2010 SAFENET Review

Introduction

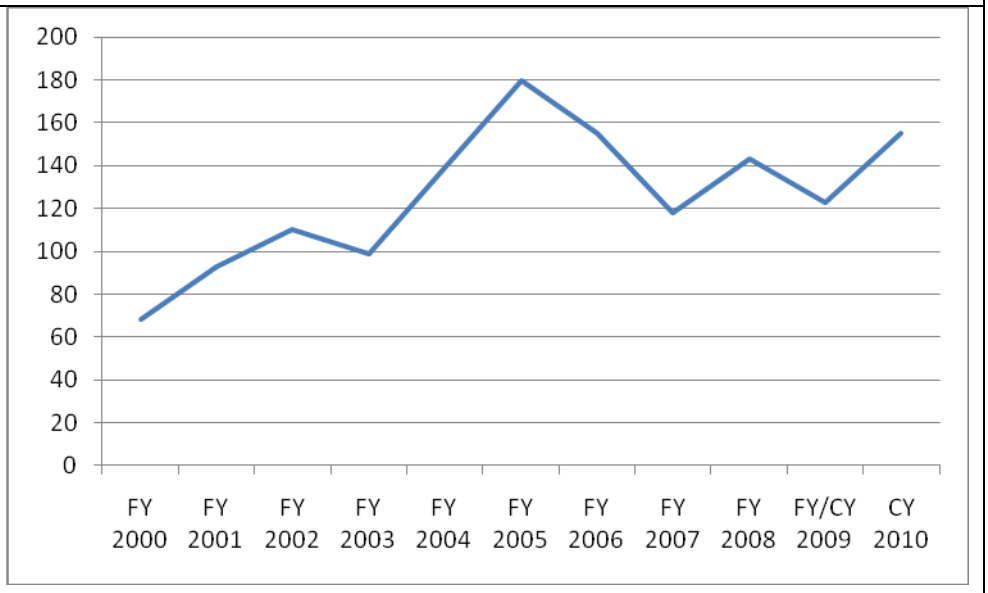
The SAFENET program was created and established during the 2000 fire season in response to a recommendation from Phase III of the TriData Wildland Fire Safety Awareness Study. It serves as a method for reporting and resolving health and safety concerns encountered in wildland fire, prescribed fire, wildland fire training, fitness testing, fuels treatments and all hazard incidents involving wildland fire personnel. The data collected through the SAFENET program also helps to identify short and long term trends and problem areas. The SAFENET database is sponsored by the National Wildfire Coordinating Group (NWCG).

The NWCG Risk Management Committee is responsible for the management of the SAFENET program. This summary covers the calendar year January 1, 2010 through December 31, 2010.

With 155 reports there was an increase in the number of SAFENETS submitted in 2010 over 2009. This year was similar to 2009 in terms of total numbers of fires and fire activity across the country. The increase SAFENETs reported is probably a reflection of firefighters noticing and reporting unsafe situations. The following table and graph shows the annual number of SAFENETs filed since its establishment in 2000.

Total SAFENETs Filed	
FY 2000	68
FY 2001	93
FY 2002	110
FY 2003	99
FY 2004	139
FY 2005	180
FY 2006	155
FY 2007	118
FY 2008	143
FY/CY 2009	123
CY 2010	155

SAFENETS Reported

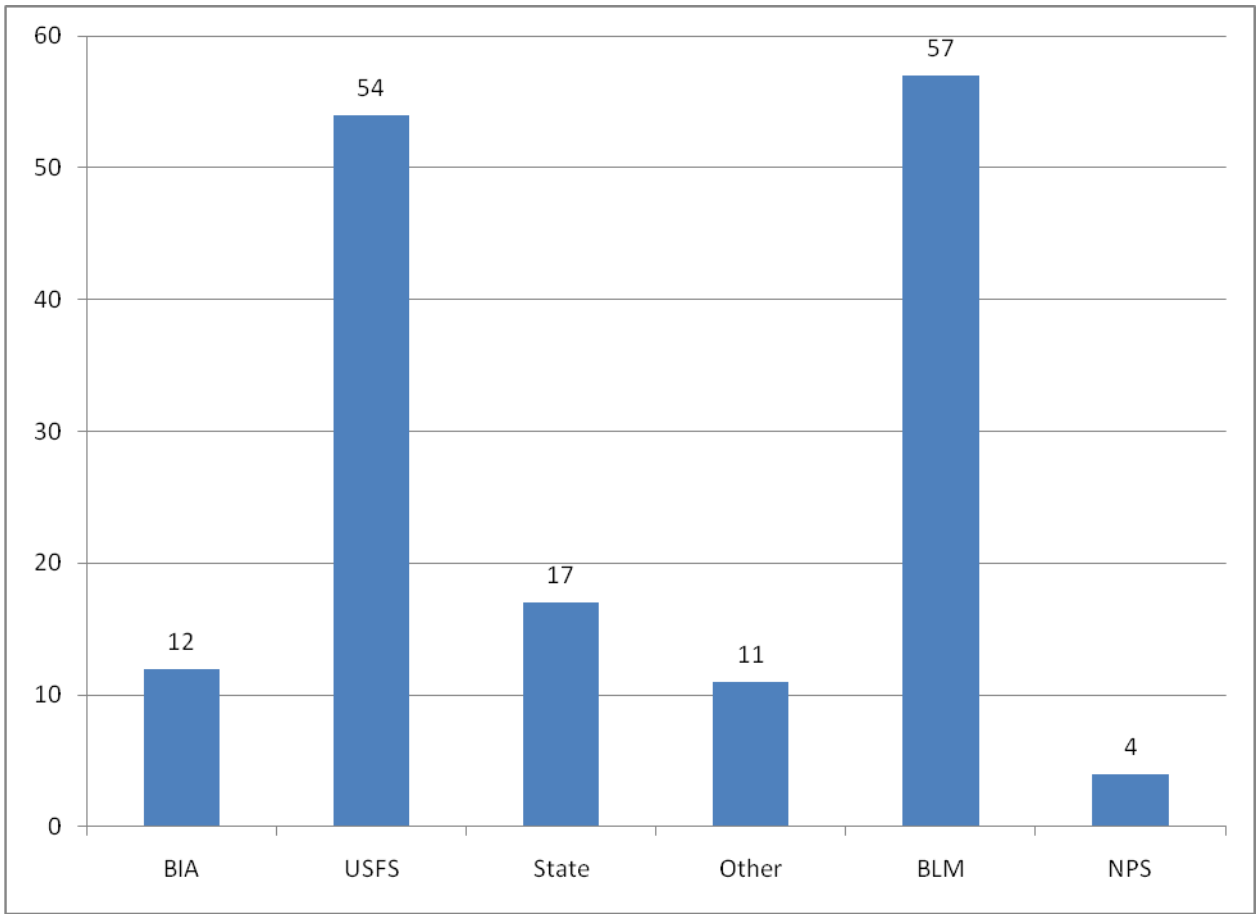


What Happens to a SAFENET?

