



## Background:

Since 2002 the Fire Regime Condition Class (FRCC) concept has been in existence. The data is summarized at a course scale and is intended to describe national fire regime trends among wildlands.

An interagency working group was formed and currently maintains a helpdesk, website, software tools, on-line courses, user guides, and methods to support FRCC evaluation ([www.frcc.gov](http://www.frcc.gov)).

The National Wildfire Coordination Group's (NWCG) Fuels Management Committee (FMC) has been the primary sponsor of the FRCC Working Group since 2002. The FMC has provided annual funding and guidance related to the content and emphasis of FRCC resources.





## Objective and Goals of the Questionnaire:

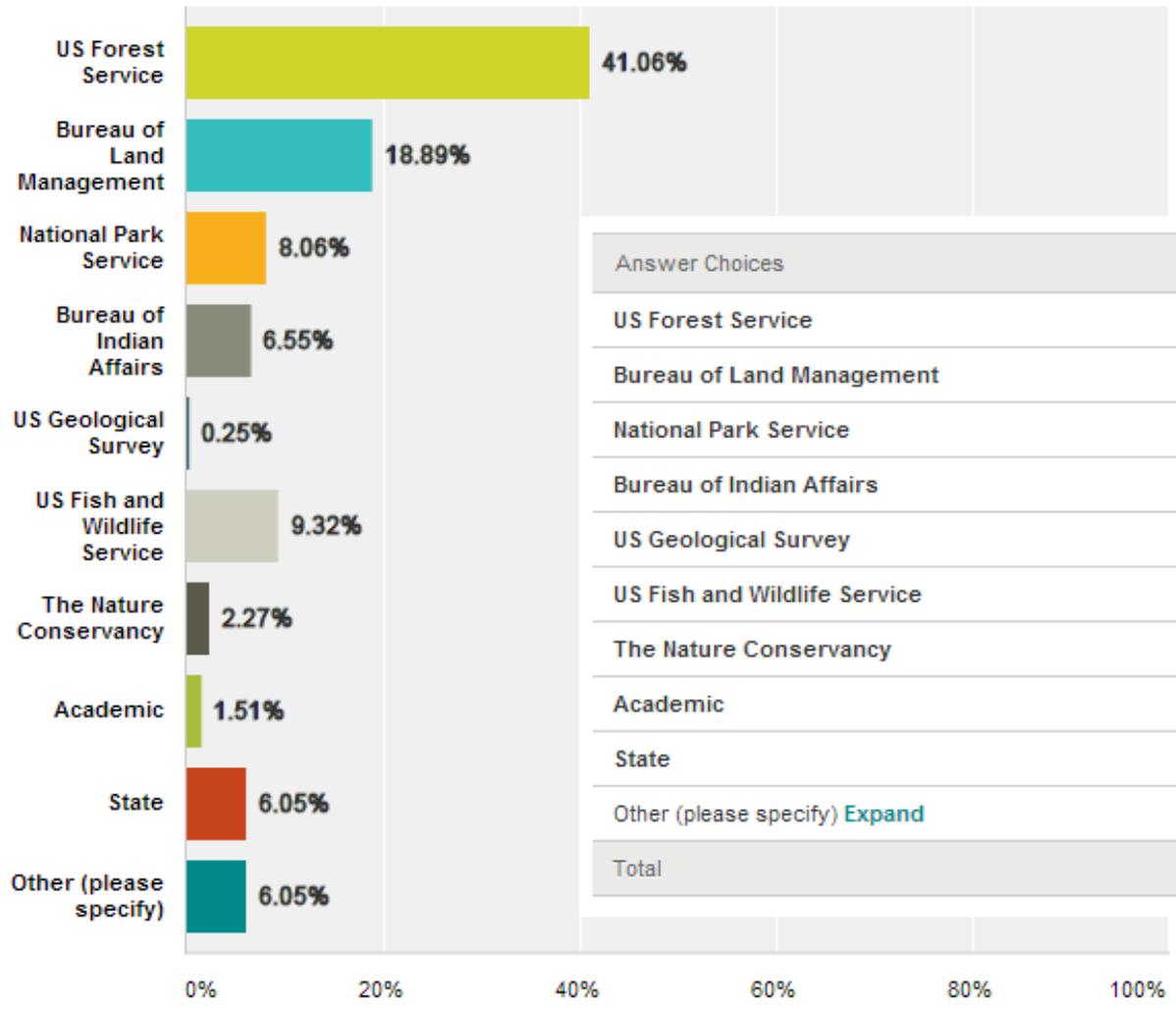
1. How fire managers are assessing the condition of their landscapes;
2. The effectiveness of FRCC training, and resources;
3. FRCC software tools;
4. Needed enhancements to FRCC; and
5. How FRCC is used among agencies.



