FIRE CHIEF
EVERY DEPARTMENT, EVERY LEADER

Leveraging the Geospatial Advantage

Wildfire

Ben Butler and Andrew Bailey

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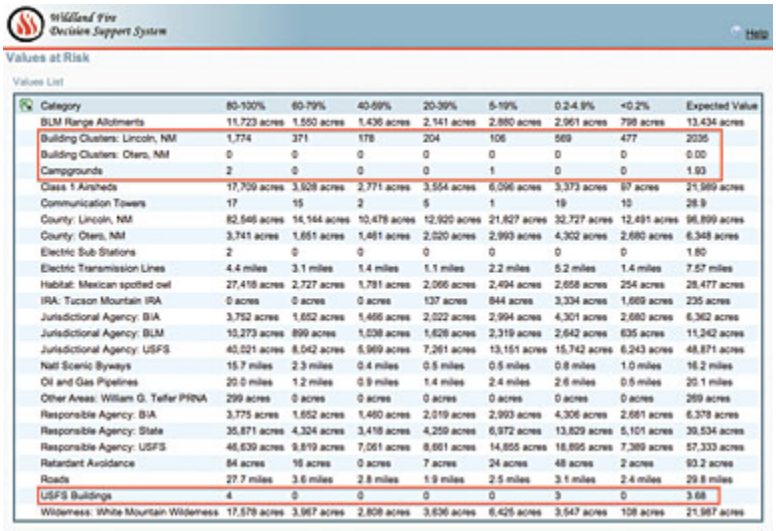
The Wildland Fire Decision Support System (WFDSS) web-based application leverages geospatial data to inform strategic decisions on wildland fires. A specialized data team, working within the Wildland Fire Management Research Development and Application group (WFM RD&A), assembles authoritative national-level data sets defining values to be protected. The use of such high-quality trusted data ensures that critical resources, infrastructure and firefighter risk exposure are considered in both the planning and implementation phases of incident management (Figure 3 and Table 1).

Since wildland fires are most expensive when they occur adjacent to populated areas, affect multiple jurisdictions, and damage private property and structures, the need for more and better data to represent homes and individual structures throughout the country has become increasingly important. An accurate accounting of the number and approximate location of structures within the planning area for an individual fire is prerequisite to sound decision-making.