After a wildland firefighter submits a SAFENET, it is forwarded to the national fire management safety program manager for the jurisdictional agency identified in the submission. In addition to the five federal land management agencies, a representative from the states is identified for SAFENET notification. This state person represents is the interests of state, county and local fire units. These individuals determine the course of action for the submission, forwarding to the regional, state or local level for response.

The jurisdictional agency is responsible for researching the issue identified in the submission, taking appropriate action, and filing a corrective action outlining the agency's response (as warranted). Below is a graph showing the number of SAFENETs filed for each jurisdictional agency.

Reports by Jurisdictional Agency

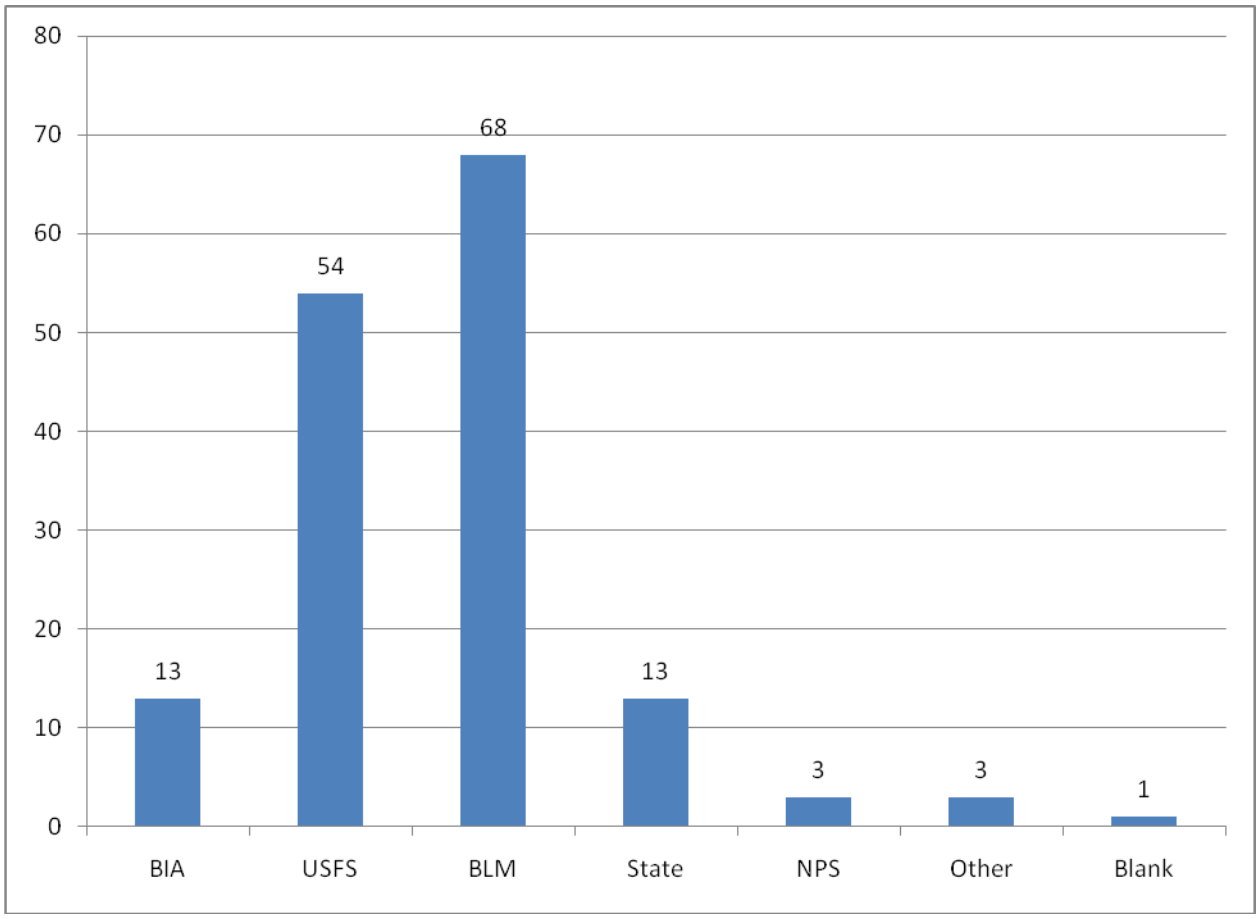


In 2010 the Bureau of Land Management (BLM) had the most reports with 37% and the USDA Forest Service (USFS) was second with 35%. The Bureau of Indian Affairs (BIA) received 7%, the States 11%, other (which includes FEMA, local fire departments and counties) received 7%, the National Park Service (NPS) received 3%, and the US Fish and Wildlife Service (USFWS) did not have any reports for actions on their lands.

The BLM, USFS, NPS, States and the Other category all showed increases in the number of submissions from the previous year while the BIA and USFWS saw their submissions decrease for 2009.

In comparison, the following graph identifies the number of SAFENETs reports by agency for 2010.

Reports by Agency



USFS and BLM employees continue to file the highest number of SAFENETs. The rest of the submissions are distributed amongst the other agencies and states, along with county and local fire departments which make up the "Other" category.