# Which best represents the primary agency or organization that you work for?

Q1

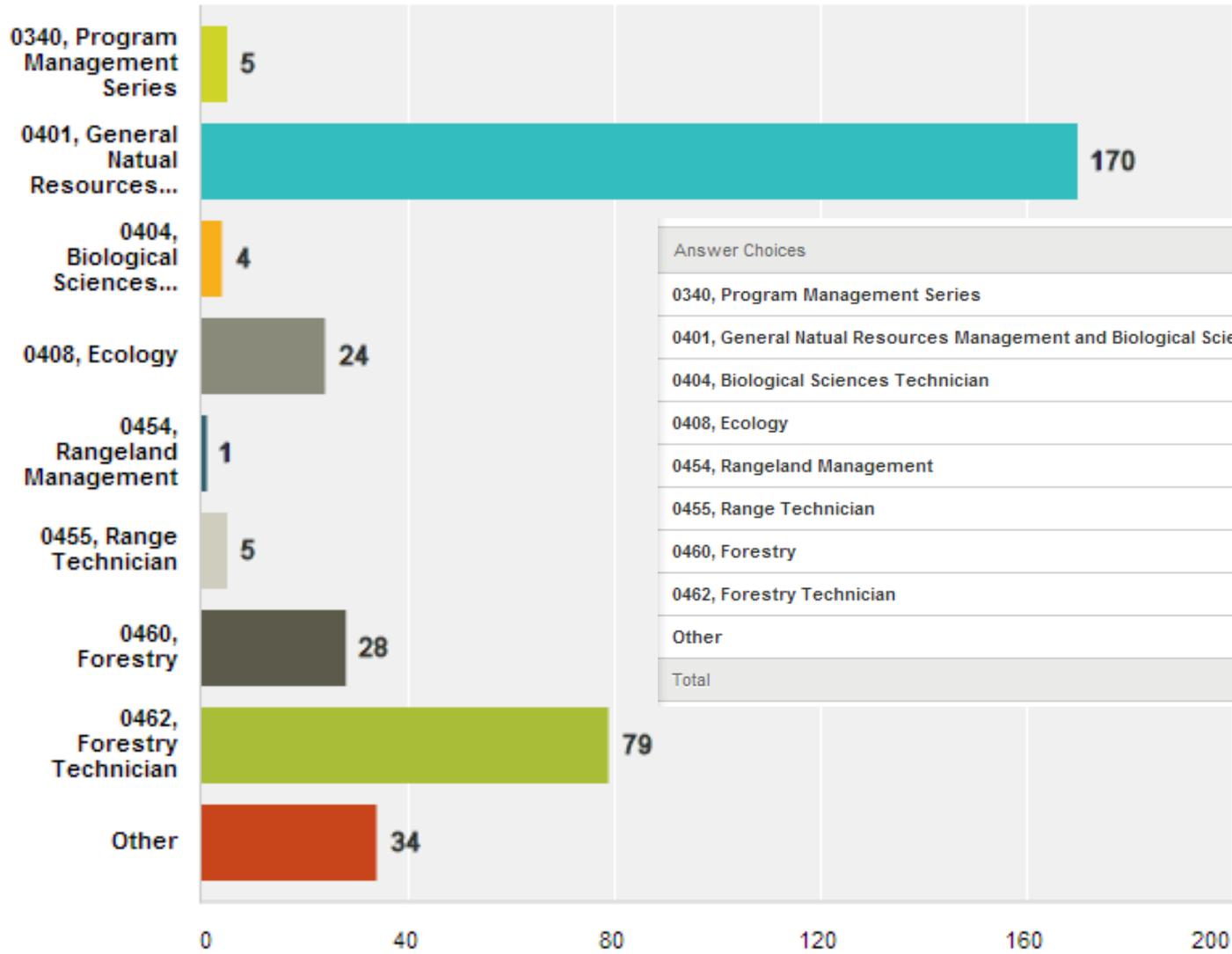
Answered: 397 Skipped: 0



Answer Choices	Responses
US Forest Service	41.06% 163
Bureau of Land Management	18.89% 75
National Park Service	8.06% 32
Bureau of Indian Affairs	6.55% 26
US Geological Survey	0.25% 1
US Fish and Wildlife Service	9.32% 37
The Nature Conservancy	2.27% 9
Academic	1.51% 6
State	6.05% 24
Other (please specify) <a href="#">Expand</a>	6.05% 24
<b>Total</b>	<b>397</b>

