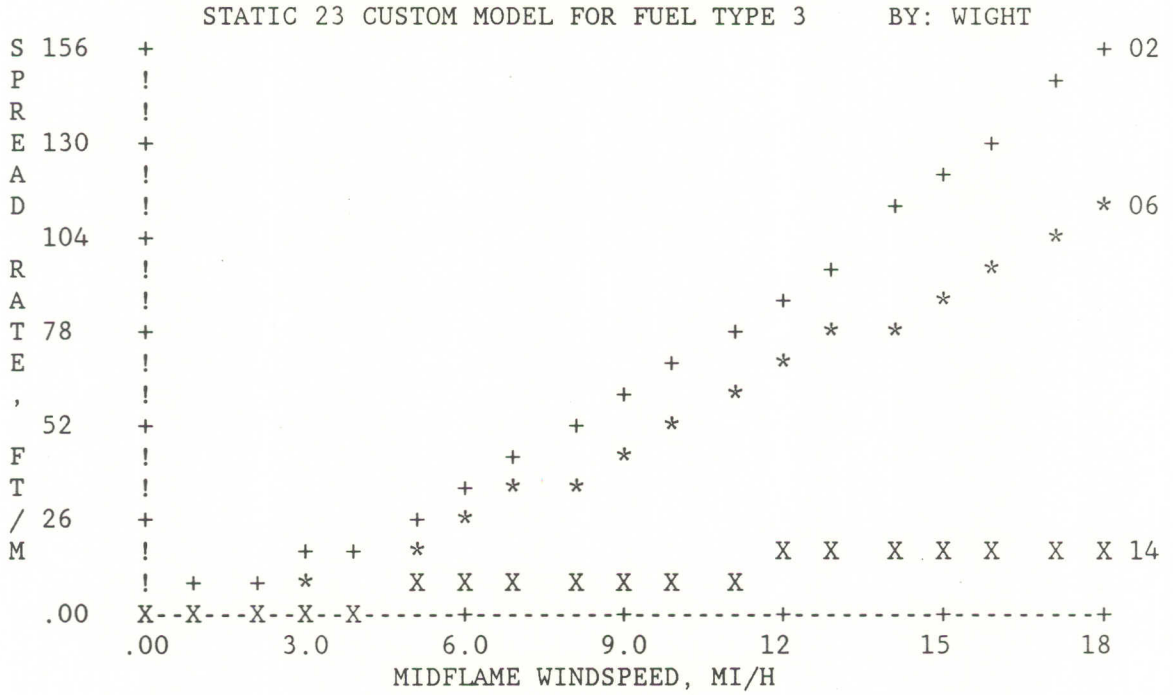
ENVIRONMENTAL DATA		FIRE BEHAVIOR RESULTS			
		FIRE	MIDFLAME WIND, MI/H		
1 HR FM	6.	VARIABLE	2.	4.	10.
10 HR FM	8.	ROS (FT/M)	7.	15.	51.
100 HR FM	10.	FL (FEET)	5.	7.	12.
LIVE HERB FM	101.	IR (BTU/SQFT/M)	6213.	6213.	6213.
LIVE WOODY FM	111.	H/A (BTU/SQFT)	1343.	1343.	1343.
SLOPE, %	15.	FLI (BTU/FT/S)	159.	345.	1148.

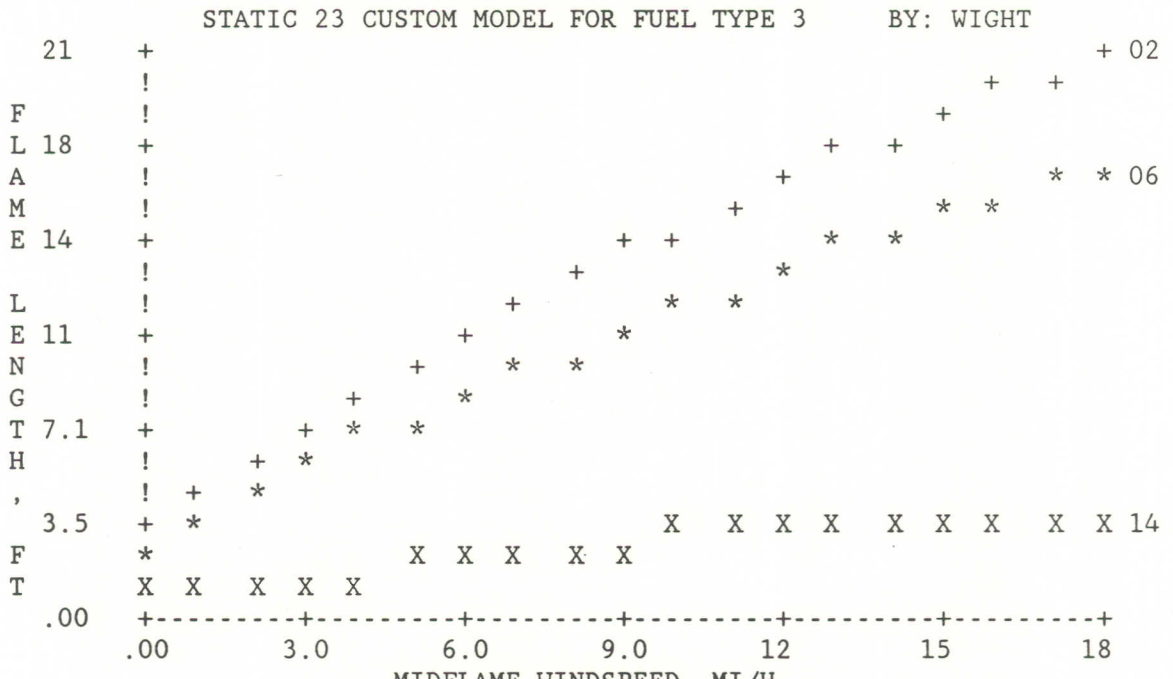
STATIC 23. CUSTOM MODEL FOR FUEL TYPE 3 BY: WIGHT

LOADS, T/AC		S/V RATIOS, 1/FT		OTHER	
1 HR	3.85	1 HR	1870.	DEPTH, FT	1.00
10 HR	0.76	LIVE HERB	190.	HEAT CONTENT, BTU/LB	8000.
100 HR	1.55	LIVE WOODY	1500.	EXT MOISTURE, %	15.
LIVE HERB	0.01	SIGMA	1777.	PACKING RATIO	0.01040
LIVE WOODY	1.08			PR/OPR	1.42

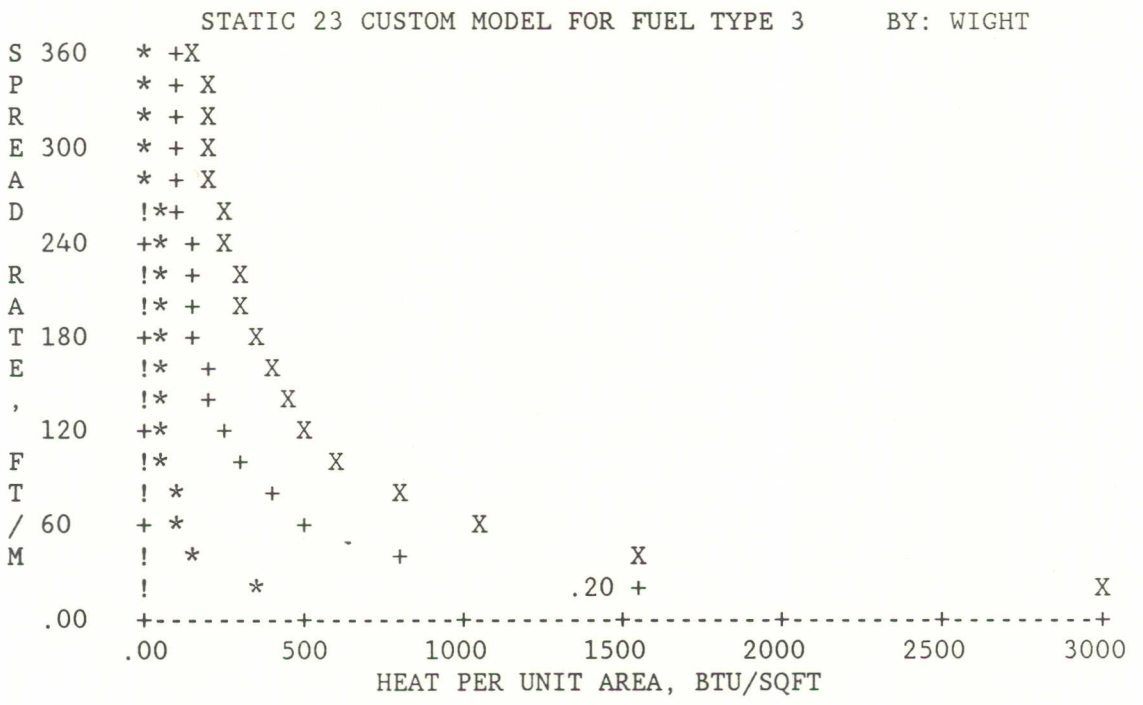
ENVIRONMENTAL DATA		FIRE BEHAVIOR RESULTS			
		FIRE	SLOPE, %		
1 HR FM	6.	VARIABLE	5.	15.	40.
10 HR FM	8.	ROS (FT/M)	15.	15.	20.
100 HR FM	10.	FL (FEET)	6.	7.	7.
LIVE HERB FM	101.	IR (BTU/SQFT/M)	6213.	6213.	6213.
LIVE WOODY FM	111.	H/A (BTU/SQFT)	1343.	1343.	1343.
WIND, MI/H	4.	FLI (BTU/FT/S)	331.	345.	443.

JUNE


STATIC 23 CUSTOM MODEL FOR FUEL TYPE 3 BY: WIGHT
SPREAD RATE, FT/M
156
130
104
78
52
26
.00
02
06
14
.00
3.0
6.0
9.0
12
15
18
MIDFLAME WINDSPEED, MI/H


STATIC 23 CUSTOM MODEL FOR FUEL TYPE 3 BY: WIGHT
FLAME LENGTH, FT
21
18
14
11
7.1
3.5
.00
02
06
14
.00
3.0
6.0
9.0
12
15
18
MIDFLAME WINDSPEED, MI/H

JUNE


STATIC 23 CUSTOM MODEL FOR FUEL TYPE 3 BY: WIGHT
SPREAD RATE, FT/MIN
360
300
240
180
120
60
.00
.20
.00
500
1000
1500
2000
2500
3000
HEAT PER UNIT AREA, BTU/SQFT

JULY

STATIC 23. CUSTOM MODEL FOR FUEL TYPE 3 BY: WIGHT

LOADS, T/AC		S/V RATIOS, 1/FT		OTHER	
1 HR	3.85	1 HR	1870.	DEPTH, FT	1.00
10 HR	0.76	LIVE HERB	190.	HEAT CONTENT, BTU/LB	8000.
100 HR	1.55	LIVE WOODY	1500.	EXT MOISTURE, %	15.
LIVE HERB	0.01	SIGMA	1777.	PACKING RATIO	0.01040
LIVE WOODY	1.08			PR/OPR	1.42

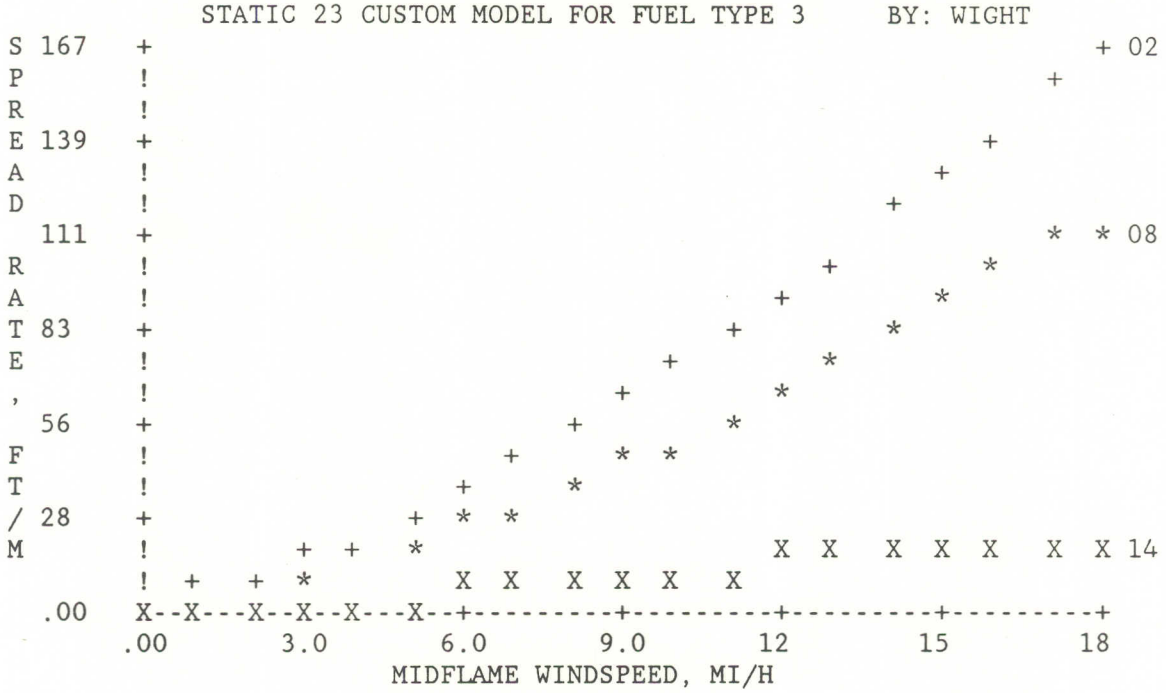
ENVIRONMENTAL DATA		FIRE BEHAVIOR RESULTS			
		FIRE	MIDFLAME WIND, MI/H		
1 HR FM	8.	VARIABLE	2.	4.	10.
10 HR FM	13.	ROS (FT/M)	7.	15.	51.
100 HR FM	12.	FL (FEET)	5.	6.	11.
LIVE HERB FM	79.	IR (BTU/SQFT/M)	6004.	6004.	6004.
LIVE WOODY FM	95.	H/A (BTU/SQFT)	1298.	1298.	1298.
SLOPE, %	15.	FLI (BTU/FT/S)	153.	331.	1102.

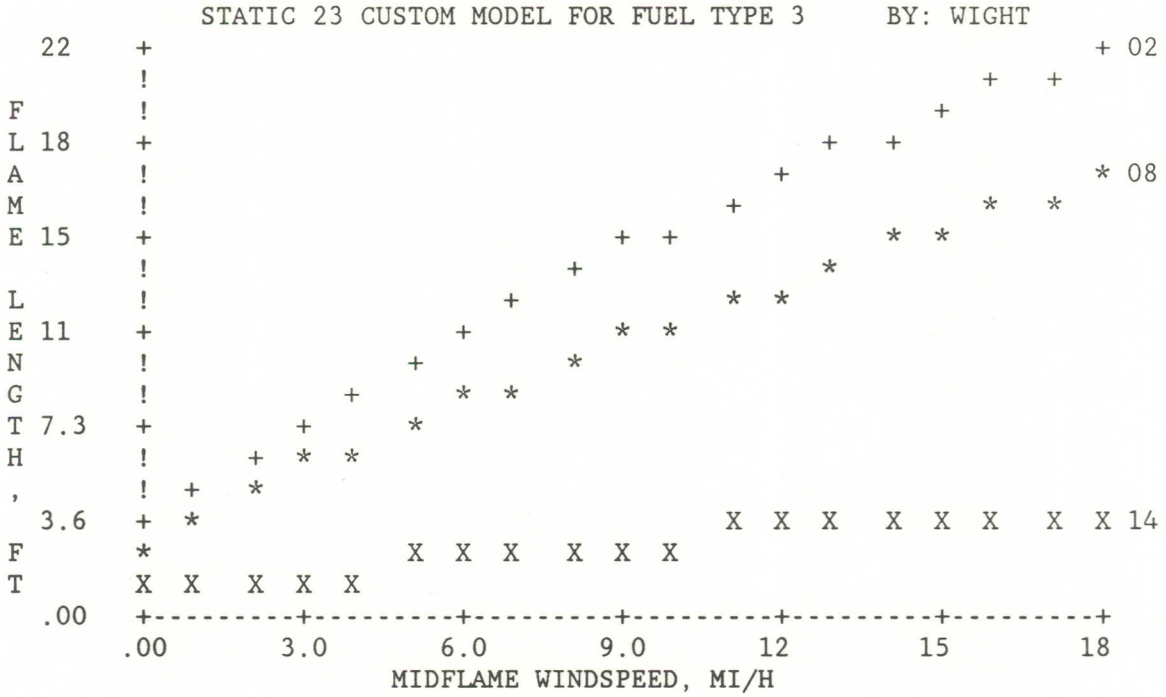
STATIC 23. CUSTOM MODEL FOR FUEL TYPE 3 BY: WIGHT

LOADS, T/AC		S/V RATIOS, 1/FT		OTHER	
1 HR	3.85	1 HR	1870.	DEPTH, FT	1.00
10 HR	0.76	LIVE HERB	190.	HEAT CONTENT, BTU/LB	8000.
100 HR	1.55	LIVE WOODY	1500.	EXT MOISTURE, %	15.
LIVE HERB	0.01	SIGMA	1777.	PACKING RATIO	0.01040
LIVE WOODY	1.08			PR/OPR	1.42

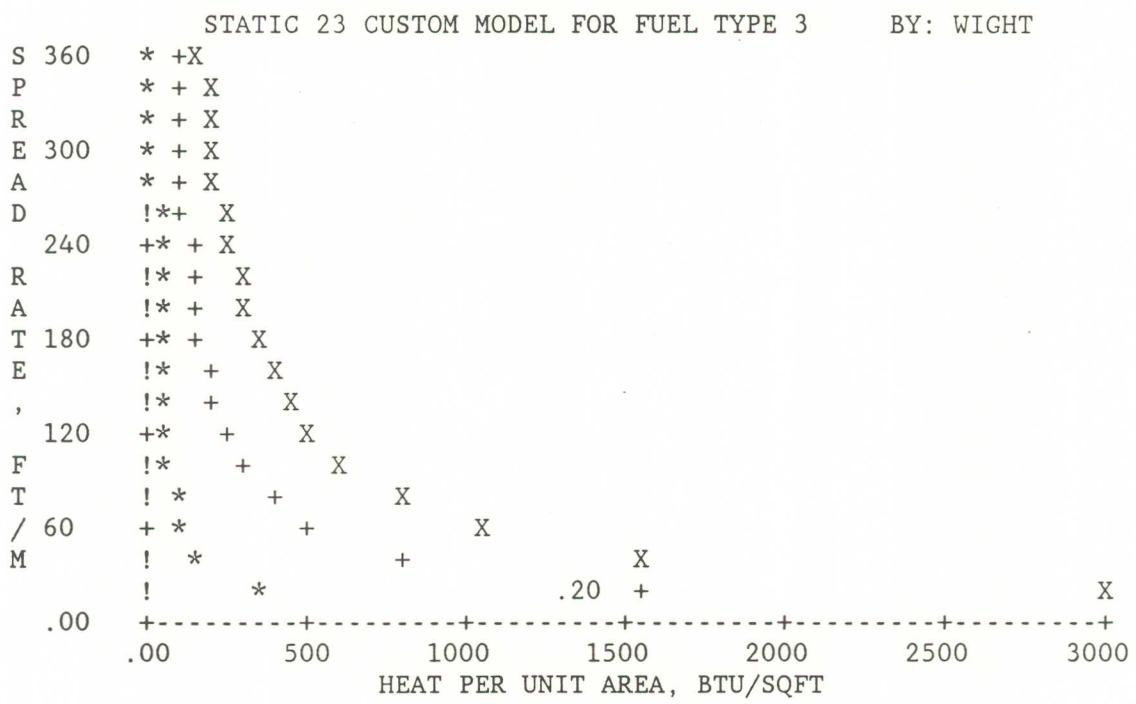
ENVIRONMENTAL DATA		FIRE BEHAVIOR RESULTS			
		FIRE	SLOPE, %		
1 HR FM	8.	VARIABLE	5.	15.	40.
10 HR FM	13.	ROS (FT/M)	15.	15.	20.
100 HR FM	12.	FL (FEET)	6.	6.	7.
LIVE HERB FM	79.	IR (BTU/SQFT/M)	6004.	6004.	6004.
LIVE WOODY FM	95.	H/A (BTU/SQFT)	1298.	1298.	1298.
WIND, MI/H	4.	FLI (BTU/FT/S)	317.	331.	425.

JULY


STATIC 23 CUSTOM MODEL FOR FUEL TYPE 3 BY: WIGHT
SPREAD RATE, FT/M
167
139
111
83
56
28
.00
02
08
14
.00
3.0
6.0
9.0
12
15
18
MIDFLAME WINDSPEED, MI/H


STATIC 23 CUSTOM MODEL FOR FUEL TYPE 3 BY: WIGHT
FLAME LENGTH, FT
22
18
15
11
7.3
3.6
.00
02
08
14
.00
3.0
6.0
9.0
12
15
18
MIDFLAME WINDSPEED, MI/H

JULY


STATIC 23 CUSTOM MODEL FOR FUEL TYPE 3 BY: WIGHT
SPREAD RATE, FT/MIN
360
300
240
180
120
60
.00
.20
.00
500
1000
1500
2000
2500
3000
HEAT PER UNIT AREA, BTU/SQFT

AUGUST

STATIC 23. CUSTOM MODEL FOR FUEL TYPE 3 BY: WIGHT

LOADS, T/AC		S/V RATIOS, 1/FT		OTHER	
1 HR	3.85	1 HR	1870.	DEPTH, FT	1.00
10 HR	0.76	LIVE HERB	190.	HEAT CONTENT, BTU/LB	8000.
100 HR	1.55	LIVE WOODY	1500.	EXT MOISTURE, %	15.
LIVE HERB	0.01	SIGMA	1777.	PACKING RATIO	0.01040
LIVE WOODY	1.08			PR/OPR	1.42

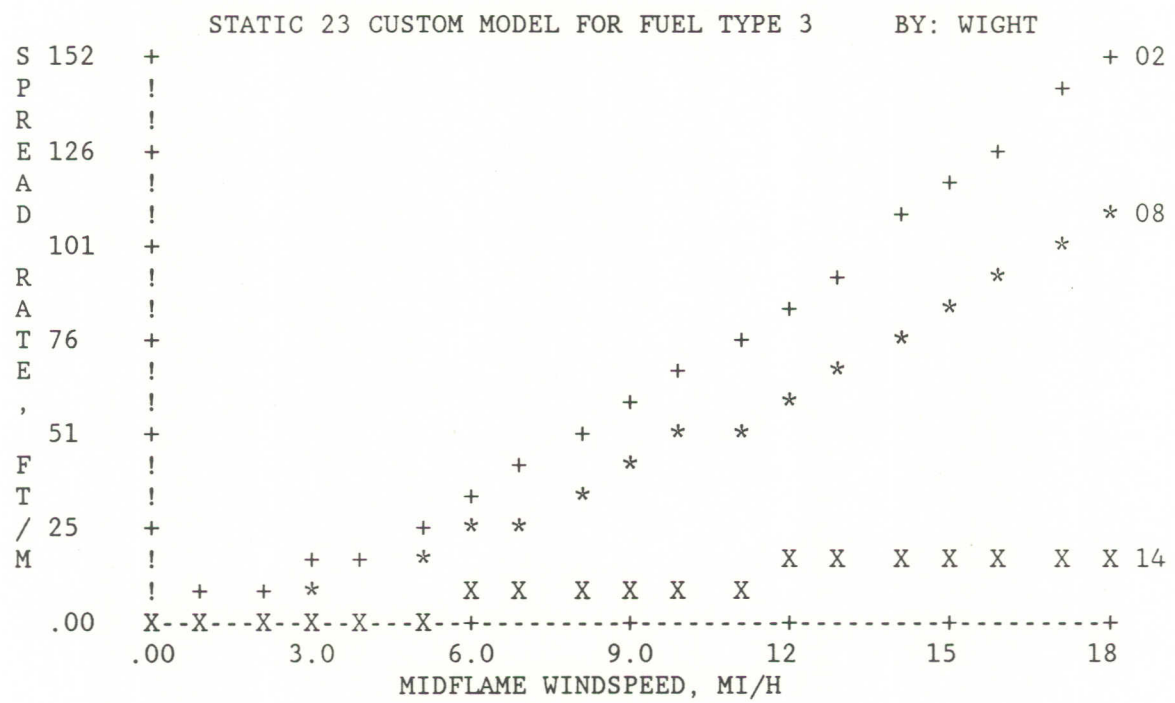
ENVIRONMENTAL DATA		FIRE BEHAVIOR RESULTS			
		FIRE	MIDFLAME WIND, MI/H		
1 HR FM	8.	VARIABLE	2.	4.	10.
10 HR FM	13.	---	---	---	---
100 HR FM	14.	ROS (FT/M)	6.	14.	47.
LIVE HERB FM	78.	FL (FEET)	4.	6.	11.
LIVE WOODY FM	115.	IR (BTU/SQFT/M)	5916.	5916.	5916.
		H/A (BTU/SQFT)	1279.	1279.	1279.
SLOPE, %	15.	FLI (BTU/FT/S)	137.	298.	992.

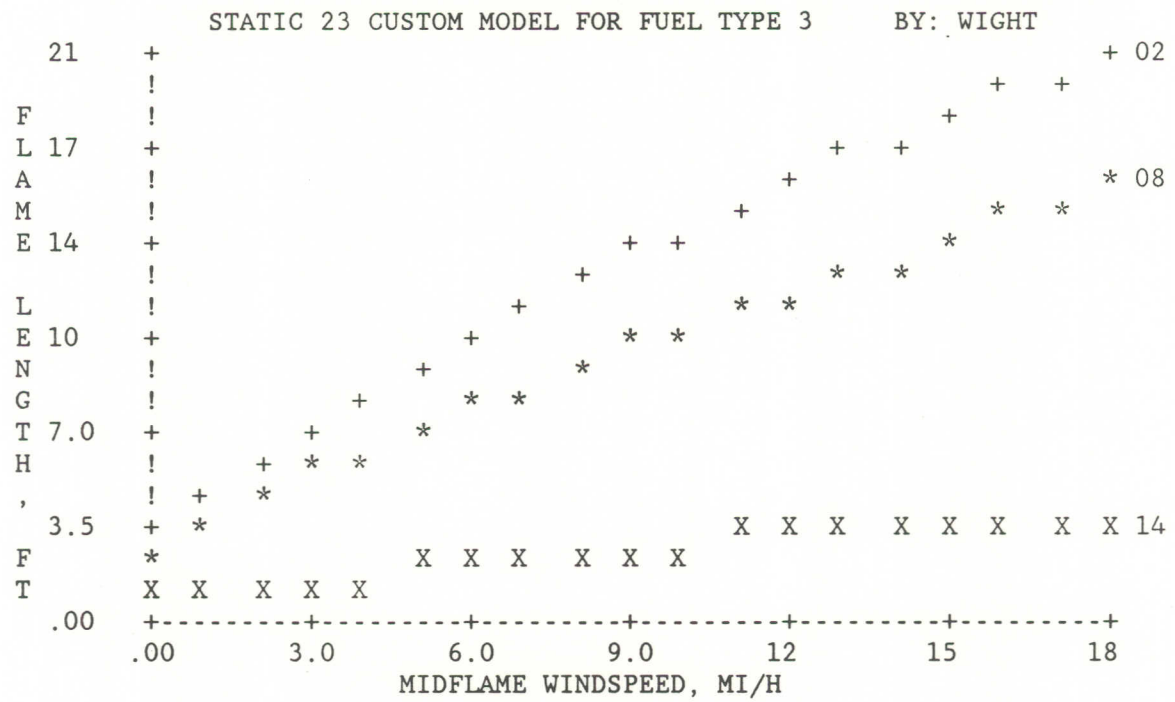
STATIC 23. CUSTOM MODEL FOR FUEL TYPE 3 BY: WIGHT

LOADS, T/AC		S/V RATIOS, 1/FT		OTHER	
1 HR	3.85	1 HR	1870.	DEPTH, FT	1.00
10 HR	0.76	LIVE HERB	190.	HEAT CONTENT, BTU/LB	8000.
100 HR	1.55	LIVE WOODY	1500.	EXT MOISTURE, %	15.
LIVE HERB	0.01	SIGMA	1777.	PACKING RATIO	0.01040
LIVE WOODY	1.08			PR/OPR	1.42

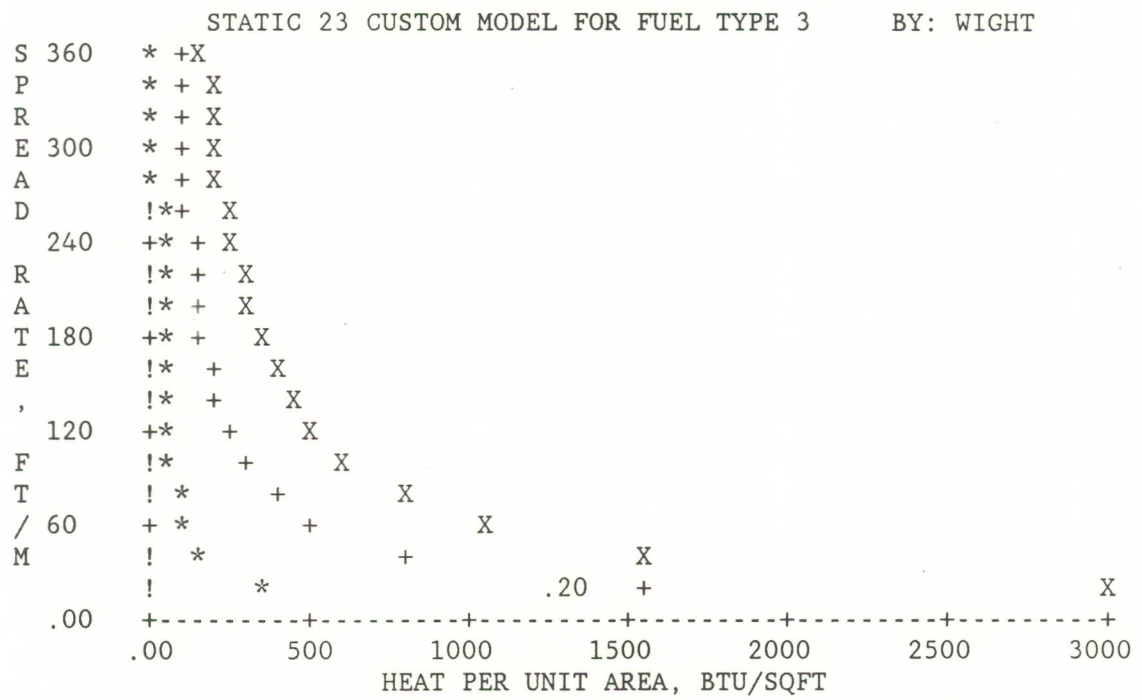
ENVIRONMENTAL DATA		FIRE BEHAVIOR RESULTS			
		FIRE	SLOPE, %		
1 HR FM	8.	VARIABLE	5.	15.	40.
10 HR FM	13.	---	---	---	---
100 HR FM	14.	ROS (FT/M)	13.	14.	18.
LIVE HERB FM	78.	FL (FEET)	6.	6.	7.
LIVE WOODY FM	115.	IR (BTU/SQFT/M)	5916.	5916.	5916.
WIND, MI/H	4.	H/A (BTU/SQFT)	1279.	1279.	1279.
		FLI (BTU/FT/S)	286.	298.	382.

AUGUST


STATIC 23 CUSTOM MODEL FOR FUEL TYPE 3 BY: WIGHT
SPREAD RATE, FT/M
152
126
101
76
51
25
.00
02
08
14
.00
3.0
6.0
9.0
12
15
18
MIDFLAME WINDSPEED, MI/H


STATIC 23 CUSTOM MODEL FOR FUEL TYPE 3 BY: WIGHT
FLAME LENGTH, FT
21
17
14
10
7.0
3.5
.00
02
08
14
.00
3.0
6.0
9.0
12
15
18
MIDFLAME WINDSPEED, MI/H

AUGUST


STATIC 23 CUSTOM MODEL FOR FUEL TYPE 3 BY: WIGHT
SPREAD RATE, FT/MIN
360
300
240
180
120
60
.00
.20
.00
500
1000
1500
2000
2500
3000
HEAT PER UNIT AREA, BTU/SQFT

SEPTEMBER

STATIC 23. CUSTOM MODEL FOR FUEL TYPE 3 BY: WIGHT

LOADS, T/AC		S/V RATIOS, 1/FT		OTHER	
1 HR	3.85	1 HR	1870.	DEPTH, FT	1.00
10 HR	0.76	LIVE HERB	190.	HEAT CONTENT, BTU/LB	8000.
100 HR	1.55	LIVE WOODY	1500.	EXT MOISTURE, %	15.
LIVE HERB	0.01	SIGMA	1777.	PACKING RATIO	0.01040
LIVE WOODY	1.08			PR/OPR	1.42

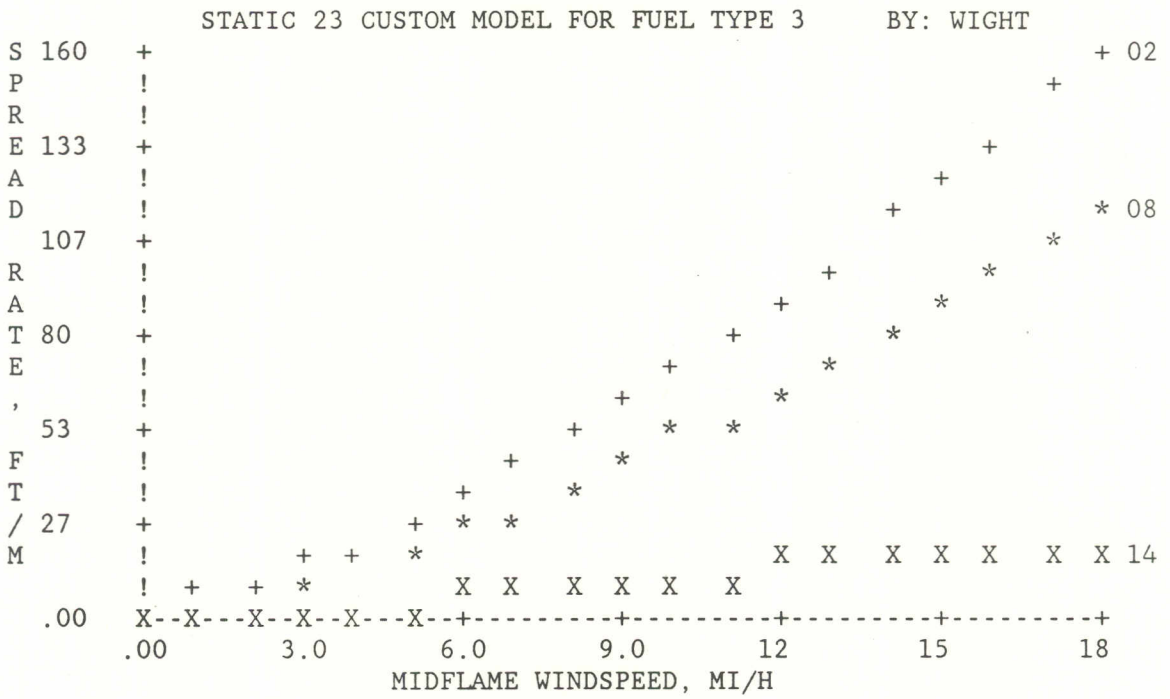
ENVIRONMENTAL DATA		FIRE BEHAVIOR RESULTS			
		FIRE	MIDFLAME WIND, MI/H		
1 HR FM	8.	VARIABLE	2.	4.	10.
10 HR FM	14.	---	---	---	---
100 HR FM	14.	ROS (FT/M)	7.	15.	49.
LIVE HERB FM	58.	FL (FEET)	4.	6.	11.
LIVE WOODY FM	103.	IR (BTU/SQFT/M)	5961.	5961.	5961.
		H/A (BTU/SQFT)	1288.	1288.	1288.
SLOPE, %	15.	FLI (BTU/FT/S)	146.	316.	1053.