SAFENET Reports by Agency Since 2000

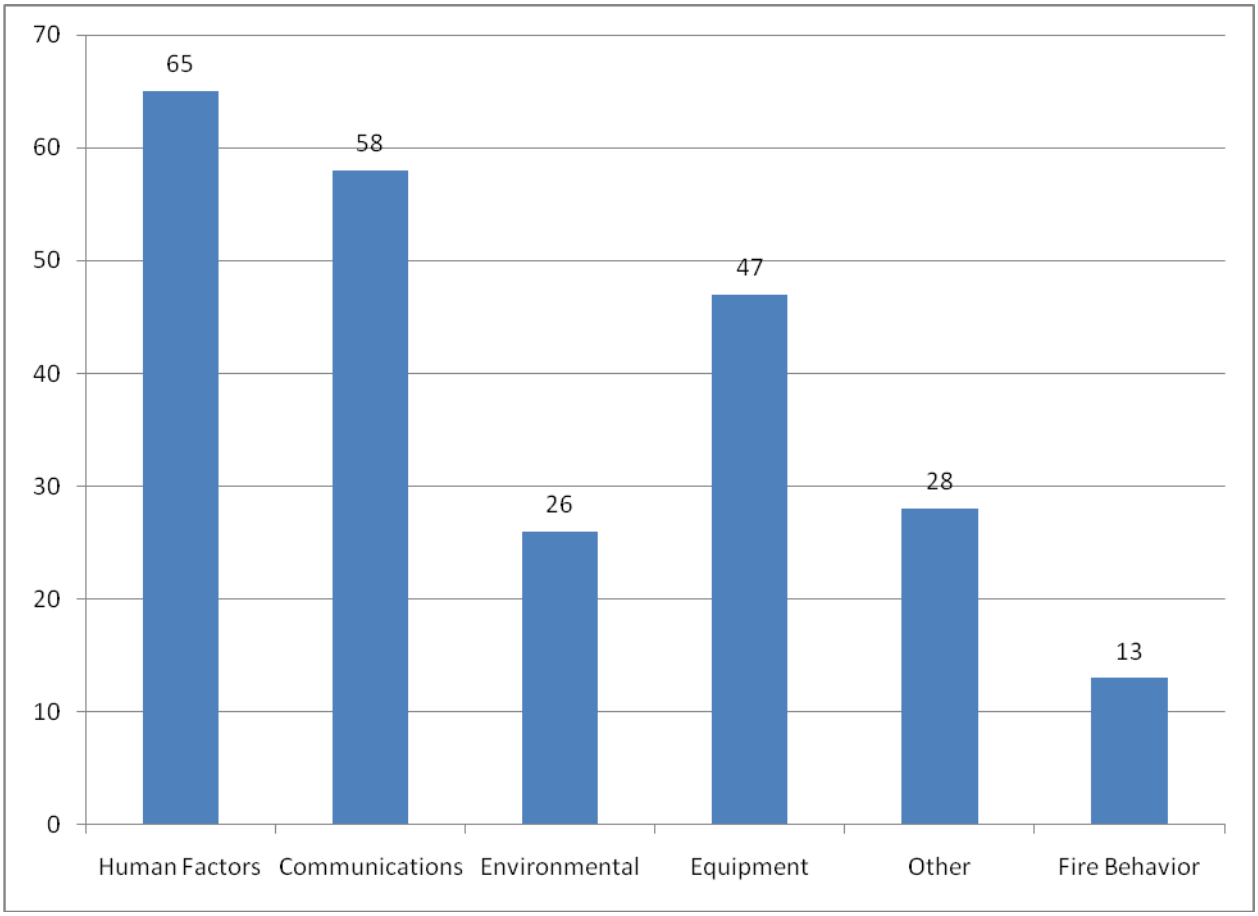
Agency	Low	High	Average	Total
USFS	27	94	56	625
BLM	23	68	35	393
BIA	4	18	10	111
NPS	3	12	6	74
FWS	0	13	4	46
State	0	13	5	60
Other	3	15	4	52

Contributing Factors - 2010

One of the important components of a safety related reporting system is the identification of contributing factors. The SAFENET system allows the submitter to choose from six different elements that may be present, including communications, human factors, equipment, fire behavior, environmental, and other. As in most years human factors and communications are the leading categories for 2010. Many submissions cite more than one contributing factor.

For example a unit may decide to leave an area on the fire and move to another location. As they try to leave they find the fire has crossed their expected escape route. The problems here could be linked to a number of factors: situational awareness – the firefighters not knowing what the fire is doing; fire behavior – fire burning hot, making a large run or spotting; environmental – changes in wind speed or direction; leadership – why were they there, why leave at that time, not planning for alternate escape routes; communications – information not getting sent along to the firefighters, radio equipment problems or frequency issues.

Contributing Factors



Human Factors – 27%

In 2010 human factors were the leading contributing factor category in SAFENET submissions. This category consists of several elements including Decision Making, Leadership, Situational Awareness, Risk Assessment, Performance, and Fatigue. Many of these elements are overlapping in nature and are subjective based on the opinion of the SAFENET submitter. Below are a few examples of submissions received that exhibit each of these elements.

Decision Making –

- During refueling the gas cap for a UTV was lost. A stick-it note was posted onto the steering wheel to inform other users. During Rx operations the next day, the driver did not see the note (missing?), or notice the cap was gone. Afire was spotted coming out of the filling tube on the UTV. The fire was extinguished with little damage.
- During the WCT individual received pass score even though they did not finish the course in the required time allotted.
- A shotgun was returned to the warehouse still loaded with live shells; there was no trigger lock installed.
- A Resource Advisor was not wearing proper PPE. They also directed personnel to perform actions not consistent with IC direction.

Leadership –

- Crew supervisor was using chain saw without wearing PPE.
- Type 2 IA crew did not have qualified crew leader or sawyers.
- An individual from a non fire fighting organization (no current red card qualifications) responded to a fire and began acting as Div Supervisor.
- A person working in the office has a red card but did not go through the required training.
- As the fire transitioned from a Type 3 to a Type 2 team there was confusion about who was in charge (IC). Two days later some engines reported to one 'IC' and other engines reported to another 'IC'.

Situational Awareness –

- A member of a type II crew was walking backwards and stepped into a stump hole. They were transported to the burn center and treated for 2nd degree burns on the lower leg.
- During refueling operations for an aircraft, individual was sprayed by jet fuel. The on – off positions for the pump switch were not marked.
- A crew member's leg came into contact with hot ash. They were transported to a burn center with 2nd and 3rd degree burns.
- There is a hazardous intersection near the office. There are visual obstructions and the must pull forward and almost be in the intersection to view cross traffic. Photo of the area was e-mailed to the local safety officer.
- A crew bus was pulled over to the side of the road to check a loose tail pipe. A chase truck pulled over behind the bus, and the driver of the truck went over to help the bus driver. The chase truck driver did not put the vehicle into park and did not set the parking brake. The chase truck rolled forward and pinned the bus driver between the vehicles. There were no serious injuries.

Performance –

- Law enforcement officers (LEO) were part of the initial attack component. After some time they changed roles and started to work as fire investigators.
- Crew member seeks ways to avoid PT; barely passes WCT after multiple attempts.

Risk Assessment –

- While over night on a fire a crew woke up to find their camp fire had escaped. It was contained but burned up some equipment.
- On a prescribed burn a helitorch was performing ignition operations. Two members of the firing crew were told use drip torches and start igniting the same unit. At a briefing the previous day it was agreed that there would not be lighting by ground personnel while the helitorch was still lighting.
- A firefighter fell and their skin came into contact with hot coals. The crew member was evaluated and transported to a burn center for treatment of 2nd degree burns.

Fatigue and Illness –

- Two members of a crew became violently ill while on the fire line. As EMTs and paramedics treated these two cases, 3 other members of the same crew developed the same symptoms. Crew leaders decided to hold the crew in a spike camp so as not to expose other firefighters.
- A DIVS, DIVS-t and a Type 6 engine worked a full night shift, went through demob, and then drove back to their home unit. Total time from begin of last shift and return to home unit was 22 hours.

Communications – 24%

The majority of the submissions for communication issues dealt with radio, repeater and frequency issues. Some examples are listed below.

- During a fire the repeater went out of service.
- Heavy equipment used in proximity to radio base station was causing interference.
- Radio interference on a frequency used for fire operations.
- Two repeaters were impacting each other during a fire incident.
- The dispatch base station went down during a prescribed fire – it could receive but it could not transmit.
- The forest radio system experienced a general failure during a medical emergency.
- During a fire the IC could not reach the District FMO because of radio/repeater problems.
- The automatic repeater system went down forcing the use of 'human repeaters' to get information from the accident site to dispatchers and medical services.
- A 'network system error' caused the radio communication problems between a prescribed burn project and dispatch.