# If you work for a federal agency what is your Job Series?

Answered: 350 Skipped: 47

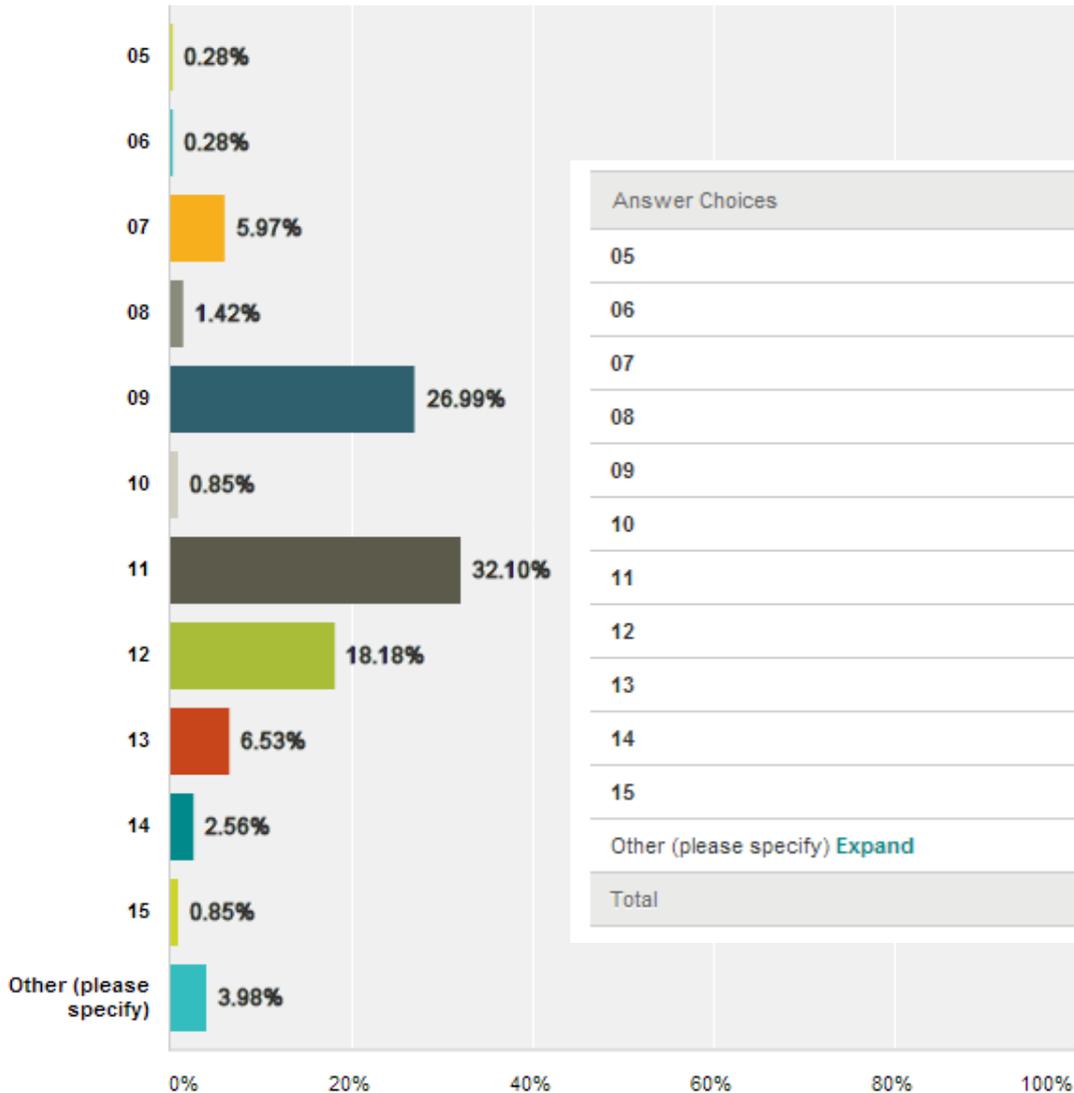


Answer Choices	Responses
0340, Program Management Series	1.43% 5
0401, General Natual Resources Management and Biological Sciences	48.57% 170
0404, Biological Sciences Technician	1.14% 4
0408, Ecology	6.86% 24
0454, Rangeland Management	0.29% 1
0455, Range Technician	1.43% 5
0460, Forestry	8% 28
0462, Forestry Technician	22.57% 79
Other	9.71% 34
<b>Total</b>	<b>350</b>