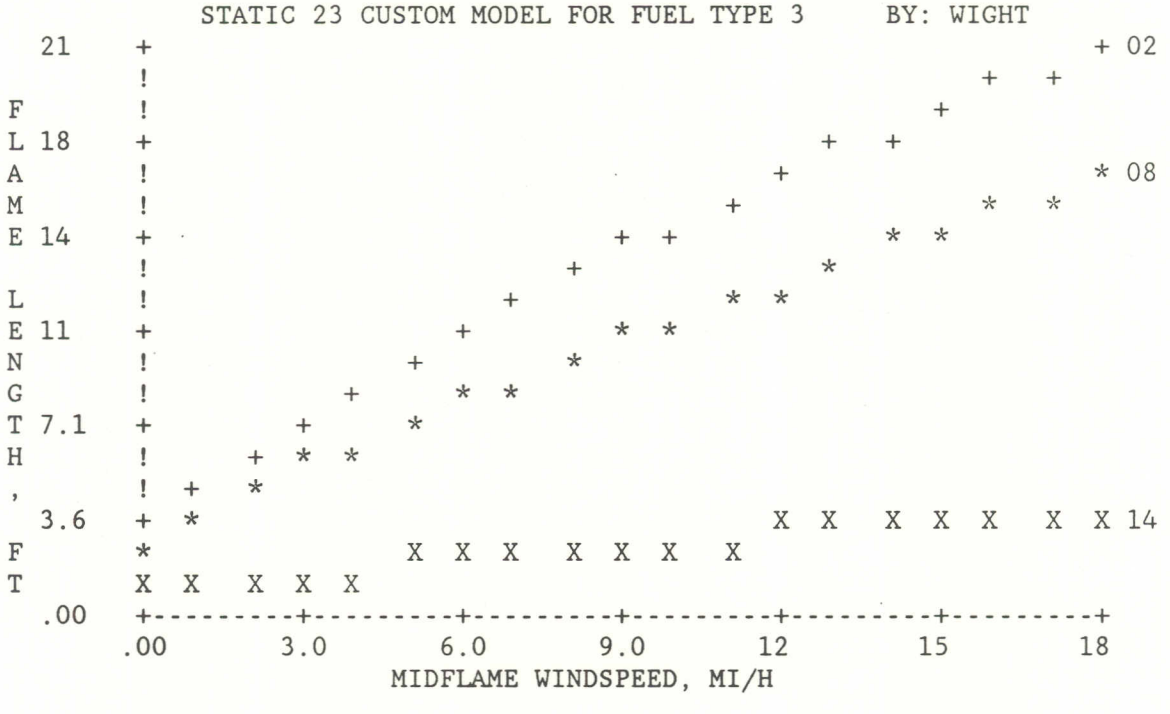
STATIC 23. CUSTOM MODEL FOR FUEL TYPE 3 BY: WIGHT

LOADS, T/AC		S/V RATIOS, 1/FT		OTHER	
1 HR	3.85	1 HR	1870.	DEPTH, FT	1.00
10 HR	0.76	LIVE HERB	190.	HEAT CONTENT, BTU/LB	8000.
100 HR	1.55	LIVE WOODY	1500.	EXT MOISTURE, %	15.
LIVE HERB	0.01	SIGMA	1777.	PACKING RATIO	0.01040
LIVE WOODY	1.08			PR/OPR	1.42

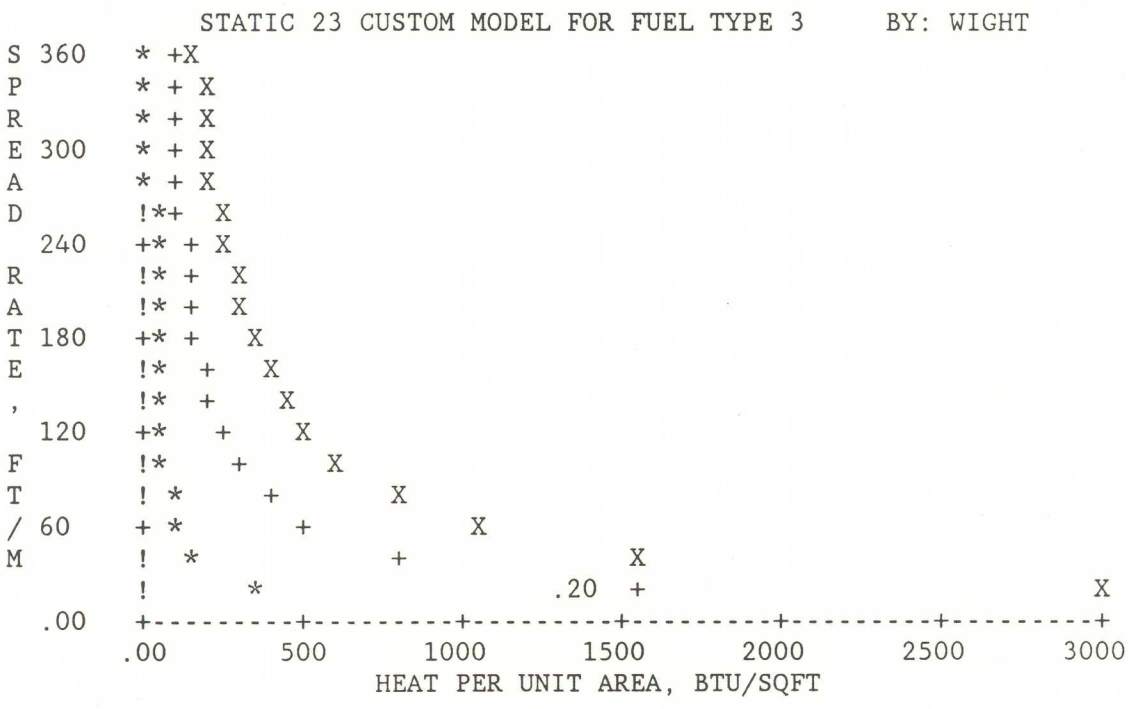
ENVIRONMENTAL DATA		FIRE BEHAVIOR RESULTS			
		FIRE	SLOPE, %		
1 HR FM	8.	VARIABLE	5.	15.	40.
10 HR FM	14.	---	---	---	---
100 HR FM	14.	ROS (FT/M)	14.	15.	19.
LIVE HERB FM	58.	FL (FEET)	6.	6.	7.
LIVE WOODY FM	103.	IR (BTU/SQFT/M)	5961.	5961.	5961.
WIND, MI/H	4.	H/A (BTU/SQFT)	1288.	1288.	1288.
		FLI (BTU/FT/S)	303.	316.	406.

SEPTEMBER


STATIC 23 CUSTOM MODEL FOR FUEL TYPE 3 BY: WIGHT
SPREAD RATE, FT/M
160
133
107
80
53
27
.00
02
08
14
.00
3.0
6.0
9.0
12
15
18
MIDFLAME WINDSPEED, MI/H


STATIC 23 CUSTOM MODEL FOR FUEL TYPE 3 BY: WIGHT
FLAME LENGTH, FT
21
18
14
11
7.1
3.6
.00
02
08
14
.00
3.0
6.0
9.0
12
15
18
MIDFLAME WINDSPEED, MI/H

SEPTEMBER


STATIC 23 CUSTOM MODEL FOR FUEL TYPE 3 BY: WIGHT
SPREAD RATE, FT/MIN
360
300
240
180
120
60
.00
.20
.00
500
1000
1500
2000
2500
3000
HEAT PER UNIT AREA, BTU/SQFT

WORST CASE SCENARIO

STATIC 23. CUSTOM MODEL FOR FUEL TYPE 3 BY: WIGHT

LOADS, T/AC		S/V RATIOS, 1/FT		OTHER	
1 HR	3.85	1 HR	1870.	DEPTH, FT	1.00
10 HR	0.76	LIVE HERB	190.	HEAT CONTENT, BTU/LB	8000.
100 HR	1.55	LIVE WOODY	1500.	EXT MOISTURE, %	15.
LIVE HERB	0.01	SIGMA	1777.	PACKING RATIO	0.01040
LIVE WOODY	1.08			PR/OPR	1.42

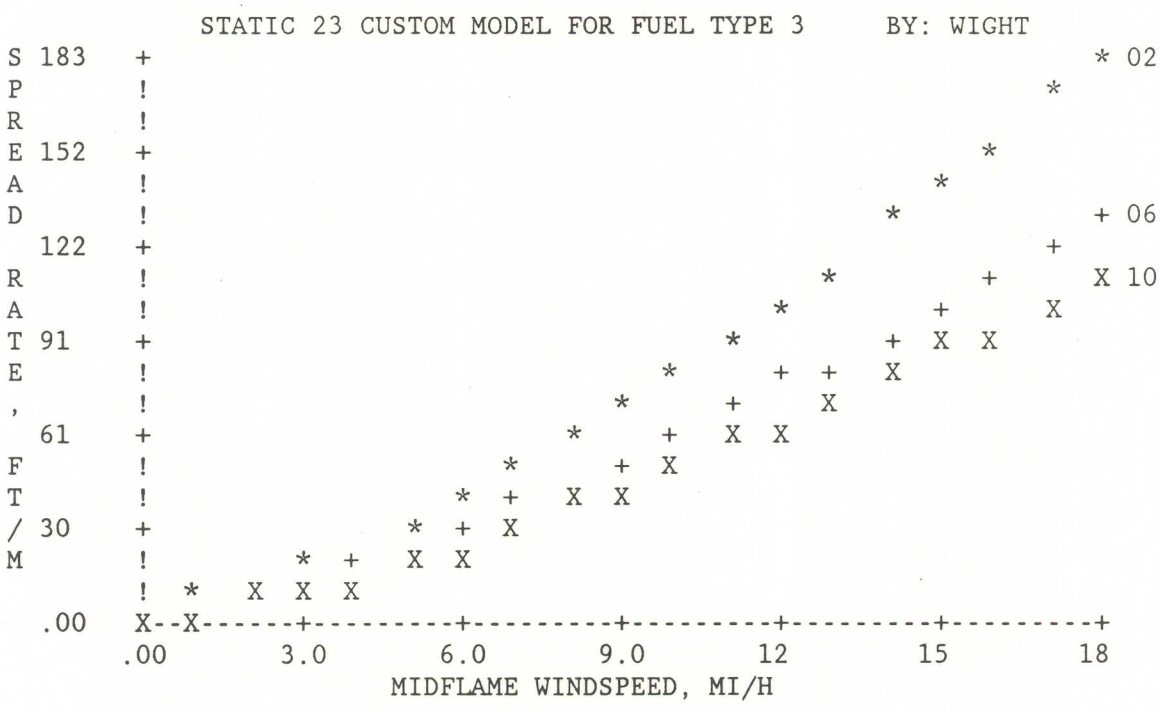
ENVIRONMENTAL DATA		FIRE BEHAVIOR RESULTS			
		FIRE	MIDFLAME WIND, MI/H		
1 HR FM	2.	VARIABLE	2.	10.	12.
10 HR FM	2.	ROS (FT/M)	11.	81.	104.
100 HR FM	7.	FL (FEET)	6.	16.	18.
LIVE HERB FM	60.	IR (BTU/SQFT/M)	7931.	7931.	7931.
LIVE WOODY FM	80.	H/A (BTU/SQFT)	1714.	1714.	1714.
SLOPE, %	15.	FLI (BTU/FT/S)	319.	2304.	2963.

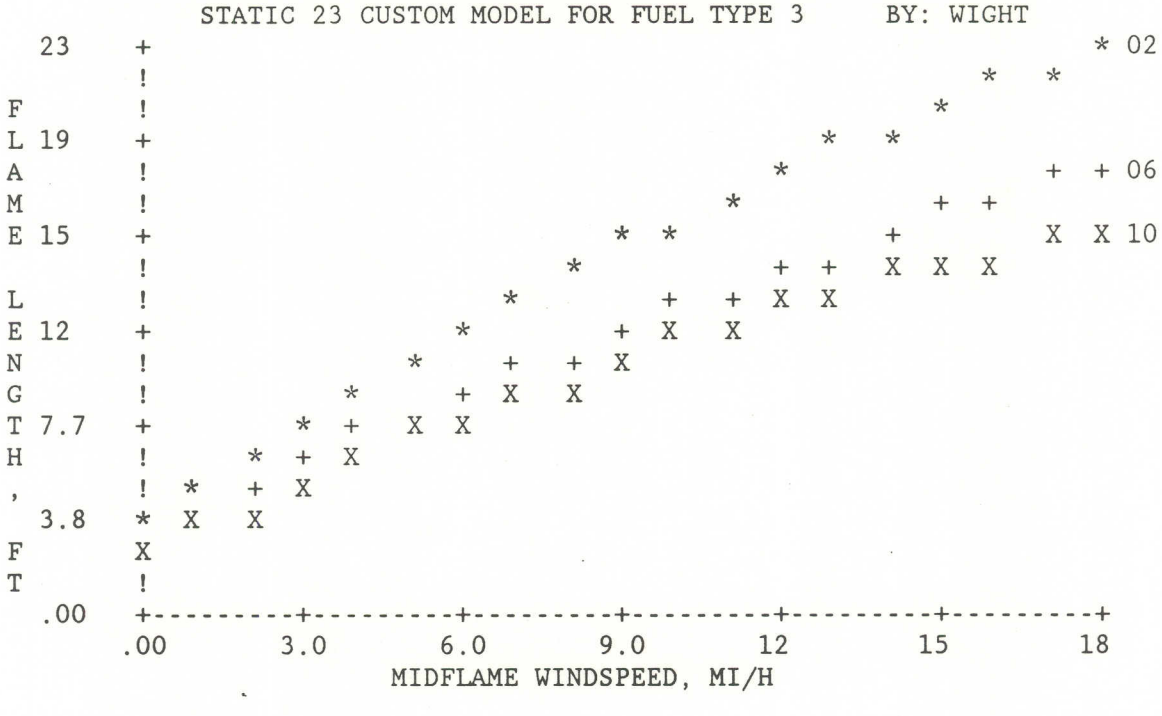
STATIC 23. CUSTOM MODEL FOR FUEL TYPE 3 BY: WIGHT

LOADS, T/AC		S/V RATIOS, 1/FT		OTHER	
1 HR	3.85	1 HR	1870.	DEPTH, FT	1.00
10 HR	0.76	LIVE HERB	190.	HEAT CONTENT, BTU/LB	8000.
100 HR	1.55	LIVE WOODY	1500.	EXT MOISTURE, %	15.
LIVE HERB	0.01	SIGMA	1777.	PACKING RATIO	0.01040
LIVE WOODY	1.08			PR/OPR	1.42

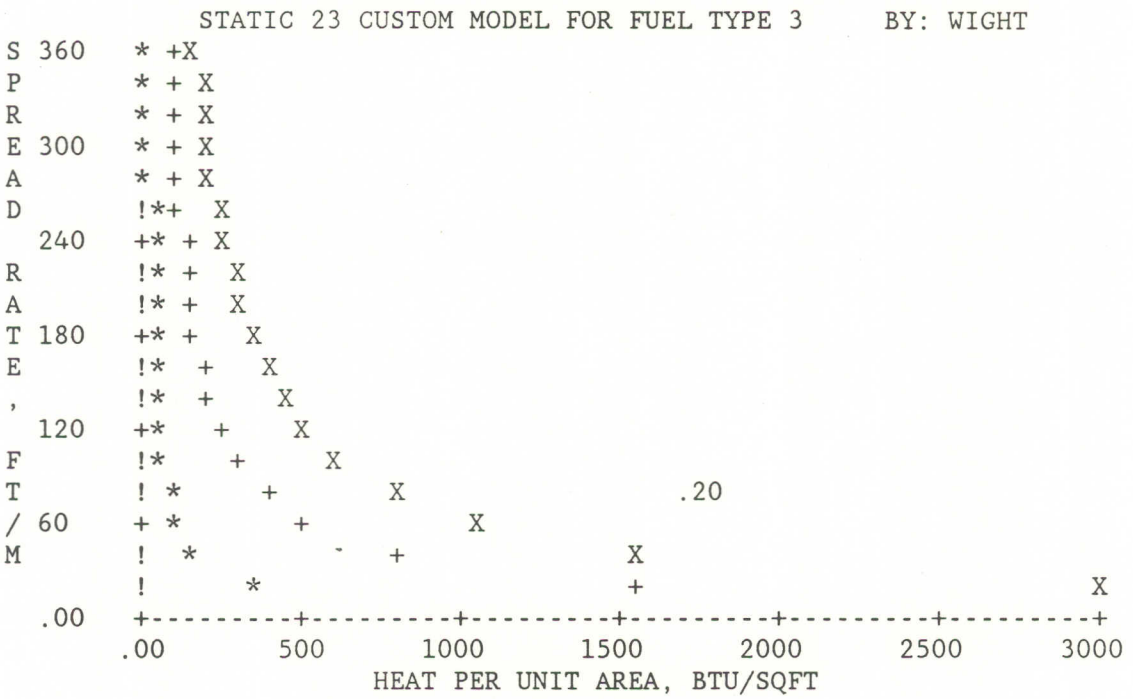
ENVIRONMENTAL DATA		FIRE BEHAVIOR RESULTS			
		FIRE	SLOPE, %		
1 HR FM	2.	VARIABLE	5.	15.	40.
10 HR FM	2.	ROS (FT/M)	80.	81.	88.
100 HR FM	7.	FL (FEET)	16.	16.	16.
LIVE HERB FM	60.	IR (BTU/SQFT/M)	7931.	7931.	7931.
LIVE WOODY FM	80.	H/A (BTU/SQFT)	1714.	1714.	1714.
WIND, MI/H	10.	FLI (BTU/FT/S)	2275.	2304.	2500.

WORST CASE SCENARIO





WORST CASE SCENARIO



MAY

STATIC 24. CUSTOM MODEL FOR FUEL TYPE 4 BY: WIGHT

LOADS, T/AC		S/V RATIOS, 1/FT		OTHER	
1 HR	1.63	1 HR	3000.	DEPTH, FT	1.00
10 HR	0.32	LIVE HERB	1500.	HEAT CONTENT, BTU/LB	8000.
100 HR	0.64	LIVE WOODY	190.	EXT MOISTURE, %	15.
LIVE HERB	0.11	SIGMA	2811.	PACKING RATIO	0.00550
LIVE WOODY	1.13			PR/OPR	1.10

ENVIRONMENTAL DATA	
1 HR FM	7.
10 HR FM	10.
100 HR FM	13.
LIVE HERB FM	118.
LIVE WOODY FM	122.
SLOPE, %	15.

FIRE BEHAVIOR RESULTS

FIRE VARIABLE	MIDFLAME WIND, MI/H 2.	4.	10.
ROS (FT/M)	12.	32.	152.
FL (FEET)	4.	6.	12.
IR (BTU/SQFT/M)	3346.	3346.	3346.
H/A (BTU/SQFT)	457.	457.	457.
FLI (BTU/FT/S)	91.	242.	1159.

STATIC 24. CUSTOM MODEL FOR FUEL TYPE 4 BY: WIGHT

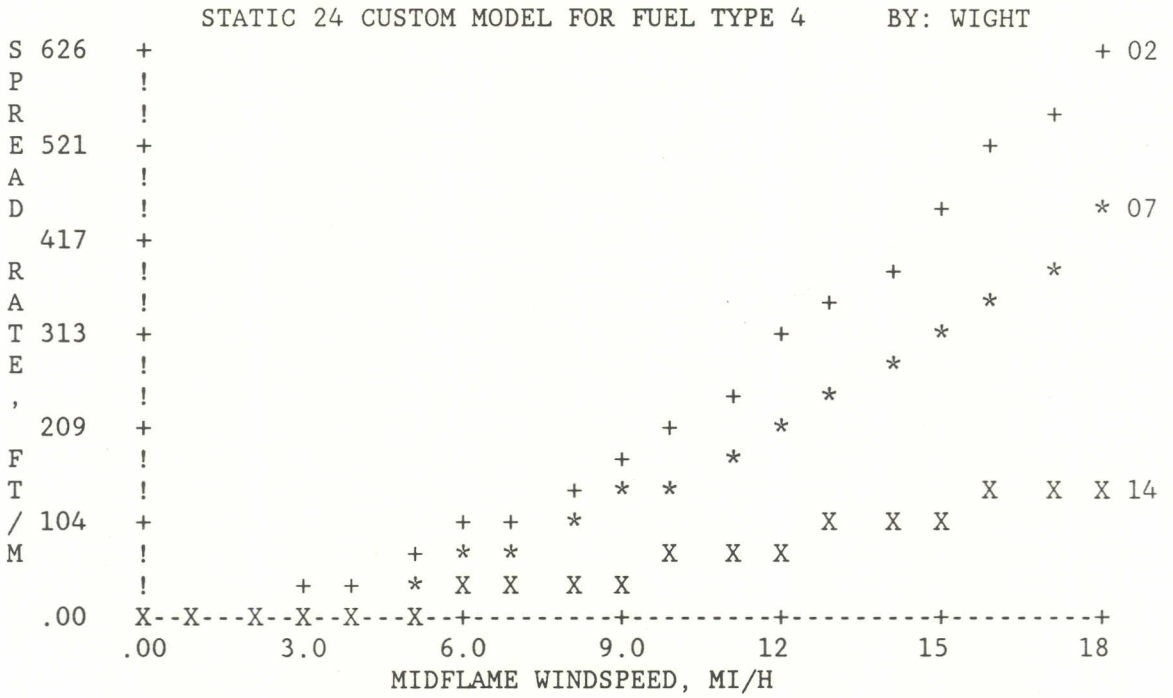
LOADS, T/AC		S/V RATIOS, 1/FT		OTHER	
1 HR	1.63	1 HR	3000.	DEPTH, FT	1.00
10 HR	0.32	LIVE HERB	1500.	HEAT CONTENT, BTU/LB	8000.
100 HR	0.64	LIVE WOODY	190.	EXT MOISTURE, %	15.
LIVE HERB	0.11	SIGMA	2811.	PACKING RATIO	0.00550
LIVE WOODY	1.13			PR/OPR	1.10

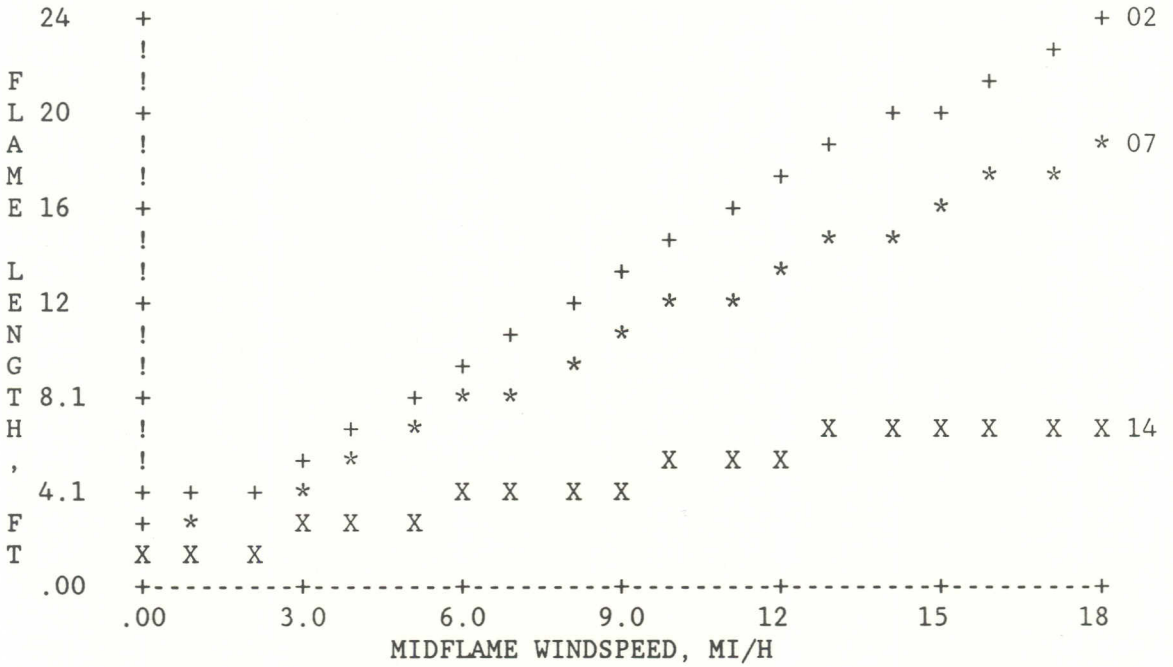
ENVIRONMENTAL DATA	
1 HR FM	7.
10 HR FM	10.
100 HR FM	13.
LIVE HERB FM	118.
LIVE WOODY FM	122.
WIND, MI/H	4.

FIRE BEHAVIOR RESULTS

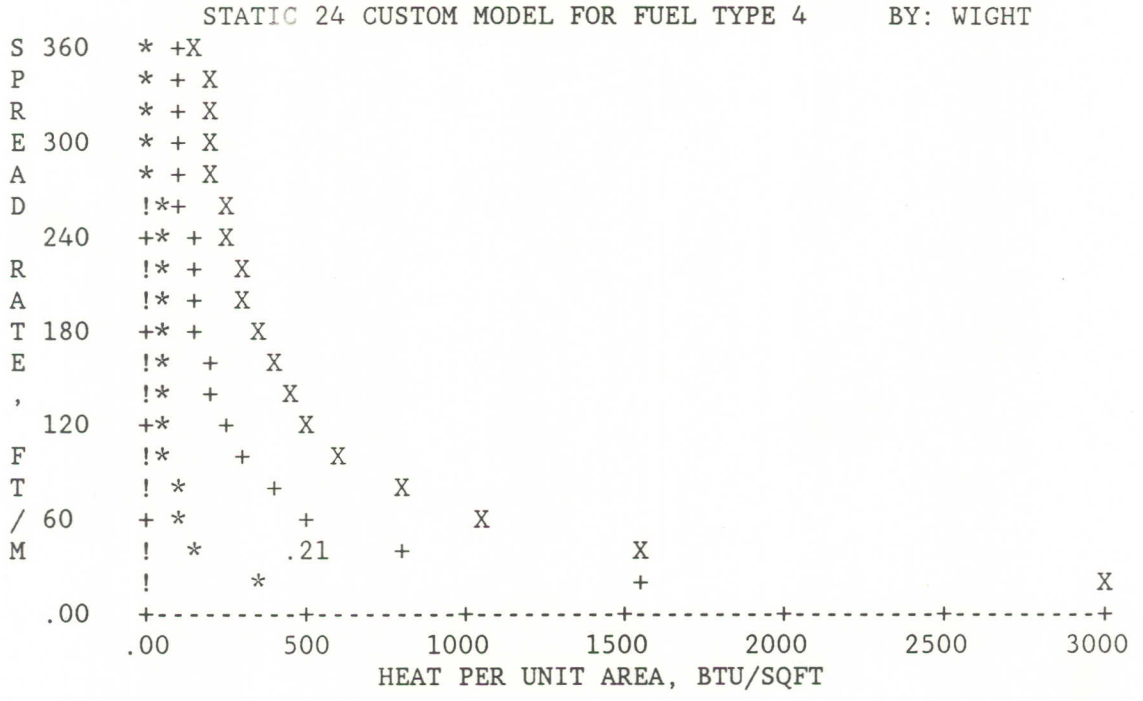
FIRE VARIABLE	SLOPE, % 3.	15.	50.
ROS (FT/M)	30.	32.	48.
FL (FEET)	5.	6.	7.
IR (BTU/SQFT/M)	3346.	3346.	3346.
H/A (BTU/SQFT)	457.	457.	457.
FLI (BTU/FT/S)	230.	242.	363.

MAY


STATIC 24 CUSTOM MODEL FOR FUEL TYPE 4 BY: WIGHT
SPREAD RATE, FT/M
626
521
417
313
209
104
.00
.00
3.0
6.0
9.0
12
15
18
MIDFLAME WINDSPEED, MI/H
02
07
14


STATIC 24 CUSTOM MODEL FOR FUEL TYPE 4 BY: WIGHT
FLAME LENGTH, FT
24
20
16
12
8.1
4.1
.00
.00
3.0
6.0
9.0
12
15
18
MIDFLAME WINDSPEED, MI/H
02
07
14

MAY


STATIC 24 CUSTOM MODEL FOR FUEL TYPE 4 BY: WIGHT
SPREAD RATE, FT/MIN
360
300
240
180
120
60
.00
.21
.00
500
1000
1500
2000
2500
3000
HEAT PER UNIT AREA, BTU/SQFT

JUNE

STATIC 24. CUSTOM MODEL FOR FUEL TYPE 4 BY: WIGHT

LOADS, T/AC		S/V RATIOS, 1/FT		OTHER	
1 HR	1.63	1 HR	3000.	DEPTH, FT	1.00
10 HR	0.32	LIVE HERB	1500.	HEAT CONTENT, BTU/LB	8000.
100 HR	0.64	LIVE WOODY	190.	EXT MOISTURE, %	15.
LIVE HERB	0.11	SIGMA	2811.	PACKING RATIO	0.00550
LIVE WOODY	1.13			PR/OPR	1.10

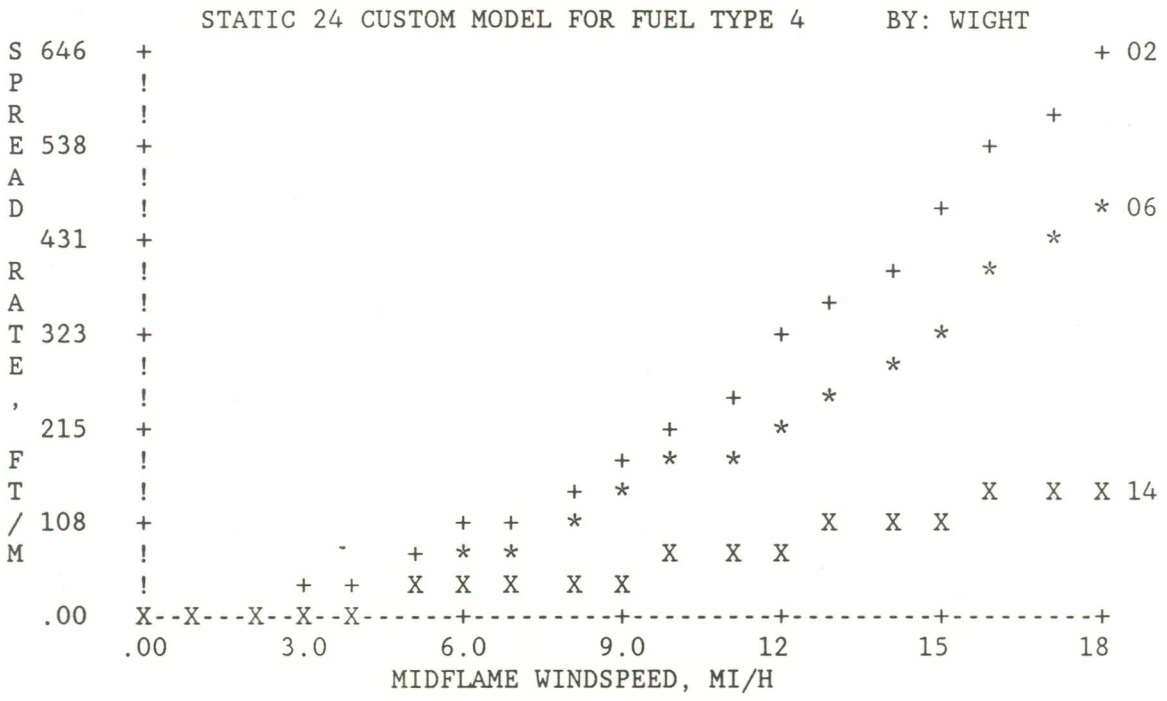
ENVIRONMENTAL DATA		FIRE BEHAVIOR RESULTS			
		FIRE	MIDFLAME WIND, MI/H		
1 HR FM	6.	VARIABLE	2.	4.	10.
10 HR FM	8.	ROS (FT/M)	13.	34.	164.
100 HR FM	10.	FL (FEET)	4.	6.	12.
LIVE HERB FM	101.	IR (BTU/SQFT/M)	3436.	3436.	3436.
LIVE WOODY FM	111.	H/A (BTU/SQFT)	469.	469.	469.
SLOPE, %	15.	FLI (BTU/FT/S)	101.	268.	1284.

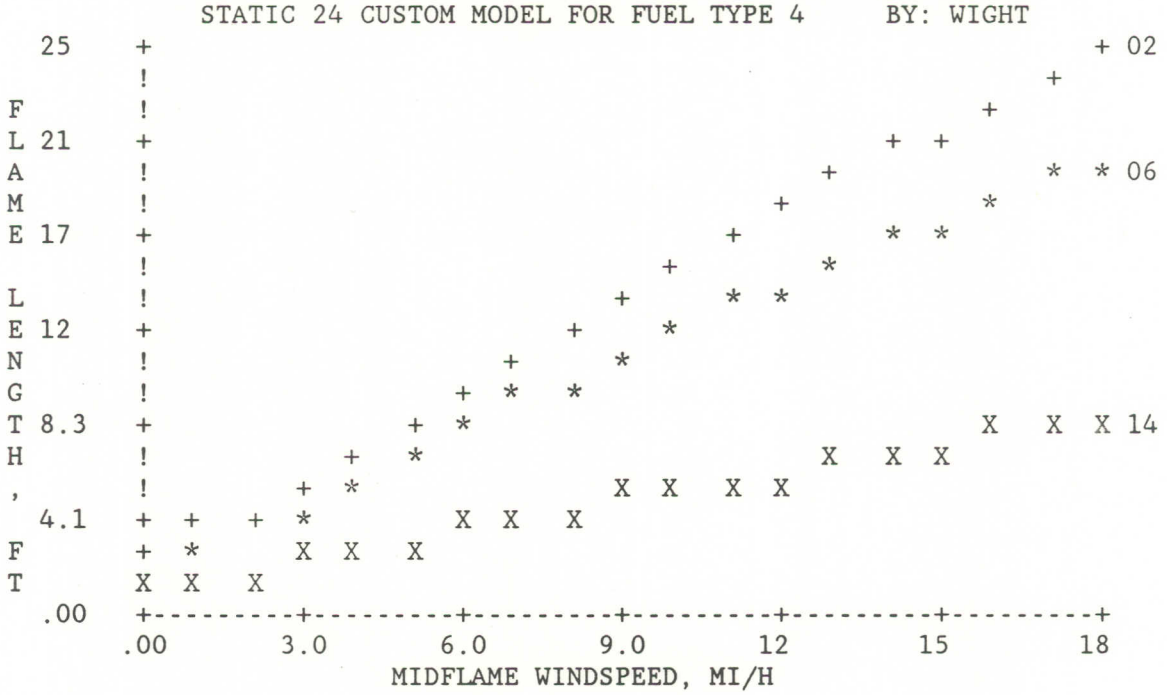
STATIC 24. CUSTOM MODEL FOR FUEL TYPE 4 BY: WIGHT

LOADS, T/AC		S/V RATIOS, 1/FT		OTHER	
1 HR	1.63	1 HR	3000.	DEPTH, FT	1.00
10 HR	0.32	LIVE HERB	1500.	HEAT CONTENT, BTU/LB	8000.
100 HR	0.64	LIVE WOODY	190.	EXT MOISTURE, %	15.
LIVE HERB	0.11	SIGMA	2811.	PACKING RATIO	0.00550
LIVE WOODY	1.13			PR/OPR	1.10

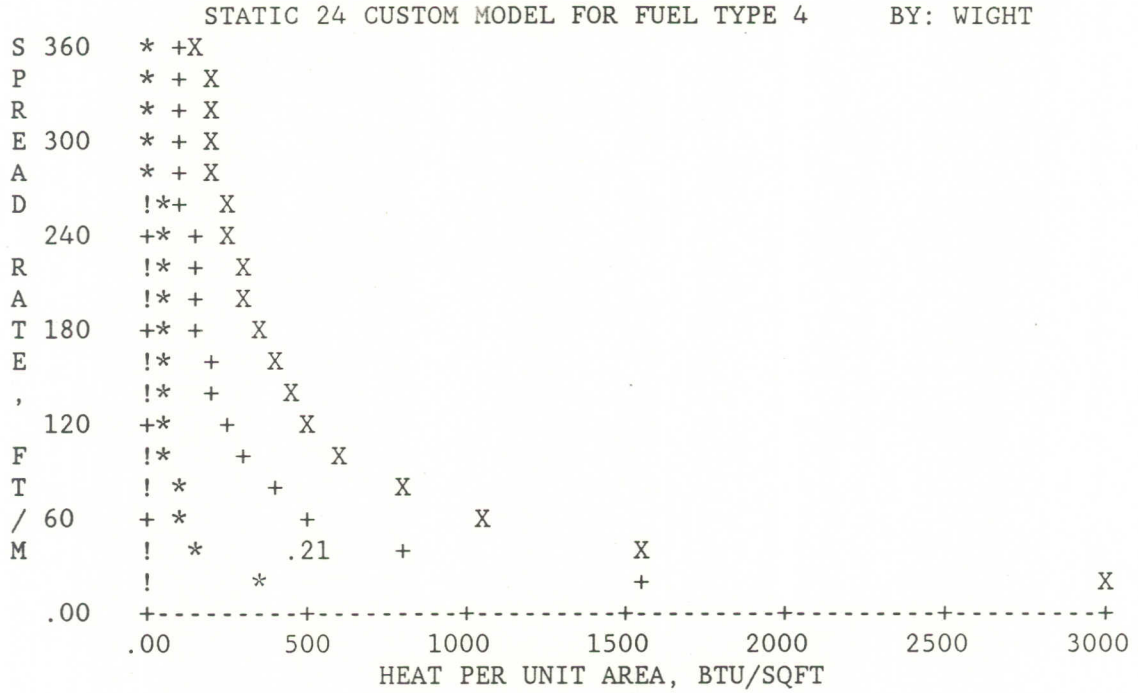
ENVIRONMENTAL DATA		FIRE BEHAVIOR RESULTS			
		FIRE	SLOPE, %		
1 HR FM	6.	VARIABLE	3.	15.	50.
10 HR FM	8.	ROS (FT/M)	33.	34.	51.
100 HR FM	10.	FL (FEET)	6.	6.	7.
LIVE HERB FM	101.	IR (BTU/SQFT/M)	3436.	3436.	3436.
LIVE WOODY FM	111.	H/A (BTU/SQFT)	469.	469.	469.
WIND, MI/H	4.	FLI (BTU/FT/S)	255.	268.	402.

JUNE


STATIC 24 CUSTOM MODEL FOR FUEL TYPE 4 BY: WIGHT
S 646
P
R
E 538
A
D
431
R
A
T 323
E
,
215
F
T
/ 108
M
.00
02
06
14
.00
3.0
6.0
9.0
12
15
18
MIDFLAME WINDSPEED, MI/H


STATIC 24 CUSTOM MODEL FOR FUEL TYPE 4 BY: WIGHT
25
F
L 21
A
M
E 17
L
E 12
N
G
T 8.3
H
,
4.1
F
T
.00
02
06
14
.00
3.0
6.0
9.0
12
15
18
MIDFLAME WINDSPEED, MI/H

JUNE


STATIC 24 CUSTOM MODEL FOR FUEL TYPE 4 BY: WIGHT
SPREAD RATE, FT/MIN
360
300
240
180
120
60
.00
.21
.00
500
1000
1500
2000
2500
3000
HEAT PER UNIT AREA, BTU/SQFT

JULY

STATIC 24. CUSTOM MODEL FOR FUEL TYPE 4 BY: WIGHT

LOADS, T/AC		S/V RATIOS, 1/FT		OTHER	
1 HR	1.63	1 HR	3000.	DEPTH, FT	1.00
10 HR	0.32	LIVE HERB	1500.	HEAT CONTENT, BTU/LB	8000.
100 HR	0.64	LIVE WOODY	190.	EXT MOISTURE, %	15.
LIVE HERB	0.11	SIGMA	2811.	PACKING RATIO	0.00550
LIVE WOODY	1.13			PR/OPR	1.10

ENVIRONMENTAL DATA	
1 HR FM	8.
10 HR FM	13.
100 HR FM	12.
LIVE HERB FM	79.
LIVE WOODY FM	95.
SLOPE, %	15.

FIRE BEHAVIOR RESULTS

FIRE VARIABLE	MIDFLAME WIND, MI/H 2.	4.	10.
ROS (FT/M)	12.	33.	156.
FL (FEET)	4.	6.	12.
IR (BTU/SQFT/M)	3349.	3349.	3349.
H/A (BTU/SQFT)	458.	458.	458.
FLI (BTU/FT/S)	94.	248.	1188.