- A storm knocked out radio communications for most of the district. The problems have lasted for over two months
- Transmissions from dispatch are very broken. Only by using cell phones with people placed on hill tops can we communicate from the incident to dispatch/offices.

Equipment – 20%

Examples of equipment submissions include the following.

- Pump adapter on a Mark III fuel tank leaked causing loss of fuel.
- Late model diesel engines experienced a "regeneration cycle" during an inopportune time. Engine was towed of fire line to highway to complete re-gen cycle (other reports on re-gen problems).
- A ¾ ton Chevy truck developed a flat tie on a fire. While trying to put on the spare tire the truck came off the jack.
- A chipper was being used to reduce limbs from a fuels project. One of the limbs/logs kicked back when it was fed into the hopper.
- An external pump on a type 6 engine backfired and ignited fuel that had leaked onto the bed of the truck.
- Helitack crew members had problems with the new style fire shelter falling out of the case. Remounted cases
- Hale pump model HPX75-B18 is problematic; the issue is with the washers used to hold the impeller onto the shaft.
- Water tank gauge stopped functioning properly – it continued to register 'empty'. Recalibrating as directed in training manual did not solve the problem.
- Safety device on Stihl 361C chainsaw can stick and lock the throttle down (multiple reports on this model saw).
- Utility box on a type 6 engine came loose. Closer inspection found welds on the L brackets that had broken. Other engines on the forest had similar problems with welds and L brackets.

Environmental – 11%

Listed below are examples of SAFENETs that identified environmental conditions as a contributing factor.

- Crewmember became ill while doing PT; medics determined dehydration due to heat was the probable cause.
- Civilian with tractor started plowing line around the head of the fire.
- Firefighter was exposed to poison oak and developed a severe reaction.

Fire Behavior –5%

A small number of SAFENETS identified fire behavior as a contributing factor. Identified below are examples.

- Firefighters were assigned to protect 3 structures on a fire. A strong wind developed during the night and produced spot fires that burned some of their equipment.
- While working a fire, three vehicles attempted to leave an area due to increased fire behavior. Their escape route had been compromised by spot fires. They drove through the spot fires to a safe zone.

- A fire whorl (vortex) developed during an Rx operation. It picked up large pieces of debris that hit 2 UTVs and damaged them.

Other – 12%

- Two firefighters were returning to their station from a prescribed fire assignment in a Type 6 engine. A private vehicle failed to stop at a stop sign, the driver of the engine took evasive action, but still hit the other car; both vehicles rolled after the impact. All drivers and passengers were wearing seat belts, and were treated and released from local hospitals.
- During a routine visit a local FMO noted that a helitack crew member was not wearing proper PPE. The state had gone through a stand down to review the wearing of PPE a week before.

Contributing Factor Trends

The SAFENET program has been operational for 11 years and aids in determining trends from the field regarding health and safety issues. For most years human factors and communications have been the two leading categories for SAENET reports. As was pointed out earlier this trend continues in 2010.

What should also be noted is that the percentage of reports listing communications as a factor has decreased. Although Communications is second in terms of numbers in 2010, this category has seen a steady decrease for the last four years. Communication was mentioned in 41% of the reports in 2006, but has fallen to 24% this year. This is a 40% reduction in 4 years.

Communications has been highlighted as an area of concern is past year's SAFENET summaries. The steady decline in submissions identifying this element could indicate that agencies are taking a more proactive role in addressing these concerns.

Human factors are consistently among the top two contributing factors of SAFENETs filed. Like most of the other critical factor elements, human factors has leveled off in terms of percentage – down a little from last year but slightly above the ten year average.

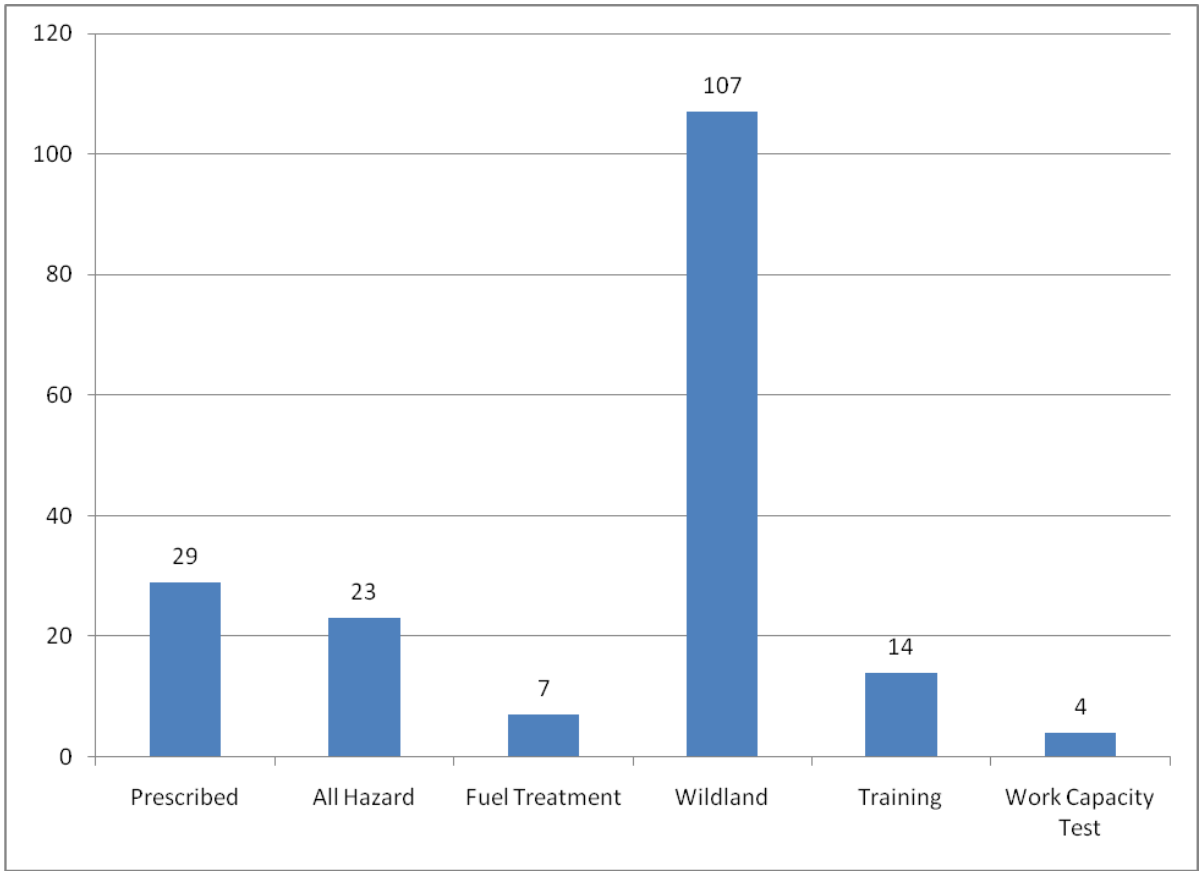
Human factors are one of the most difficult of all contributing factor to address as they deal with the human element both as individuals and in groups. However it does underscore the importance of training courses and other programs that emphasize the role of human factors in wildland fire management. This area should continue to be a point of focus for training and discussions.