# What is your grade level?

Q3

Answered: 352 Skipped: 45

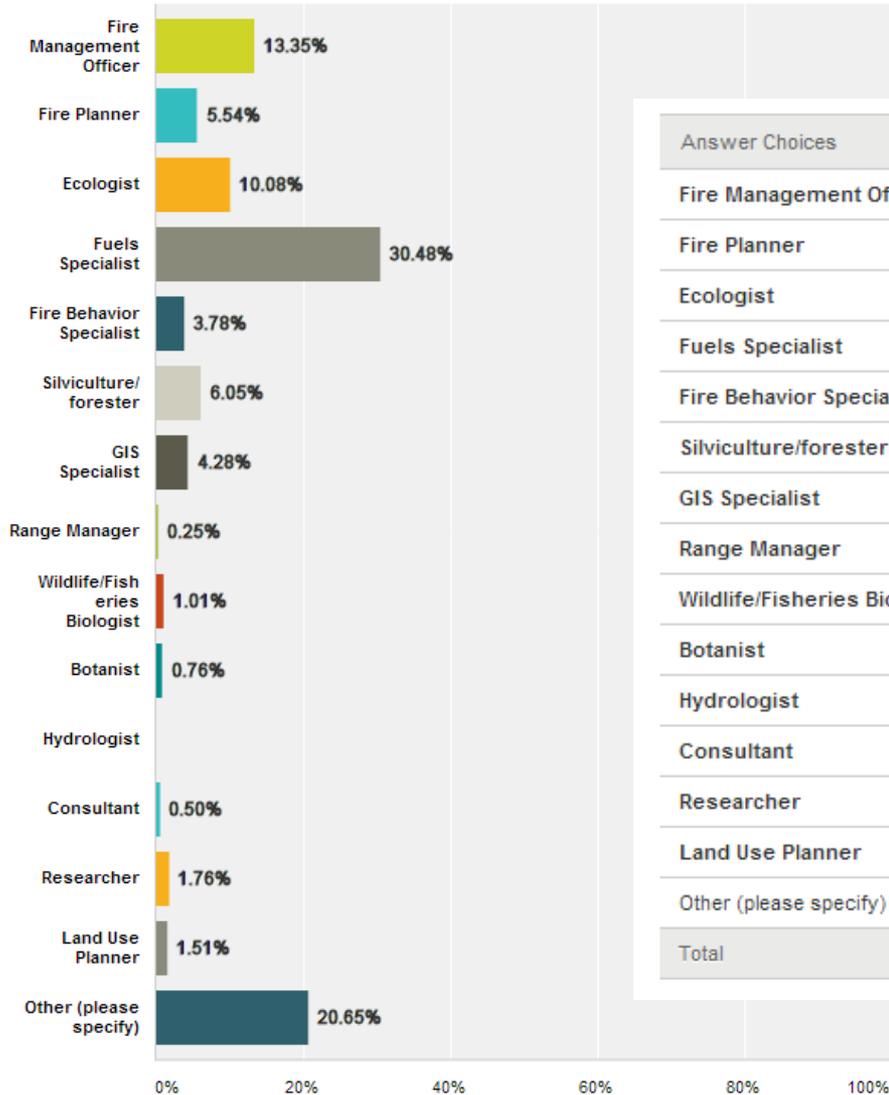


Answer Choices	Responses
05	0.28% 1
06	0.28% 1
07	5.97% 21
08	1.42% 5
09	26.99% 95
10	0.85% 3
11	32.10% 113
12	18.18% 64
13	6.53% 23
14	2.56% 9
15	0.85% 3
Other (please specify) <a href="#">Expand</a>	3.98% 14
Total	352

# Which of the following best describes your position?

Q4

Answered: 397 Skipped: 0



Answer Choices	Responses	Count
Fire Management Officer	13.35%	53
Fire Planner	5.54%	22
Ecologist	10.08%	40
Fuels Specialist	30.48%	121
Fire Behavior Specialist	3.78%	15
Silviculture/forester	6.05%	24
GIS Specialist	4.28%	17
Range Manager	0.25%	1
Wildlife/Fisheries Biologist	1.01%	4
Botanist	0.76%	3
Hydrologist	0%	0
Consultant	0.50%	2
Researcher	1.76%	7
Land Use Planner	1.51%	6
Other (please specify) <a href="#">Expand</a>	20.65%	82
<b>Total</b>		<b>397</b>