STATIC 24. CUSTOM MODEL FOR FUEL TYPE 4 BY: WIGHT

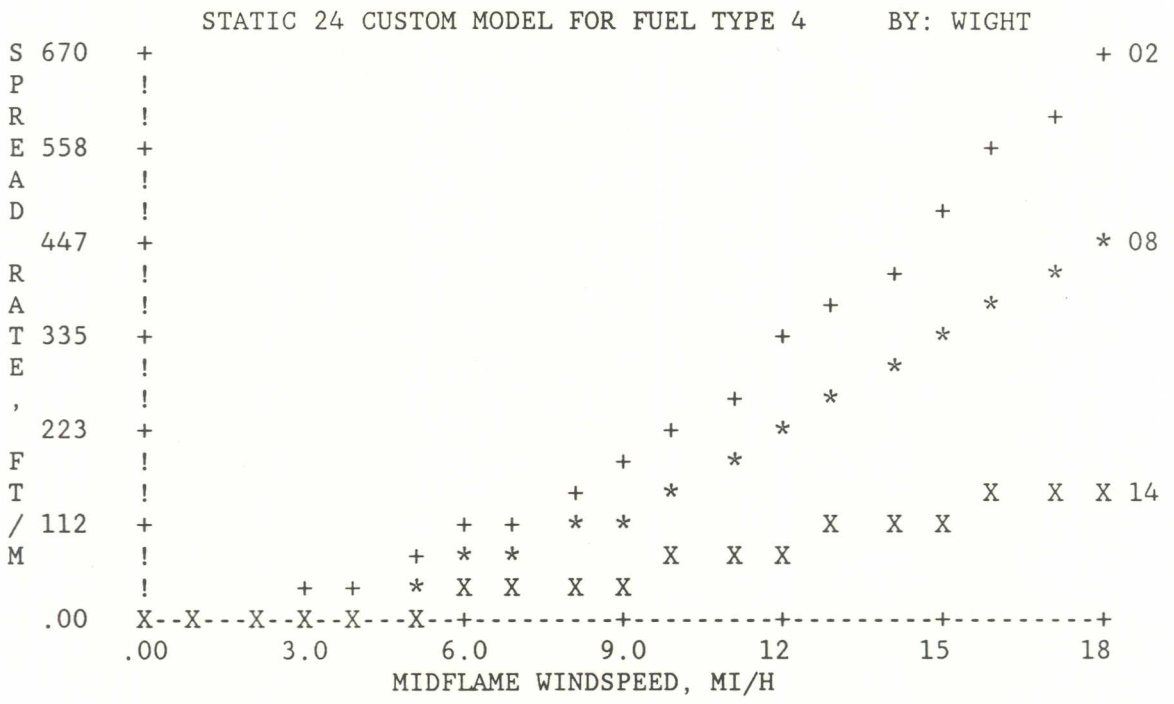
LOADS, T/AC		S/V RATIOS, 1/FT		OTHER	
1 HR	1.63	1 HR	3000.	DEPTH, FT	1.00
10 HR	0.32	LIVE HERB	1500.	HEAT CONTENT, BTU/LB	8000.
100 HR	0.64	LIVE WOODY	190.	EXT MOISTURE, %	15.
LIVE HERB	0.11	SIGMA	2811.	PACKING RATIO	0.00550
LIVE WOODY	1.13			PR/OPR	1.10

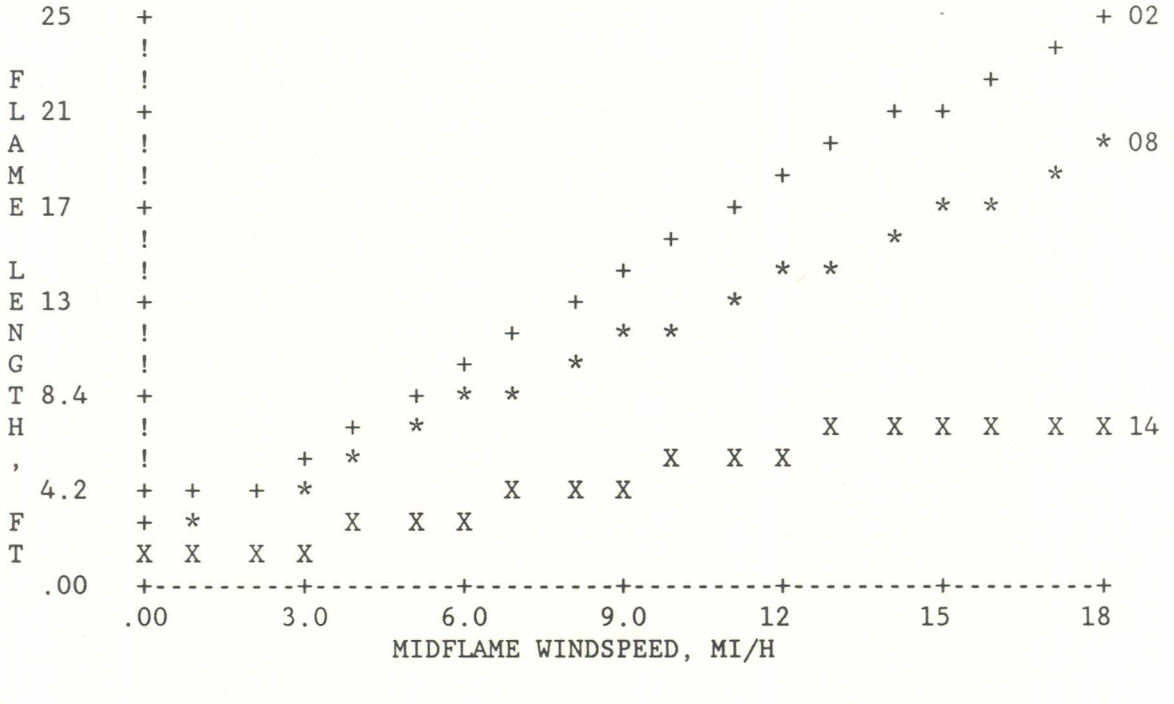
ENVIRONMENTAL DATA	
1 HR FM	8.
10 HR FM	13.
100 HR FM	12.
LIVE HERB FM	79.
LIVE WOODY FM	95.
WIND, MI/H	4.

FIRE BEHAVIOR RESULTS

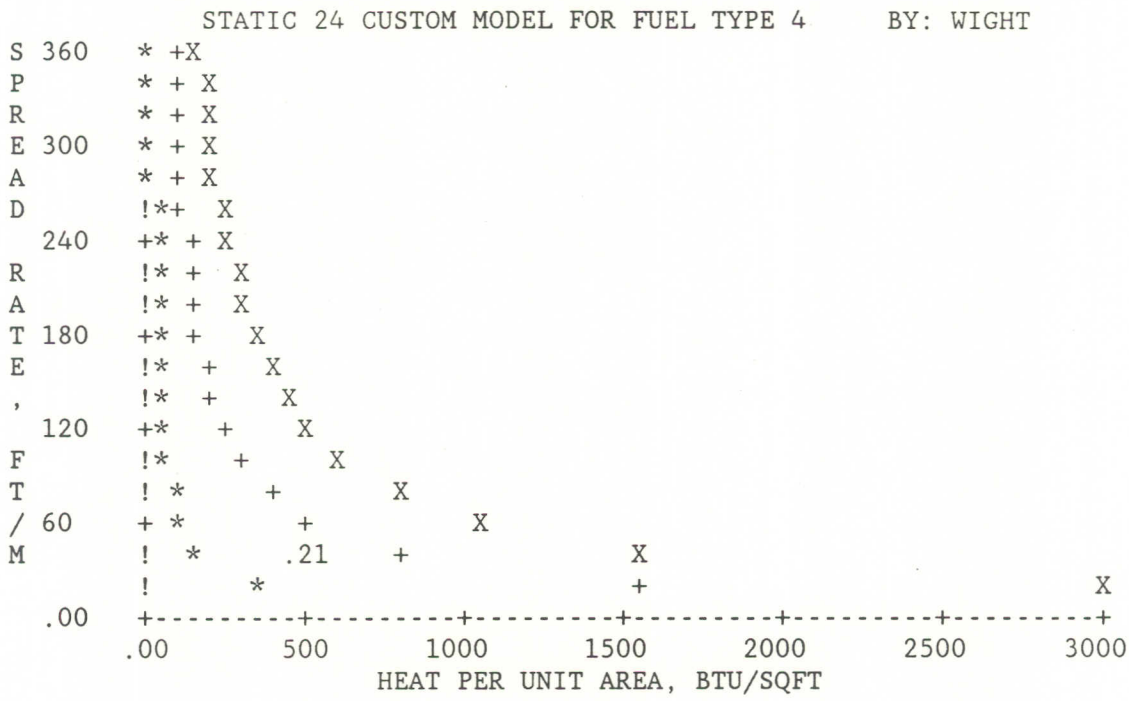
FIRE VARIABLE	SLOPE, % 3.	15.	50.
ROS (FT/M)	31.	33.	49.
FL (FEET)	6.	6.	7.
IR (BTU/SQFT/M)	3349.	3349.	3349.
H/A (BTU/SQFT)	458.	458.	458.
FLI (BTU/FT/S)	236.	248.	372.

JULY


STATIC 24 CUSTOM MODEL FOR FUEL TYPE 4 BY: WIGHT
SPREAD RATE, FT/M
670
558
447
335
223
112
.00
02
08
14
.00
3.0
6.0
9.0
12
15
18
MIDFLAME WINDSPEED, MI/H


STATIC 24 CUSTOM MODEL FOR FUEL TYPE 4 BY: WIGHT
FLAME LENGTH, FT
25
21
17
13
8.4
4.2
.00
02
08
14
.00
3.0
6.0
9.0
12
15
18
MIDFLAME WINDSPEED, MI/H

JULY


STATIC 24 CUSTOM MODEL FOR FUEL TYPE 4 BY: WIGHT
SPREAD, FT/MIN
360
300
240
180
120
60
.00
.00
500
1000
1500
2000
2500
3000
HEAT PER UNIT AREA, BTU/SQFT

AUGUST

STATIC 24. CUSTOM MODEL FOR FUEL TYPE 4 BY: WIGHT

LOADS, T/AC		S/V RATIOS, 1/FT		OTHER	
1 HR	1.63	1 HR	3000.	DEPTH, FT	1.00
10 HR	0.32	LIVE HERB	1500.	HEAT CONTENT, BTU/LB	8000.
100 HR	0.64	LIVE WOODY	190.	EXT MOISTURE, %	15.
LIVE HERB	0.11	SIGMA	2811.	PACKING RATIO	0.00550
LIVE WOODY	1.13			PR/OPR	1.10

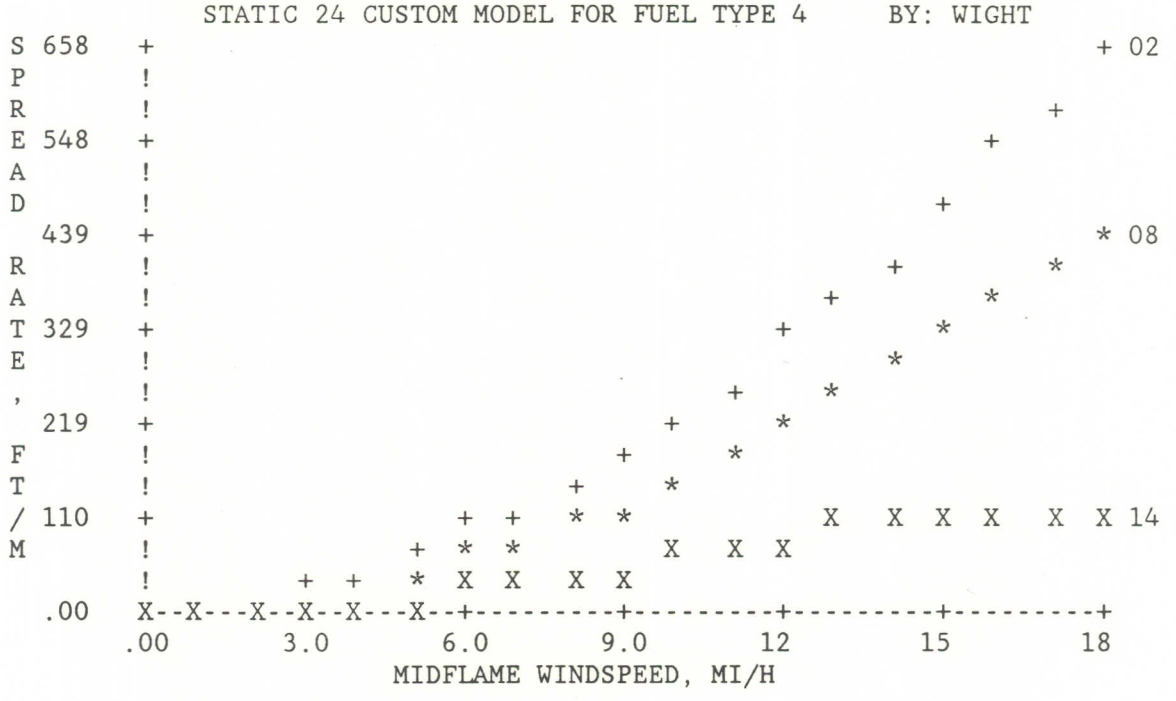
ENVIRONMENTAL DATA		FIRE BEHAVIOR RESULTS			
		FIRE	MIDFLAME WIND, MI/H		
1 HR FM	8.	VARIABLE	2.	4.	10.
10 HR FM	13.	ROS (FT/M)	12.	32.	153.
100 HR FM	14.	FL (FEET)	4.	6.	12.
LIVE HERB FM	78.	IR (BTU/SQFT/M)	3324.	3324.	3324.
LIVE WOODY FM	115.	H/A (BTU/SQFT)	454.	454.	454.
SLOPE, %	15.	FLI (BTU/FT/S)	91.	241.	1157.

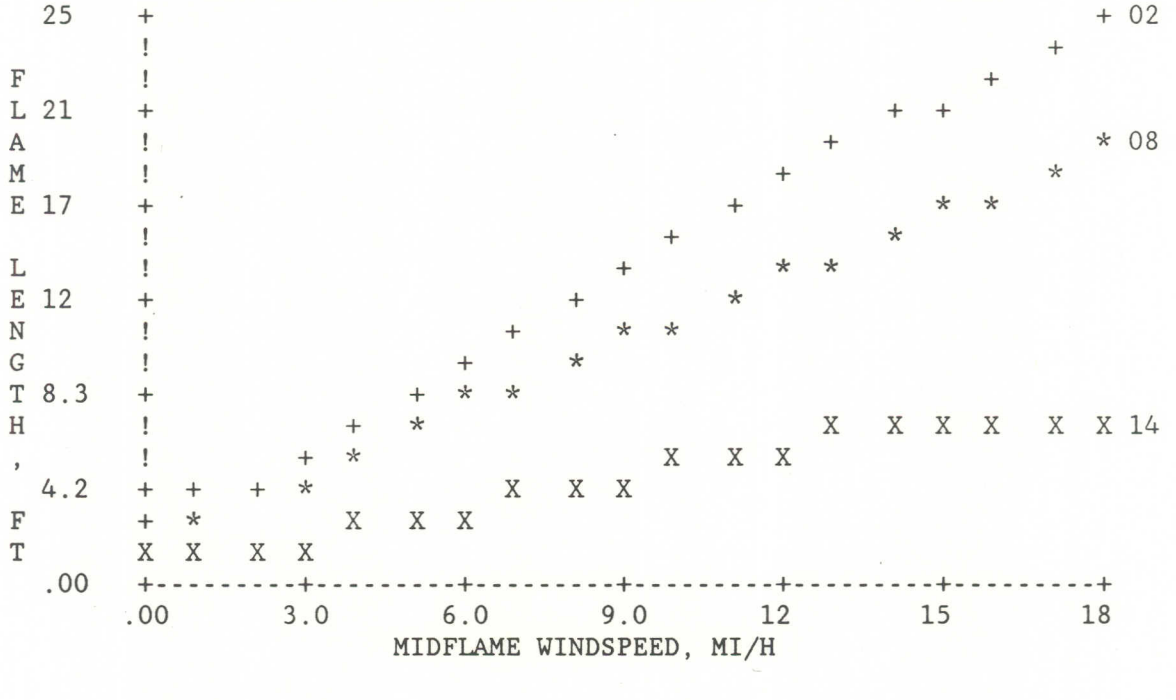
STATIC 24. CUSTOM MODEL FOR FUEL TYPE 4 BY: WIGHT

LOADS, T/AC		S/V RATIOS, 1/FT		OTHER	
1 HR	1.63	1 HR	3000.	DEPTH, FT	1.00
10 HR	0.32	LIVE HERB	1500.	HEAT CONTENT, BTU/LB	8000.
100 HR	0.64	LIVE WOODY	190.	EXT MOISTURE, %	15.
LIVE HERB	0.11	SIGMA	2811.	PACKING RATIO	0.00550
LIVE WOODY	1.13			PR/OPR	1.10

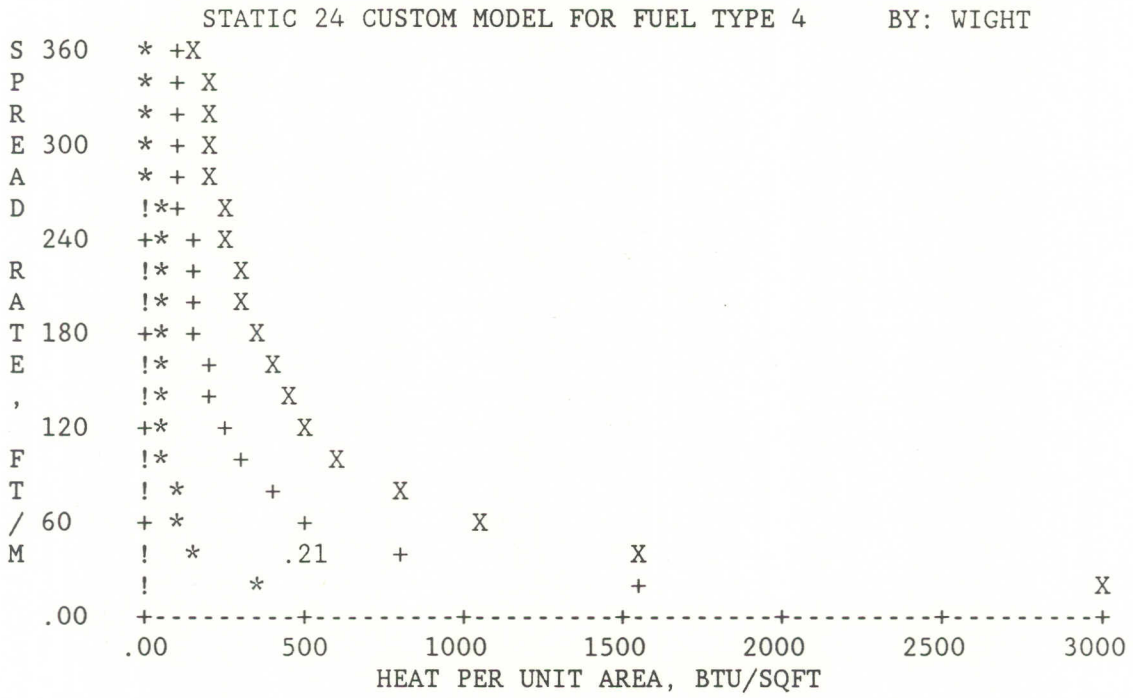
ENVIRONMENTAL DATA		FIRE BEHAVIOR RESULTS			
		FIRE	SLOPE, %		
1 HR FM	8.	VARIABLE	3.	15.	50.
10 HR FM	13.	ROS (FT/M)	30.	32.	48.
100 HR FM	14.	FL (FEET)	5.	6.	7.
LIVE HERB FM	78.	IR (BTU/SQFT/M)	3324.	3324.	3324.
LIVE WOODY FM	115.	H/A (BTU/SQFT)	454.	454.	454.
WIND, MI/H	4.	FLI (BTU/FT/S)	230.	241.	362.

AUGUST


STATIC 24 CUSTOM MODEL FOR FUEL TYPE 4 BY: WIGHT
SPREAD RATE, FT/M
S 658
548
439
329
219
110
.00
02
08
14
.00
3.0
6.0
9.0
12
15
18
MIDFLAME WINDSPEED, MI/H


STATIC 24 CUSTOM MODEL FOR FUEL TYPE 4 BY: WIGHT
FLAME LENGTH, FT
25
21
17
12
8.3
4.2
.00
02
08
14
.00
3.0
6.0
9.0
12
15
18
MIDFLAME WINDSPEED, MI/H

AUGUST


STATIC 24 CUSTOM MODEL FOR FUEL TYPE 4 BY: WIGHT
SPREAD, FT/MIN
360
300
240
180
120
60
.00
.21
.00
500
1000
1500
2000
2500
3000
HEAT PER UNIT AREA, BTU/SQFT

SEPTEMBER

STATIC 24. CUSTOM MODEL FOR FUEL TYPE 4 BY: WIGHT

LOADS, T/AC		S/V RATIOS, 1/FT		OTHER	
1 HR	1.63	1 HR	3000.	DEPTH, FT	1.00
10 HR	0.32	LIVE HERB	1500.	HEAT CONTENT, BTU/LB	8000.
100 HR	0.64	LIVE WOODY	190.	EXT MOISTURE, %	15.
LIVE HERB	0.11	SIGMA	2811.	PACKING RATIO	0.00550
LIVE WOODY	1.13			PR/OPR	1.10

ENVIRONMENTAL DATA	
1 HR FM	8.
10 HR FM	14.
100 HR FM	14.
LIVE HERB FM	58.
LIVE WOODY FM	103.
SLOPE, %	15.

FIRE BEHAVIOR RESULTS

FIRE VARIABLE	MIDFLAME WIND, MI/H 2.	4.	10.
ROS (FT/M)	12.	33.	158.
FL (FEET)	4.	6.	12.
IR (BTU/SQFT/M)	3358.	3358.	3358.
H/A (BTU/SQFT)	459.	459.	459.
FLI (BTU/FT/S)	96.	253.	1211.

STATIC 24. CUSTOM MODEL FOR FUEL TYPE 4 BY: WIGHT

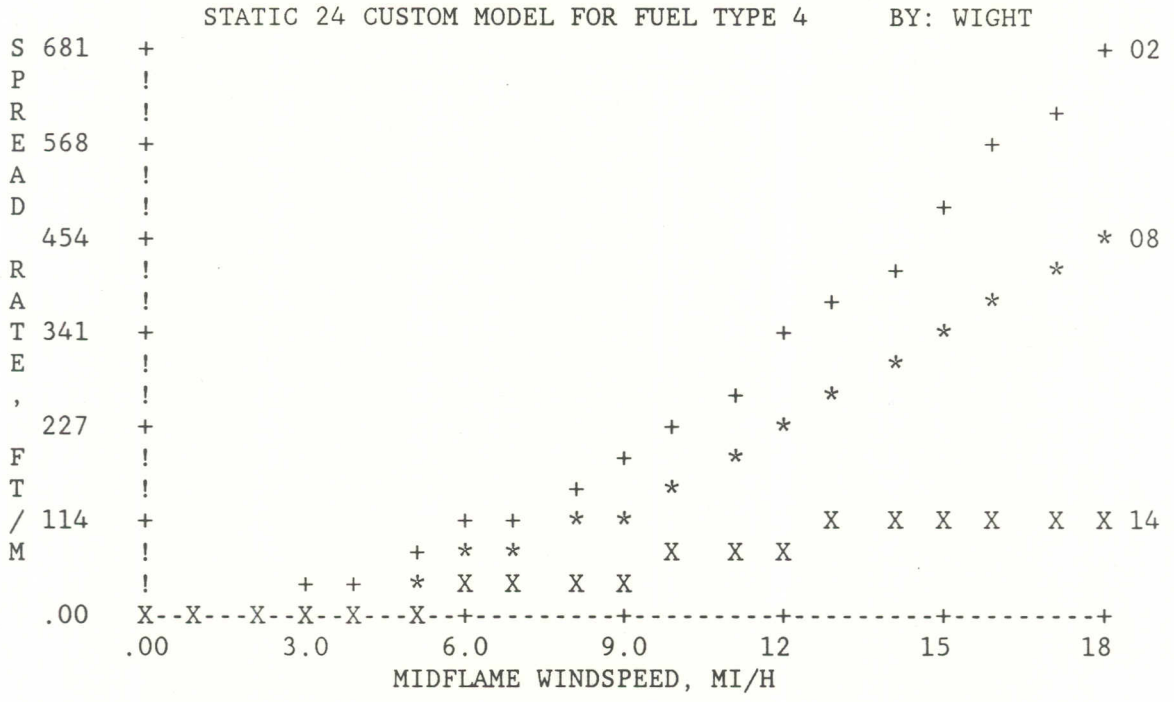
LOADS, T/AC		S/V RATIOS, 1/FT		OTHER	
1 HR	1.63	1 HR	3000.	DEPTH, FT	1.00
10 HR	0.32	LIVE HERB	1500.	HEAT CONTENT, BTU/LB	8000.
100 HR	0.64	LIVE WOODY	190.	EXT MOISTURE, %	15.
LIVE HERB	0.11	SIGMA	2811.	PACKING RATIO	0.00550
LIVE WOODY	1.13			PR/OPR	1.10

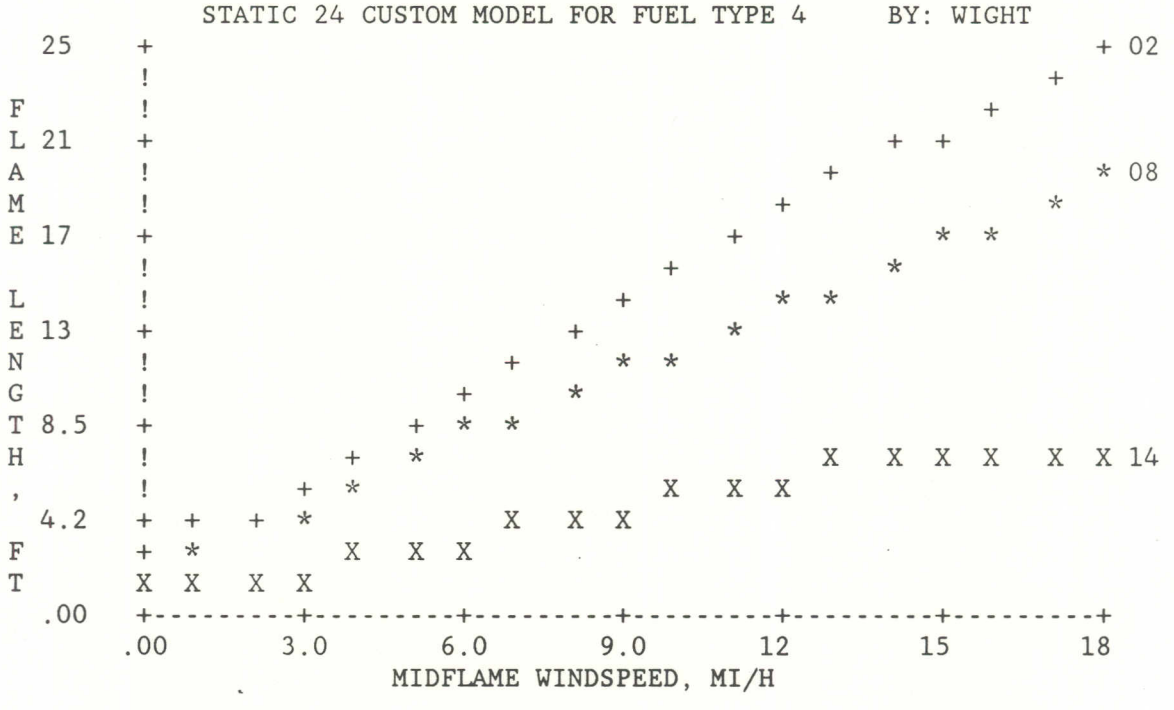
ENVIRONMENTAL DATA	
1 HR FM	8.
10 HR FM	14.
100 HR FM	14.
LIVE HERB FM	58.
LIVE WOODY FM	103.
WIND, MI/H	4.

FIRE BEHAVIOR RESULTS

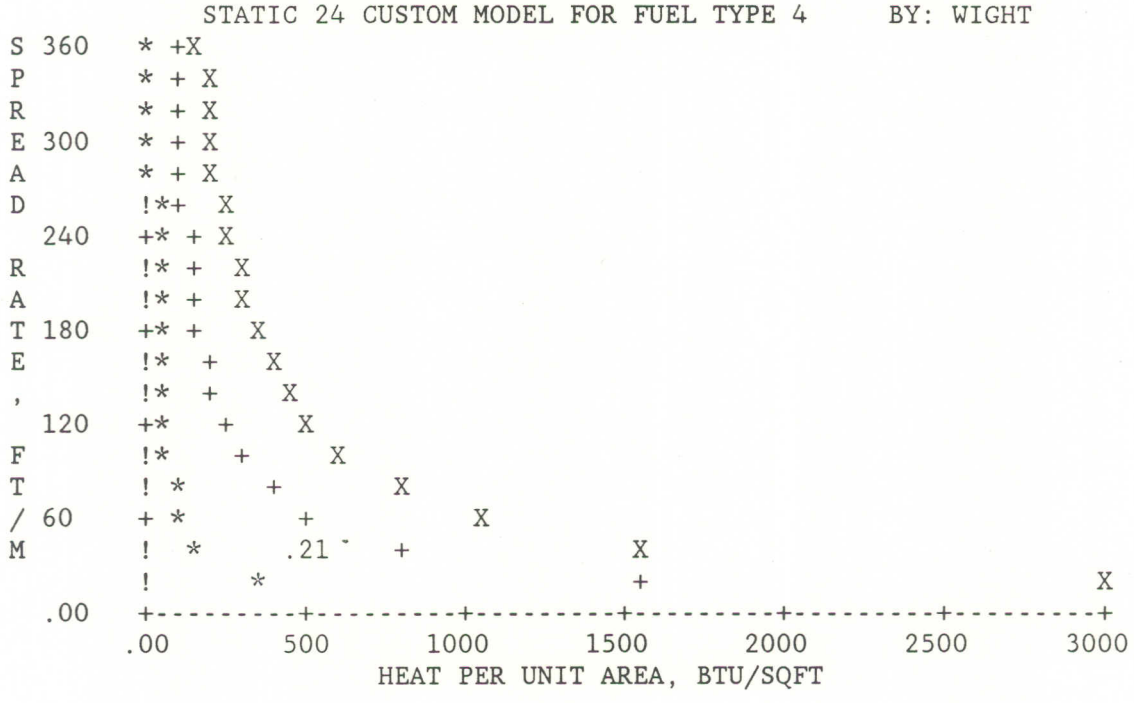
FIRE VARIABLE	SLOPE, % 3.	15.	50.
ROS (FT/M)	31.	33.	50.
FL (FEET)	6.	6.	7.
IR (BTU/SQFT/M)	3358.	3358.	3358.
H/A (BTU/SQFT)	459.	459.	459.
FLI (BTU/FT/S)	241.	253.	379.

SEPTEMBER


STATIC 24 CUSTOM MODEL FOR FUEL TYPE 4 BY: WIGHT
SPREAD RATE, FT/M
681
568
454
341
227
114
.00
02
08
14
.00
3.0
6.0
9.0
12
15
18
MIDFLAME WINDSPEED, MI/H


STATIC 24 CUSTOM MODEL FOR FUEL TYPE 4 BY: WIGHT
FLAME LENGTH, FT
25
21
17
13
8.5
4.2
.00
02
08
14
.00
3.0
6.0
9.0
12
15
18
MIDFLAME WINDSPEED, MI/H

SEPTEMBER


STATIC 24 CUSTOM MODEL FOR FUEL TYPE 4 BY: WIGHT
SPREAD RATE, FT/MIN
360
300
240
180
120
60
.00
.21
.00
500
1000
1500
2000
2500
3000
HEAT PER UNIT AREA, BTU/SQFT

WORST CASE SCENARIO

STATIC 24. CUSTOM MODEL FOR FUEL TYPE 4 BY: WIGHT

LOADS, T/AC		S/V RATIOS, 1/FT		OTHER	
1 HR	1.63	1 HR	3000.	DEPTH, FT	1.00
10 HR	0.32	LIVE HERB	1500.	HEAT CONTENT, BTU/LB	8000.
100 HR	0.64	LIVE WOODY	190.	EXT MOISTURE, %	15.
LIVE HERB	0.11	SIGMA	2811.	PACKING RATIO	0.00550
LIVE WOODY	1.13			PR/OPR	1.10

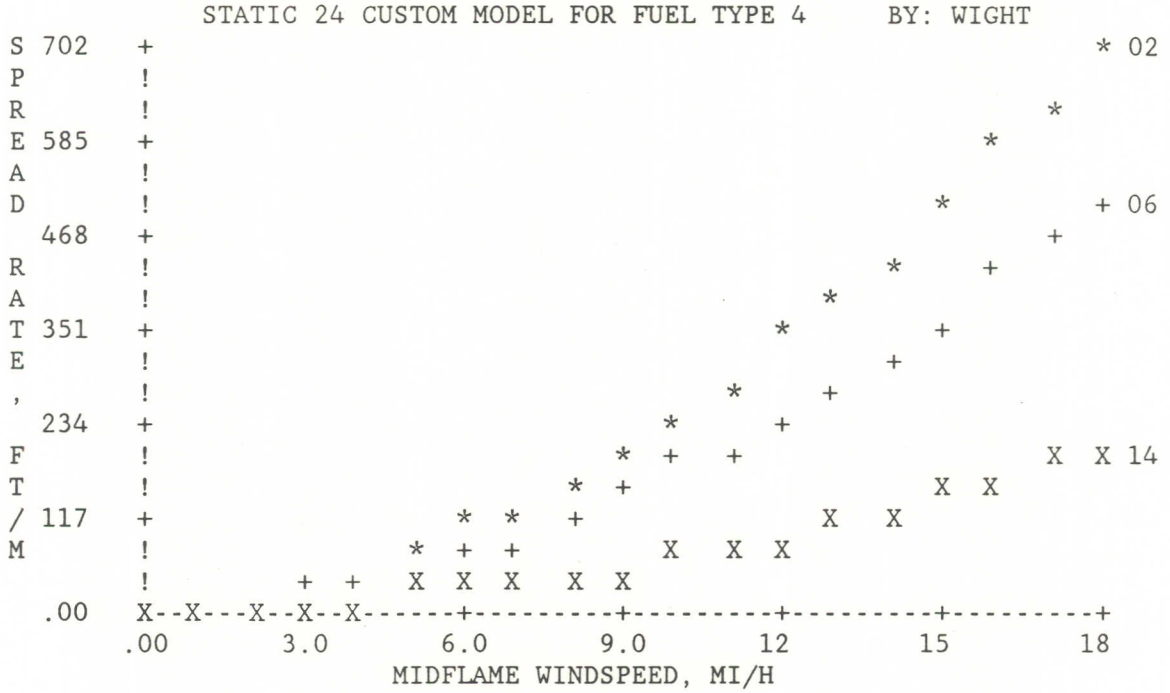
ENVIRONMENTAL DATA		FIRE BEHAVIOR RESULTS			
		FIRE	MIDFLAME WIND, MI/H		
1 HR FM	2.	VARIABLE	2.	4.	10.
10 HR FM	2.	ROS (FT/M)	19.	51.	243.
100 HR FM	7.	FL (FEET)	5.	8.	16.
LIVE HERB FM	60.	IR (BTU/SQFT/M)	4218.	4218.	4218.
LIVE WOODY FM	80.	H/A (BTU/SQFT)	576.	576.	576.
SLOPE, %	15.	FLI (BTU/FT/S)	184.	486.	2332.

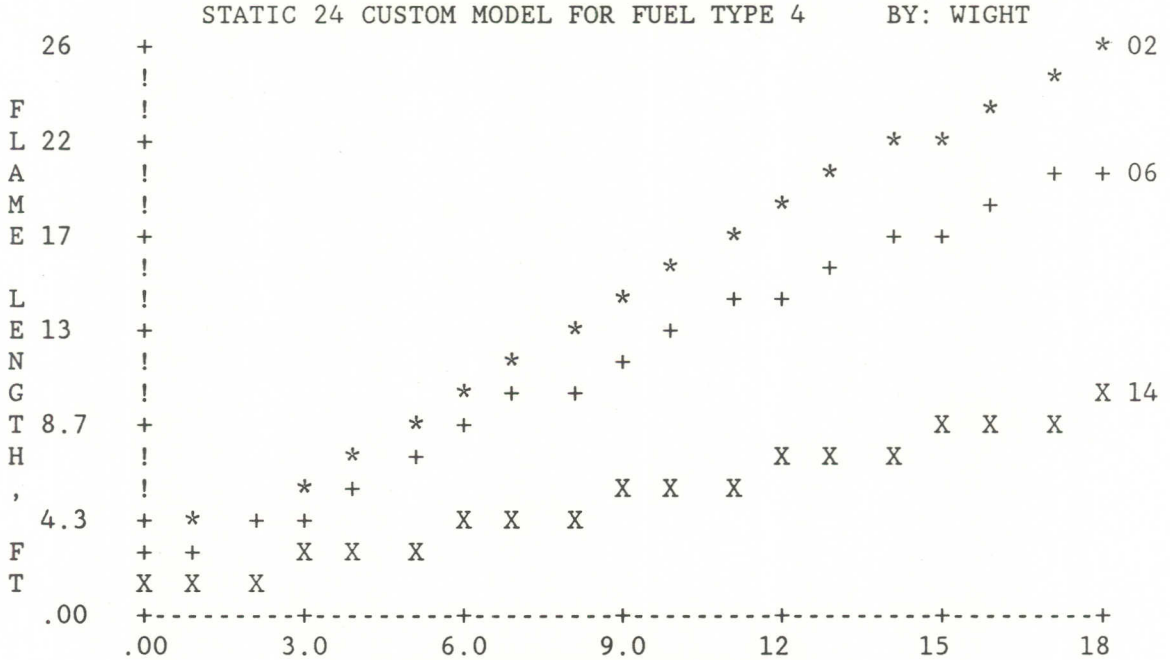
STATIC 24. CUSTOM MODEL FOR FUEL TYPE 4 BY: WIGHT

LOADS, T/AC		S/V RATIOS, 1/FT		OTHER	
1 HR	1.63	1 HR	3000.	DEPTH, FT	1.00
10 HR	0.32	LIVE HERB	1500.	HEAT CONTENT, BTU/LB	8000.
100 HR	0.64	LIVE WOODY	190.	EXT MOISTURE, %	15.
LIVE HERB	0.11	SIGMA	2811.	PACKING RATIO	0.00550
LIVE WOODY	1.13			PR/OPR	1.10

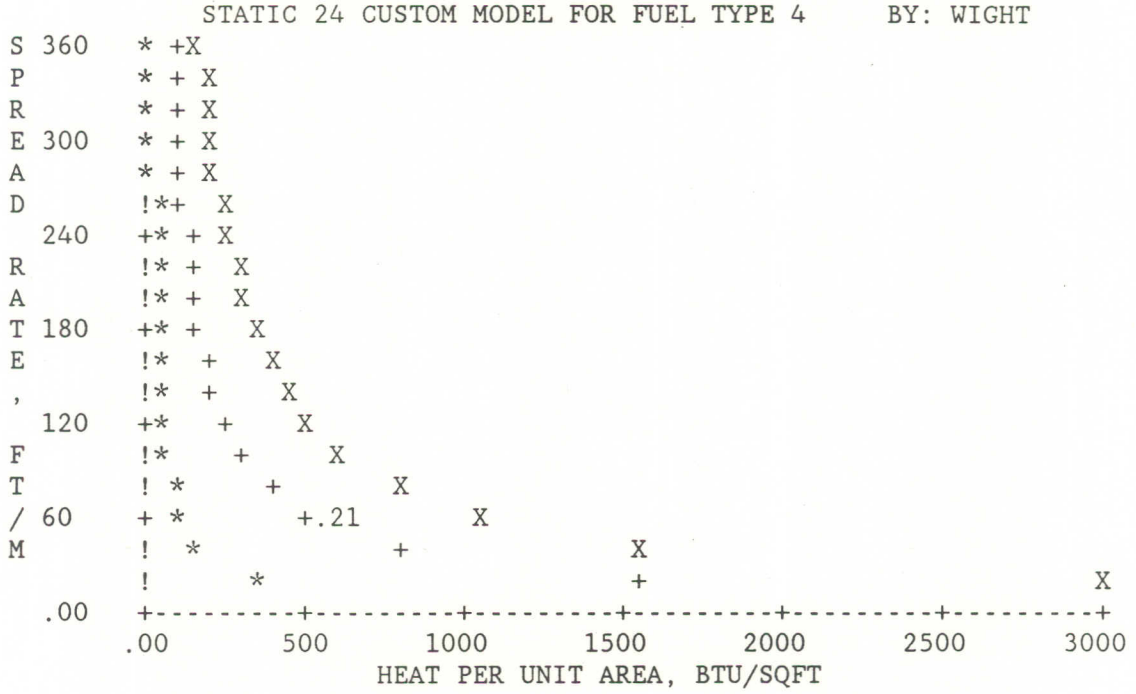
ENVIRONMENTAL DATA		FIRE BEHAVIOR RESULTS			
		FIRE	SLOPE, %		
1 HR FM	2.	VARIABLE	3.	15.	50.
10 HR FM	2.	ROS (FT/M)	48.	51.	76.
100 HR FM	7.	FL (FEET)	8.	8.	9.
LIVE HERB FM	60.	IR (BTU/SQFT/M)	4218.	4218.	4218.
LIVE WOODY FM	80.	H/A (BTU/SQFT)	576.	576.	576.
WIND, MI/H	4.	FLI (BTU/FT/S)	463.	486.	730.