Category	80-100%	60-79%	40-59%	20-39%	5-19%	0.2-4.9%	<0.2%	Expected Value
BLM Range Allotments	11,723 acres	1,550 acres	1,436 acres	2,141 acres	2,880 acres	2,961 acres	798 acres	13,434 acres
Building Clusters: Lincoln, NM	1,774	371	178	204	106	569	477	2035
Building Clusters: Otero, NM	0	0	0	0	0	0	0	0.00
Campgrounds	2	0	0	0	1	0	0	1.93
Class 1 Airsheds	17,709 acres	3,928 acres	2,771 acres	3,554 acres	6,096 acres	3,373 acres	97 acres	21,969 acres
Communication Towers	17	15	2	5	1	19	10	28.9
County: Lincoln, NM	82,546 acres	14,144 acres	10,478 acres	12,920 acres	21,827 acres	32,727 acres	12,491 acres	96,899 acres
County: Otero, NM	3,741 acres	1,651 acres	1,461 acres	2,020 acres	2,993 acres	4,302 acres	2,680 acres	6,348 acres
Electric Sub Stations	2	0	0	0	0	0	0	1.80
Electric Transmission Lines	4.4 miles	3.1 miles	1.4 miles	1.1 miles	2.2 miles	5.2 miles	1.4 miles	7.57 miles
Habitat: Mexican spotted owl	27,418 acres	2,727 acres	1,781 acres	2,066 acres	2,494 acres	2,658 acres	254 acres	28,477 acres
IRA: Tucson Mountain IRA	0 acres	0 acres	0 acres	137 acres	844 acres	3,334 acres	1,669 acres	235 acres
Jurisdictional Agency: BIA	3,752 acres	1,652 acres	1,466 acres	2,022 acres	2,994 acres	4,301 acres	2,680 acres	6,362 acres
Jurisdictional Agency: BLM	10,273 acres	899 acres	1,038 acres	1,626 acres	2,319 acres	2,642 acres	635 acres	11,242 acres
Jurisdictional Agency: USFS	40,021 acres	8,042 acres	5,969 acres	7,261 acres	13,151 acres	15,742 acres	6,243 acres	48,871 acres
Natl Scenic Byways	15.7 miles	2.3 miles	0.4 miles	0.5 miles	0.5 miles	0.8 miles	1.0 miles	16.2 miles
Oil and Gas Pipelines	20.0 miles	1.2 miles	0.9 miles	1.4 miles	2.4 miles	2.6 miles	0.5 miles	20.1 miles
Other Areas: William G. Telfer PRNA	299 acres	0 acres	0 acres	0 acres	0 acres	0 acres	0 acres	269 acres
Responsible Agency: BIA	3,775 acres	1,652 acres	1,460 acres	2,019 acres	2,993 acres	4,306 acres	2,681 acres	6,378 acres
Responsible Agency: State	35,871 acres	4,324 acres	3,416 acres	4,259 acres	6,972 acres	13,829 acres	5,101 acres	39,534 acres
Responsible Agency: USFS	46,639 acres	9,819 acres	7,061 acres	8,661 acres	14,855 acres	18,895 acres	7,389 acres	57,333 acres
Retardant Avoidance	84 acres	16 acres	0 acres	7 acres	24 acres	48 acres	2 acres	93.2 acres
Roads	27.7 miles	3.6 miles	2.8 miles	1.9 miles	2.5 miles	3.1 miles	2.4 miles	29.8 miles
USFS Buildings	4	0	0	0	0	3	0	3.68
Wilderness: White Mountain Wilderness	17,578 acres	3,967 acres	2,808 acres	3,636 acres	6,425 acres	3,547 acres	108 acres	21,967 acres

Successful acquisition and management of national-level data require considerable collaboration and communication among all affected jurisdictions and across all levels of government. The best data on where people live is maintained by county government agencies in the form of cadastral, or tax parcel, data. Since there are over 3,000 county governments in the United States, the magnitude of the necessary acquisition effort led to a partnership with wildland fire management agencies and other federal, state and local governments. This partnership was established by the creation of the Federal Geographic Data Committee (FGDC) National Cadastral Sub-Committee.

Starting in 2006, this partnership has developed business cases, established necessary data standards, and outlined procedures to consolidate and use cadastral data. The cadastral sub-committee has

reached out to local county assessors, planners, natural resources and GIS staffs to acquire county geospatial parcel records. From this, authoritative county data can be consolidated by trusted state data stewards to provide information needed by federal wildland fire managers for incorporation into WFDSS.

From the cadastre record, building clusters representing the general structure locations are derived. When wildfires occur, local jurisdictions can immediately see the importance of their own data in improving decision-making and assessing wildland fire risk to property and homes.

The WFM RD&A acquires nearly 40 geospatial data sets for use within WFDSS on an annual basis. Cadastral data is one example of leveraging geospatial data to provide real-time intelligence and enhance wildland fire managers' decision-making capabilities. It is also a good example of information that did not exist in a readily usable format as little as 10 years ago.

Local land-use situations are changing rapidly with housing and infrastructure values dramatically expanding across the landscape. The ability to have and use this kind of data strongly advances decisions regarding kinds, types and numbers of firefighting response resources, tactics that will be used and where the highest priorities are.

Ben Butler is Wildland Fire Decision Support System (WFDSS) GIS Specialist with the Wildland Fire Management Research, Development, & Application Program at the National Interagency Fire Center in Boise, Idaho. Butler has an undergraduate degree in geography/GIS and a Master of Natural Resources degree with a concentration in fire ecology.

Andrew Bailey is Data Manager for Wildland Fire Management Research, Development, & Application Program, based at National Interagency Fire Center in Boise, Idaho. Bailey has 10 years of experience in wildland fire management, fuels and smoke research, land management planning and GIS. Previously, he was with the North Carolina Forest Service where he served as GIS Coordination Forester.