



FIRE MANAGEMENT

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Hot Shot Crews Pay Big Dividends

Jerry Ewart

Wildland fires present a formidable challenge to the fire manager. Fast, effective initial attack can save millions of dollars in potential resource losses and suppression costs. The modern fire manager uses many tools to effect these savings. Air tankers, helitack crews, modern ground tankers, hot shot crews, more efficient prevention efforts, and intensive fuels management are some of the tools available. One of the most effective of these is the modern, hard hitting, 20-man hot shot crew.

In the Beginning

The Tonto National Forest in the Southwestern Region near Phoenix, Ariz., organized its first hot shot crew on the Payson Ranger District early in the spring of 1972. Since that time, two additional hot shot crews have been organized on the Forest, one on the Pleasant Valley Ranger District and one on the Globe Ranger District.

The Forest experiences an average of 300 fires each year. These crews have proved to be a valuable asset in the resulting suppression activities. Hot shot crews have long been thought by many as the most efficient and knowledgeable handline-construction crews in the field of wildland fire suppression. As part of proud organizations, the crew members feel a definite responsibility to do the best job possible, and they do. They are often called on for the toughest fire suppression assignments.

The initial hiring of crewmen for the hot shot crews on the Tonto proved to be somewhat difficult due to the relatively isolated locales and the demand for manpower early in the spring before schools were out for summer vacation. The job of finding enough competent people is getting easier each year, however, since many of the crewmen are returning for a second or a third season on the crew. They cite extended employment seasons and increased job satisfaction as their reasons for returning.

Trained for Performance

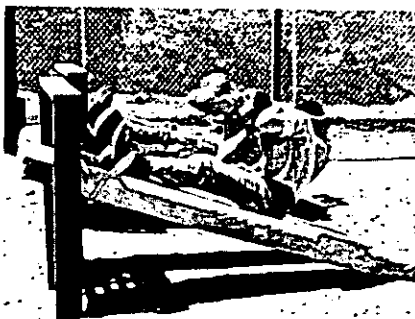
Each spring these crews enter a rigorous training program geared to build their physical stamina, fire suppression knowledge, and ability to work together as a team under the toughest conditions. Regularly scheduled physical exercise is a must. Chinups, situps, pushups, and

running all help condition the body for the strenuous firefighting work. Each member must pass the Step Test at a level of at least 45 and maintain this ability throughout the fire season.

Use of hand tools and principles of handline construction, chainsaw use, fire weather, fire behavior, helicopter safety, equipment maintenance, housekeeping, and fire organization are some of the subjects covered in training. Safety—an inherent part of all training and work assignments—is stressed constantly.

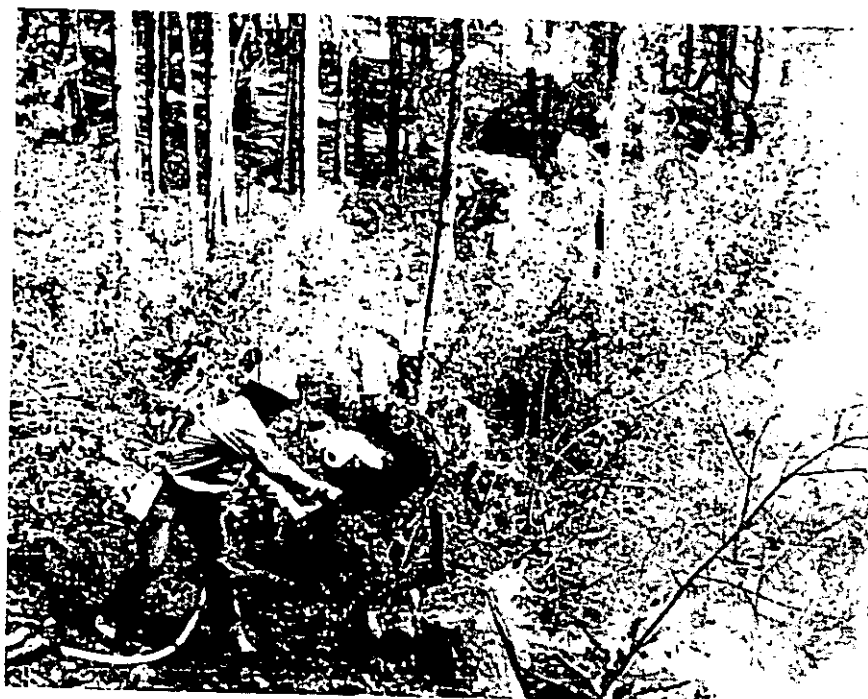
The primary mission of the hot shot crew is to provide professional initial attack and followup suppression action on wildfire assignments. Work supervisors take advantage of work situations to improve the crews' efficiency along these lines. Daily project work brings about countless opportunities to train men in work proficiency and safety. A well trained crew is a safe and productive crew, and a productive crew maintains a high level of morale and efficiency.

Once the initial training is complete, the crews are assigned various work projects, such as fuel break and firebreak construction, helispot construction, hazard reduction and improvement maintenance. Regardless of the project, crews maintain themselves in a constant state of readiness for immediate fire dispatch.



The "Torture Rack" toughens stomach, leg, and back muscles.