WORST CASE SCENARIO





WORST CASE SCENARIO



MAY

STATIC 25. CUSTOM MODEL FOR FUEL TYPE 5 BY: WIGHT

LOADS, T/AC		S/V RATIOS, 1/FT		OTHER	
1 HR	1.26	1 HR	1759.	DEPTH, FT	2.00
10 HR	0.57	LIVE HERB	190.	HEAT CONTENT, BTU/LB	8000.
100 HR	0.90	LIVE WOODY	190.	EXT MOISTURE, %	25.
LIVE HERB	0.03	SIGMA	1606.	PACKING RATIO	0.00250
LIVE WOODY	0.73			PR/OPR	0.32

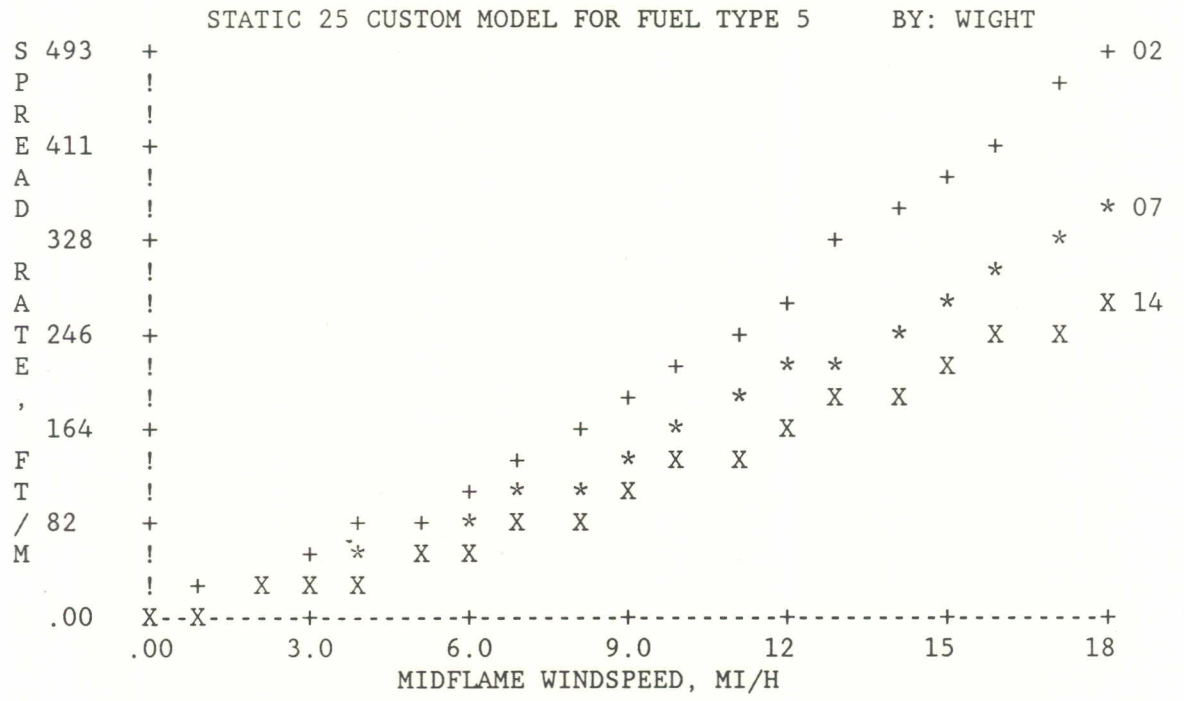
ENVIRONMENTAL DATA		FIRE BEHAVIOR RESULTS			
		FIRE	MIDFLAME WIND, MI/H		
1 HR FM	7.	VARIABLE	2.	4.	10.
10 HR FM	10.	ROS (FT/M)	22.	50.	163.
100 HR FM	13.	FL (FEET)	5.	8.	14.
LIVE HERB FM	118.	IR (BTU/SQFT/M)	2610.	2610.	2610.
LIVE WOODY FM	122.	H/A (BTU/SQFT)	624.	624.	624.
SLOPE, %	12.	FLI (BTU/FT/S)	230.	519.	1695.

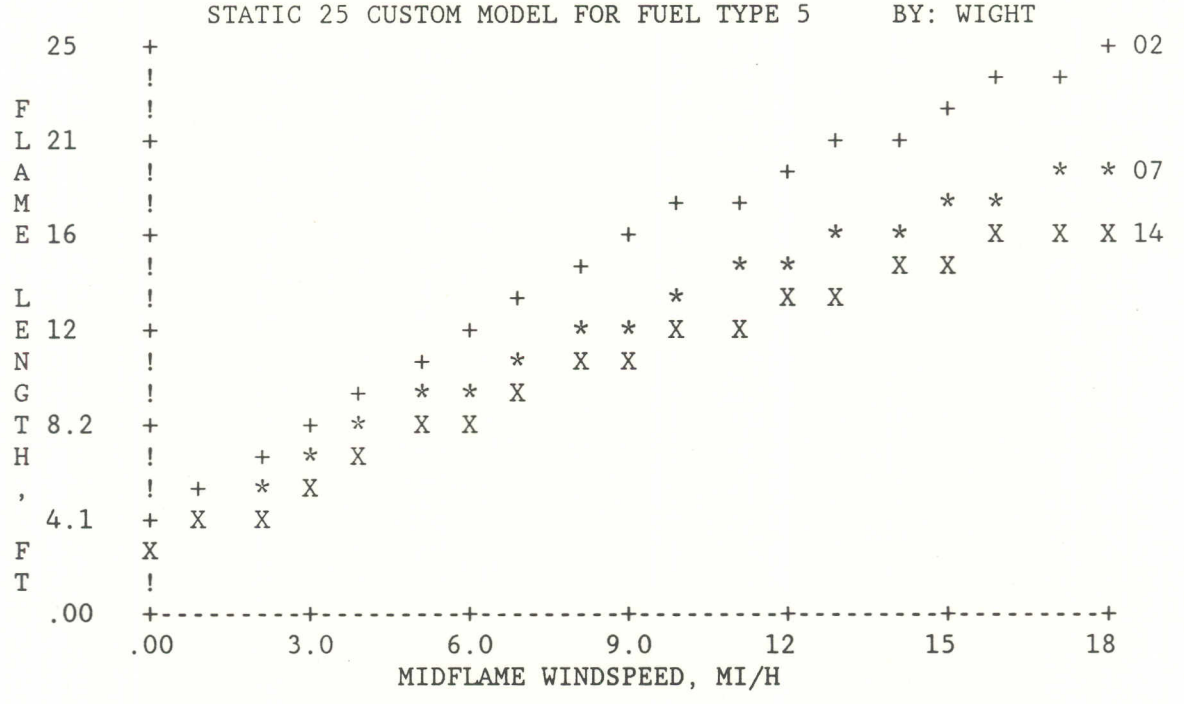
STATIC 25. CUSTOM MODEL FOR FUEL TYPE 5 BY: WIGHT

LOADS, T/AC		S/V RATIOS, 1/FT		OTHER	
1 HR	1.26	1 HR	1759.	DEPTH, FT	2.00
10 HR	0.57	LIVE HERB	190.	HEAT CONTENT, BTU/LB	8000.
100 HR	0.90	LIVE WOODY	190.	EXT MOISTURE, %	25.
LIVE HERB	0.03	SIGMA	1606.	PACKING RATIO	0.00250
LIVE WOODY	0.73			PR/OPR	0.32

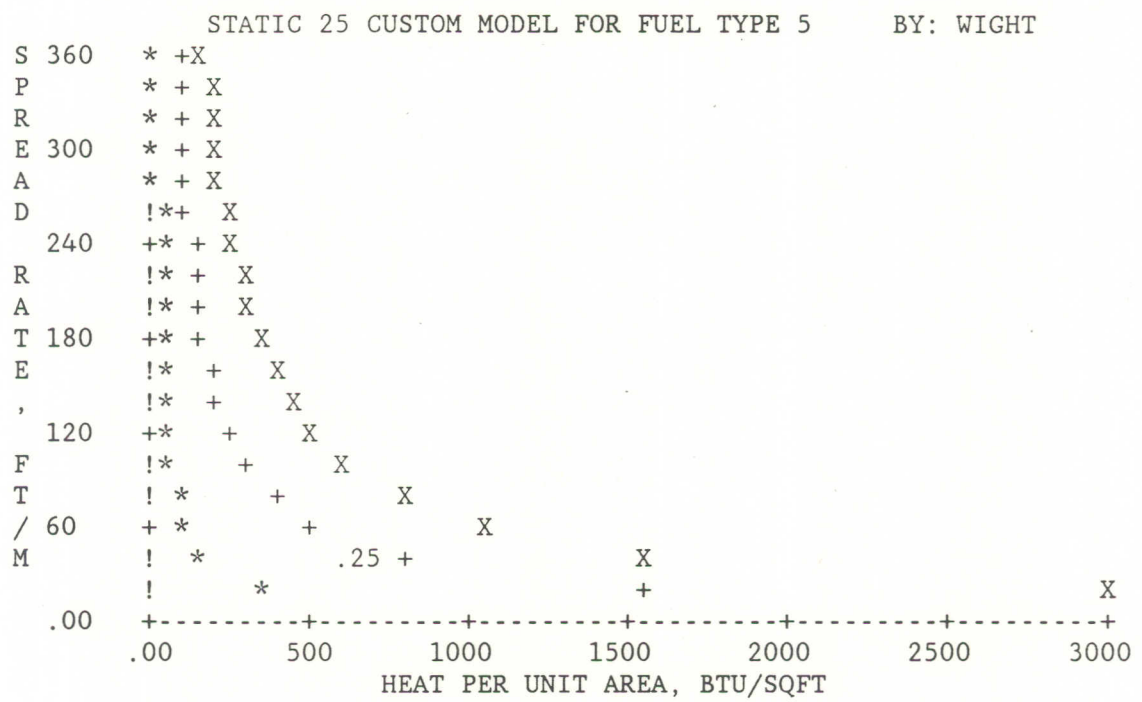
ENVIRONMENTAL DATA		FIRE BEHAVIOR RESULTS			
		FIRE	SLOPE, %		
1 HR FM	7.	VARIABLE	2.	12.	45.
10 HR FM	10.	ROS (FT/M)	49.	50.	68.
100 HR FM	13.	FL (FEET)	8.	8.	9.
LIVE HERB FM	118.	IR (BTU/SQFT/M)	2610.	2610.	2610.
LIVE WOODY FM	122.	H/A (BTU/SQFT)	624.	624.	624.
WIND, MI/H	4.	FLI (BTU/FT/S)	506.	519.	703.

MAY


STATIC 25 CUSTOM MODEL FOR FUEL TYPE 5 BY: WIGHT
SPREAD RATE, FT/M
493
411
328
246
164
82
.00
02
07
14
.00
3.0
6.0
9.0
12
15
18
MIDFLAME WINDSPEED, MI/H


STATIC 25 CUSTOM MODEL FOR FUEL TYPE 5 BY: WIGHT
25
FLAME LENGTH, FT
21
16
12
8.2
4.1
.00
02
07
14
.00
3.0
6.0
9.0
12
15
18
MIDFLAME WINDSPEED, MI/H

MAY


STATIC 25 CUSTOM MODEL FOR FUEL TYPE 5 BY: WIGHT
SPREAD RATE, FT/MIN
360
300
240
180
120
60
.00
.25
.00
500
1000
1500
2000
2500
3000
HEAT PER UNIT AREA, BTU/SQFT

JUNE

STATIC 25. CUSTOM MODEL FOR FUEL TYPE 5 BY: WIGHT

LOADS, T/AC		S/V RATIOS, 1/FT		OTHER	
1 HR	1.26	1 HR	1759.	DEPTH, FT	2.00
10 HR	0.57	LIVE HERB	190.	HEAT CONTENT, BTU/LB	8000.
100 HR	0.90	LIVE WOODY	190.	EXT MOISTURE, %	25.
LIVE HERB	0.03	SIGMA	1606.	PACKING RATIO	0.00250
LIVE WOODY	0.73			PR/OPR	0.32

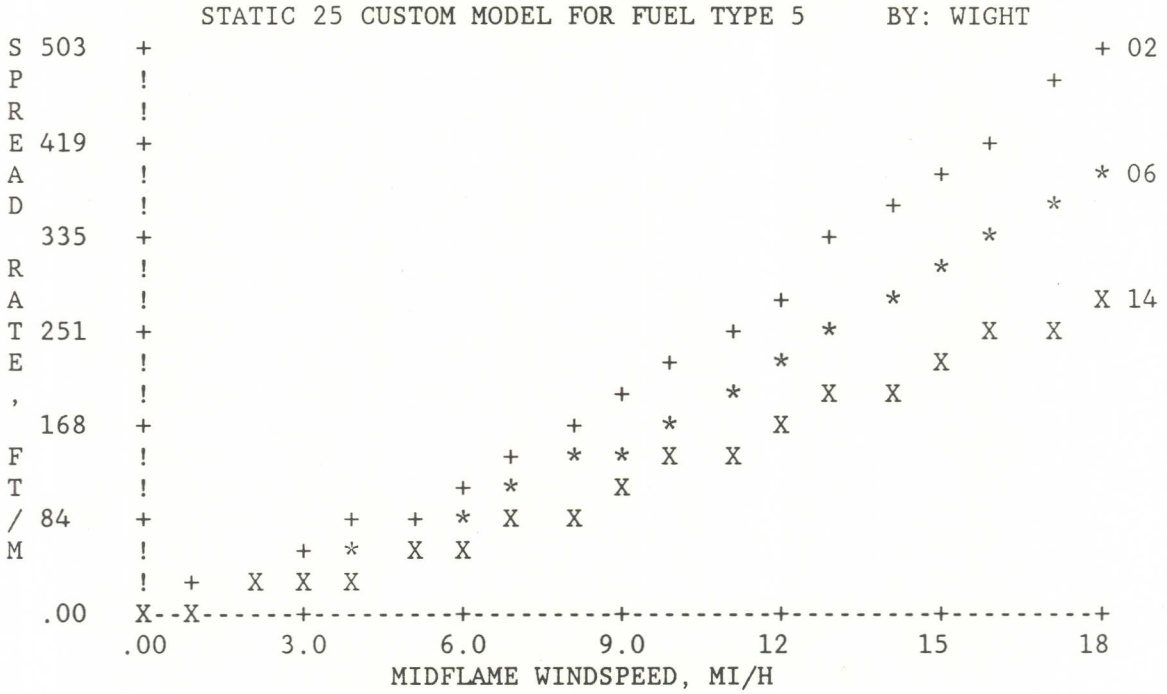
ENVIRONMENTAL DATA		FIRE BEHAVIOR RESULTS			
		FIRE	MIDFLAME WIND, MI/H		
1 HR FM	6.	VARIABLE	2.	4.	10.
10 HR FM	8.	---	---	---	---
100 HR FM	10.	ROS (FT/M)	24.	53.	174.
LIVE HERB FM	101.	FL (FEET)	6.	8.	14.
LIVE WOODY FM	111.	IR (BTU/SQFT/M)	2680.	2680.	2680.
		H/A (BTU/SQFT)	641.	641.	641.
SLOPE, %	12.	FLI (BTU/FT/S)	252.	571.	1863.

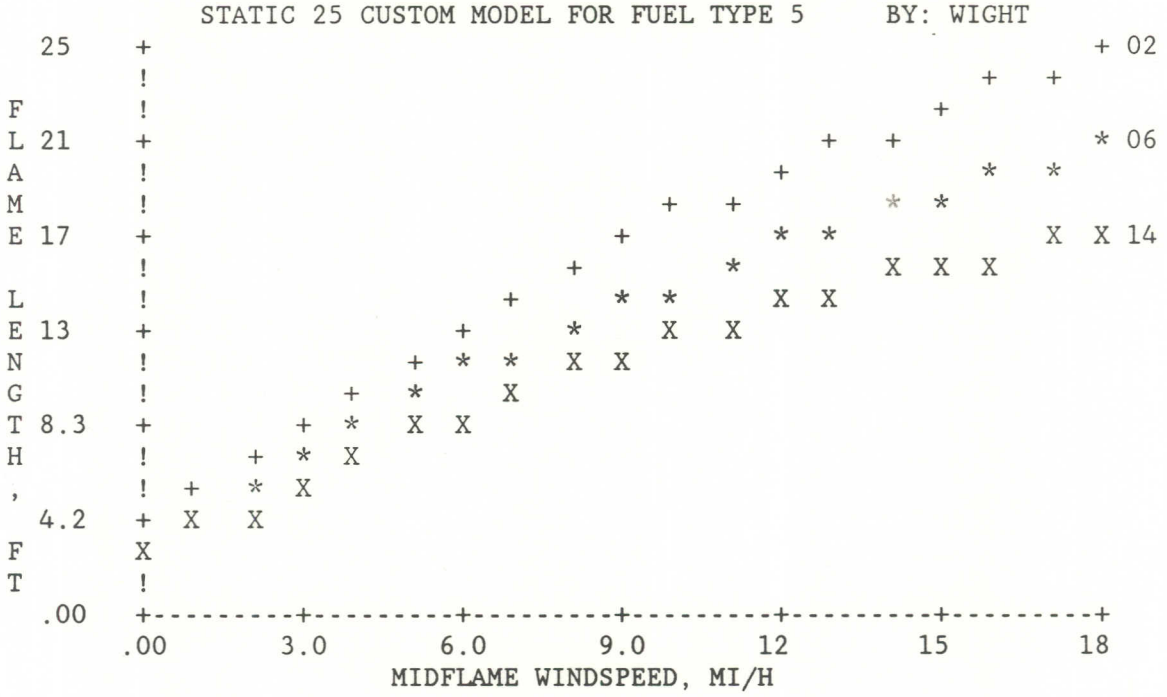
STATIC 25. CUSTOM MODEL FOR FUEL TYPE 5 BY: WIGHT

LOADS, T/AC		S/V RATIOS, 1/FT		OTHER	
1 HR	1.26	1 HR	1759.	DEPTH, FT	2.00
10 HR	0.57	LIVE HERB	190.	HEAT CONTENT, BTU/LB	8000.
100 HR	0.90	LIVE WOODY	190.	EXT MOISTURE, %	25.
LIVE HERB	0.03	SIGMA	1606.	PACKING RATIO	0.00250
LIVE WOODY	0.73			PR/OPR	0.32

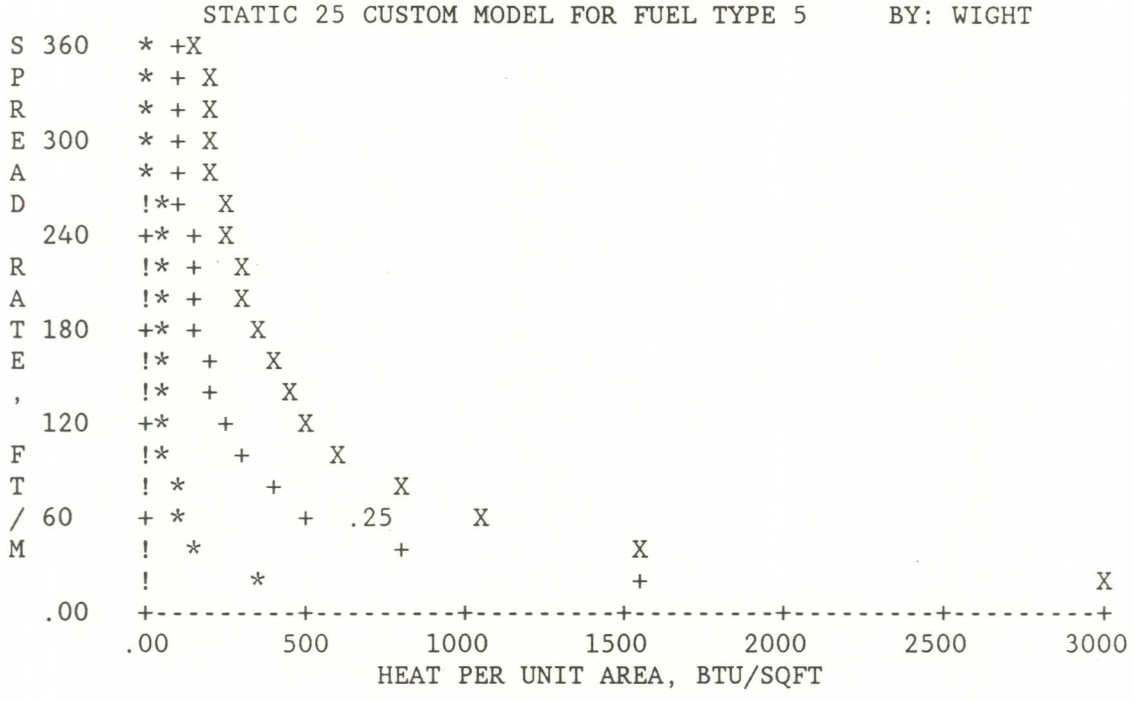
ENVIRONMENTAL DATA		FIRE BEHAVIOR RESULTS			
		FIRE	SLOPE, %		
1 HR FM	6.	VARIABLE	2.	12.	45.
10 HR FM	8.	---	---	---	---
100 HR FM	10.	ROS (FT/M)	52.	53.	72.
LIVE HERB FM	101.	FL (FEET)	8.	8.	10.
LIVE WOODY FM	111.	IR (BTU/SQFT/M)	2680.	2680.	2680.
WIND, MI/H	4.	H/A (BTU/SQFT)	641.	641.	641.
		FLI (BTU/FT/S)	556.	571.	773.

JUNE


STATIC 25 CUSTOM MODEL FOR FUEL TYPE 5 BY: WIGHT
SPREAD RATE, FT/M
503
419
335
251
168
84
.00
02
06
14
.00
3.0
6.0
9.0
12
15
18
MIDFLAME WINDSPEED, MI/H


STATIC 25 CUSTOM MODEL FOR FUEL TYPE 5 BY: WIGHT
FLAME LENGTH, FT
25
21
17
13
8.3
4.2
.00
02
06
14
.00
3.0
6.0
9.0
12
15
18
MIDFLAME WINDSPEED, MI/H

JUNE


STATIC 25 CUSTOM MODEL FOR FUEL TYPE 5 BY: WIGHT
SPREAD RATE, FT/MIN
360
300
240
180
120
60
.00
.25
.00
500
1000
1500
2000
2500
3000
HEAT PER UNIT AREA, BTU/SQFT

JULY

STATIC 25. CUSTOM MODEL FOR FUEL TYPE 5 BY: WIGHT

LOADS, T/AC		S/V RATIOS, 1/FT		OTHER	
1 HR	1.26	1 HR	1759.	DEPTH, FT	2.00
10 HR	0.57	LIVE HERB	190.	HEAT CONTENT, BTU/LB	8000.
100 HR	0.90	LIVE WOODY	190.	EXT MOISTURE, %	25.
LIVE HERB	0.03	SIGMA	1606.	PACKING RATIO	0.00250
LIVE WOODY	0.73			PR/OPR	0.32

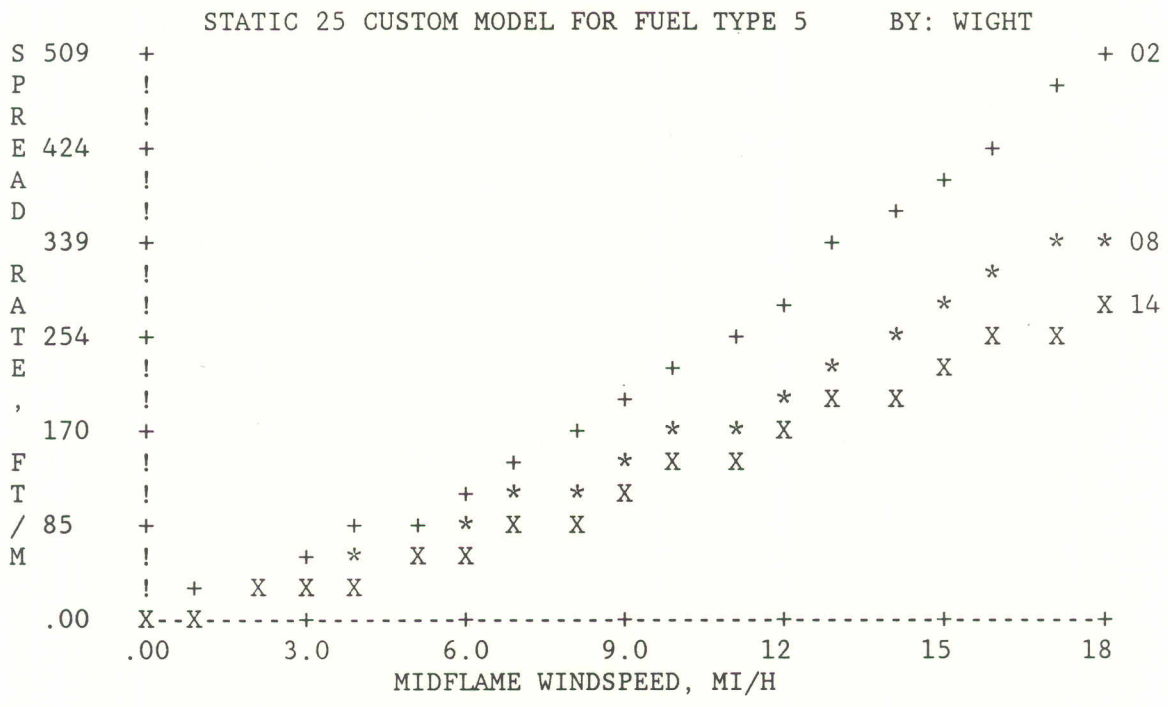
ENVIRONMENTAL DATA		FIRE BEHAVIOR RESULTS			
		FIRE	MIDFLAME WIND, MI/H		
1 HR FM	8.	VARIABLE	2.	4.	10.
10 HR FM	13.	ROS (FT/M)	22.	49.	161.
100 HR FM	12.	FL (FEET)	5.	8.	14.
LIVE HERB FM	79.	IR (BTU/SQFT/M)	2582.	2582.	2582.
LIVE WOODY FM	95.	H/A (BTU/SQFT)	618.	618.	618.
SLOPE, %	12.	FLI (BTU/FT/S)	224.	507.	1655.

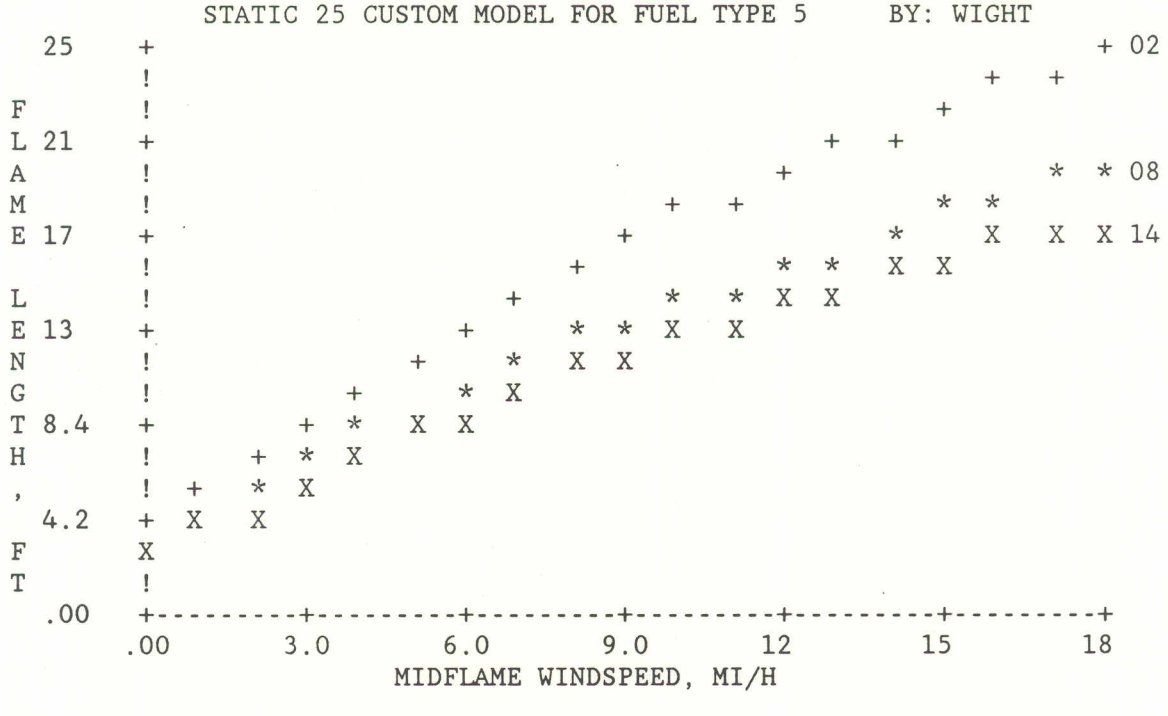
STATIC 25. CUSTOM MODEL FOR FUEL TYPE 5 BY: WIGHT

LOADS, T/AC		S/V RATIOS, 1/FT		OTHER	
1 HR	1.26	1 HR	1759.	DEPTH, FT	2.00
10 HR	0.57	LIVE HERB	190.	HEAT CONTENT, BTU/LB	8000.
100 HR	0.90	LIVE WOODY	190.	EXT MOISTURE, %	25.
LIVE HERB	0.03	SIGMA	1606.	PACKING RATIO	0.00250
LIVE WOODY	0.73			PR/OPR	0.32

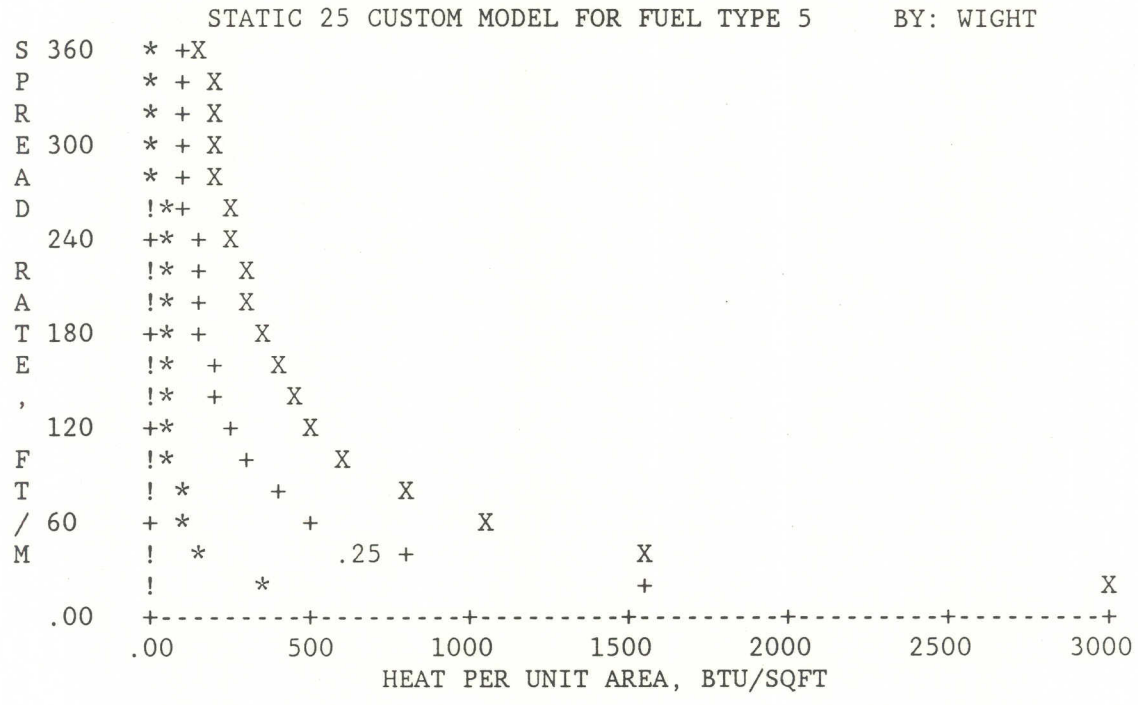
ENVIRONMENTAL DATA		FIRE BEHAVIOR RESULTS			
		FIRE	SLOPE, %		
1 HR FM	8.	VARIABLE	2.	12.	45.
10 HR FM	13.	ROS (FT/M)	48.	49.	67.
100 HR FM	12.	FL (FEET)	8.	8.	9.
LIVE HERB FM	79.	IR (BTU/SQFT/M)	2582.	2582.	2582.
LIVE WOODY FM	95.	H/A (BTU/SQFT)	618.	618.	618.
WIND, MI/H	4.	FLI (BTU/FT/S)	494.	507.	686.

JULY


STATIC 25 CUSTOM MODEL FOR FUEL TYPE 5 BY: WIGHT
SPREAD RATE, FT/M
509
424
339
254
170
85
.00
02
08
14
.00
3.0
6.0
9.0
12
15
18
MIDFLAME WINDSPEED, MI/H


STATIC 25 CUSTOM MODEL FOR FUEL TYPE 5 BY: WIGHT
FLAME LENGTH, FT
25
21
17
13
8.4
4.2
.00
02
08
14
.00
3.0
6.0
9.0
12
15
18
MIDFLAME WINDSPEED, MI/H

JULY


STATIC 25 CUSTOM MODEL FOR FUEL TYPE 5 BY: WIGHT
SPREAD RATE, FT/MIN
360
300
240
180
120
60
.00
.25
.00
500
1000
1500
2000
2500
3000
HEAT PER UNIT AREA, BTU/SQFT

AUGUST

STATIC 25. CUSTOM MODEL FOR FUEL TYPE 5 BY: WIGHT

LOADS, T/AC		S/V RATIOS, 1/FT		OTHER	
1 HR	1.26	1 HR	1759.	DEPTH, FT	2.00
10 HR	0.57	LIVE HERB	190.	HEAT CONTENT, BTU/LB	8000.
100 HR	0.90	LIVE WOODY	190.	EXT MOISTURE, %	25.
LIVE HERB	0.03	SIGMA	1606.	PACKING RATIO	0.00250
LIVE WOODY	0.73			PR/OPR	0.32

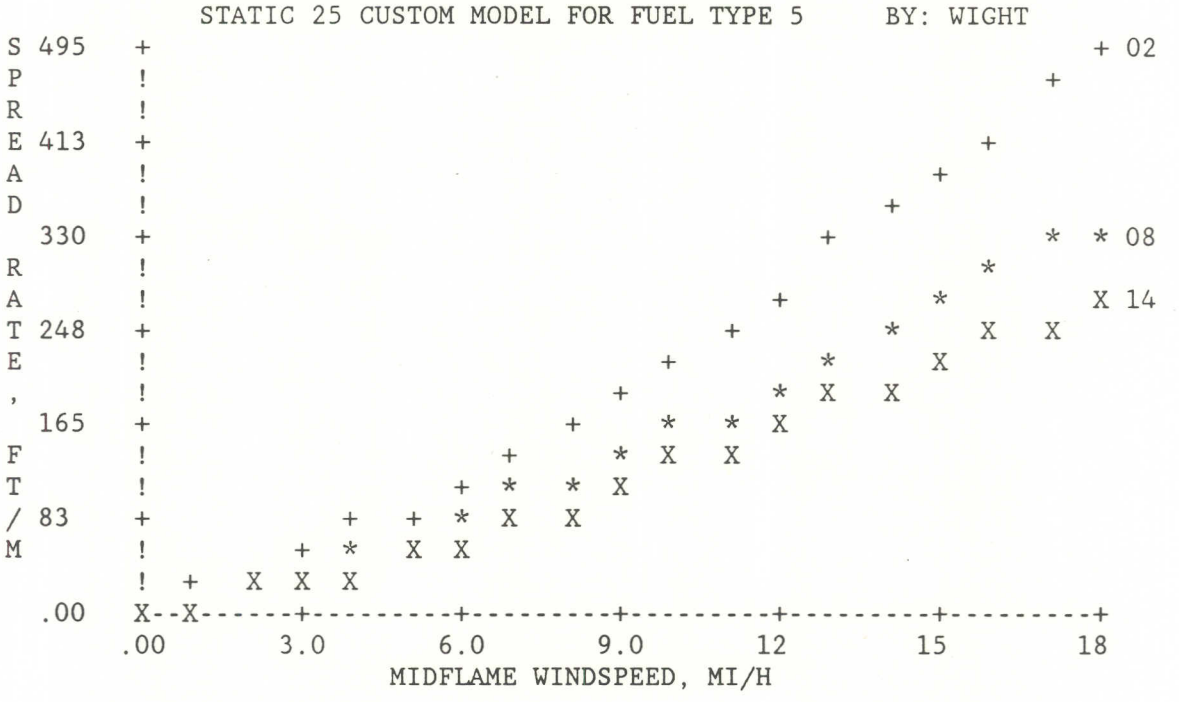
ENVIRONMENTAL DATA		FIRE BEHAVIOR RESULTS			
		FIRE	MIDFLAME WIND, MI/H		
1 HR FM	8.	VARIABLE	2.	4.	10.
10 HR FM	13.	ROS (FT/M)	21.	48.	157.
100 HR FM	14.	FL (FEET)	5.	8.	13.
LIVE HERB FM	78.	IR (BTU/SQFT/M)	2568.	2568.	2568.
LIVE WOODY FM	115.	H/A (BTU/SQFT)	614.	614.	614.
SLOPE, %	12.	FLI (BTU/FT/S)	218.	492.	1606.