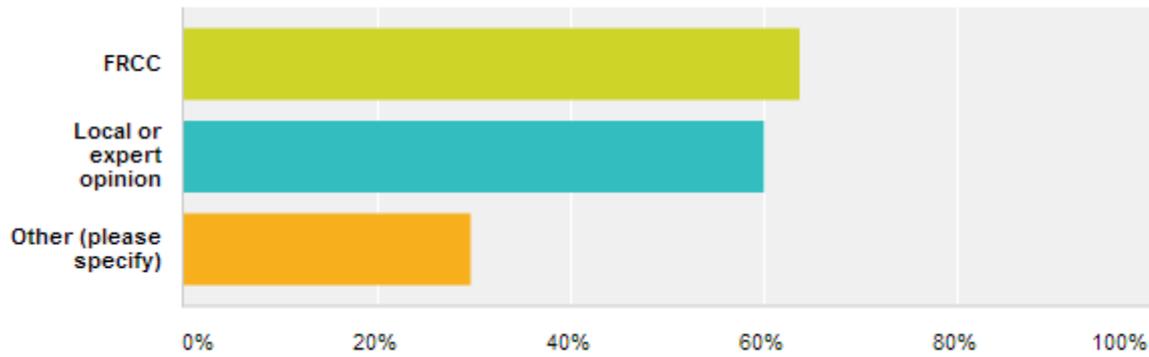




# How are you assessing current landscape condition based on policy requirements?

Q7

Answered: 273 Skipped: 124

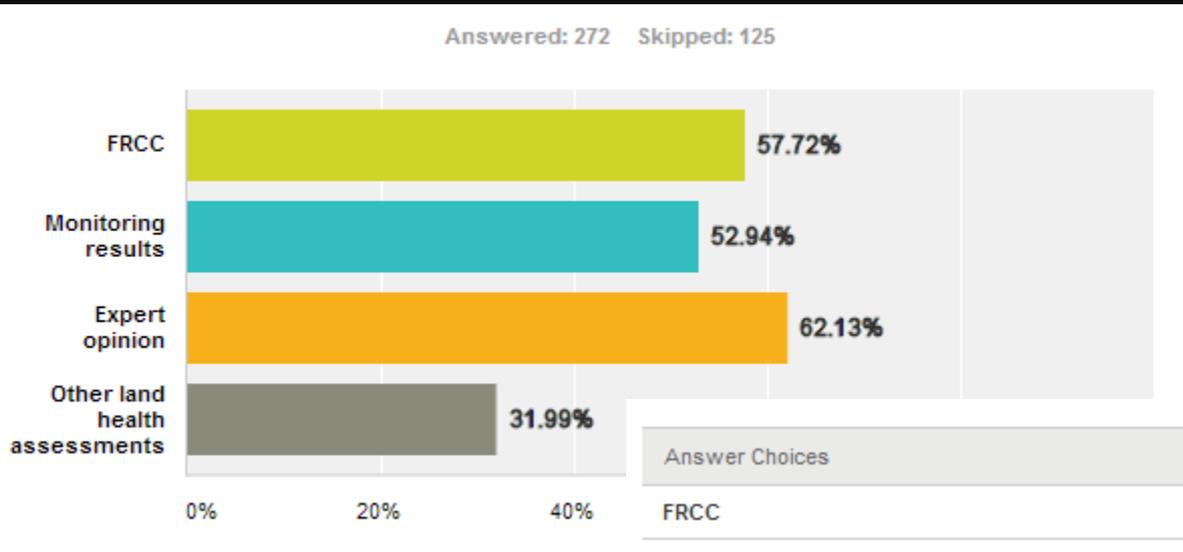


Answer Choices	Responses
FRCC	63.74% 174
Local or expert opinion	60.07% 164
Other (please specify) <a href="#">Expand</a>	29.67% 81
Total Respondents: 273	



# How are you assessing current landscape condition or ecological integrity?

Q8



Answer Choices	Responses
FRCC	57.72% 157
Monitoring results	52.94% 144
Expert opinion	62.13% 169
Other land health assessments	31.99% 87
Total Respondents: 272	