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Training and physical fitness pay off when the chips are down.

Before the Fires Start

Presuppression activities are important and must be planned and carried out in a systematic manner if crews are to be totally prepared for the suppression job. Fire tools and equipment have to be kept in excellent condition. Individual fire packs must be adequate and stored in the crew vehicles. Housing and station facilities must also be kept clean. Transportation must be kept in top-notch condition. Along with these requirements, safe work habits, suppression training, and physical fitness must be maintained currently.

Work supervisors have to have a thorough knowledge of successful hot shot crew organization and of what the crews can do. They also need extensive fire experience and the ability to lead people and command respect. Hot shot crew members have to work as a team, and supervisors have to become part of that team if they are to be effective.

The Fire Season

Fire season on the Tonto National Forest starts early, normally beginning in early spring, and extends into late fall. During this season there are three somewhat different problems. Man-caused fires begin early and increase in number until the summer rains begin in July. Lightning fires then take over until the last of August when fuels dry out again in a combined man-caused and lightning-caused fire season which normally lasts through October. For these reasons the hot shot crew organization has to be flexible. Until the summer rains fall, the crew members are kept together as a unit for effective initial attack on the fast running fires that occur. Once the summer rain season is well established, there are many occasions when the crews are split into two- or three-man squads to handle small multiple lightning fires. There are also occasions when crews are split and placed in strategic locations depending on storm patterns.

Since the crews are often separated, it soon became apparent that at least two vehicles were needed for each crew. One-ton minibuses were tried and found to be almost ideal for the hot shot crews. Each minibus is capable of carrying 12 men with enough space for neat and readily accessible storage areas for tools, equipment, and personal gear.

Fire Suppression

Fire managers on the Tonto National Forest are convinced that well trained and well prepared hot shot crews are a sound investment. Effective use of these crews on fires has saved the taxpayer many dollars in suppression costs and damage losses. For example, aggressive initial attack action by hot shot crews was a key factor in controlling three recent forest fires and minimizing losses.

The Seep Fire occurred on June 30, 1974, and was held to only 180 acres despite heavy fuels, steep topography, and adverse weather conditions (manning class V with winds gusting to 40 miles per hour at times). The fire occurred while the Forest was under a full fire closure in an extremely hazardous area. It began 8 miles from the nearest paved road at approximately 2:30 p.m. when a teenage boy started a signal fire to draw attention to himself and his companion who was injured in an accident. A helitack crew, a 16-man hand-tool crew, and the Payson Hot Shot Crew were dispatched on the initial attack along with air tankers. The fire was approximately 40 acres when first attacked. In the early stages of the operation, the helitack crew provided first aid care and hauled the injured man to the Payson Hospital. Effective work by the Payson "Hot Shots" on the northeast corner, plus some key retardant drops on the east flank, were the primary factors involved in holding the burned acreage to a

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Two heavy duty vans provide ideal transportation for the hot shot crews.

minimum under the existing conditions. Continuous heavy brush and rough topography made the area a prime target for a large project fire with a potential of at least 10,000 acres. Fire managers estimated that if the fire had not been held to 180 acres, the suppression costs could have reached as high as \$1 million with resource damages as much as \$15 million. As it was, suppression costs were only \$65,000 and resource damage was only \$315,000. This represents an estimated savings of over \$15 million on a single fire.

The Pueblo Fire started at 2:00 p.m. on June 25, 1974, in heavy brush on the southeast slopes of the Sierra Ancha Range. The manning class for that day was 4 (very high). The topography was very rough and steep with many 100 percent and steeper slopes in the path of the fire. Fuels were heavy and continuous to the north and west. The fire was held to only 34 acres through fast initial attack action by the Pleasant Valley Helitack and Hot Shot Crews and two air tankers. The initial attack crews kept the fire from crossing Hinton Canyon to the south, while the air tankers delayed the fire's progress to the west and north until sufficient manpower could be transported to the fire.

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This fire had the potential of burning 5,000 acres of prime watershed lands and of destroying one of the most scenic areas on the Forest. Suppression costs would easily have reached \$500,000 and resource damages could have amounted to over \$7 million. As it was, suppression costs were \$26,000 and resource damage was held to only \$25,000. Fire managers estimated that \$7,450,000 were saved by the fast, effective initial attack.

The Go Fire also had the potential of becoming a large and costly one. It, too, burned in heavy fuels and in rough terrain.

Had the effective ground-air operation not succeeded, the Go Fire would have burned about 10,000 acres of watershed immediately above the Salt River Drainage and the three reservoirs that provide primary domestic water supply for the Phoenix Metropolitan area. Suppression costs might have run as high as \$1 million and resource damage could have been in excess of \$2,500,000. Actually, suppression costs were only \$55,000 and resource damage was just a little over \$23,000. This indicates a potential savings of \$2,400,000.

The Result

The savings of over \$25 million in suppression costs and resource damages were estimated for these three fires alone. The Tonto National Forest Hot Shot Crews were a key factor in their early control. Similar hot shot crews, strategically located throughout the West, are helping to protect parts of America's vast store of natural resources. As can be seen above, they are paying their way!



Handline construction is the hot shot crew specialty.