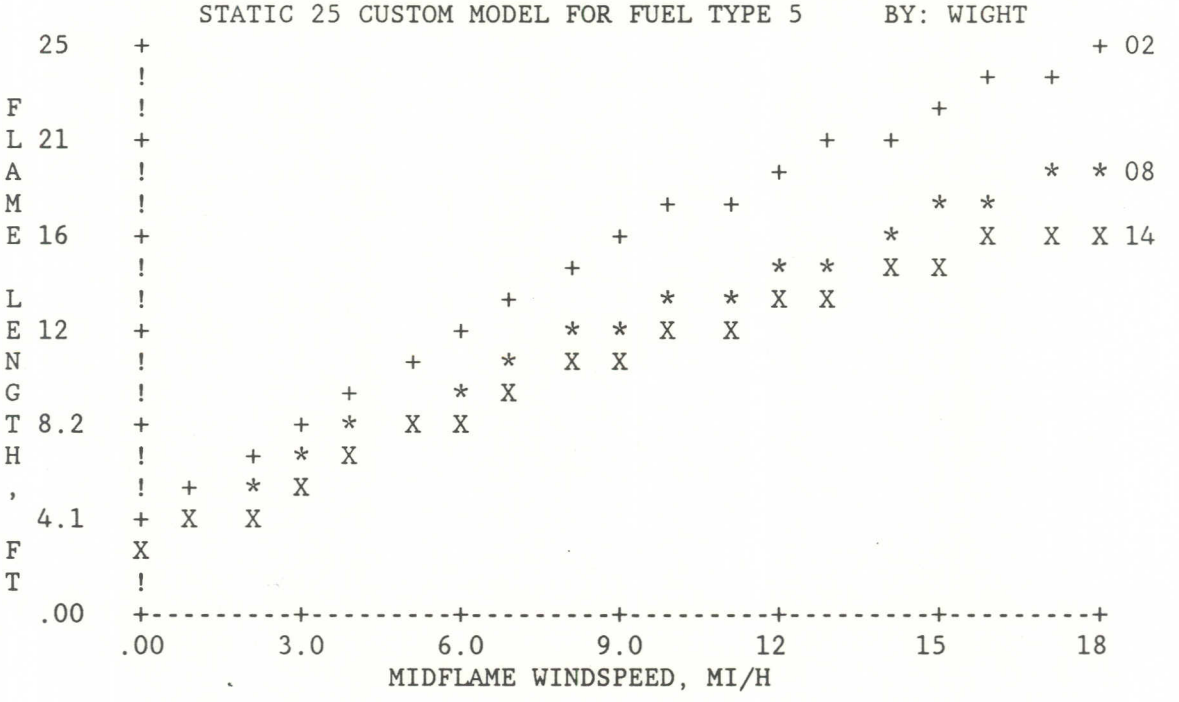
STATIC 25. CUSTOM MODEL FOR FUEL TYPE 5 BY: WIGHT

LOADS, T/AC		S/V RATIOS, 1/FT		OTHER	
1 HR	1.26	1 HR	1759.	DEPTH, FT	2.00
10 HR	0.57	LIVE HERB	190.	HEAT CONTENT, BTU/LB	8000.
100 HR	0.90	LIVE WOODY	190.	EXT MOISTURE, %	25.
LIVE HERB	0.03	SIGMA	1606.	PACKING RATIO	0.00250
LIVE WOODY	0.73			PR/OPR	0.32

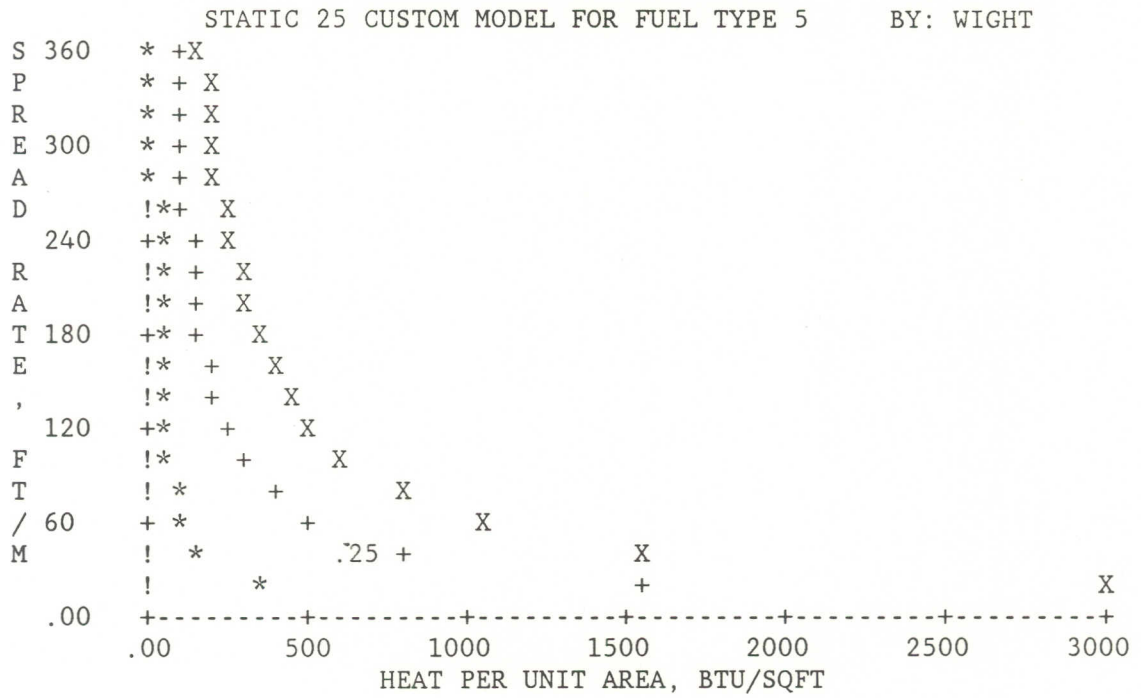
ENVIRONMENTAL DATA		FIRE BEHAVIOR RESULTS			
		FIRE	SLOPE, %		
1 HR FM	8.	VARIABLE	2.	12.	45.
10 HR FM	13.	ROS (FT/M)	47.	48.	65.
100 HR FM	14.	FL (FEET)	8.	8.	9.
LIVE HERB FM	78.	IR (BTU/SQFT/M)	2568.	2568.	2568.
LIVE WOODY FM	115.	H/A (BTU/SQFT)	614.	614.	614.
WIND, MI/H	4.	FLI (BTU/FT/S)	479.	492.	666.

AUGUST


STATIC 25 CUSTOM MODEL FOR FUEL TYPE 5 BY: WIGHT
SPREAD RATE, FT/M
495
413
330
248
165
83
.00
02
08
14
.00
3.0
6.0
9.0
12
15
18
MIDFLAME WINDSPEED, MI/H


STATIC 25 CUSTOM MODEL FOR FUEL TYPE 5 BY: WIGHT
FLAME LENGTH, FT
25
21
16
12
8.2
4.1
.00
02
08
14
.00
3.0
6.0
9.0
12
15
18
MIDFLAME WINDSPEED, MI/H

AUGUST


STATIC 25 CUSTOM MODEL FOR FUEL TYPE 5 BY: WIGHT
SPREAD RATE, FT/MIN
360
300
240
180
120
60
.00
.25
.00
500
1000
1500
2000
2500
3000
HEAT PER UNIT AREA, BTU/SQFT

SEPTEMBER

STATIC 25. CUSTOM MODEL FOR FUEL TYPE 5 BY: WIGHT

LOADS, T/AC		S/V RATIOS, 1/FT		OTHER	
1 HR	1.26	1 HR	1759.	DEPTH, FT	2.00
10 HR	0.57	LIVE HERB	190.	HEAT CONTENT, BTU/LB	8000.
100 HR	0.90	LIVE WOODY	190.	EXT MOISTURE, %	25.
LIVE HERB	0.03	SIGMA	1606.	PACKING RATIO	0.00250
LIVE WOODY	0.73			PR/OPR	0.32

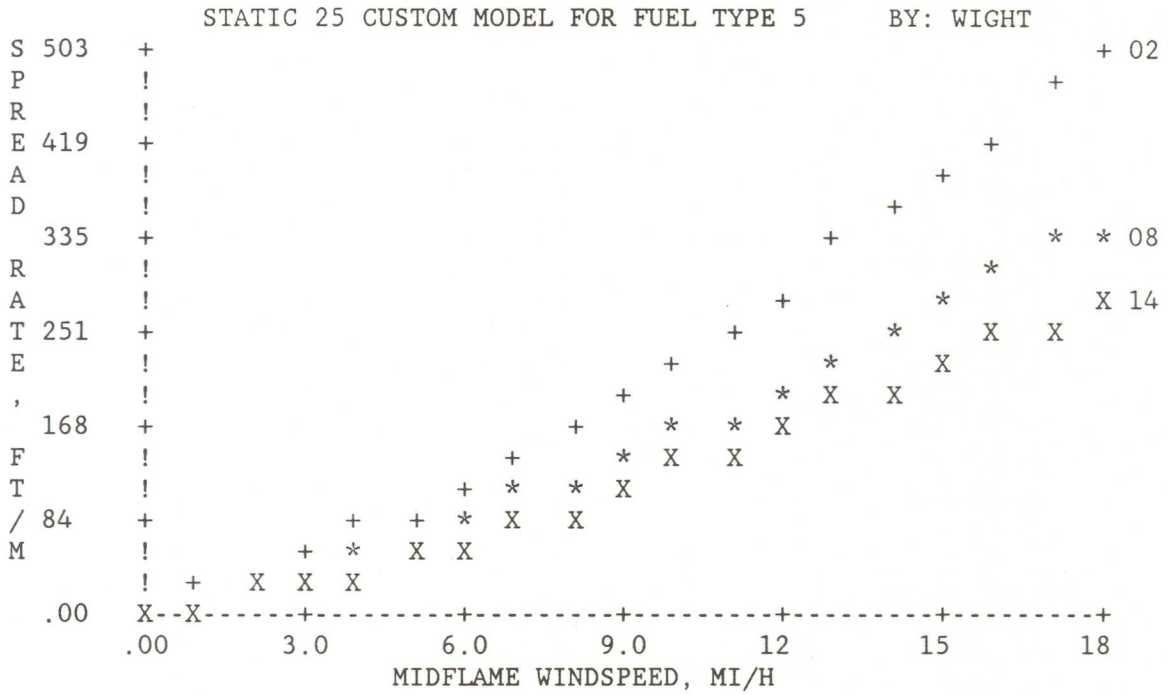
ENVIRONMENTAL DATA		FIRE BEHAVIOR RESULTS			
		FIRE	MIDFLAME WIND, MI/H		
1 HR FM	8.	VARIABLE	2.	4.	10.
10 HR FM	14.	ROS (FT/M)	22.	49.	159.
100 HR FM	14.	FL (FEET)	5.	8.	14.
LIVE HERB FM	58.	IR (BTU/SQFT/M)	2575.	2575.	2575.
LIVE WOODY FM	103.	H/A (BTU/SQFT)	616.	616.	616.
SLOPE, %	12.	FLI (BTU/FT/S)	221.	501.	1634.

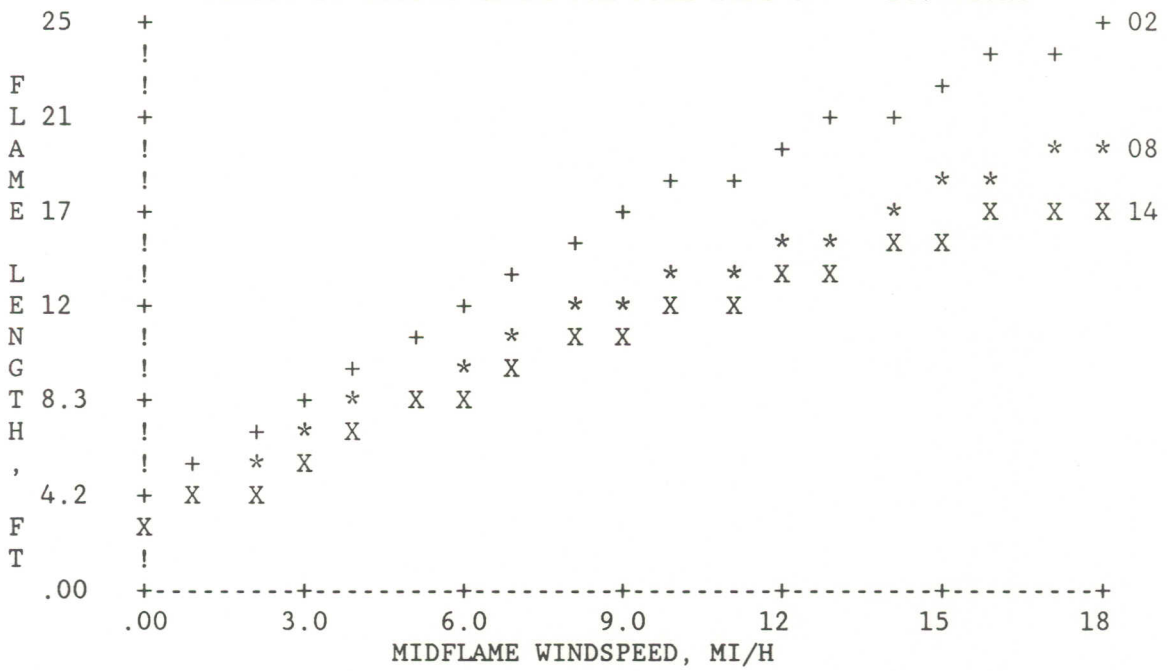
STATIC 25. CUSTOM MODEL FOR FUEL TYPE 5 BY: WIGHT

LOADS, T/AC		S/V RATIOS, 1/FT		OTHER	
1 HR	1.26	1 HR	1759.	DEPTH, FT	2.00
10 HR	0.57	LIVE HERB	190.	HEAT CONTENT, BTU/LB	8000.
100 HR	0.90	LIVE WOODY	190.	EXT MOISTURE, %	25.
LIVE HERB	0.03	SIGMA	1606.	PACKING RATIO	0.00250
LIVE WOODY	0.73			PR/OPR	0.32

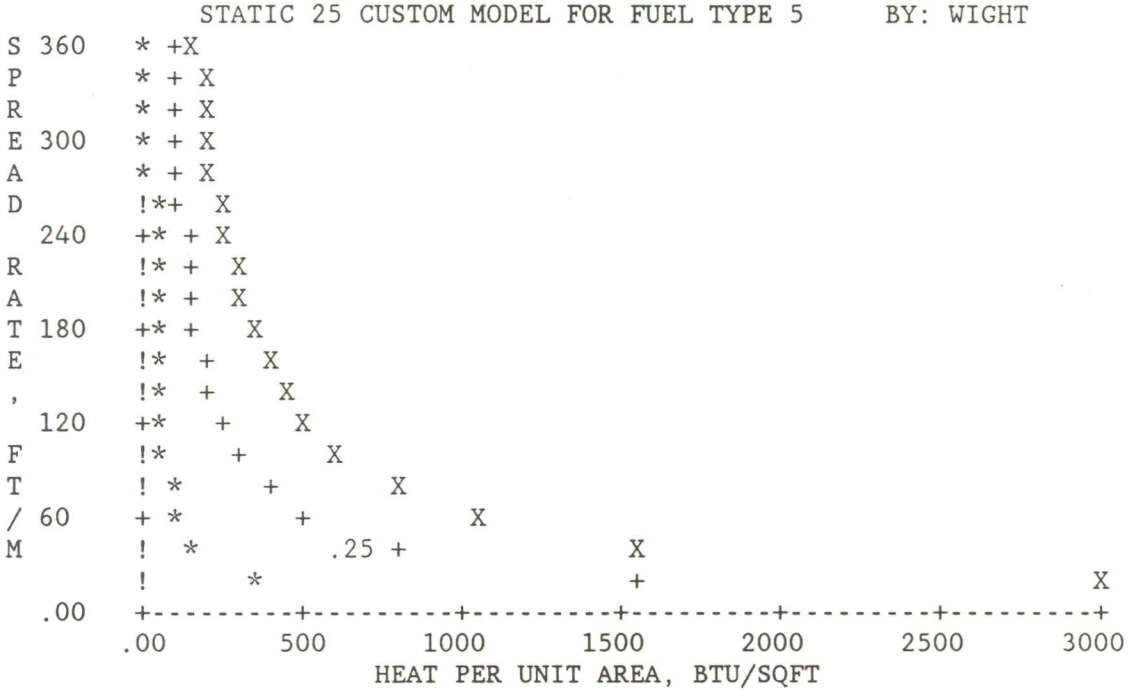
ENVIRONMENTAL DATA		FIRE BEHAVIOR RESULTS			
		FIRE	SLOPE, %		
1 HR FM	8.	VARIABLE	2.	12.	45.
10 HR FM	14.	ROS (FT/M)	48.	49.	66.
100 HR FM	14.	FL (FEET)	8.	8.	9.
LIVE HERB FM	58.	IR (BTU/SQFT/M)	2575.	2575.	2575.
LIVE WOODY FM	103.	H/A (BTU/SQFT)	616.	616.	616.
WIND, MI/H	4.	FLI (BTU/FT/S)	488.	501.	678.

SEPTEMBER


STATIC 25 CUSTOM MODEL FOR FUEL TYPE 5 BY: WIGHT
SPREAD RATE, FT/M
503
419
335
251
168
84
.00
02
08
14
.00
3.0
6.0
9.0
12
15
18
MIDFLAME WINDSPEED, MI/H


STATIC 25 CUSTOM MODEL FOR FUEL TYPE 5 BY: WIGHT
25
21
17
12
8.3
4.2
FLAME LENGTH, FT
.00
02
08
14
.00
3.0
6.0
9.0
12
15
18
MIDFLAME WINDSPEED, MI/H

SEPTEMBER


STATIC 25 CUSTOM MODEL FOR FUEL TYPE 5 BY: WIGHT
SPREAD RATE, FT/MIN
360
300
240
180
120
60
.00
.25
.00
500
1000
1500
2000
2500
3000
HEAT PER UNIT AREA, BTU/SQFT

WORST CASE SCENARIO

STATIC 25. CUSTOM MODEL FOR FUEL TYPE 5 BY: WIGHT

LOADS, T/AC		S/V RATIOS, 1/FT		OTHER	
1 HR	1.26	1 HR	1759.	DEPTH, FT	2.00
10 HR	0.57	LIVE HERB	190.	HEAT CONTENT, BTU/LB	8000.
100 HR	0.90	LIVE WOODY	190.	EXT MOISTURE, %	25.
LIVE HERB	0.03	SIGMA	1606.	PACKING RATIO	0.00250
LIVE WOODY	0.73			PR/OPR	0.32

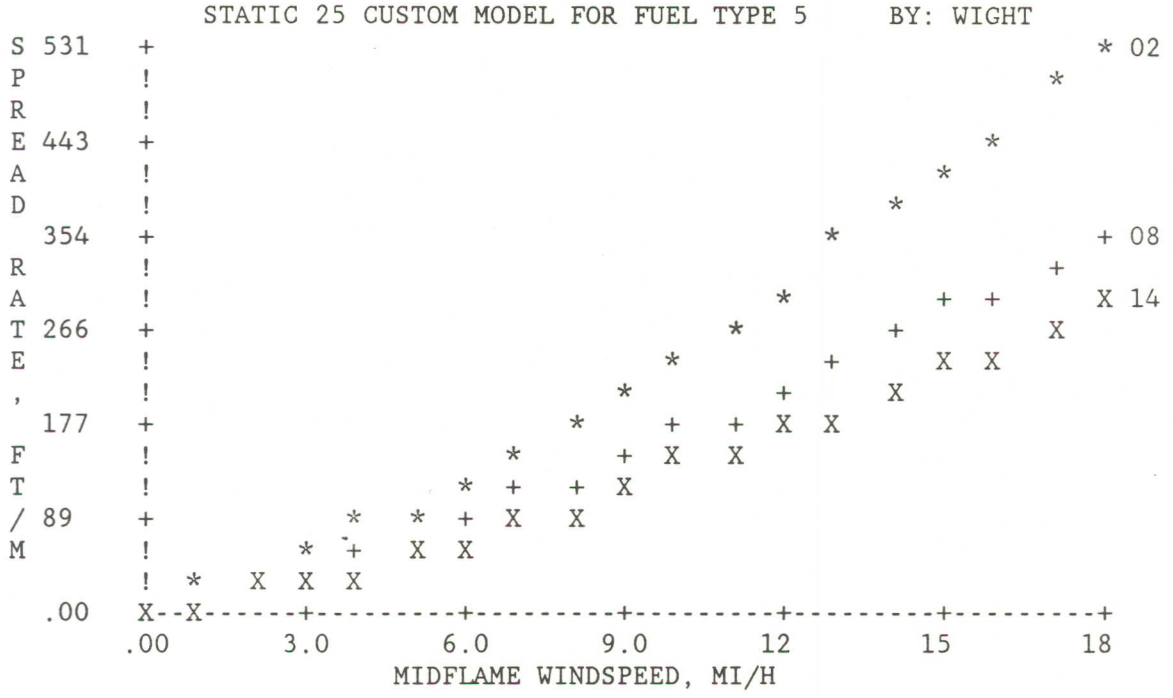
ENVIRONMENTAL DATA		FIRE BEHAVIOR RESULTS			
		FIRE	MIDFLAME WIND, MI/H		
1 HR FM	2.	VARIABLE	2.	4.	12.
10 HR FM	2.	ROS (FT/M)	33.	74.	309.
100 HR FM	7.	FL (FEET)	7.	10.	20.
LIVE HERB FM	60.	IR (BTU/SQFT/M)	3151.	3151.	3151.
LIVE WOODY FM	80.	H/A (BTU/SQFT)	754.	754.	754.
SLOPE, %	12.	FLI (BTU/FT/S)	412.	933.	3878.

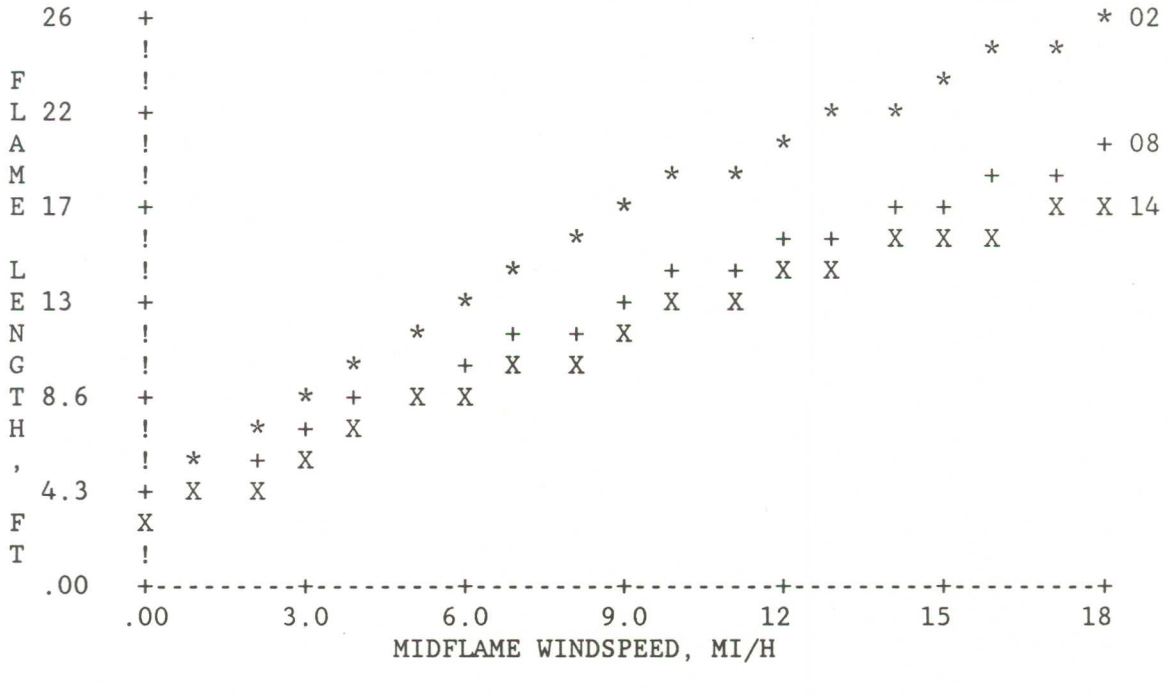
STATIC 25. CUSTOM MODEL FOR FUEL TYPE 5 BY: WIGHT

LOADS, T/AC		S/V RATIOS, 1/FT		OTHER	
1 HR	1.26	1 HR	1759.	DEPTH, FT	2.00
10 HR	0.57	LIVE HERB	190.	HEAT CONTENT, BTU/LB	8000.
100 HR	0.90	LIVE WOODY	190.	EXT MOISTURE, %	25.
LIVE HERB	0.03	SIGMA	1606.	PACKING RATIO	0.00250
LIVE WOODY	0.73			PR/OPR	0.32

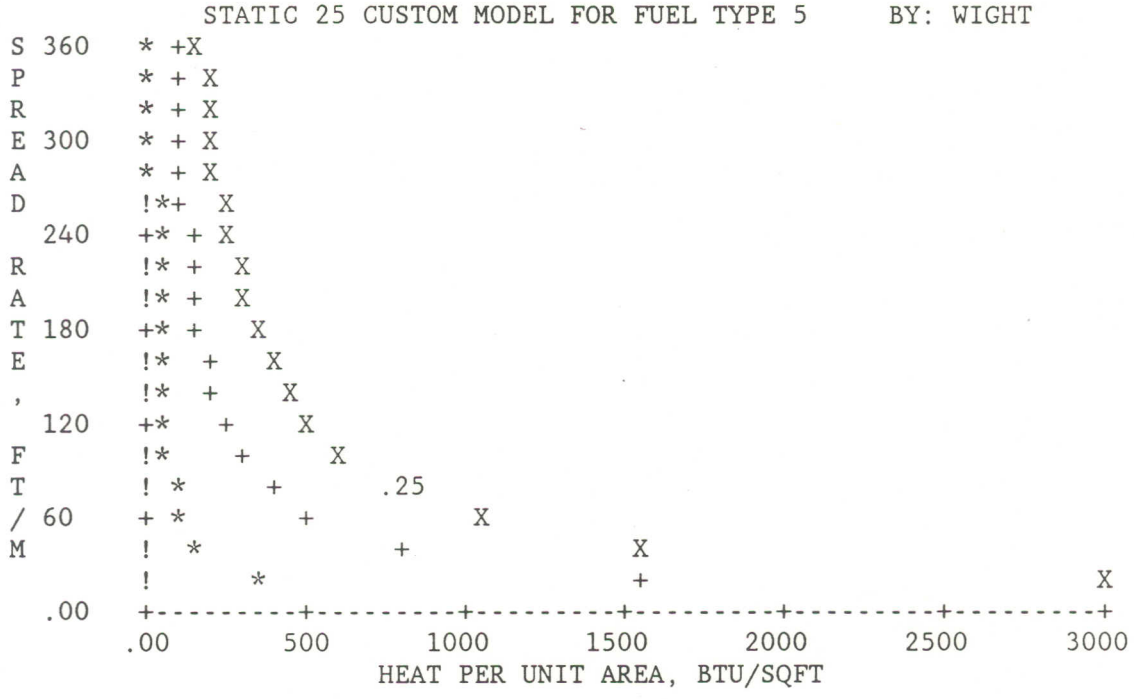
ENVIRONMENTAL DATA		FIRE BEHAVIOR RESULTS			
		FIRE	SLOPE, %		
1 HR FM	2.	VARIABLE	2.	12.	45.
10 HR FM	2.	ROS (FT/M)	72.	74.	101.
100 HR FM	7.	FL (FEET)	10.	10.	12.
LIVE HERB FM	60.	IR (BTU/SQFT/M)	3151.	3151.	3151.
LIVE WOODY FM	80.	H/A (BTU/SQFT)	754.	754.	754.
WIND, MI/H	4.	FLI (BTU/FT/S)	908.	933.	1262.

WORST CASE SCENARIO





WORST CASE SCENARIO



MAY

STATIC 26. CUSTOM MODEL FOR FUEL TYPE 6 BY: WIGHT

LOADS, T/AC		S/V RATIOS, 1/FT		OTHER	
1 HR	2.80	1 HR	1863.	DEPTH, FT	2.50
10 HR	0.70	LIVE HERB	190.	HEAT CONTENT, BTU/LB	8000.
100 HR	1.38	LIVE WOODY	190.	EXT MOISTURE, %	25.
LIVE HERB	0.08	SIGMA	1597.	PACKING RATIO	0.00540
LIVE WOODY	4.45			PR/OPR	0.68

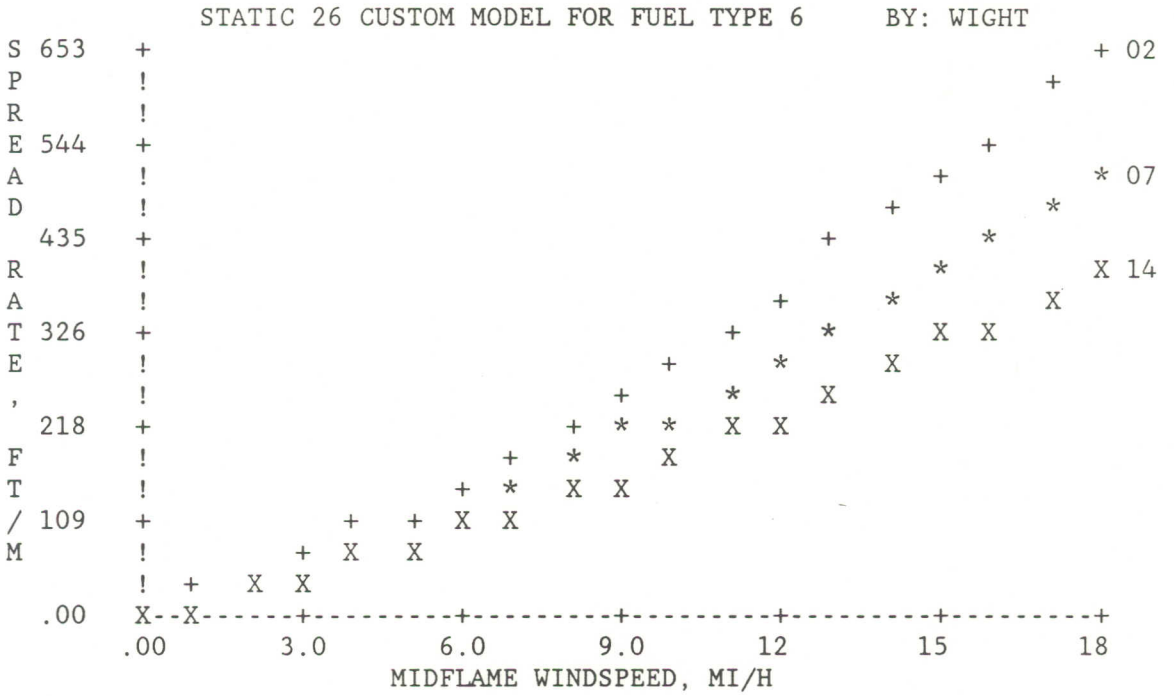
ENVIRONMENTAL DATA		FIRE BEHAVIOR RESULTS			
		FIRE	MIDFLAME WIND, MI/H		
1 HR FM	7.	VARIABLE	2.	4.	10.
10 HR FM	10.	ROS (FT/M)	32.	72.	233.
100 HR FM	13.	FL (FEET)	13.	19.	32.
LIVE HERB FM	118.	IR (BTU/SQFT/M)	11483.	11483.	11483.
LIVE WOODY FM	122.	H/A (BTU/SQFT)	2762.	2762.	2762.
SLOPE, %	8.	FLI (BTU/FT/S)	1480.	3309.	10707.

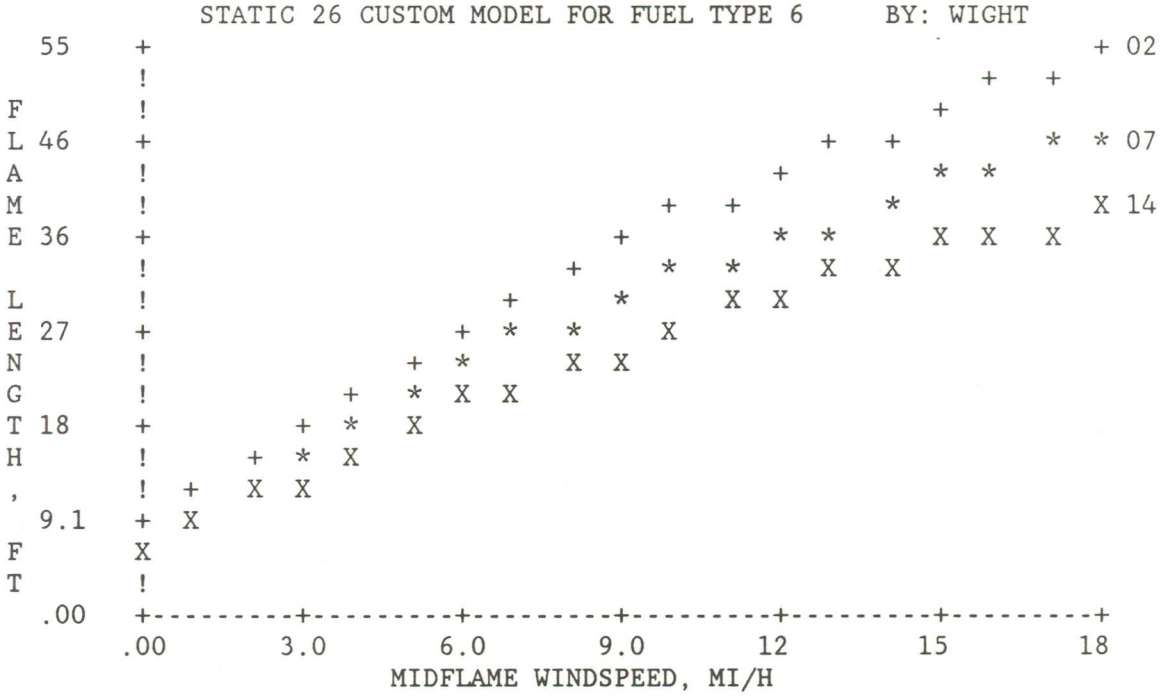
STATIC 26. CUSTOM MODEL FOR FUEL TYPE 6 BY: WIGHT

LOADS, T/AC		S/V RATIOS, 1/FT		OTHER	
1 HR	2.80	1 HR	1863.	DEPTH, FT	2.50
10 HR	0.70	LIVE HERB	190.	HEAT CONTENT, BTU/LB	8000.
100 HR	1.38	LIVE WOODY	190.	EXT MOISTURE, %	25.
LIVE HERB	0.08	SIGMA	1597.	PACKING RATIO	0.00540
LIVE WOODY	4.45			PR/OPR	0.68

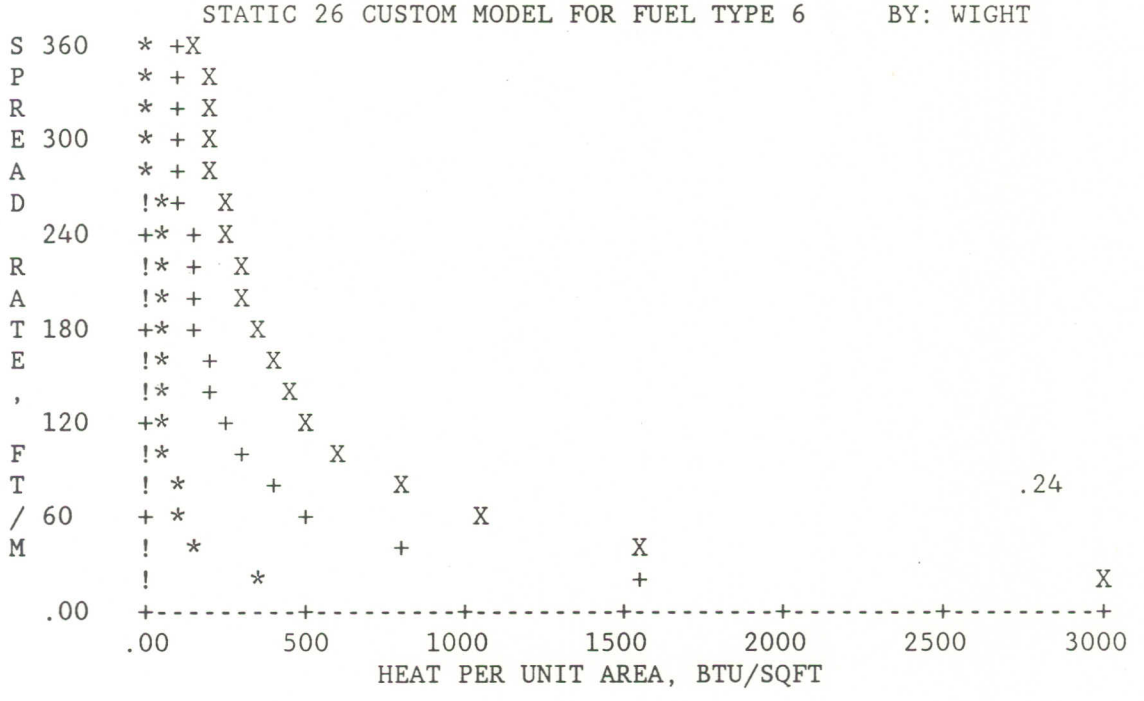
ENVIRONMENTAL DATA		FIRE BEHAVIOR RESULTS			
		FIRE	SLOPE, %		
1 HR FM	7.	VARIABLE	5.	8.	20.
10 HR FM	10.	ROS (FT/M)	71.	72.	77.
100 HR FM	13.	FL (FEET)	19.	19.	19.
LIVE HERB FM	118.	IR (BTU/SQFT/M)	11483.	11483.	11483.
LIVE WOODY FM	122.	H/A (BTU/SQFT)	2762.	2762.	2762.
WIND, MI/H	4.	FLI (BTU/FT/S)	3283.	3309.	3533.