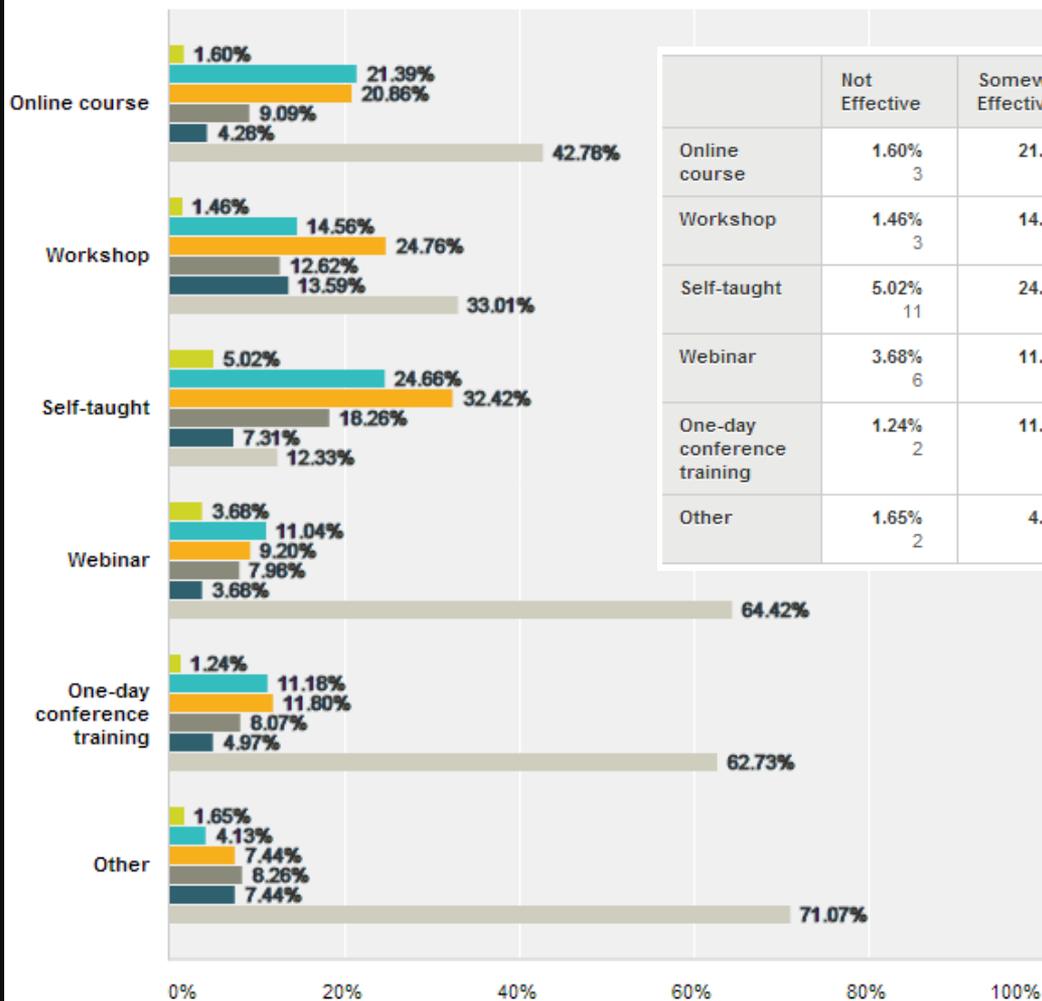
We use a variety of landscape assessment methods including FRCC and its variations. We are trying innovative approaches with the FRCC s-class relative amount to identify the amounts of acres in watersheds that need to be treated.

We use FRCC (for departure) along with modeling done by a local (Forest) wildlife biologist. Again, the picture presented to line officers that don't understand FRCC or the model is that large areas of the forest that have a high potential for stand replacing fire show as "within" condition class, which they see as "healthy".