The number of SAFENETs that identify equipment fluctuates from year to year. There was a marked increase in 2009, but a slight decrease in the number of reports citing equipment as a contributing factor in 2010.

There was an up tick in the percentage of fire behavior listings in 2010, this after a steady decline for many years. But it still remains the lowest of the contributing factor elements.

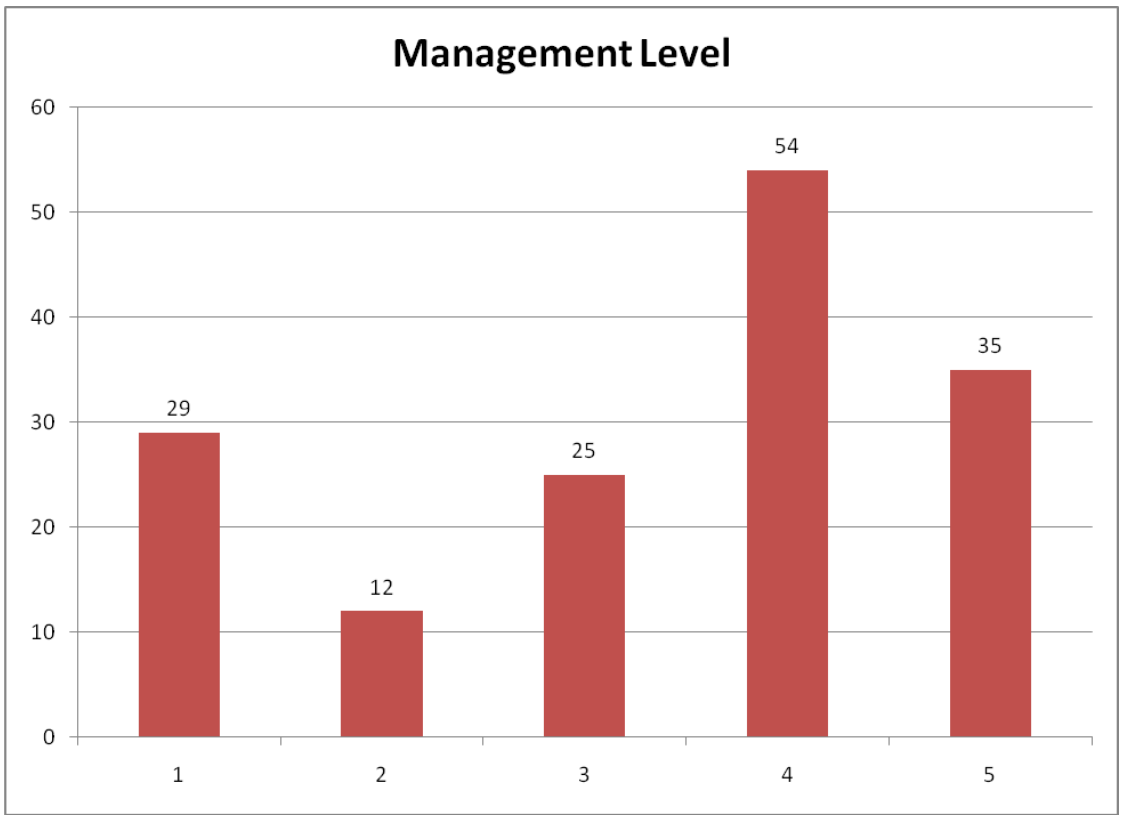
Other Trends

Another trend that can be ascertained pertains to the type of incident in which the majority of health and safety concerns occur. The following graph identifies the incident types for 2010.



Most of the submissions are for wildland fire. However, it is important to note that the number of SAFENETs submitted for prescribed fire and fuels treatments combined has been on the rise for the last four years and accounted for 25% of the total SAFENETs submitted in 2010.

SAFENET submissions also identify the management level (Type 1 through Type 5) of wildland fire incidents. The next graph displays the management levels identified for reports in 2010.

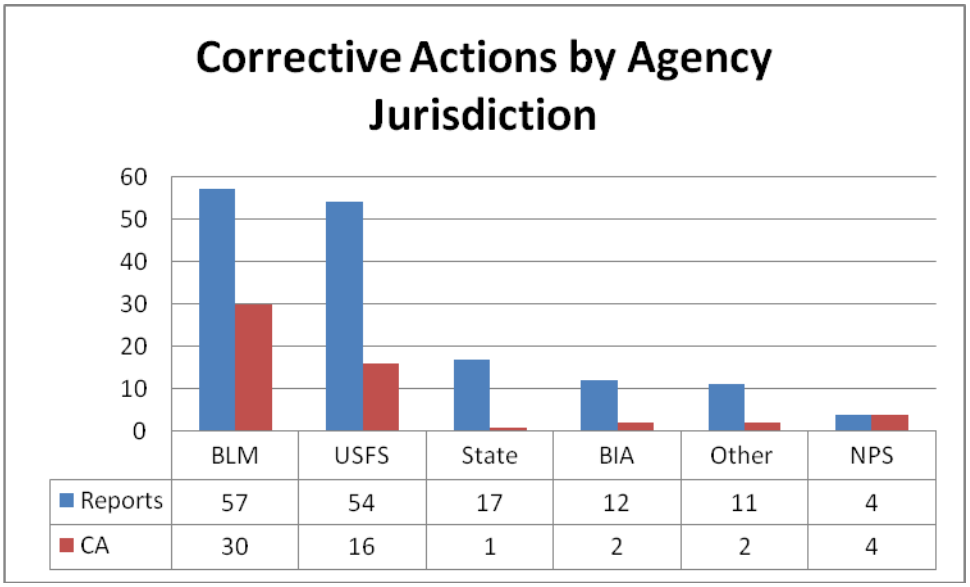


In 2010 Type 4 incidents accounted for the greatest number of SAFENETs submitted at 35%, followed by Type 5 at 22%, and Type 1 incidents at 19%. SAFENETS filed for Type 1 incidents increased in 2010 after decreasing sharply in 2009. The number of Type I fires in 2009 and 2010 were about the same. The SAFENET submittals for Type 4 and 5 incidents since 2007 are trending upwards.

Corrective Actions

As stated earlier, SAFENETs are forwarded to the jurisdictional agency listed in the submission and it is their responsibility to research the health/safety concern and provide a Supplemental Corrective Action at the appropriate level of the organization (as warranted). Supplemental Corrective Actions are follow-ups to those SAFENETS that can not be fully addressed in the field when they occur and require higher level action and coordination so they can be prevented in the future.

The chart that follows identifies the number of SAFENETs received by the agency of jurisdiction along with the number of Supplemental Corrective Actions taken by that agency.



As a percentage of reports, the agencies provided Supplemental Corrective Actions as follows: BLM – 53%, USFS – 30%, State – 6%, BIA – 17%, Other – 18%, and NPS – 100%.