MAY


STATIC 26 CUSTOM MODEL FOR FUEL TYPE 6 BY: WIGHT
SPREAD RATE, FT/MIN
653
544
435
326
218
109
.00
02
07
14
.00
3.0
6.0
9.0
12
15
18
MIDFLAME WINDSPEED, MI/H


STATIC 26 CUSTOM MODEL FOR FUEL TYPE 6 BY: WIGHT
FLAME LENGTH, FT
55
46
36
27
18
9.1
.00
02
07
14
.00
3.0
6.0
9.0
12
15
18
MIDFLAME WINDSPEED, MI/H

MAY


STATIC 26 CUSTOM MODEL FOR FUEL TYPE 6 BY: WIGHT
SPREAD, FT/MIN
360
300
240
180
120
60
.00
.24
.00
500
1000
1500
2000
2500
3000
HEAT PER UNIT AREA, BTU/SQFT

JUNE

STATIC 26. CUSTOM MODEL FOR FUEL TYPE 6 BY: WIGHT

LOADS, T/AC		S/V RATIOS, 1/FT		OTHER	
1 HR	2.80	1 HR	1863.	DEPTH, FT	2.50
10 HR	0.70	LIVE HERB	190.	HEAT CONTENT, BTU/LB	8000.
100 HR	1.38	LIVE WOODY	190.	EXT MOISTURE, %	25.
LIVE HERB	0.08	SIGMA	1597.	PACKING RATIO	0.00540
LIVE WOODY	4.45			PR/OPR	0.68

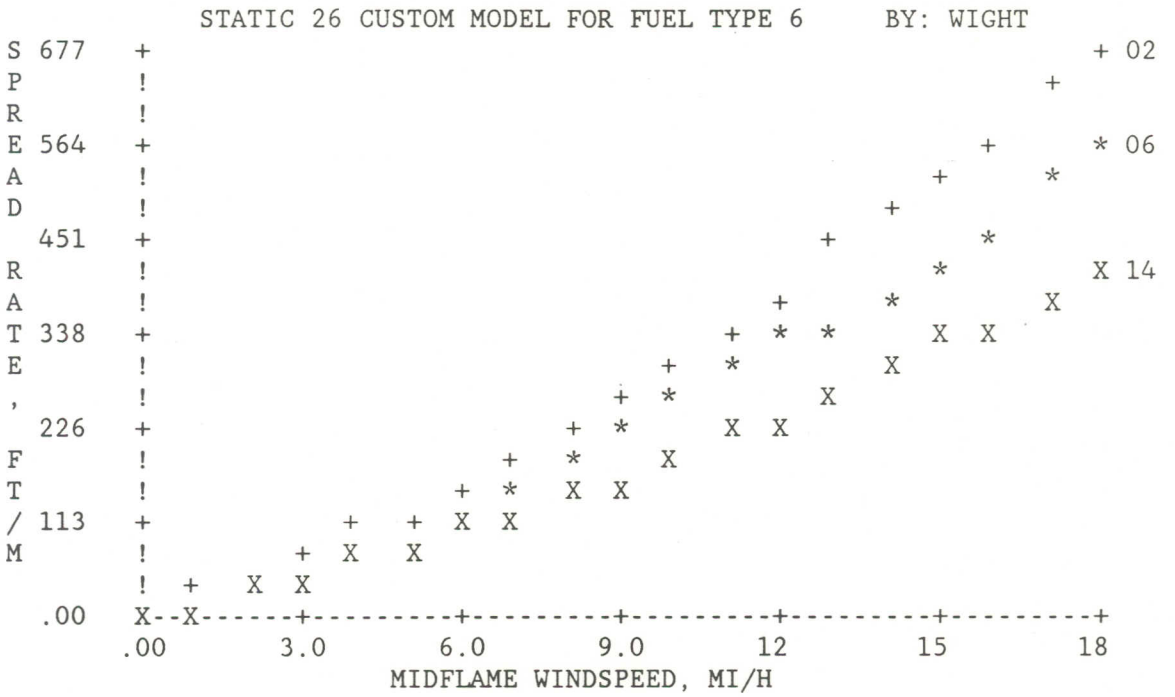
ENVIRONMENTAL DATA		FIRE BEHAVIOR RESULTS			
		FIRE	MIDFLAME WIND, MI/H		
1 HR FM	6.	VARIABLE	2.	4.	10.
10 HR FM	8.	ROS (FT/M)	35.	78.	251.
100 HR FM	10.	FL (FEET)	14.	20.	34.
LIVE HERB FM	101.	IR (BTU/SQFT/M)	11822.	11822.	11822.
LIVE WOODY FM	111.	H/A (BTU/SQFT)	2843.	2843.	2843.
SLOPE, %	8.	FLI (BTU/FT/S)	1645.	3680.	11906.

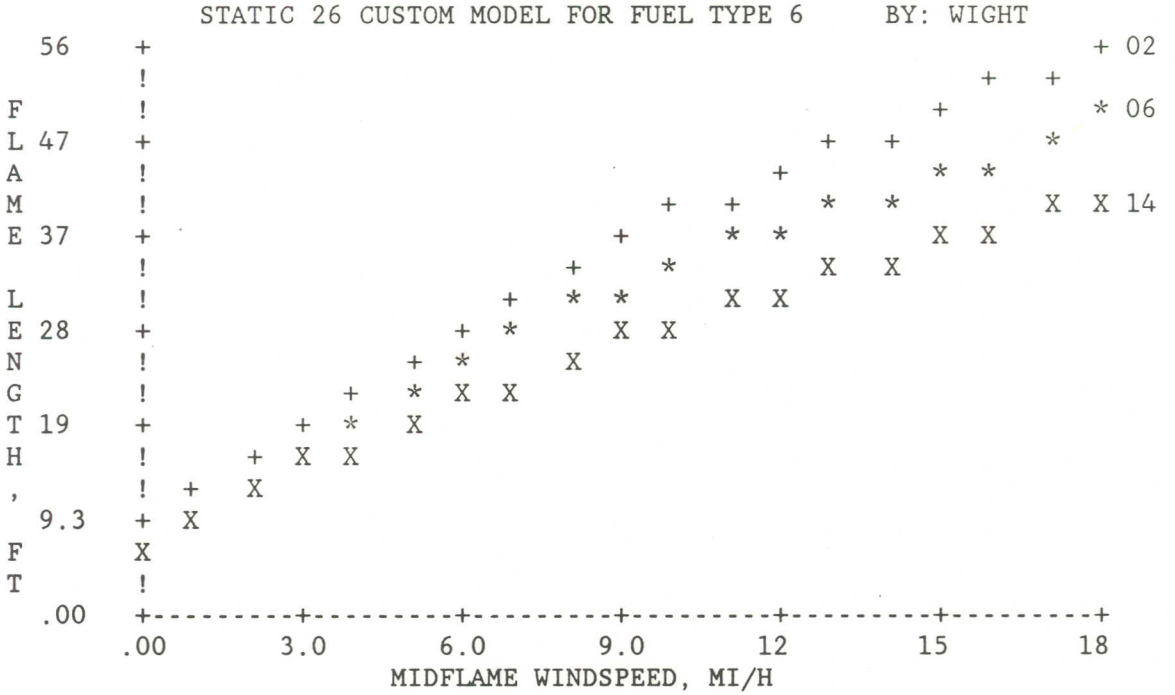
STATIC 26. CUSTOM MODEL FOR FUEL TYPE 6 BY: WIGHT

LOADS, T/AC		S/V RATIOS, 1/FT		OTHER	
1 HR	2.80	1 HR	1863.	DEPTH, FT	2.50
10 HR	0.70	LIVE HERB	190.	HEAT CONTENT, BTU/LB	8000.
100 HR	1.38	LIVE WOODY	190.	EXT MOISTURE, %	25.
LIVE HERB	0.08	SIGMA	1597.	PACKING RATIO	0.00540
LIVE WOODY	4.45			PR/OPR	0.68

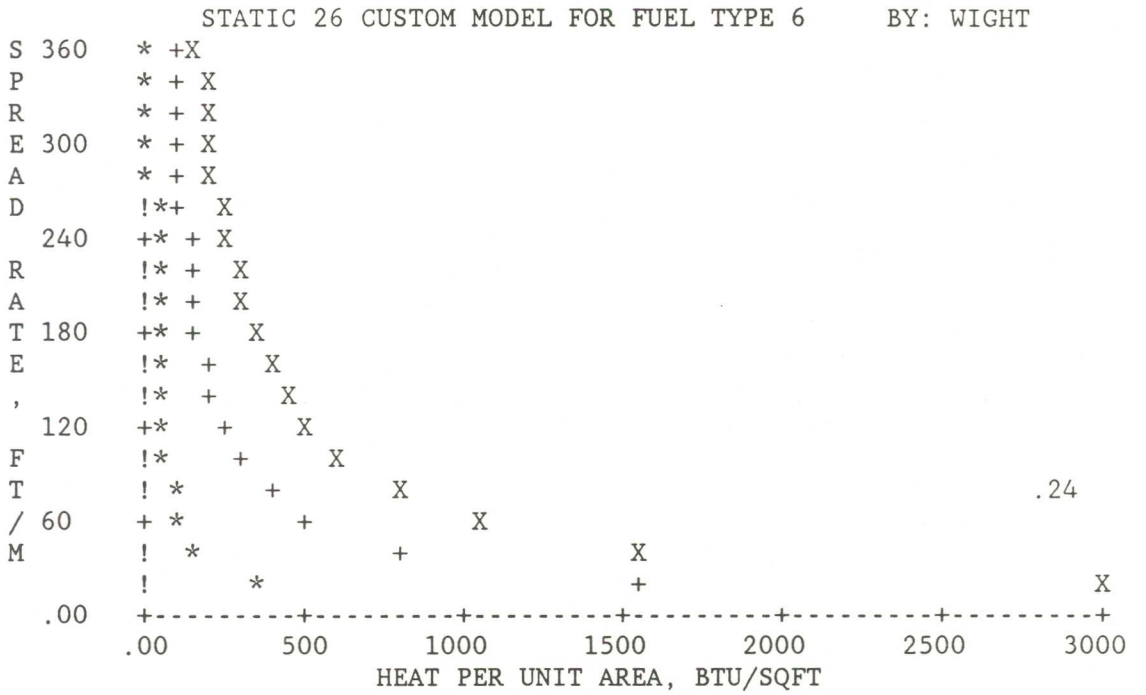
ENVIRONMENTAL DATA		FIRE BEHAVIOR RESULTS			
		FIRE	SLOPE, %		
1 HR FM	6.	VARIABLE	5.	8.	20.
10 HR FM	8.	ROS (FT/M)	77.	78.	83.
100 HR FM	10.	FL (FEET)	20.	20.	20.
LIVE HERB FM	101.	IR (BTU/SQFT/M)	11822.	11822.	11822.
LIVE WOODY FM	111.	H/A (BTU/SQFT)	2843.	2843.	2843.
WIND, MI/H	4.	FLI (BTU/FT/S)	3651.	3680.	3929.

JUNE


STATIC 26 CUSTOM MODEL FOR FUEL TYPE 6 BY: WIGHT
SPREAD RATE, FT/M
677
564
451
338
226
113
.00
.00
3.0
6.0
9.0
12
15
18
MIDFLAME WINDSPEED, MI/H


STATIC 26 CUSTOM MODEL FOR FUEL TYPE 6 BY: WIGHT
FLAME LENGTH, FT
56
47
37
28
19
9.3
.00
.00
3.0
6.0
9.0
12
15
18
MIDFLAME WINDSPEED, MI/H

JUNE


STATIC 26 CUSTOM MODEL FOR FUEL TYPE 6 BY: WIGHT
SPREAD RATE, FT/MIN
360
300
240
180
120
60
.00
.24
.00
500
1000
1500
2000
2500
3000
HEAT PER UNIT AREA, BTU/SQFT

JULY

STATIC 26. CUSTOM MODEL FOR FUEL TYPE 6 BY: WIGHT

LOADS, T/AC		S/V RATIOS, 1/FT		OTHER	
1 HR	2.80	1 HR	1863.	DEPTH, FT	2.50
10 HR	0.70	LIVE HERB	190.	HEAT CONTENT, BTU/LB	8000.
100 HR	1.38	LIVE WOODY	190.	EXT MOISTURE, %	25.
LIVE HERB	0.08	SIGMA	1597.	PACKING RATIO	0.00540
LIVE WOODY	4.45			PR/OPR	0.68

ENVIRONMENTAL DATA	
1 HR FM	8.
10 HR FM	13.
100 HR FM	12.
LIVE HERB FM	79.
LIVE WOODY FM	95.
SLOPE, %	8.

FIRE BEHAVIOR RESULTS

FIRE VARIABLE	MIDFLAME WIND, MI/H 2.	4.	10.
ROS (FT/M)	34.	75.	243.
FL (FEET)	13.	19.	33.
IR (BTU/SQFT/M)	11597.	11597.	11597.
H/A (BTU/SQFT)	2789.	2789.	2789.
FLI (BTU/FT/S)	1558.	3486.	11277.

STATIC 26. CUSTOM MODEL FOR FUEL TYPE 6 BY: WIGHT

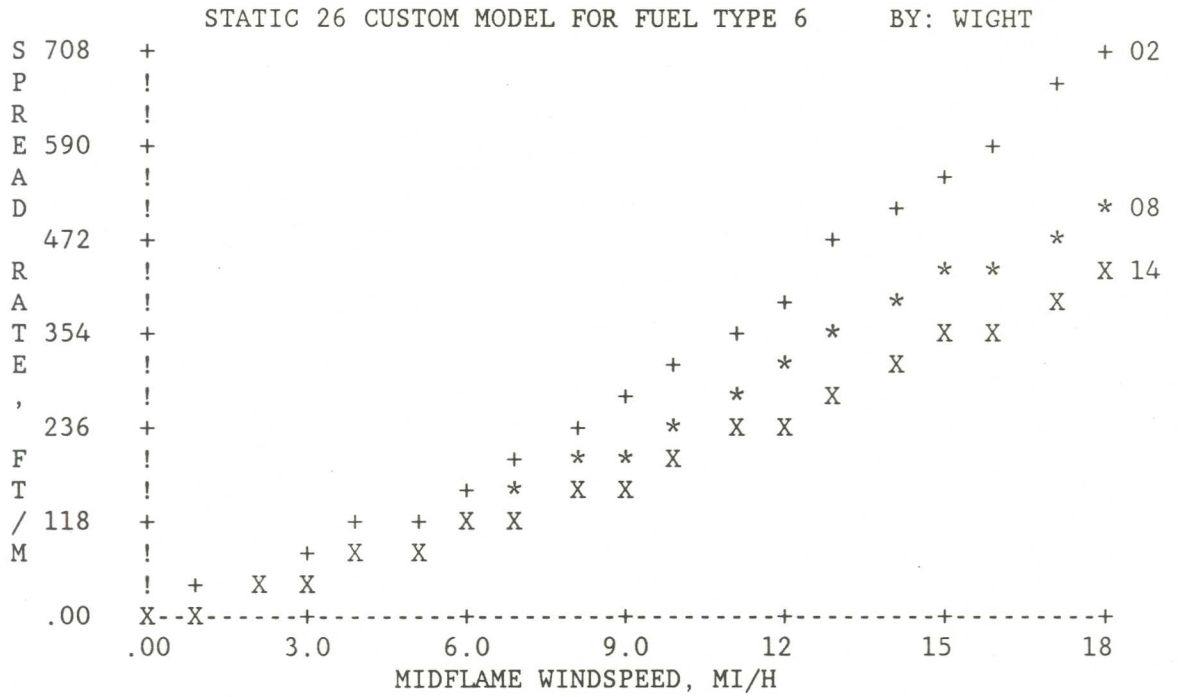
LOADS, T/AC		S/V RATIOS, 1/FT		OTHER	
1 HR	2.80	1 HR	1863.	DEPTH, FT	2.50
10 HR	0.70	LIVE HERB	190.	HEAT CONTENT, BTU/LB	8000.
100 HR	1.38	LIVE WOODY	190.	EXT MOISTURE, %	25.
LIVE HERB	0.08	SIGMA	1597.	PACKING RATIO	0.00540
LIVE WOODY	4.45			PR/OPR	0.68

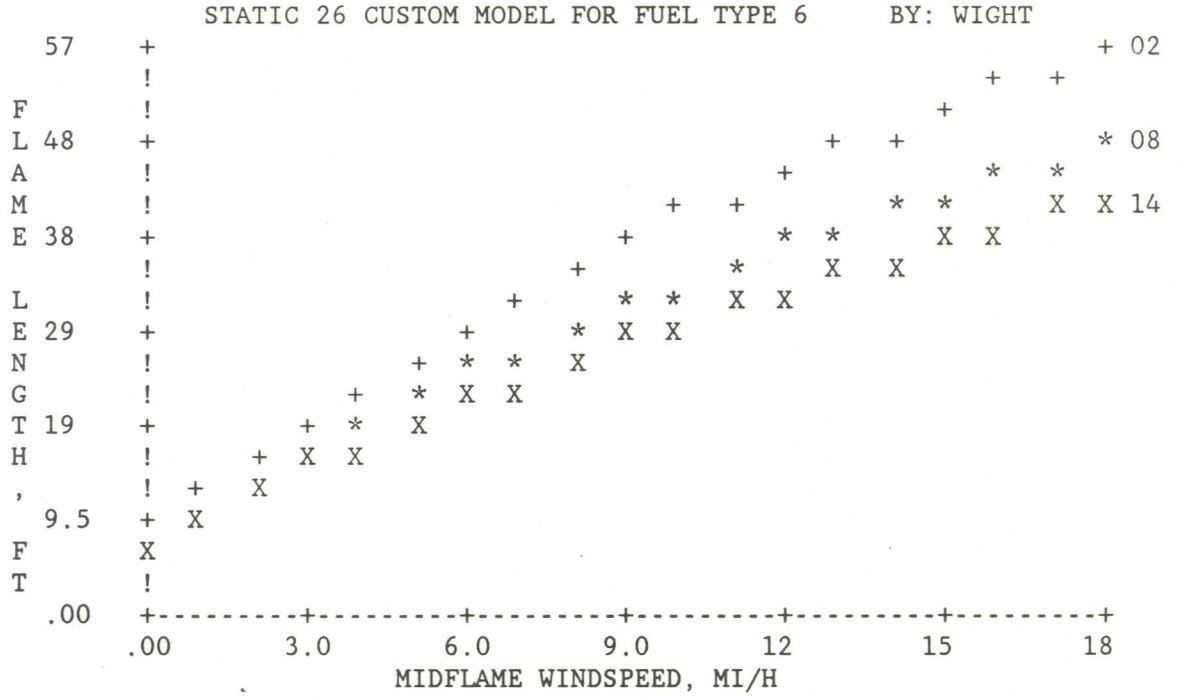
ENVIRONMENTAL DATA	
1 HR FM	8.
10 HR FM	13.
100 HR FM	12.
LIVE HERB FM	79.
LIVE WOODY FM	95.
WIND, MI/H	4.

FIRE BEHAVIOR RESULTS

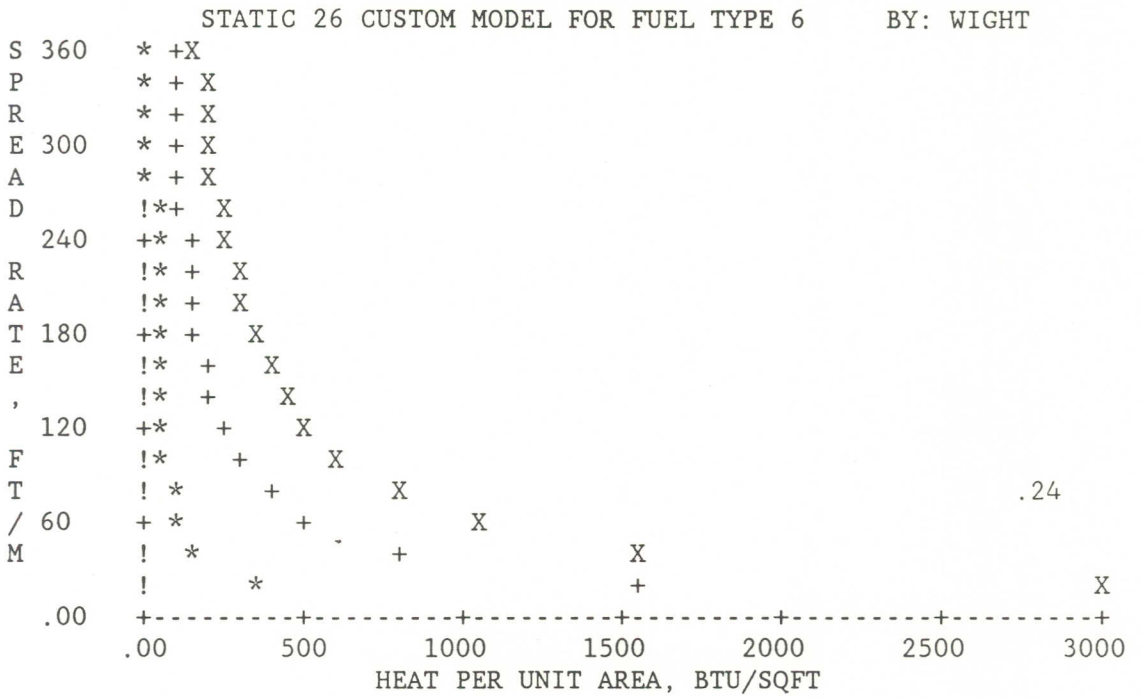
FIRE VARIABLE	SLOPE, % 5.	8.	20.
ROS (FT/M)	74.	75.	80.
FL (FEET)	19.	19.	20.
IR (BTU/SQFT/M)	11597.	11597.	11597.
H/A (BTU/SQFT)	2789.	2789.	2789.
FLI (BTU/FT/S)	3458.	3486.	3721.

JULY


STATIC 26 CUSTOM MODEL FOR FUEL TYPE 6 BY: WIGHT
SPREAD RATE, FT/M
708
590
472
354
236
118
.00
02
08
14
.00
3.0
6.0
9.0
12
15
18
MIDFLAME WINDSPEED, MI/H


STATIC 26 CUSTOM MODEL FOR FUEL TYPE 6 BY: WIGHT
FLAME LENGTH, FT
57
48
38
29
19
9.5
.00
02
08
14
.00
3.0
6.0
9.0
12
15
18
MIDFLAME WINDSPEED, MI/H

JULY


STATIC 26 CUSTOM MODEL FOR FUEL TYPE 6 BY: WIGHT
SPREAD RATE, FT/MIN
360
300
240
180
120
60
.00
.24
.00
500
1000
1500
2000
2500
3000
HEAT PER UNIT AREA, BTU/SQFT

AUGUST

STATIC 26. CUSTOM MODEL FOR FUEL TYPE 6 BY: WIGHT

LOADS, T/AC		S/V RATIOS, 1/FT		OTHER	
1 HR	2.80	1 HR	1863.	DEPTH, FT	2.50
10 HR	0.70	LIVE HERB	190.	HEAT CONTENT, BTU/LB	8000.
100 HR	1.38	LIVE WOODY	190.	EXT MOISTURE, %	25.
LIVE HERB	0.08	SIGMA	1597.	PACKING RATIO	0.00540
LIVE WOODY	4.45			PR/OPR	0.68

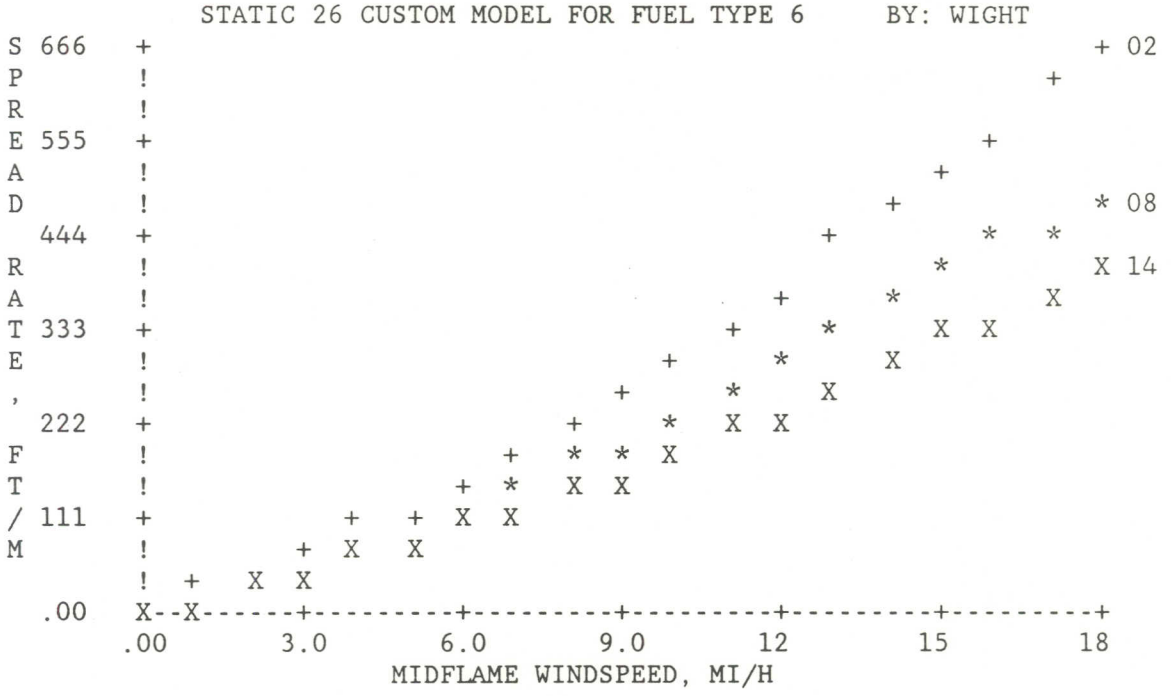
ENVIRONMENTAL DATA		FIRE BEHAVIOR RESULTS			
		FIRE	MIDFLAME WIND, MI/H		
1 HR FM	8.	VARIABLE	2.	4.	10.
10 HR FM	13.	ROS (FT/M)	32.	71.	228.
100 HR FM	14.	FL (FEET)	13.	18.	32.
LIVE HERB FM	78.	IR (BTU/SQFT/M)	11369.	11369.	11369.
LIVE WOODY FM	115.	H/A (BTU/SQFT)	2734.	2734.	2734.
SLOPE, %	8.	FLI (BTU/FT/S)	1438.	3216.	10407.

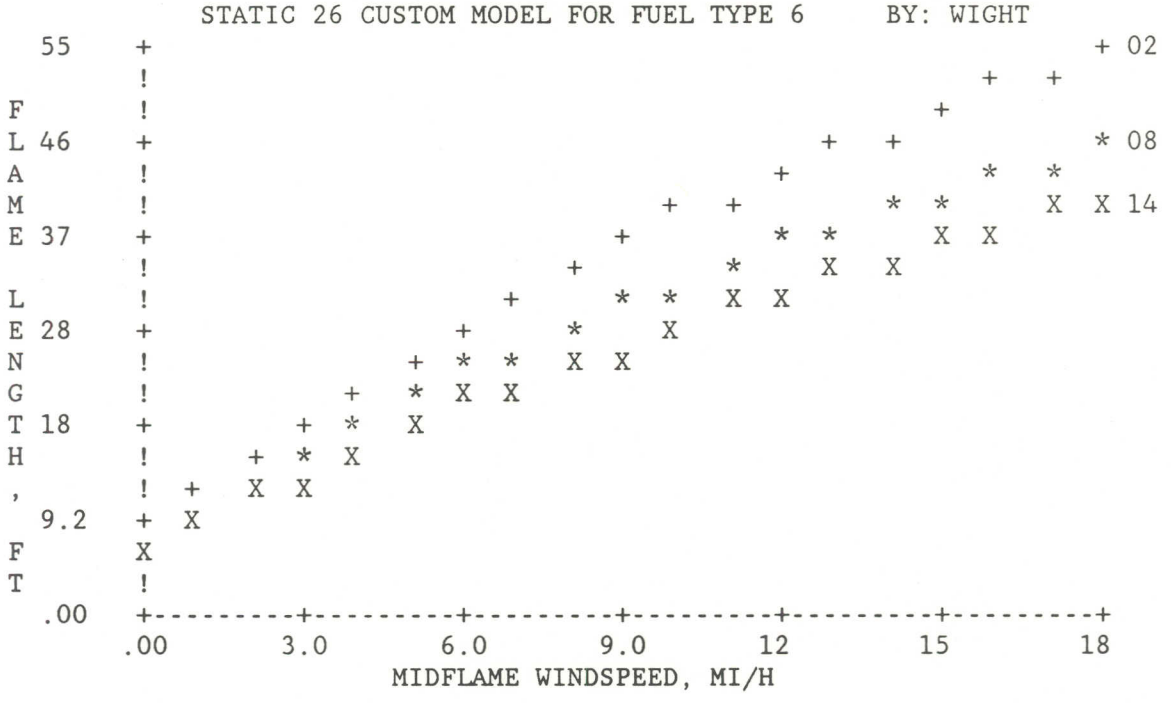
STATIC 26. CUSTOM MODEL FOR FUEL TYPE 6 BY: WIGHT

LOADS, T/AC		S/V RATIOS, 1/FT		OTHER	
1 HR	2.80	1 HR	1863.	DEPTH, FT	2.50
10 HR	0.70	LIVE HERB	190.	HEAT CONTENT, BTU/LB	8000.
100 HR	1.38	LIVE WOODY	190.	EXT MOISTURE, %	25.
LIVE HERB	0.08	SIGMA	1597.	PACKING RATIO	0.00540
LIVE WOODY	4.45			PR/OPR	0.68

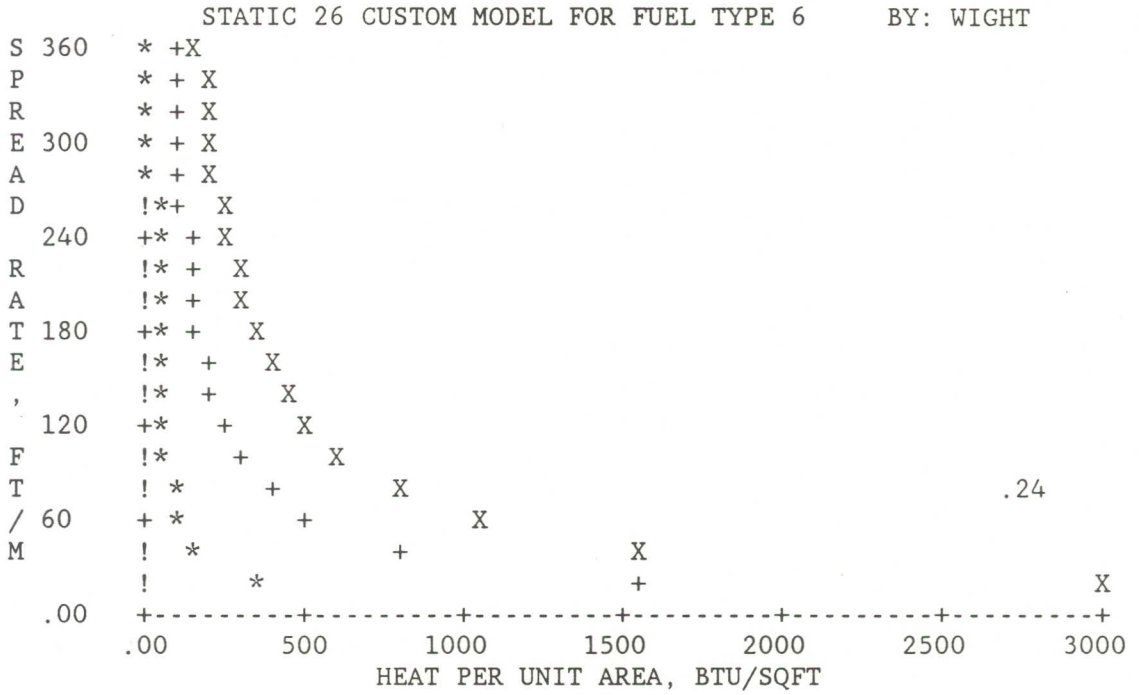
ENVIRONMENTAL DATA		FIRE BEHAVIOR RESULTS			
		FIRE	SLOPE, %		
1 HR FM	8.	VARIABLE	5.	8.	20.
10 HR FM	13.	ROS (FT/M)	70.	71.	75.
100 HR FM	14.	FL (FEET)	18.	18.	19.
LIVE HERB FM	78.	IR (BTU/SQFT/M)	11369.	11369.	11369.
LIVE WOODY FM	115.	H/A (BTU/SQFT)	2734.	2734.	2734.
WIND, MI/H	4.	FLI (BTU/FT/S)	3191.	3216.	3434.

AUGUST


STATIC 26 CUSTOM MODEL FOR FUEL TYPE 6 BY: WIGHT
SPREAD RATE, FT/M
666
555
444
333
222
111
.00
02
08
14
.00
3.0
6.0
9.0
12
15
18
MIDFLAME WINDSPEED, MI/H


STATIC 26 CUSTOM MODEL FOR FUEL TYPE 6 BY: WIGHT
FLAME LENGTH, FT
55
46
37
28
18
9.2
.00
02
08
14
.00
3.0
6.0
9.0
12
15
18
MIDFLAME WINDSPEED, MI/H

AUGUST


STATIC 26 CUSTOM MODEL FOR FUEL TYPE 6 BY: WIGHT
SPREAD RATE, FT/MIN
360
300
240
180
120
60
.00
.24
.00
500
1000
1500
2000
2500
3000
HEAT PER UNIT AREA, BTU/SQFT

SEPTEMBER

STATIC 26. CUSTOM MODEL FOR FUEL TYPE 6 BY: WIGHT

LOADS, T/AC		S/V RATIOS, 1/FT		OTHER	
1 HR	2.80	1 HR	1863.	DEPTH, FT	2.50
10 HR	0.70	LIVE HERB	190.	HEAT CONTENT, BTU/LB	8000.
100 HR	1.38	LIVE WOODY	190.	EXT MOISTURE, %	25.
LIVE HERB	0.08	SIGMA	1597.	PACKING RATIO	0.00540
LIVE WOODY	4.45			PR/OPR	0.68

ENVIRONMENTAL DATA	
1 HR FM	8.
10 HR FM	14.
100 HR FM	14.
LIVE HERB FM	58.
LIVE WOODY FM	103.
SLOPE, %	8.

FIRE BEHAVIOR RESULTS

FIRE VARIABLE	MIDFLAME WIND, MI/H 2.	4.	10.
ROS (FT/M)	33.	73.	237.
FL (FEET)	13.	19.	32.
IR (BTU/SQFT/M)	11501.	11501.	11501.
H/A (BTU/SQFT)	2766.	2766.	2766.
FLI (BTU/FT/S)	1509.	3374.	10917.

STATIC 26. CUSTOM MODEL FOR FUEL TYPE 6 BY: WIGHT

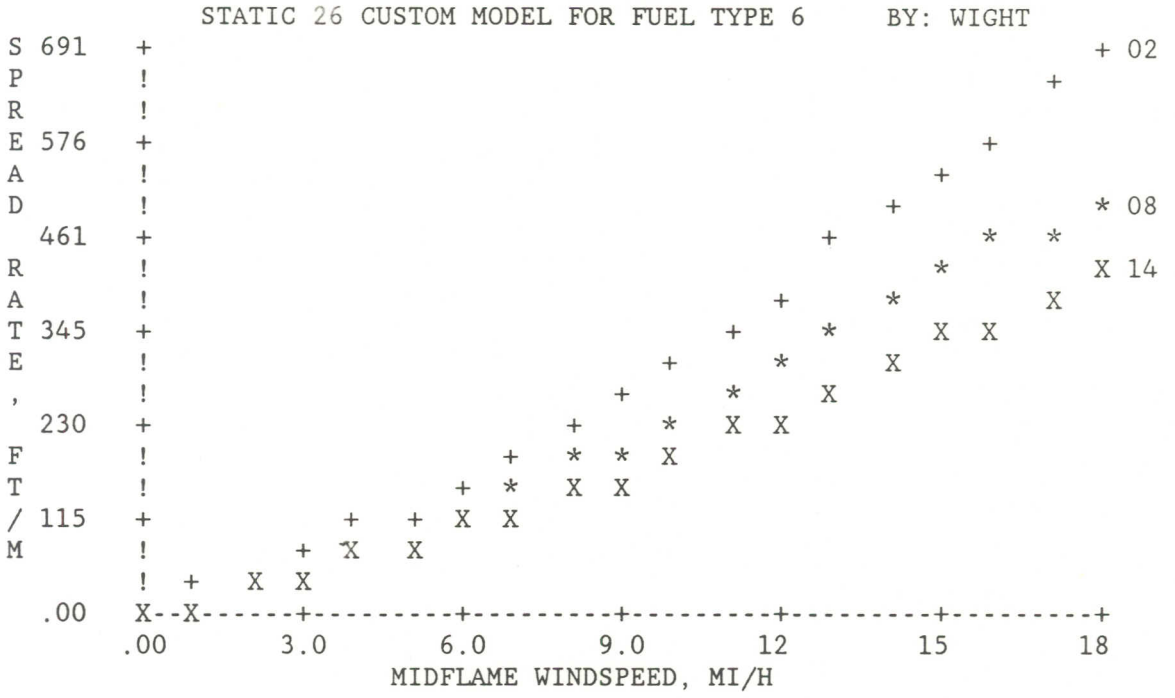
LOADS, T/AC		S/V RATIOS, 1/FT		OTHER	
1 HR	2.80	1 HR	1863.	DEPTH, FT	2.50
10 HR	0.70	LIVE HERB	190.	HEAT CONTENT, BTU/LB	8000.
100 HR	1.38	LIVE WOODY	190.	EXT MOISTURE, %	25.
LIVE HERB	0.08	SIGMA	1597.	PACKING RATIO	0.00540
LIVE WOODY	4.45			PR/OPR	0.68

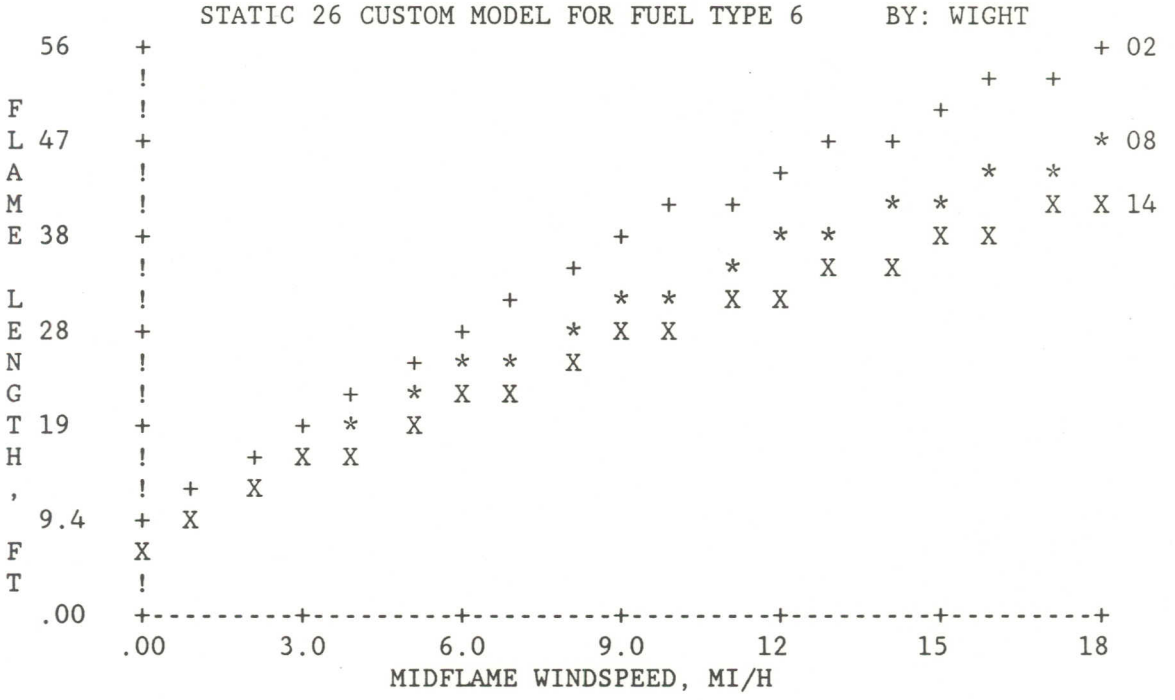
ENVIRONMENTAL DATA	
1 HR FM	8.
10 HR FM	14.
100 HR FM	14.
LIVE HERB FM	58.
LIVE WOODY FM	103.
WIND, MI/H	4.