Unpublished SAFENETS

Each year some SAFENETs that are submitted are not posted to the public website because they do not meet the established criteria for SAFENET submittals. The posting criteria are listed below and additional information is available on the SAFENET website (http://safenet.nifc.gov/) under SAFENET Protocols.

Posting Criteria

SAFENETs will be screened for safety and health related event(s). If submittals doe not meet this standard, they will not be published or included in the SAFENET database. Other posting considerations are:

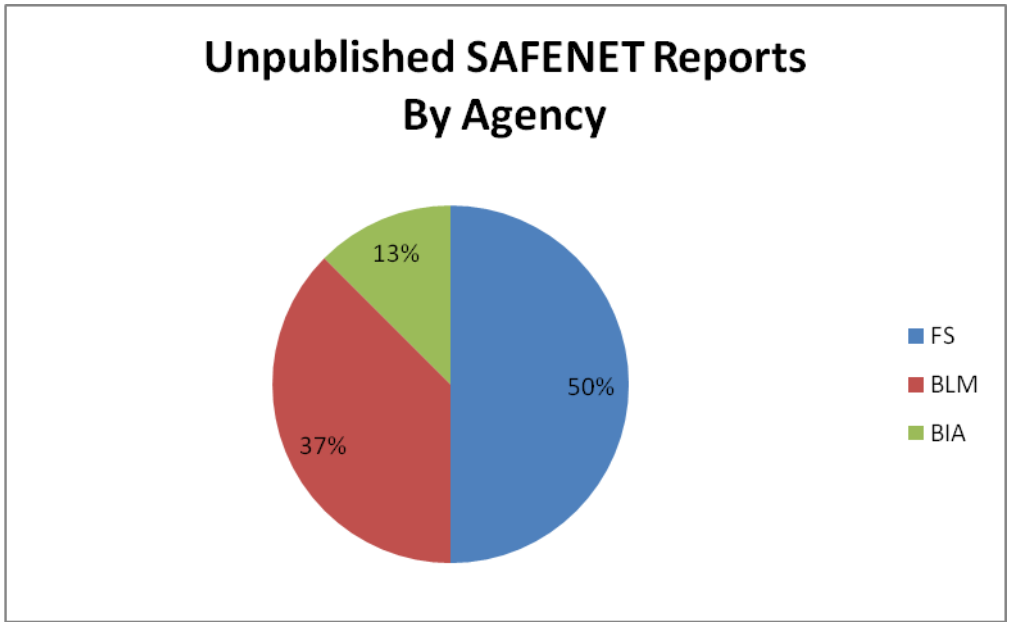
- Individual(s) submitting SAFENETs should do so based on firsthand observation or participation in the identified event(s). SAFENETs submitted that are based solely on hearsay or other secondhand information will not be posted.
- SAFENETs that contain unprofessional content (e.g. personal attacks/slander, character defamation) will not be posted, or the offensive comments will be removed and only the safety and health related content will be displayed when posting.
- SAFENETs that do not include name of incident and/or location of event will not be posted.
- SAFENETs related to incidents that have on-going serious accident investigations will not be posted until the formal investigation process is completed. These SAFENETs will be sent directly to the serious accident investigation team.

Questionable submittals will be referred to Federal Fire and Aviation Safety Team (FFAST) members who manage the day-to-day operations of the SAFENET program, where a majority

vote will be required to hold posting of a SAFENET from the system (a majority is 3 of 5 team members). Submitters who provided their names will receive a response as to why the SAFENET will not be posted.

2010 Unpublished SAFENETs

A total of 8 SAFENETs were not published in 2010; 4 Forest Service, 3 BLM and 1 BIA. These represent 3% of the total SAFENETs that were submitted. Identified below is a breakout of these by the agency of the reporting individual.



Summary

The SAFENET system is the only interagency wildland fire mechanism for firefighters on the ground to report "near miss" and"close call" occurrences. It provides the opportunity to detect "weak signals", early warning signs of dangerous conditions and actions. This is essential to safety management programs so that corrective actions and other hazard mitigation measures can be taken before more serious incidents occur. The data is important to identify trends that are utilized by the Risk Management Committee to establish safety prevention programs and emphasis areas.

The SAFENET system continues to provide a valuable link between upper level management and the firefighters in the field. Wildland firefighters are strongly encouraged to continue submitting SAFENETs on safety and health issues that they encounter.

Appendix A

For reference purposes, a list of incidents on which SAFENETs were filed for the 2010 season is provided below. *Note:* The incident name was not included in all the SAFENETs that were submitted.

Wildland Fires

Bosque 2	Tecolote
Oraibi Fire (2)	Haughtelin
# 107	Eagle Trail (5)
Reservoir Road	Safron
Cutoff	NPS Park
# 1046 (2)	Jefferson (2)
Clover	Windmill
Pat Creek (3)	McDonald
Adobe	Flint
Rooster Rock	Quaking Fire
Bill Fire	Turn
Mule Creek	Multiple Lightning
Grass Valley	Banner (2)
Long Butte	Pine
Hot Tea	Local IA
Willow Creek	Rough
Kwik River	Louie Creek
Multiple	East Arms
Black Butte	Corral
Goldbug	Schultz
Ft Bliss 2	Dark Canyon
# 324	Sucker River
Moonshine	Toklat (2)
Mid Chena Lakes (2)	Texas Range
Festival	Oak Flat
Largo Vista	Courtney
Initial Attack	Bull Fire
Pilot Peak	Detroit
Turkey	Medano
West	Schultz
Bighorn NF	Hoefferle
Numerous	No Name
Lower Gila Box Fire	Little Fire
East Boulder	Bears Mill
Dunka River	Slap Jack

Prescribed Fires

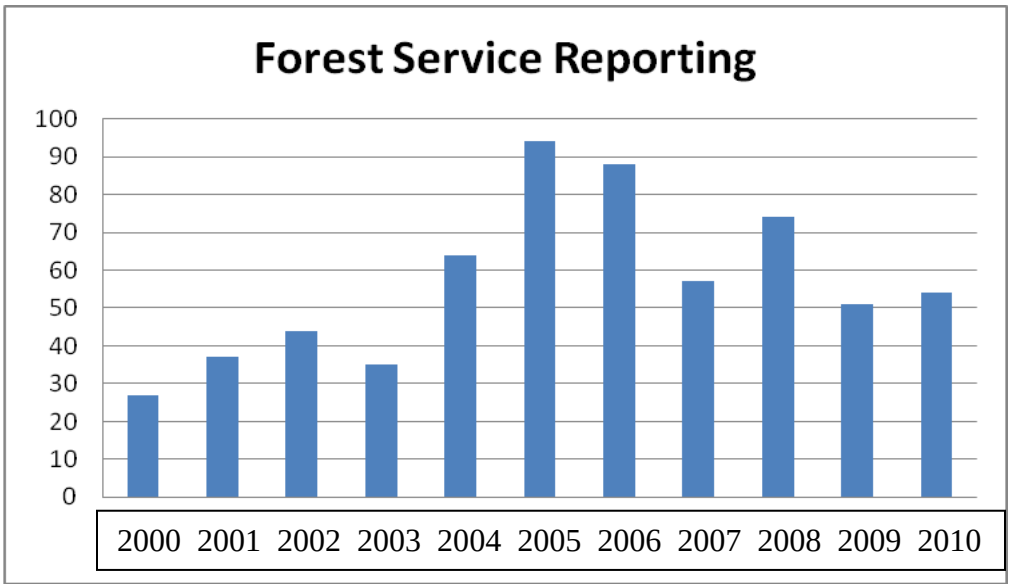
Fluted Rock Lake Rx	Compartment 2 Rx
Rangeland Rx project	Jackie Butte Rx
Snyder Creek Rx	Upper Pole Creek Rx
Little Mountain Rx	Mitchell
Wiggins Rx	Hughes Creek Rx
Rx Burn prep	Big Horn Sheep Burn

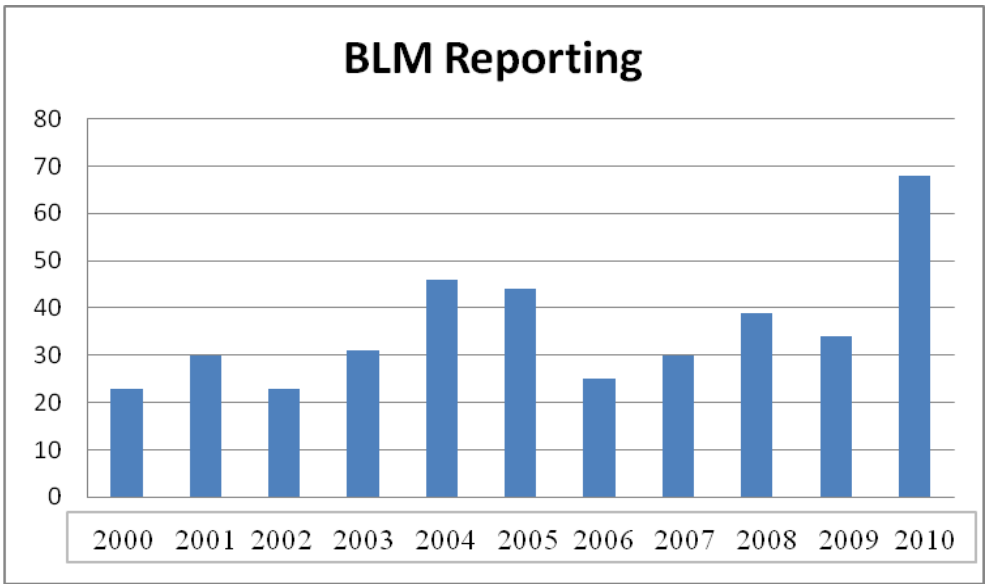
All Hazard, Training, & Other Incidents

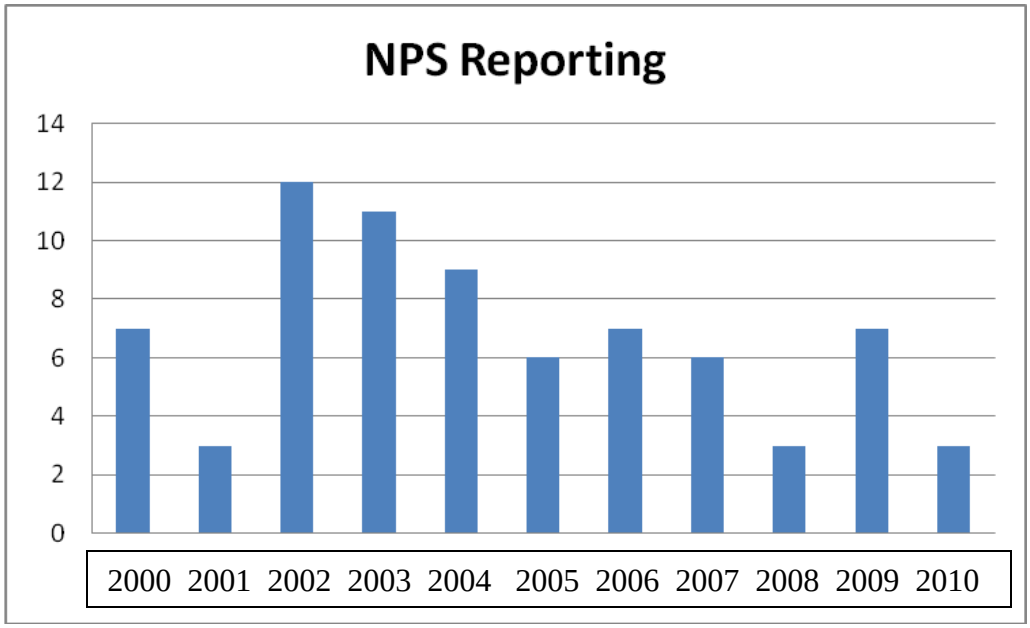
Maintenance	Suppression Crew
Trying to get home	All
Miscellaneous	Crew PT
EFF Training	Preparedness
Work Capacity Test (4)	Dispatch radios
Communications	Frog Repeater
Skamania PUD	Radio Communications
DPH Handheld Radios	Bradley repeater
Wind River Communications	Radio Channels
Radio Malfunction	North Zone Fire Day
East Zone Radios	Daily Operations (3)
Physical Fitness	Forest radio System
Work Place	Chain Saw Cutting
Arroyo Seco Medical	Hale Pump failure
IQCS	