FIRE BEHAVIOR RESULTS

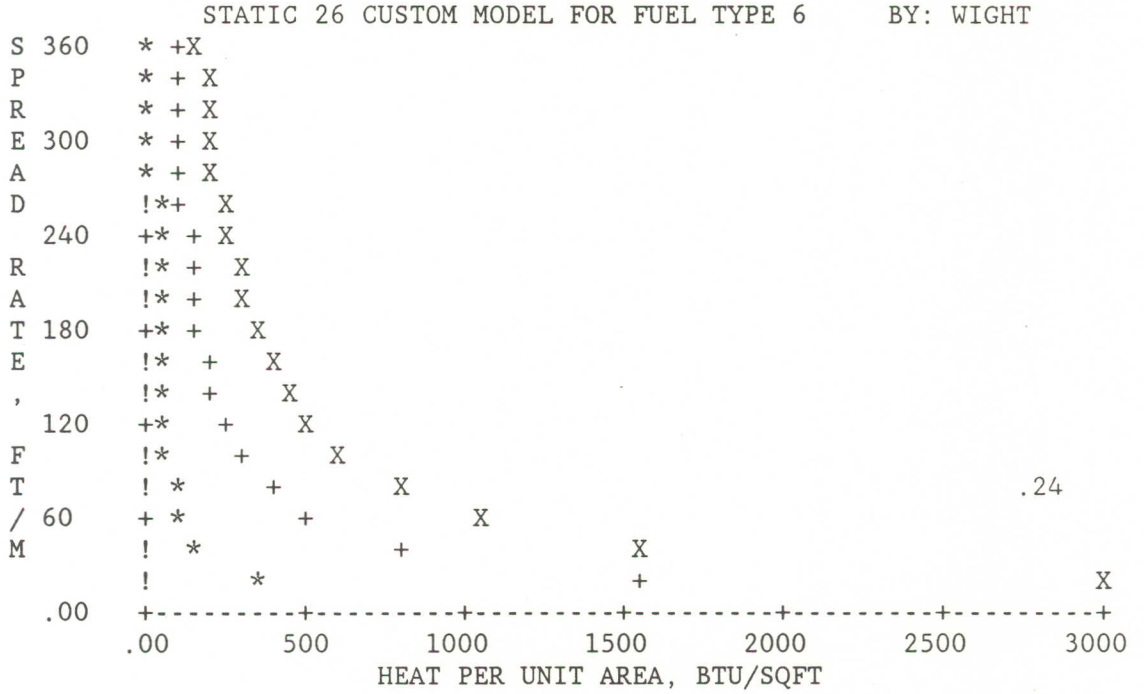
FIRE VARIABLE	SLOPE, % 5.	8.	20.
ROS (FT/M)	73.	73.	78.
FL (FEET)	19.	19.	19.
IR (BTU/SQFT/M)	11501.	11501.	11501.
H/A (BTU/SQFT)	2766.	2766.	2766.
FLI (BTU/FT/S)	3348.	3374.	3603.

SEPTEMBER


STATIC 26 CUSTOM MODEL FOR FUEL TYPE 6 BY: WIGHT
SPREAD RATE, FT/M
691
576
461
345
230
115
.00
02
08
14
.00
3.0
6.0
9.0
12
15
18
MIDFLAME WINDSPEED, MI/H


STATIC 26 CUSTOM MODEL FOR FUEL TYPE 6 BY: WIGHT
FLAME LENGTH, FT
56
47
38
28
19
9.4
.00
02
08
14
.00
3.0
6.0
9.0
12
15
18
MIDFLAME WINDSPEED, MI/H

SEPTEMBER


STATIC 26 CUSTOM MODEL FOR FUEL TYPE 6 BY: WIGHT
SPREAD RATE, FT/MIN
360
300
240
180
120
60
.00
.24
.00
500
1000
1500
2000
2500
3000
HEAT PER UNIT AREA, BTU/SQFT

WORST CASE SCENARIO

STATIC 26. CUSTOM MODEL FOR FUEL TYPE 6 BY: WIGHT

LOADS, T/AC		S/V RATIOS, 1/FT		OTHER	
1 HR	2.80	1 HR	1863.	DEPTH, FT	2.50
10 HR	0.70	LIVE HERB	190.	HEAT CONTENT, BTU/LB	8000.
100 HR	1.38	LIVE WOODY	190.	EXT MOISTURE, %	25.
LIVE HERB	0.08	SIGMA	1597.	PACKING RATIO	0.00540
LIVE WOODY	4.45			PR/OPR	0.68

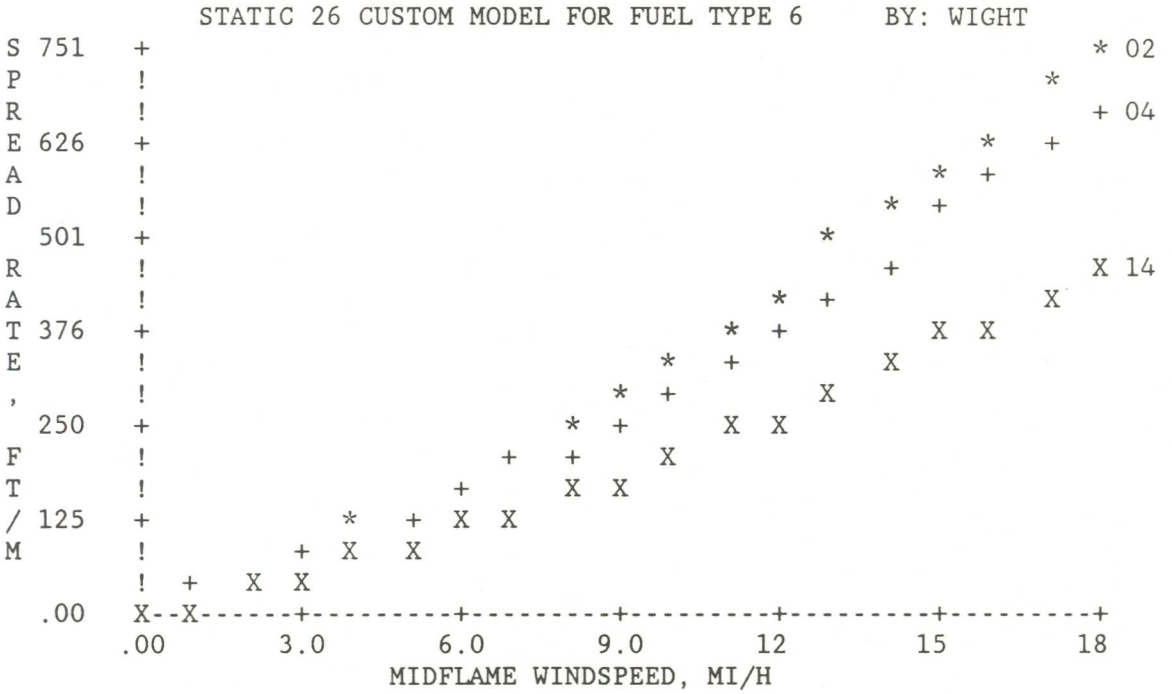
ENVIRONMENTAL DATA		FIRE BEHAVIOR RESULTS			
		FIRE	MIDFLAME WIND, MI/H		
1 HR FM	2.	VARIABLE	6.	10.	12.
10 HR FM	2.	ROS (FT/M)	177.	344.	438.
100 HR FM	7.	FL (FEET)	30.	41.	46.
LIVE HERB FM	60.	IR (BTU/SQFT/M)	13470.	13470.	13470.
LIVE WOODY FM	80.	H/A (BTU/SQFT)	3240.	3240.	3240.
SLOPE, %	8.	FLI (BTU/FT/S)	9557.	18572.	23631.

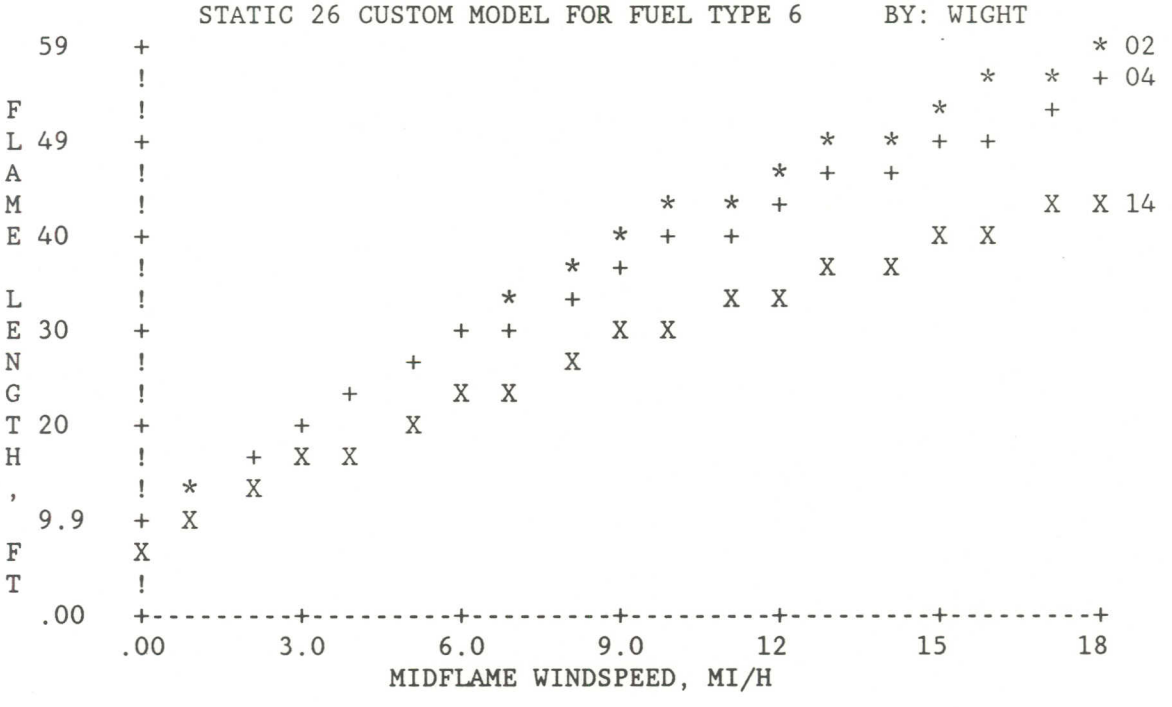
STATIC 26. CUSTOM MODEL FOR FUEL TYPE 6 BY: WIGHT

LOADS, T/AC		S/V RATIOS, 1/FT		OTHER	
1 HR	2.80	1 HR	1863.	DEPTH, FT	2.50
10 HR	0.70	LIVE HERB	190.	HEAT CONTENT, BTU/LB	8000.
100 HR	1.38	LIVE WOODY	190.	EXT MOISTURE, %	25.
LIVE HERB	0.08	SIGMA	1597.	PACKING RATIO	0.00540
LIVE WOODY	4.45			PR/OPR	0.68

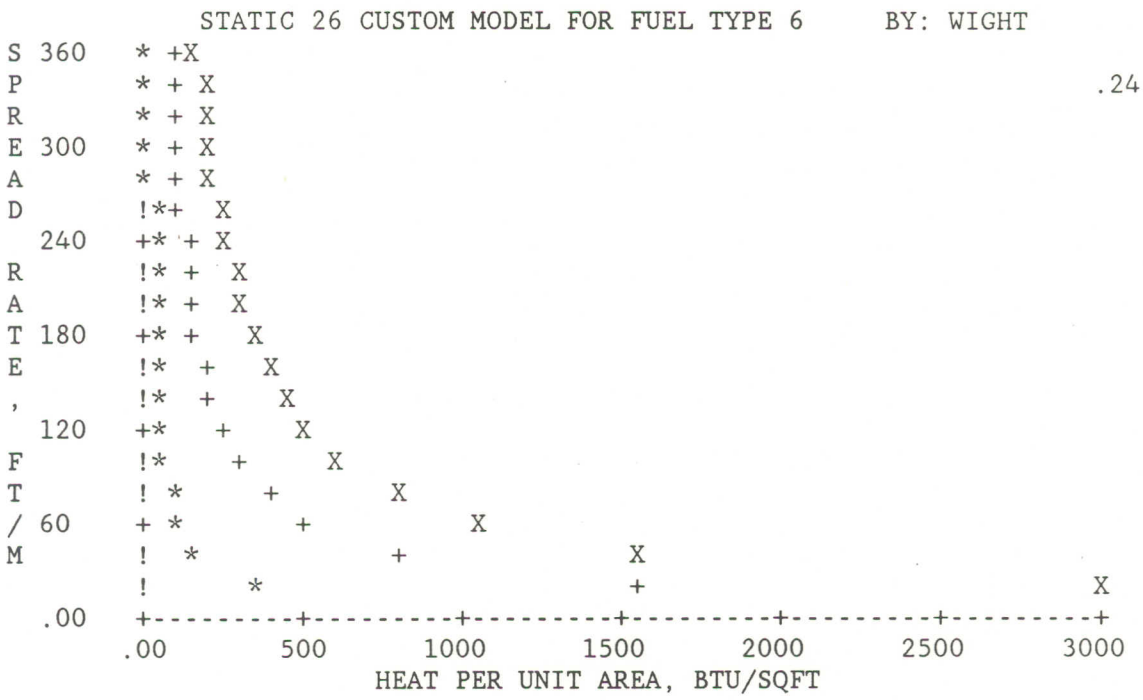
ENVIRONMENTAL DATA		FIRE BEHAVIOR RESULTS			
		FIRE	SLOPE, %		
1 HR FM	2.	VARIABLE	5.	8.	20.
10 HR FM	2.	ROS (FT/M)	343.	344.	351.
100 HR FM	7.	FL (FEET)	41.	41.	42.
LIVE HERB FM	60.	IR (BTU/SQFT/M)	13470.	13470.	13470.
LIVE WOODY FM	80.	H/A (BTU/SQFT)	3240.	3240.	3240.
WIND, MI/H	10.	FLI (BTU/FT/S)	18527.	18572.	18960.

WORST CASE SCENARIO





WORST CASE SCENARIO



MAY

STATIC 27. CUSTOM MODEL FOR FUEL TYPE 7 BY: WIGHT

LOADS, T/AC		S/V RATIOS, 1/FT		OTHER	
1 HR	0.93	1 HR	894.	DEPTH, FT	2.00
10 HR	0.38	LIVE HERB	190.	HEAT CONTENT, BTU/LB	8000.
100 HR	0.58	LIVE WOODY	1500.	EXT MOISTURE, %	20.
LIVE HERB	0.23	SIGMA	1324.	PACKING RATIO	0.00283
LIVE WOODY	1.82			PR/OPR	0.30

ENVIRONMENTAL DATA	
1 HR FM	7.
10 HR FM	10.
100 HR FM	13.
LIVE HERB FM	118.
LIVE WOODY FM	122.
SLOPE, %	7.

FIRE BEHAVIOR RESULTS

FIRE VARIABLE	MIDFLAME WIND, MI/H 2.	4.	10.
ROS (FT/M)	2.	4.	9.
FL (FEET)	1.	2.	2.
IR (BTU/SQFT/M)	843.	843.	843.
H/A (BTU/SQFT)	245.	245.	245.
FLI (BTU/FT/S)	7.	15.	36.

STATIC 27. CUSTOM MODEL FOR FUEL TYPE 7 BY: WIGHT

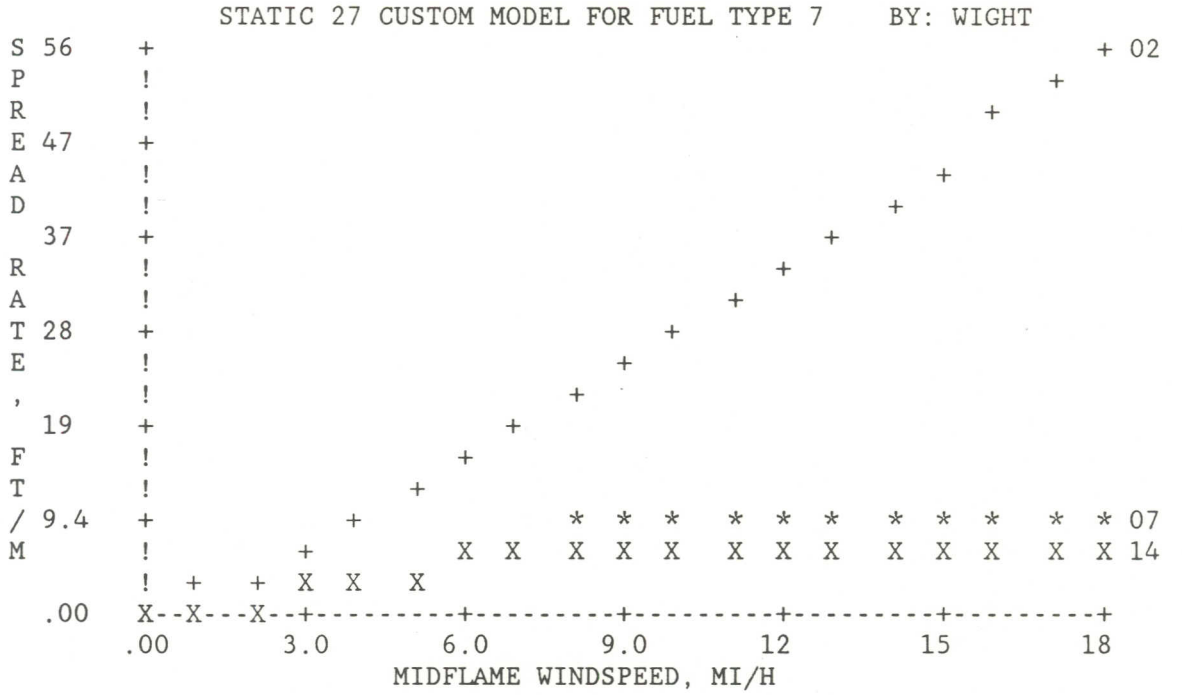
LOADS, T/AC		S/V RATIOS, 1/FT		OTHER	
1 HR	0.93	1 HR	894.	DEPTH, FT	2.00
10 HR	0.38	LIVE HERB	190.	HEAT CONTENT, BTU/LB	8000.
100 HR	0.58	LIVE WOODY	1500.	EXT MOISTURE, %	20.
LIVE HERB	0.23	SIGMA	1324.	PACKING RATIO	0.00283
LIVE WOODY	1.82			PR/OPR	0.30

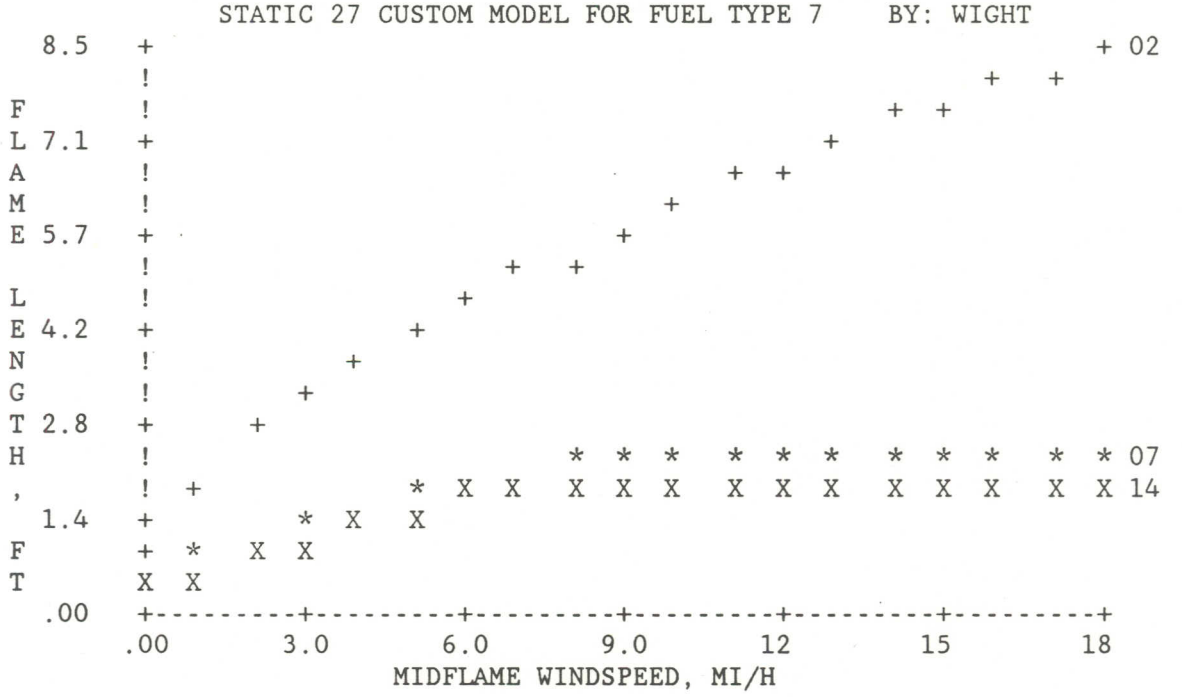
ENVIRONMENTAL DATA	
1 HR FM	7.
10 HR FM	10.
100 HR FM	13.
LIVE HERB FM	118.
LIVE WOODY FM	122.
WIND, MI/H	4.

FIRE BEHAVIOR RESULTS

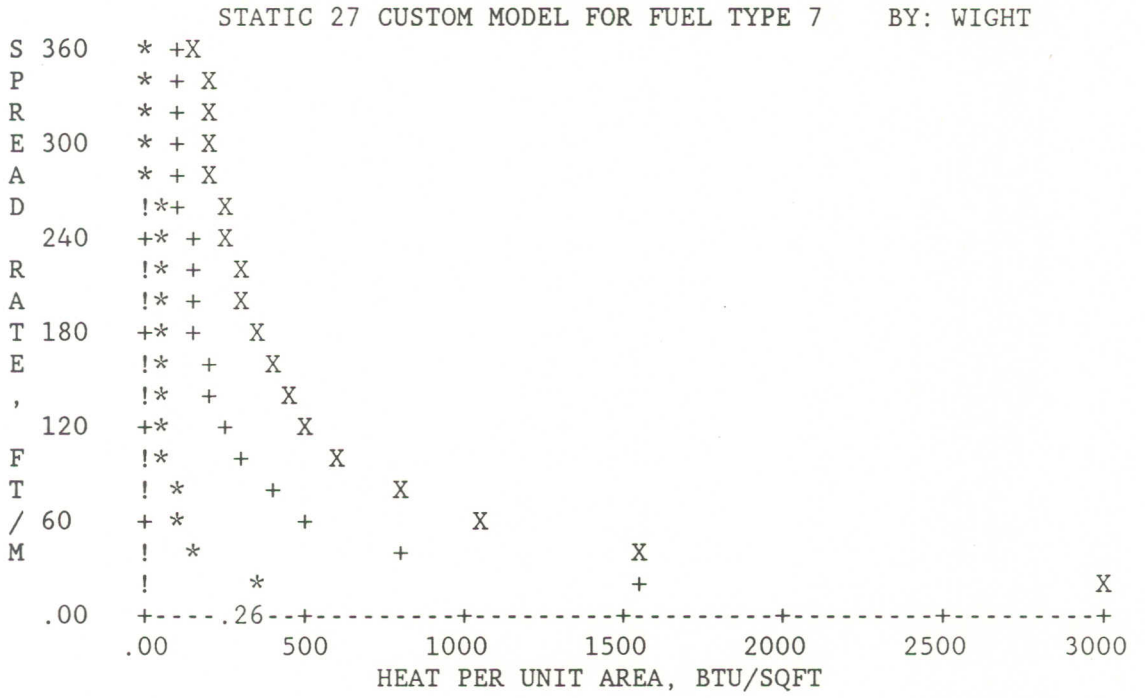
FIRE VARIABLE	SLOPE, % 4.	7.	8.
ROS (FT/M)	4.	4.	4.
FL (FEET)	2.	2.	2.
IR (BTU/SQFT/M)	843.	843.	843.
H/A (BTU/SQFT)	245.	245.	245.
FLI (BTU/FT/S)	15.	15.	15.

MAY


STATIC 27 CUSTOM MODEL FOR FUEL TYPE 7 BY: WIGHT
SPREAD RATE, FT/M
56
47
37
28
19
9.4
.00
02
07
14
.00
3.0
6.0
9.0
12
15
18
MIDFLAME WINDSPEED, MI/H


STATIC 27 CUSTOM MODEL FOR FUEL TYPE 7 BY: WIGHT
FLAME LENGTH, FT
8.5
7.1
5.7
4.2
2.8
1.4
.00
02
07
14
.00
3.0
6.0
9.0
12
15
18
MIDFLAME WINDSPEED, MI/H

MAY


STATIC 27 CUSTOM MODEL FOR FUEL TYPE 7 BY: WIGHT
SPREAD RATE, FT/MIN
360
300
240
180
120
60
.00
.26
.00
500
1000
1500
2000
2500
3000
HEAT PER UNIT AREA, BTU/SQFT

JUNE

STATIC 27. CUSTOM MODEL FOR FUEL TYPE 7 BY: WIGHT

LOADS, T/AC		S/V RATIOS, 1/FT		OTHER	
1 HR	0.93	1 HR	894.	DEPTH, FT	2.00
10 HR	0.38	LIVE HERB	190.	HEAT CONTENT, BTU/LB	8000.
100 HR	0.58	LIVE WOODY	1500.	EXT MOISTURE, %	20.
LIVE HERB	0.23	SIGMA	1324.	PACKING RATIO	0.00283
LIVE WOODY	1.82			PR/OPR	0.30

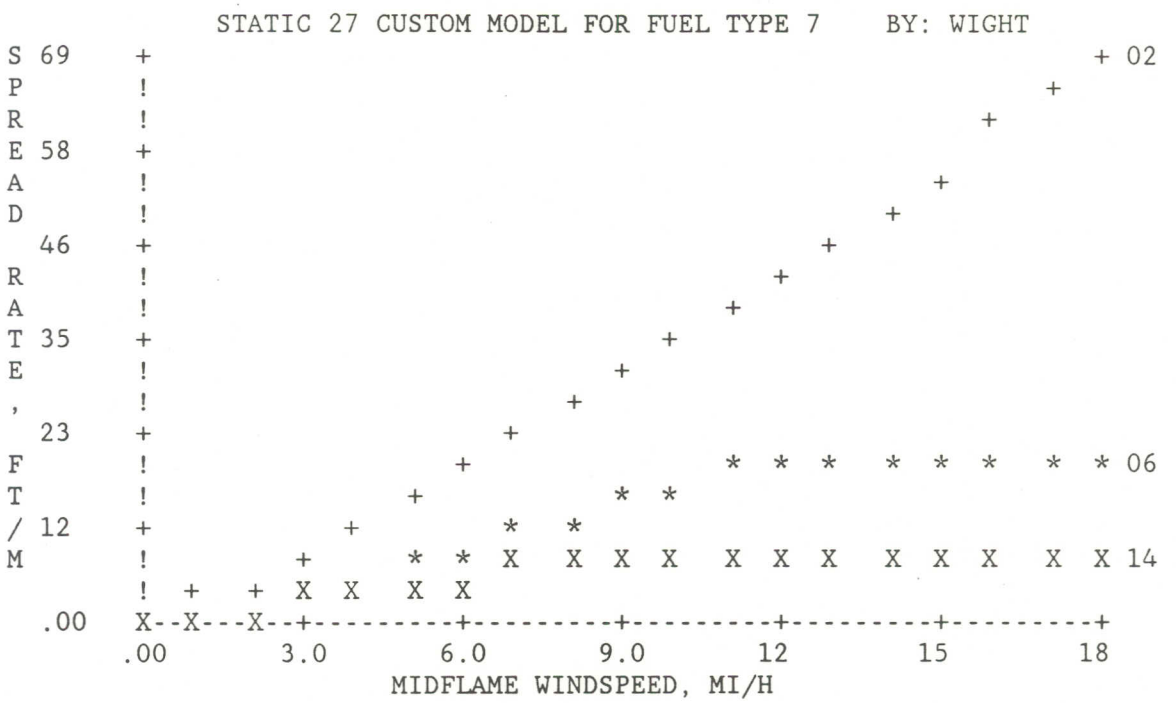
ENVIRONMENTAL DATA		FIRE BEHAVIOR RESULTS			
		FIRE	MIDFLAME WIND, MI/H		
1 HR FM	6.	VARIABLE	2.	4.	10.
10 HR FM	8.	ROS (FT/M)	2.	5.	16.
100 HR FM	10.	FL (FEET)	1.	2.	3.
LIVE HERB FM	101.	IR (BTU/SQFT/M)	1146.	1146.	1146.
LIVE WOODY FM	111.	H/A (BTU/SQFT)	332.	332.	332.
SLOPE, %	7.	FLI (BTU/FT/S)	14.	29.	86.

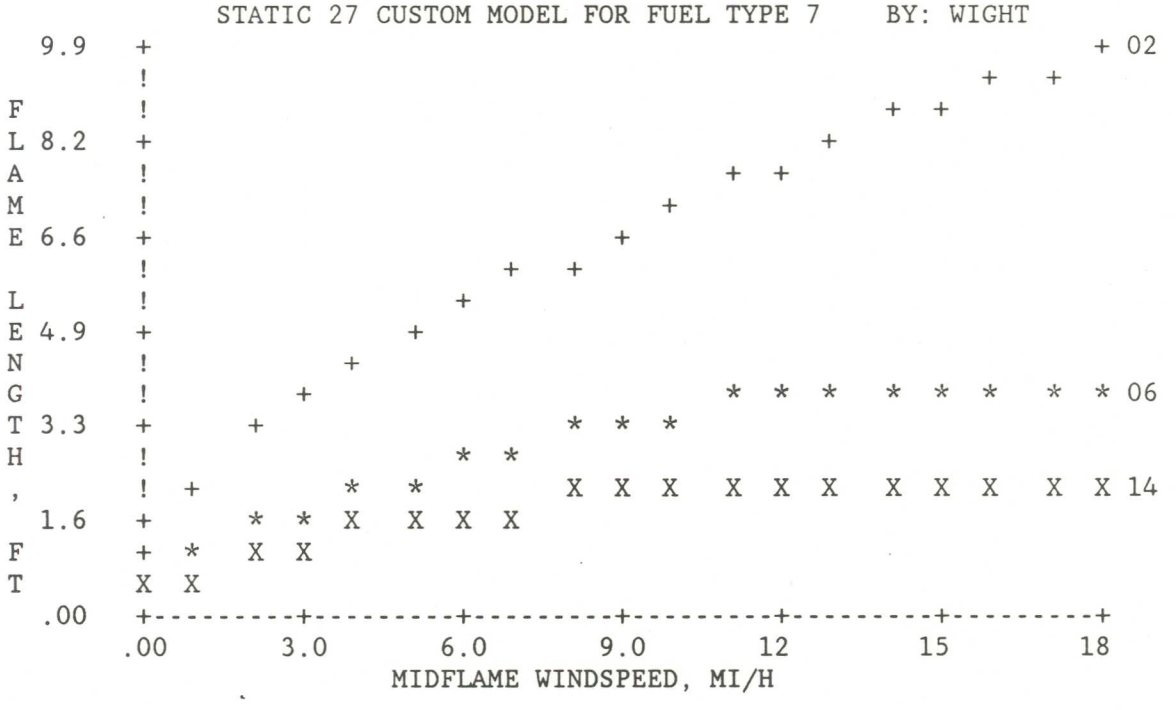
STATIC 27. CUSTOM MODEL FOR FUEL TYPE 7 BY: WIGHT

LOADS, T/AC		S/V RATIOS, 1/FT		OTHER	
1 HR	0.93	1 HR	894.	DEPTH, FT	2.00
10 HR	0.38	LIVE HERB	190.	HEAT CONTENT, BTU/LB	8000.
100 HR	0.58	LIVE WOODY	1500.	EXT MOISTURE, %	20.
LIVE HERB	0.23	SIGMA	1324.	PACKING RATIO	0.00283
LIVE WOODY	1.82			PR/OPR	0.30

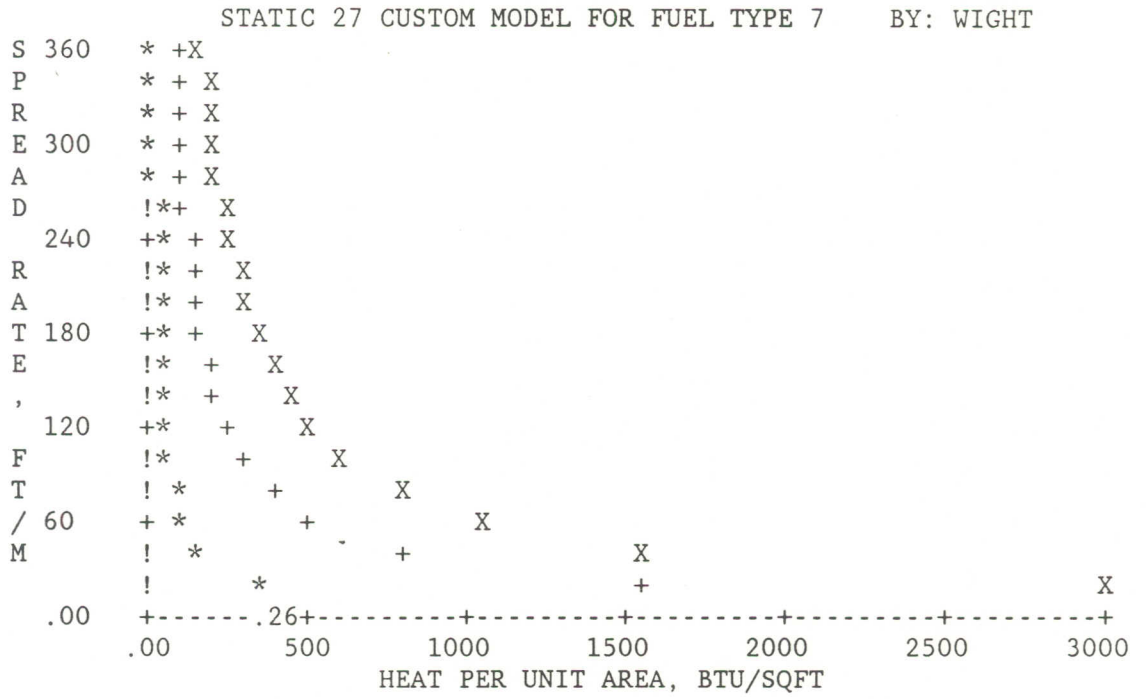
ENVIRONMENTAL DATA		FIRE BEHAVIOR RESULTS			
		FIRE	SLOPE, %		
1 HR FM	6.	VARIABLE	4.	7.	8.
10 HR FM	8.	ROS (FT/M)	5.	5.	5.
100 HR FM	10.	FL (FEET)	2.	2.	2.
LIVE HERB FM	101.	IR (BTU/SQFT/M)	1146.	1146.	1146.
LIVE WOODY FM	111.	H/A (BTU/SQFT)	332.	332.	332.
WIND, MI/H	4.	FLI (BTU/FT/S)	29.	29.	29.

JUNE


STATIC 27 CUSTOM MODEL FOR FUEL TYPE 7 BY: WIGHT
SPREAD RATE, FT/M
69
58
46
35
23
12
.00
02
06
14
.00
3.0
6.0
9.0
12
15
18
MIDFLAME WINDSPEED, MI/H


STATIC 27 CUSTOM MODEL FOR FUEL TYPE 7 BY: WIGHT
FLAME LENGTH, FT
9.9
8.2
6.6
4.9
3.3
1.6
.00
02
06
14
.00
3.0
6.0
9.0
12
15
18
MIDFLAME WINDSPEED, MI/H

JUNE


STATIC 27 CUSTOM MODEL FOR FUEL TYPE 7 BY: WIGHT
SPREAD RATE, FT/MIN
360
300
240
180
120
60
.00
.00
500
1000
1500
2000
2500
3000
HEAT PER UNIT AREA, BTU/SQFT

JULY

STATIC 27. CUSTOM MODEL FOR FUEL TYPE 7 BY: WIGHT

LOADS, T/AC		S/V RATIOS, 1/FT		OTHER	
1 HR	0.93	1 HR	894.	DEPTH, FT	2.00
10 HR	0.38	LIVE HERB	190.	HEAT CONTENT, BTU/LB	8000.
100 HR	0.58	LIVE WOODY	1500.	EXT MOISTURE, %	20.
LIVE HERB	0.23	SIGMA	1324.	PACKING RATIO	0.00283
LIVE WOODY	1.82			PR/OPR	0.30

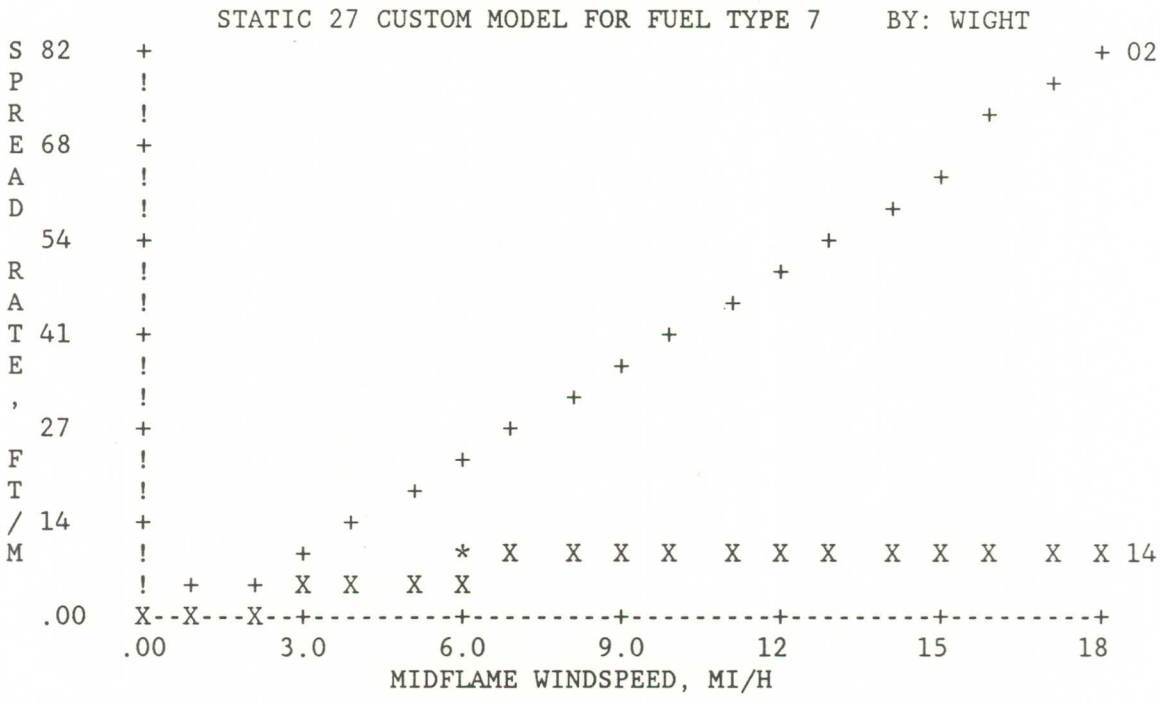
ENVIRONMENTAL DATA		FIRE BEHAVIOR RESULTS			
		FIRE	MIDFLAME WIND, MI/H		
1 HR FM	8.	VARIABLE	2.	4.	10.
10 HR FM	13.	ROS (FT/M)	2.	4.	10.
100 HR FM	12.	FL (FEET)	1.	2.	2.
LIVE HERB FM	79.	IR (BTU/SQFT/M)	827.	827.	827.
LIVE WOODY FM	95.	H/A (BTU/SQFT)	240.	240.	240.
SLOPE, %	7.	FLI (BTU/FT/S)	8.	17.	41.