Appendix B

Reports by Agency 2000 to 2010






NPS Reporting
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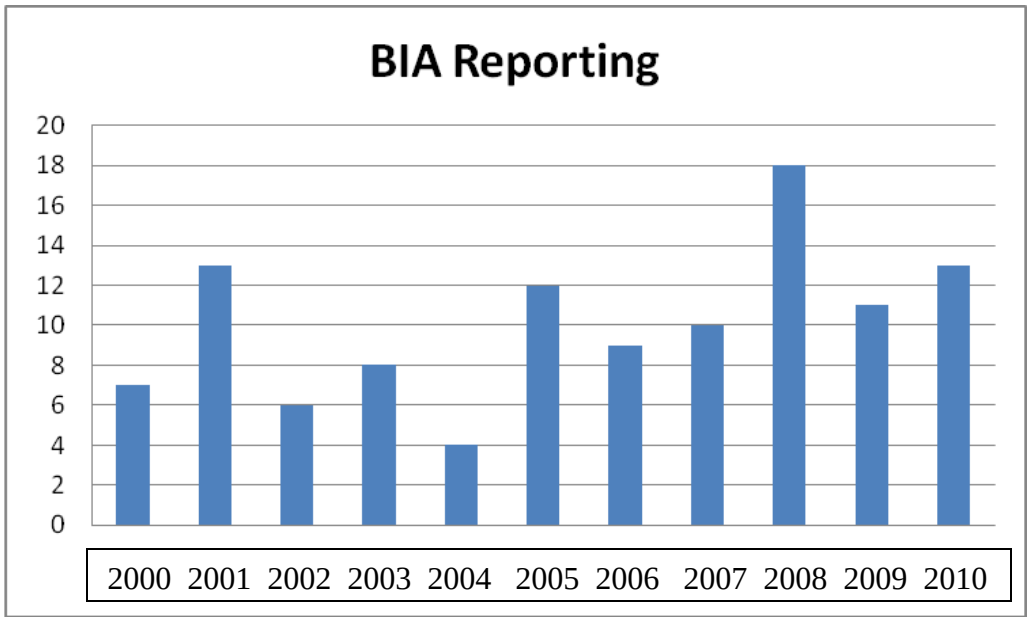
BIA Reporting
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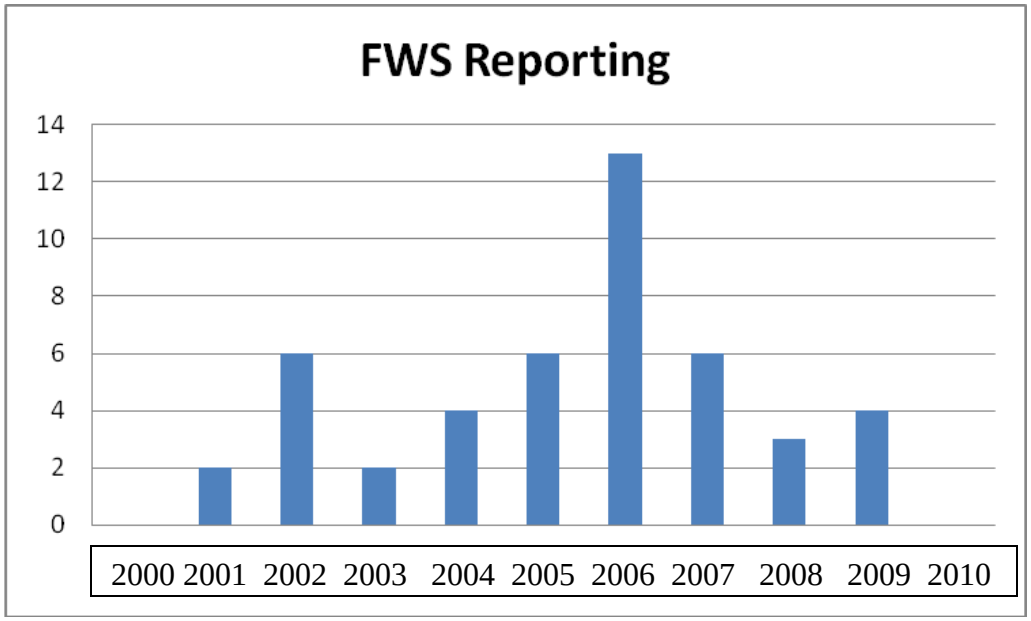
FWS Reporting
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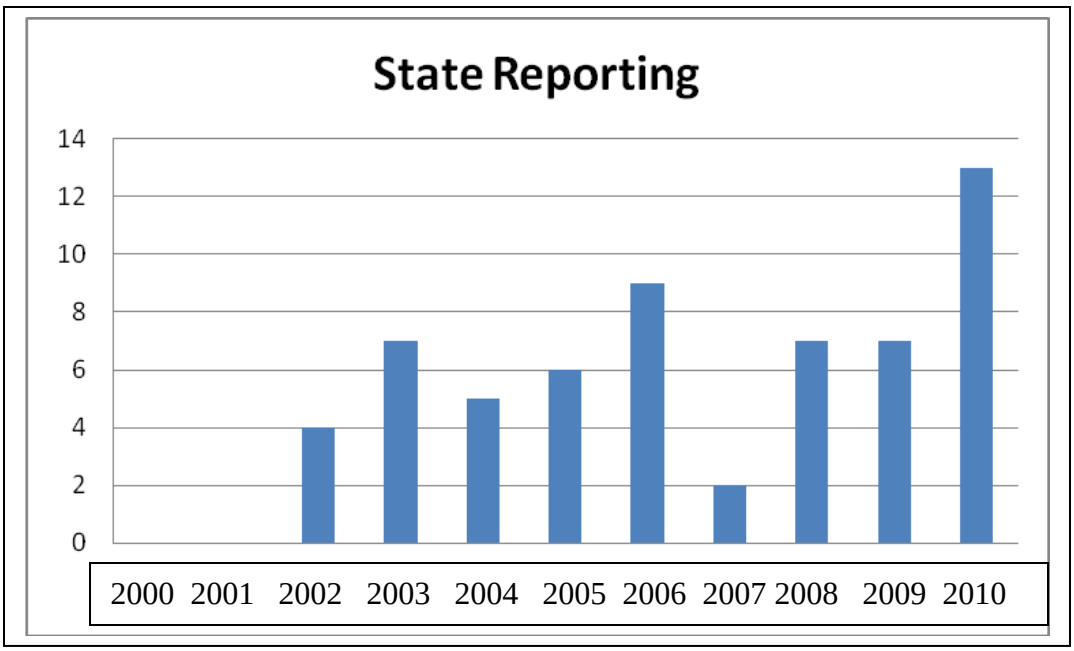
State Reporting
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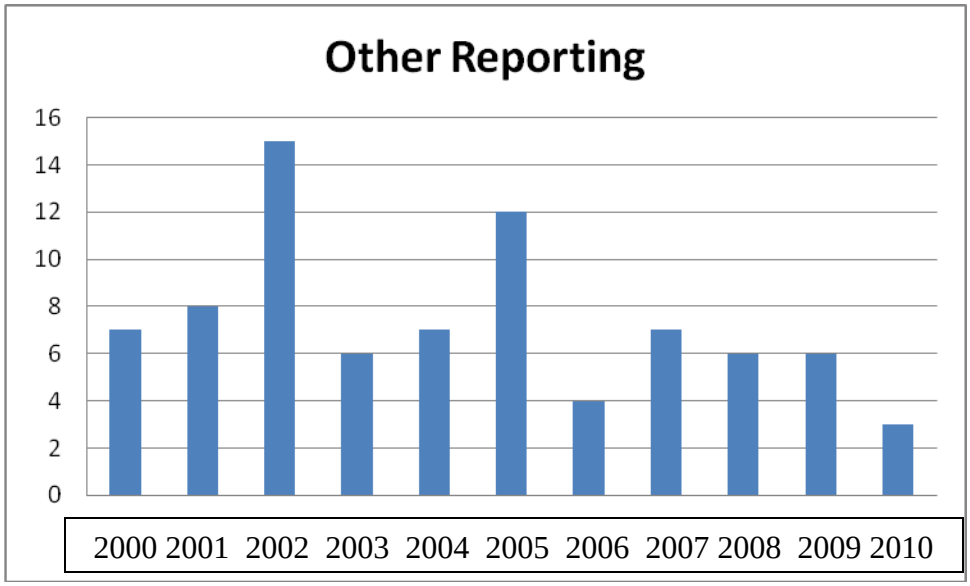
Other Reporting
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2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010