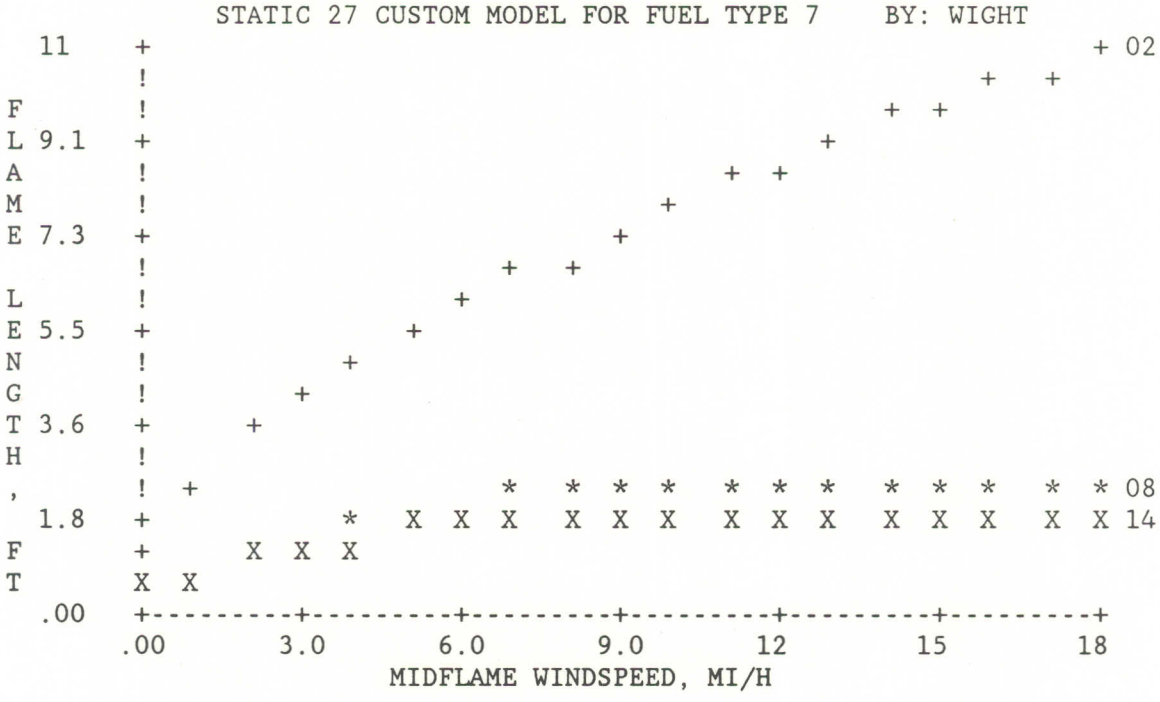
STATIC 27. CUSTOM MODEL FOR FUEL TYPE 7 BY: WIGHT

LOADS, T/AC		S/V RATIOS, 1/FT		OTHER	
1 HR	0.93	1 HR	894.	DEPTH, FT	2.00
10 HR	0.38	LIVE HERB	190.	HEAT CONTENT, BTU/LB	8000.
100 HR	0.58	LIVE WOODY	1500.	EXT MOISTURE, %	20.
LIVE HERB	0.23	SIGMA	1324.	PACKING RATIO	0.00283
LIVE WOODY	1.82			PR/OPR	0.30

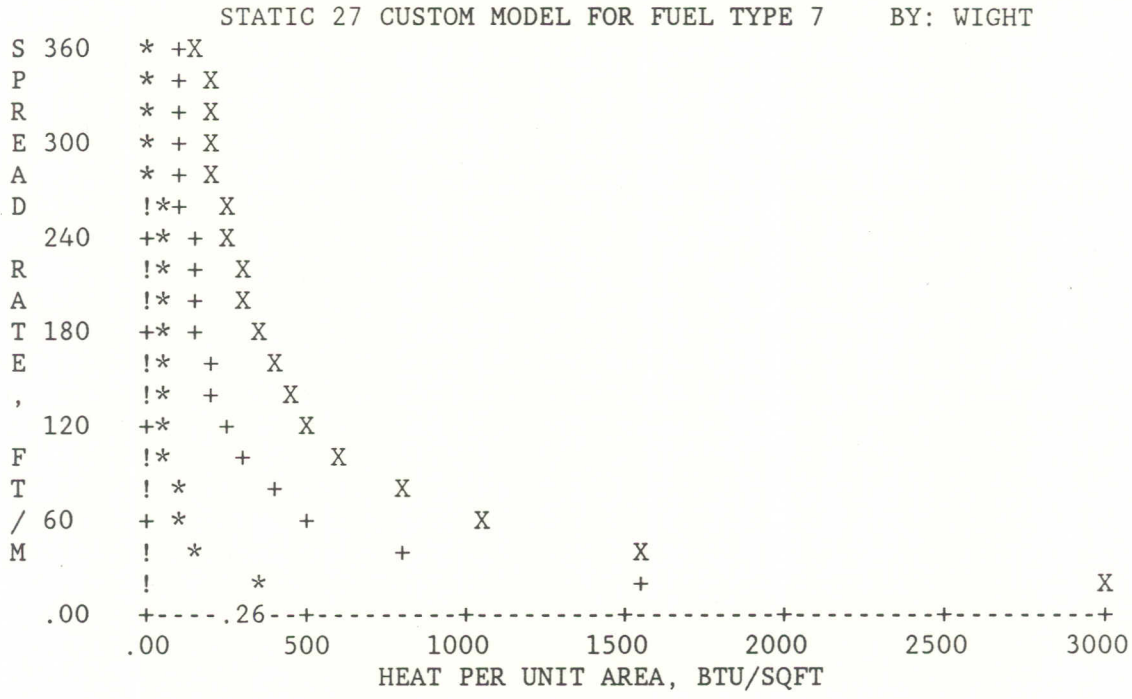
ENVIRONMENTAL DATA		FIRE BEHAVIOR RESULTS			
		FIRE	SLOPE, %		
1 HR FM	8.	VARIABLE	4.	7.	8.
10 HR FM	13.	ROS (FT/M)	4.	4.	4.
100 HR FM	12.	FL (FEET)	2.	2.	2.
LIVE HERB FM	79.	IR (BTU/SQFT/M)	827.	827.	827.
LIVE WOODY FM	95.	H/A (BTU/SQFT)	240.	240.	240.
WIND, MI/H	4.	FLI (BTU/FT/S)	17.	17.	17.

JULY


STATIC 27 CUSTOM MODEL FOR FUEL TYPE 7 BY: WIGHT
SPREAD RATE, FT/M
82
68
54
41
27
14
.00
02
08
14
.00
3.0
6.0
9.0
12
15
18
MIDFLAME WINDSPEED, MI/H


STATIC 27 CUSTOM MODEL FOR FUEL TYPE 7 BY: WIGHT
FLAME LENGTH, FT
11
9.1
7.3
5.5
3.6
1.8
.00
02
08
14
.00
3.0
6.0
9.0
12
15
18
MIDFLAME WINDSPEED, MI/H

JULY


STATIC 27 CUSTOM MODEL FOR FUEL TYPE 7 BY: WIGHT
SPREAD RATE, FT/MIN
360
300
240
180
120
60
.00
.26
.00
500
1000
1500
2000
2500
3000
HEAT PER UNIT AREA, BTU/SQFT

AUGUST

STATIC 27. CUSTOM MODEL FOR FUEL TYPE 7 BY: WIGHT

LOADS, T/AC		S/V RATIOS, 1/FT		OTHER	
1 HR	0.93	1 HR	894.	DEPTH, FT	2.00
10 HR	0.38	LIVE HERB	190.	HEAT CONTENT, BTU/LB	8000.
100 HR	0.58	LIVE WOODY	1500.	EXT MOISTURE, %	20.
LIVE HERB	0.23	SIGMA	1324.	PACKING RATIO	0.00283
LIVE WOODY	1.82			PR/OPR	0.30

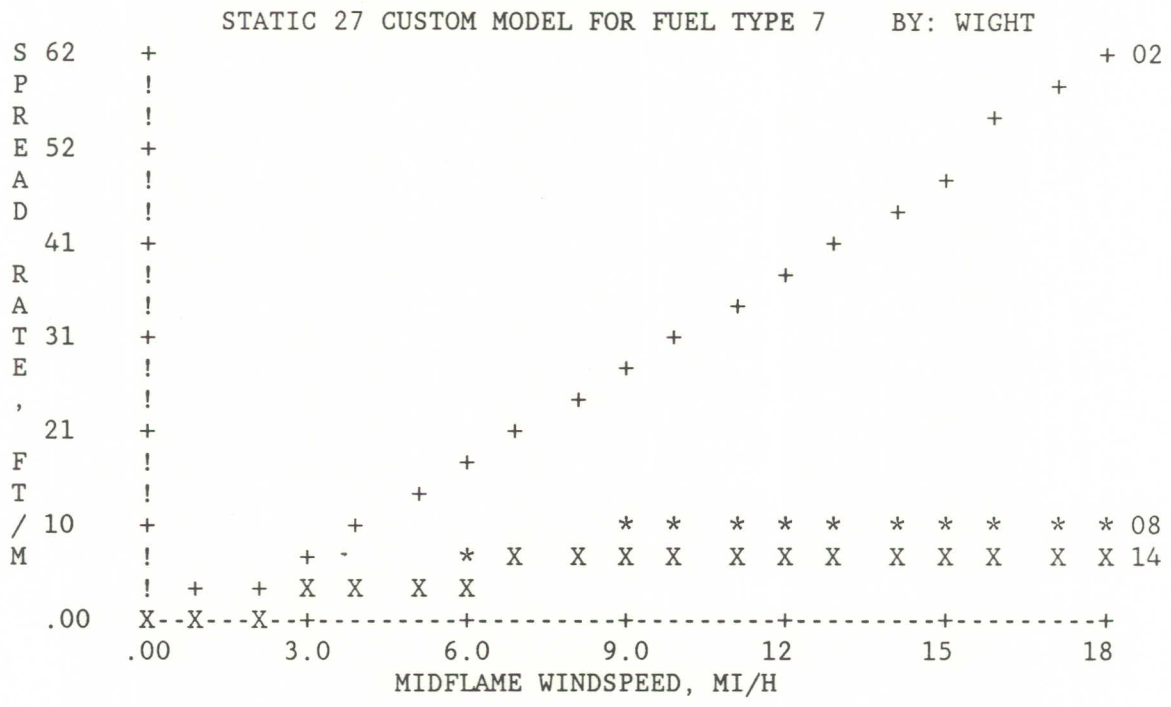
ENVIRONMENTAL DATA		FIRE BEHAVIOR RESULTS			
		FIRE	MIDFLAME WIND, MI/H		
1 HR FM	8.	VARIABLE	2.	4.	10.
10 HR FM	13.		---	---	---
100 HR FM	14.	ROS (FT/M)	2.	4.	9.
LIVE HERB FM	78.	FL (FEET)	1.	2.	2.
LIVE WOODY FM	115.	IR (BTU/SQFT/M)	826.	826.	826.
		H/A (BTU/SQFT)	240.	240.	240.
SLOPE, %	7.	FLI (BTU/FT/S)	7.	15.	35.

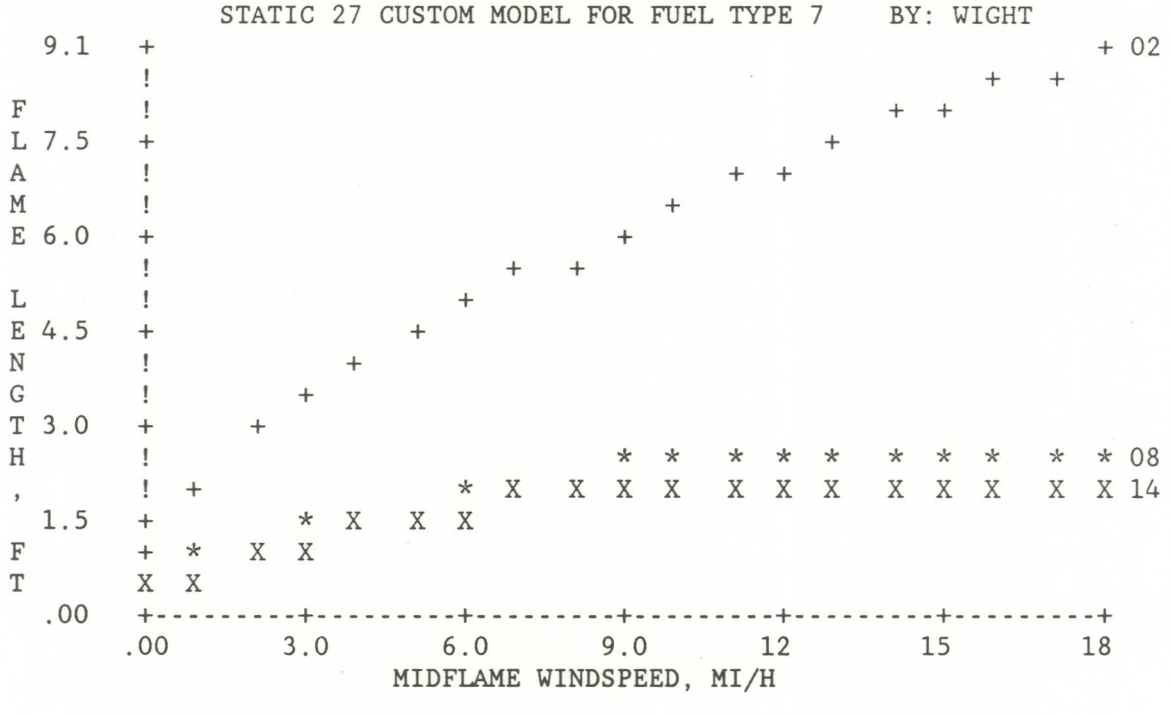
STATIC 27. CUSTOM MODEL FOR FUEL TYPE 7 BY: WIGHT

LOADS, T/AC		S/V RATIOS, 1/FT		OTHER	
1 HR	0.93	1 HR	894.	DEPTH, FT	2.00
10 HR	0.38	LIVE HERB	190.	HEAT CONTENT, BTU/LB	8000.
100 HR	0.58	LIVE WOODY	1500.	EXT MOISTURE, %	20.
LIVE HERB	0.23	SIGMA	1324.	PACKING RATIO	0.00283
LIVE WOODY	1.82			PR/OPR	0.30

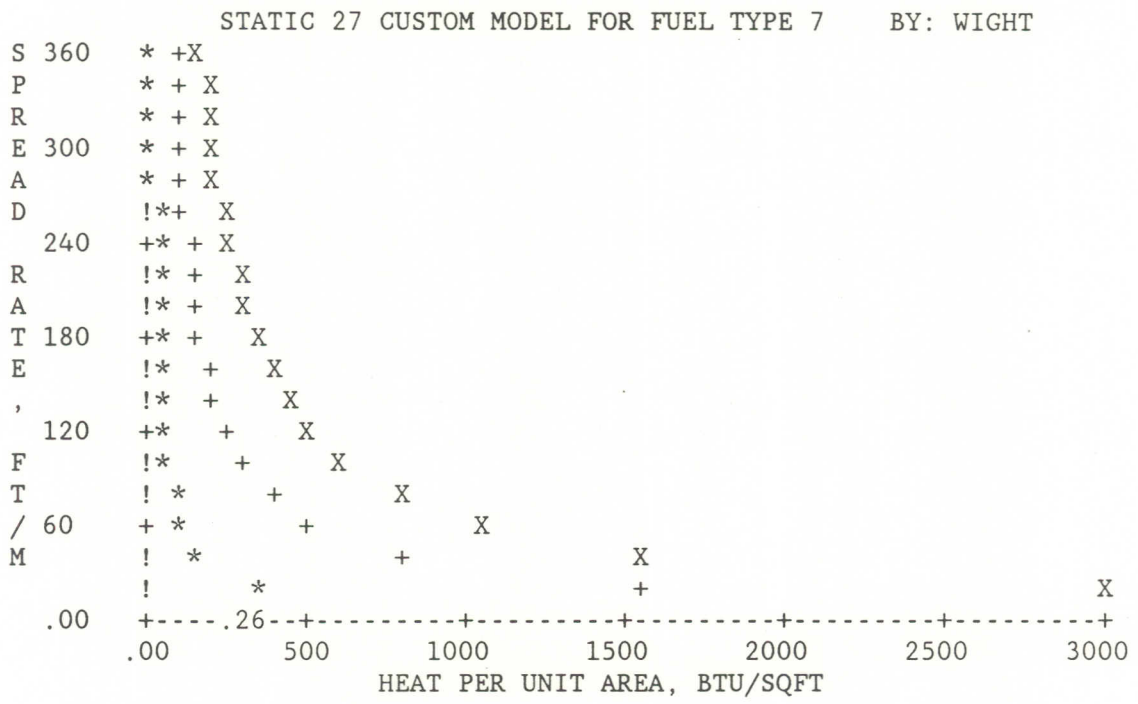
ENVIRONMENTAL DATA		FIRE BEHAVIOR RESULTS			
		FIRE	SLOPE, %		
1 HR FM	8.	VARIABLE	4.	7.	8.
10 HR FM	13.		---	---	---
100 HR FM	14.	ROS (FT/M)	4.	4.	4.
LIVE HERB FM	78.	FL (FEET)	2.	2.	2.
LIVE WOODY FM	115.	IR (BTU/SQFT/M)	826.	826.	826.
WIND, MI/H	4.	H/A (BTU/SQFT)	240.	240.	240.
		FLI (BTU/FT/S)	15.	15.	15.

AUGUST


STATIC 27 CUSTOM MODEL FOR FUEL TYPE 7 BY: WIGHT
SPREAD RATE, FT/M
62
52
41
31
21
10
02
08
14
.00
3.0
6.0
9.0
12
15
18
MIDFLAME WINDSPEED, MI/H


STATIC 27 CUSTOM MODEL FOR FUEL TYPE 7 BY: WIGHT
FLAME LENGTH, FT
9.1
7.5
6.0
4.5
3.0
1.5
.00
02
08
14
3.0
6.0
9.0
12
15
18
MIDFLAME WINDSPEED, MI/H

AUGUST


STATIC 27 CUSTOM MODEL FOR FUEL TYPE 7 BY: WIGHT
SPREAD RATE, FT/MIN
360
300
240
180
120
60
.00
.26
.00
500
1000
1500
2000
2500
3000
HEAT PER UNIT AREA, BTU/SQFT

SEPTEMBER

STATIC 27. CUSTOM MODEL FOR FUEL TYPE 7 BY: WIGHT

LOADS, T/AC		S/V RATIOS, 1/FT		OTHER	
1 HR	0.93	1 HR	894.	DEPTH, FT	2.00
10 HR	0.38	LIVE HERB	190.	HEAT CONTENT, BTU/LB	8000.
100 HR	0.58	LIVE WOODY	1500.	EXT MOISTURE, %	20.
LIVE HERB	0.23	SIGMA	1324.	PACKING RATIO	0.00283
LIVE WOODY	1.82			PR/OPR	0.30

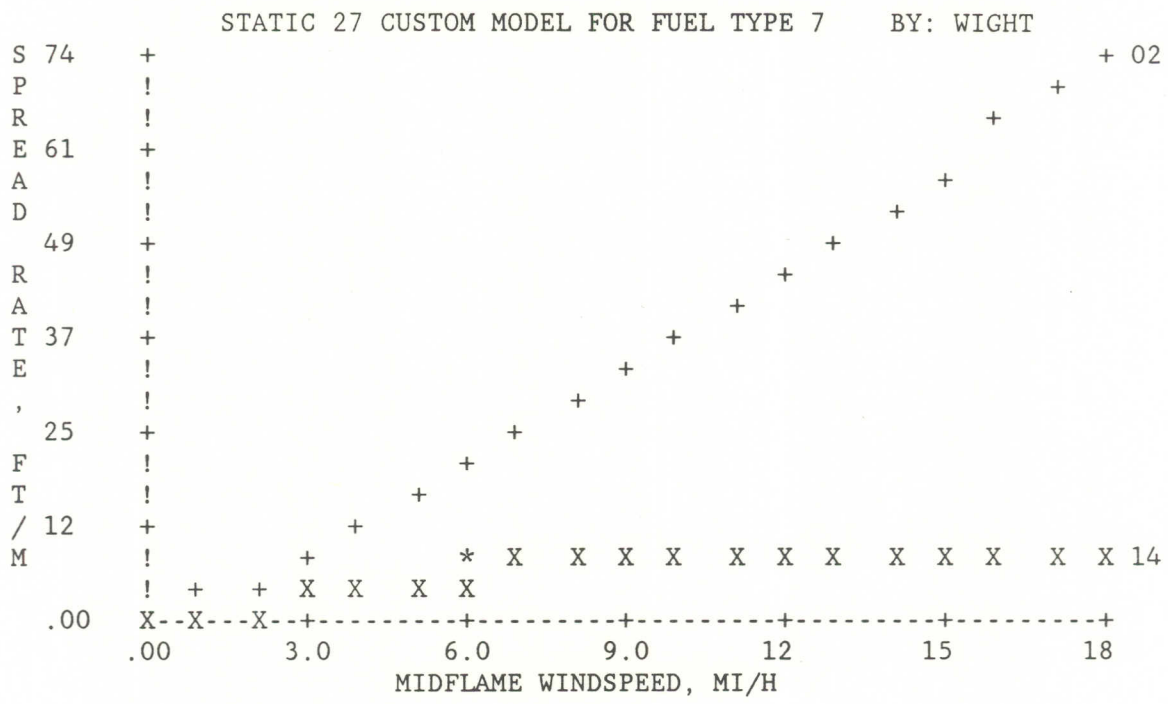
ENVIRONMENTAL DATA		FIRE BEHAVIOR RESULTS			
		FIRE	MIDFLAME WIND, MI/H		
1 HR FM	8.	VARIABLE	2.	4.	10.
10 HR FM	14.	ROS (FT/M)	2.	4.	10.
100 HR FM	14.	FL (FEET)	1.	2.	2.
LIVE HERB FM	58.	IR (BTU/SQFT/M)	825.	825.	825.
LIVE WOODY FM	103.	H/A (BTU/SQFT)	239.	239.	239.
SLOPE, %	7.	FLI (BTU/FT/S)	7.	16.	38.

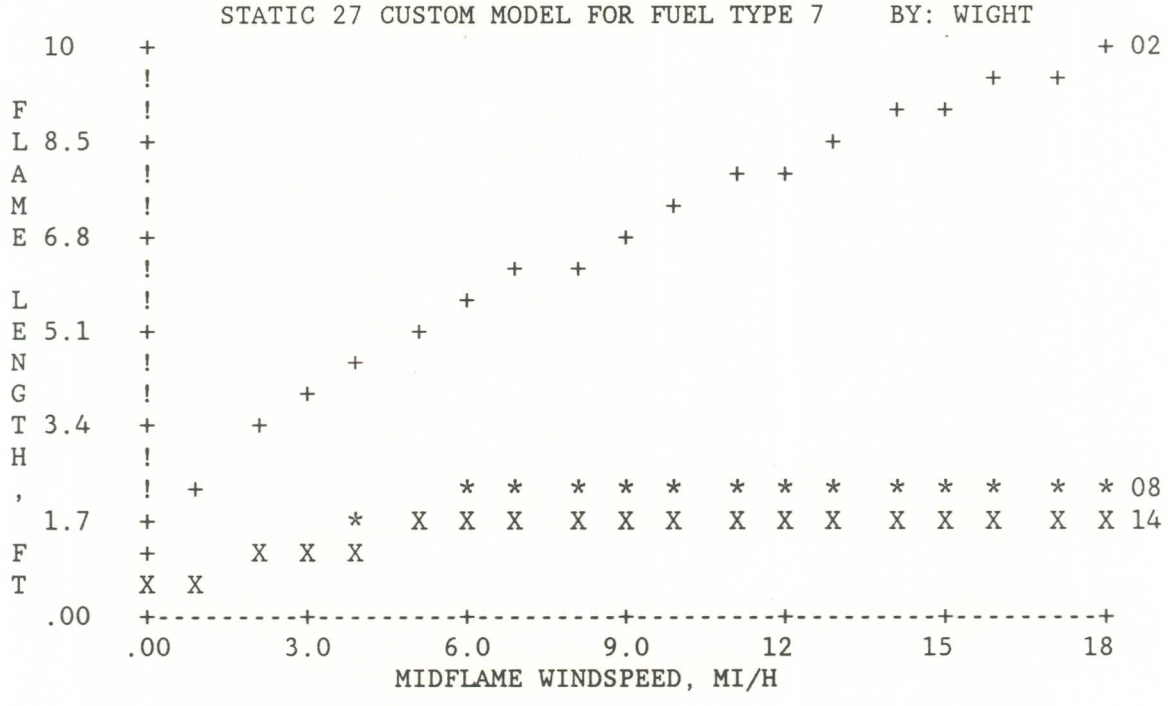
STATIC 27. CUSTOM MODEL FOR FUEL TYPE 7 BY: WIGHT

LOADS, T/AC		S/V RATIOS, 1/FT		OTHER	
1 HR	0.93	1 HR	894.	DEPTH, FT	2.00
10 HR	0.38	LIVE HERB	190.	HEAT CONTENT, BTU/LB	8000.
100 HR	0.58	LIVE WOODY	1500.	EXT MOISTURE, %	20.
LIVE HERB	0.23	SIGMA	1324.	PACKING RATIO	0.00283
LIVE WOODY	1.82			PR/OPR	0.30

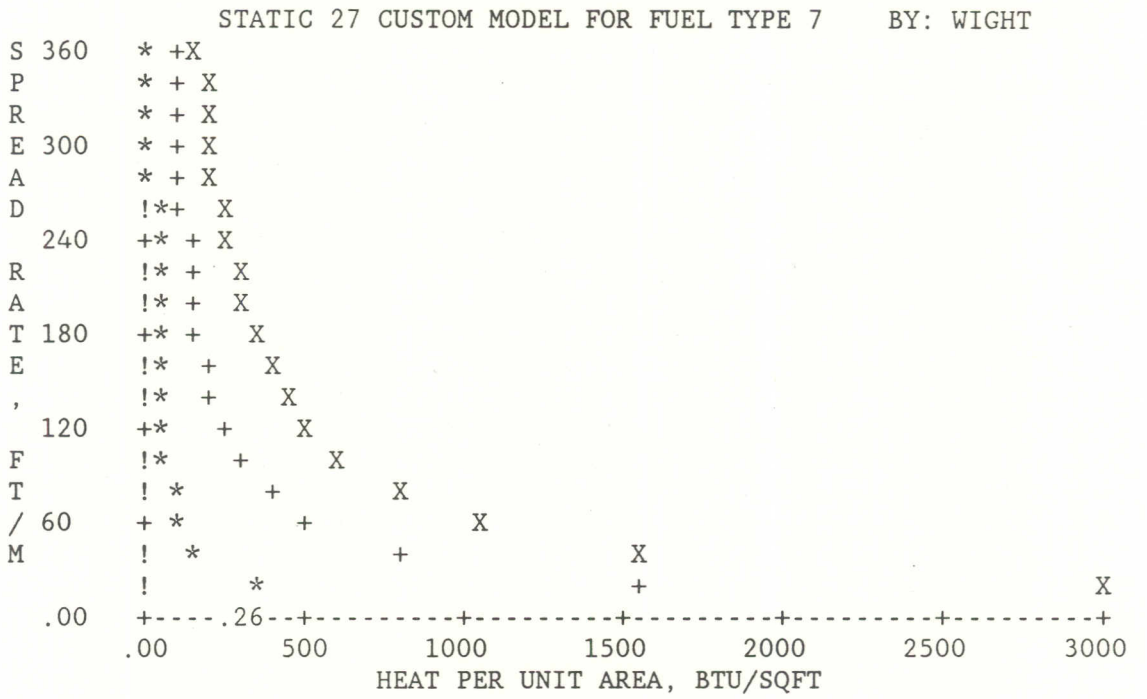
ENVIRONMENTAL DATA		FIRE BEHAVIOR RESULTS			
		FIRE	SLOPE, %		
1 HR FM	8.	VARIABLE	4.	7.	8.
10 HR FM	14.	ROS (FT/M)	4.	4.	4.
100 HR FM	14.	FL (FEET)	2.	2.	2.
LIVE HERB FM	58.	IR (BTU/SQFT/M)	825.	825.	825.
LIVE WOODY FM	103.	H/A (BTU/SQFT)	239.	239.	239.
WIND, MI/H	4.	FLI (BTU/FT/S)	16.	16.	16.

SEPTEMBER


STATIC 27 CUSTOM MODEL FOR FUEL TYPE 7 BY: WIGHT
SPREAD RATE, FT/M
74
61
49
37
25
12
.00
02
08
14
.00
3.0
6.0
9.0
12
15
18
MIDFLAME WINDSPEED, MI/H


STATIC 27 CUSTOM MODEL FOR FUEL TYPE 7 BY: WIGHT
FLAME LENGTH, FT
10
8.5
6.8
5.1
3.4
1.7
.00
02
08
14
.00
3.0
6.0
9.0
12
15
18
MIDFLAME WINDSPEED, MI/H

SEPTEMBER


STATIC 27 CUSTOM MODEL FOR FUEL TYPE 7 BY: WIGHT
SPREAD RATE, FT/MIN
360
300
240
180
120
60
.00
.26
.00
500
1000
1500
2000
2500
3000
HEAT PER UNIT AREA, BTU/SQFT

WORST CASE SCENARIO

STATIC 27. CUSTOM MODEL FOR FUEL TYPE 7 BY: WIGHT

LOADS, T/AC		S/V RATIOS, 1/FT		OTHER	
1 HR	0.93	1 HR	894.	DEPTH, FT	2.00
10 HR	0.38	LIVE HERB	190.	HEAT CONTENT, BTU/LB	8000.
100 HR	0.58	LIVE WOODY	1500.	EXT MOISTURE, %	20.
LIVE HERB	0.23	SIGMA	1324.	PACKING RATIO	0.00283
LIVE WOODY	1.82			PR/OPR	0.30

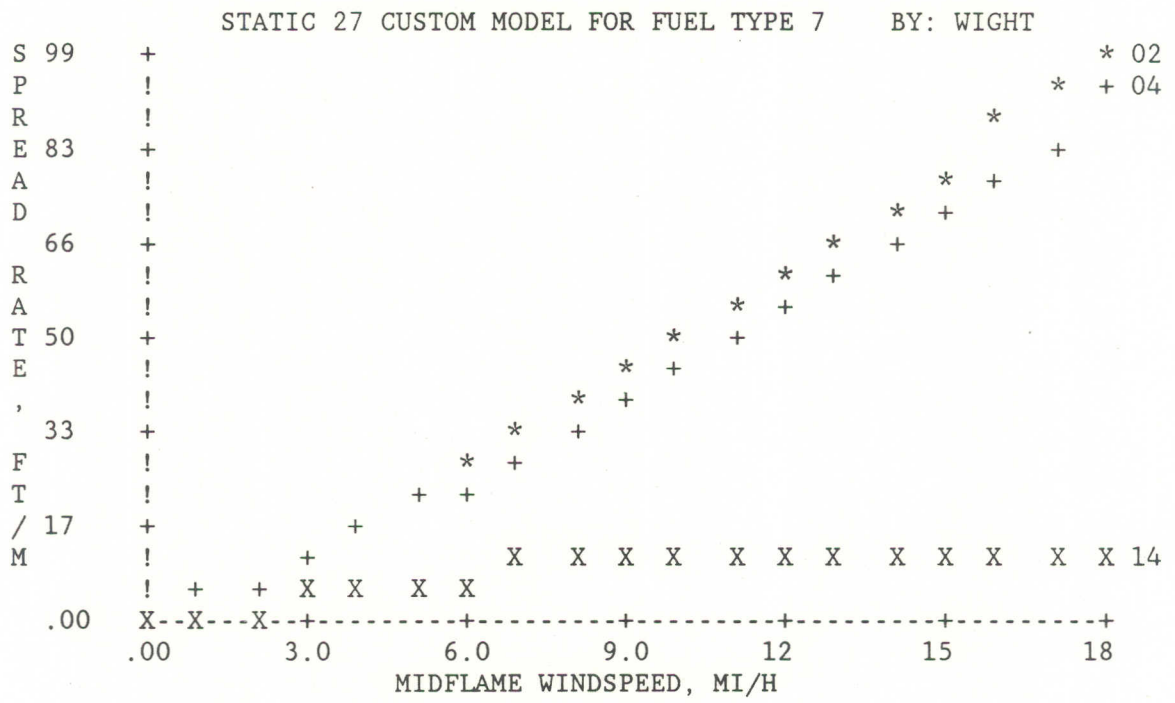
ENVIRONMENTAL DATA		FIRE BEHAVIOR RESULTS			
		FIRE	MIDFLAME WIND, MI/H		
1 HR FM	2.	VARIABLE	2.	10.	12.
10 HR FM	2.	ROS (FT/M)	8.	49.	61.
100 HR FM	7.	FL (FEET)	4.	9.	10.
LIVE HERB FM	60.	IR (BTU/SQFT/M)	2782.	2782.	2782.
LIVE WOODY FM	80.	H/A (BTU/SQFT)	807.	807.	807.
SLOPE, %	7.	FLI (BTU/FT/S)	104.	658.	818.

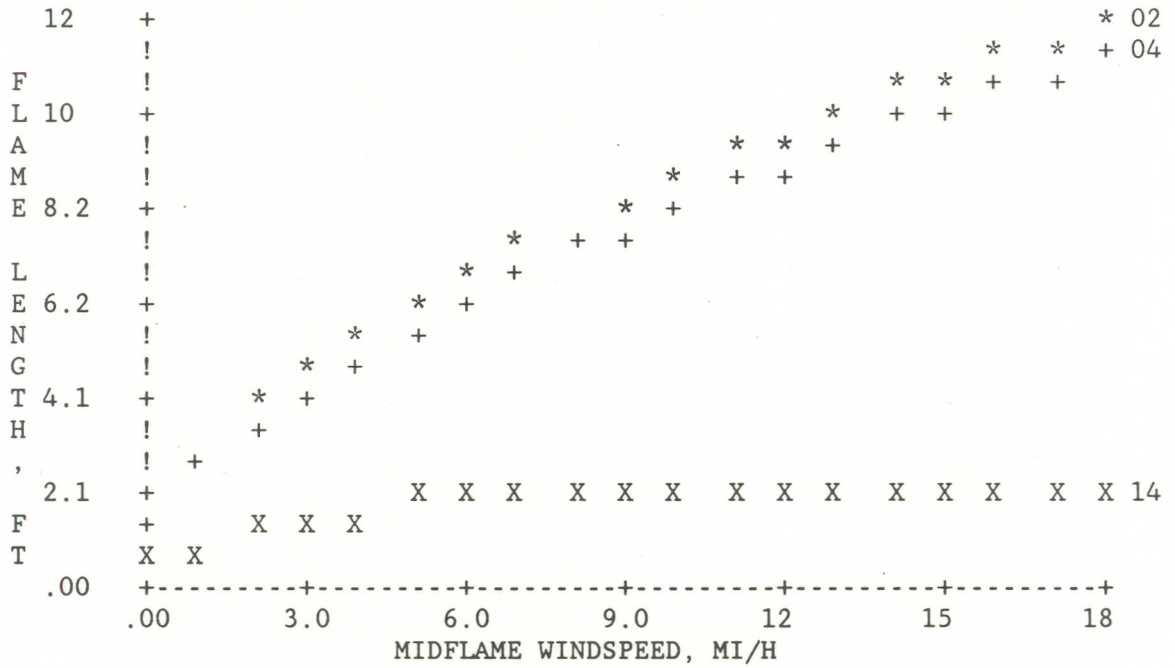
STATIC 27. CUSTOM MODEL FOR FUEL TYPE 7 BY: WIGHT

LOADS, T/AC		S/V RATIOS, 1/FT		OTHER	
1 HR	0.93	1 HR	894.	DEPTH, FT	2.00
10 HR	0.38	LIVE HERB	190.	HEAT CONTENT, BTU/LB	8000.
100 HR	0.58	LIVE WOODY	1500.	EXT MOISTURE, %	20.
LIVE HERB	0.23	SIGMA	1324.	PACKING RATIO	0.00283
LIVE WOODY	1.82			PR/OPR	0.30

ENVIRONMENTAL DATA		FIRE BEHAVIOR RESULTS			
		FIRE	SLOPE, %		
1 HR FM	2.	VARIABLE	4.	7.	8.
10 HR FM	2.	ROS (FT/M)	49.	49.	49.
100 HR FM	7.	FL (FEET)	9.	9.	9.
LIVE HERB FM	60.	IR (BTU/SQFT/M)	2782.	2782.	2782.
LIVE WOODY FM	80.	H/A (BTU/SQFT)	807.	807.	807.
WIND, MI/H	10.	FLI (BTU/FT/S)	656.	658.	658.

WORST CASE SCENARIO





WORST CASE SCENARIO