# What has been your training with FRCC? Please rate the effectiveness of each method of training you've attended.

Q9

Answered: 269 Skipped: 128



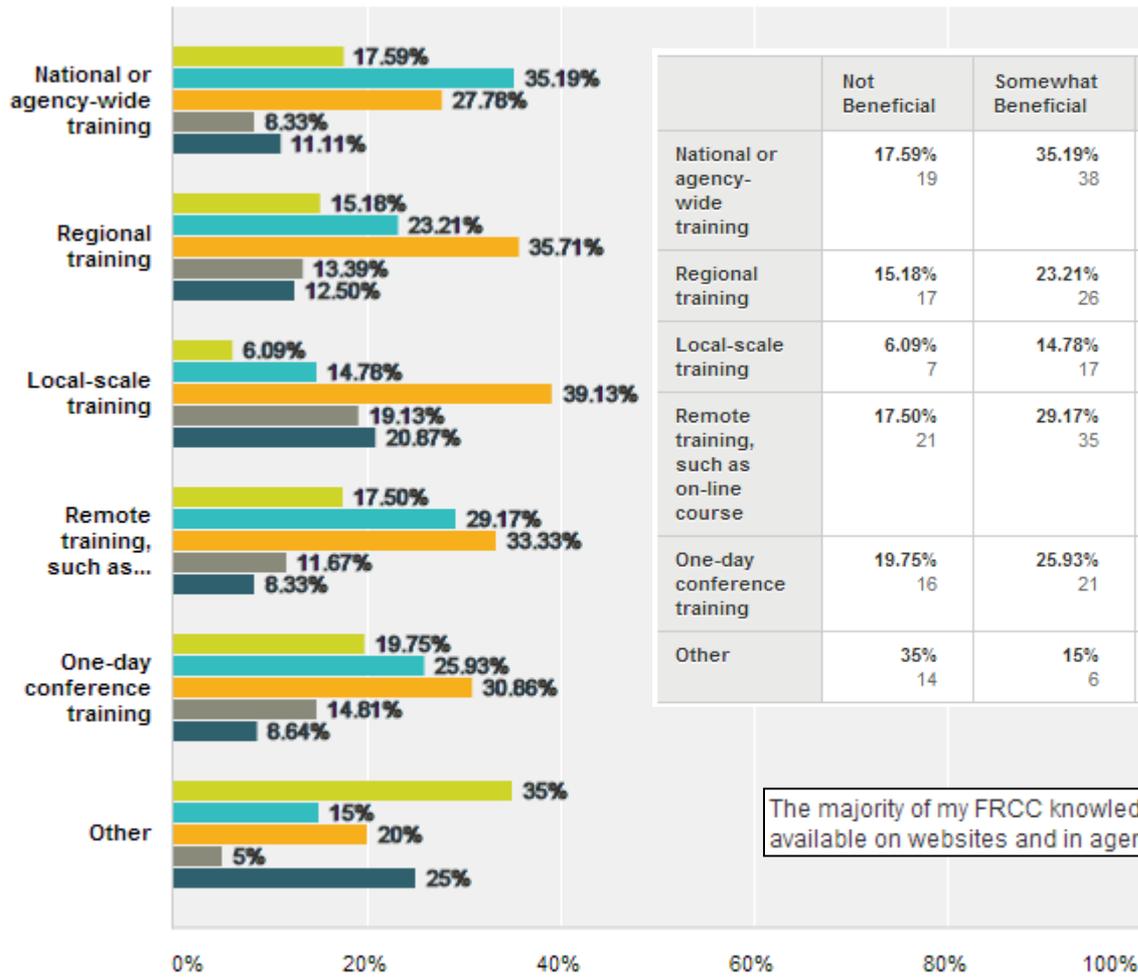
	Not Effective	Somewhat Effective	Effective	Moderately Effective	Very Effective	N/A	Total	Average Rating
Online course	1.60% 3	21.39% 40	20.86% 39	9.09% 17	4.28% 8	42.78% 80	187	2.88
Workshop	1.46% 3	14.56% 30	24.76% 51	12.62% 26	13.59% 28	33.01% 68	206	3.33
Self-taught	5.02% 11	24.66% 54	32.42% 71	18.26% 40	7.31% 16	12.33% 27	219	2.98
Webinar	3.68% 6	11.04% 18	9.20% 15	7.98% 13	3.68% 6	64.42% 105	163	2.91
One-day conference training	1.24% 2	11.18% 18	11.80% 19	8.07% 13	4.97% 8	62.73% 101	161	3.12
Other	1.65% 2	4.13% 5	7.44% 9	8.26% 10	7.44% 9	71.07% 86	121	3.54

■ Not Effective  
■ Somewhat Effective  
■ Effective  
■ Moderately Effective  
■ Very Effective  
■ N/A

# Please rate how beneficial you found each of the following FRCC training types?

Q10

Answered: 224 Skipped: 173



	Not Beneficial	Somewhat Beneficial	Beneficial	Moderately Beneficial	Very Beneficial	Total	Average Rating
National or agency-wide training	17.59% 19	35.19% 38	27.78% 30	8.33% 9	11.11% 12	108	2.60
Regional training	15.18% 17	23.21% 26	35.71% 40	13.39% 15	12.50% 14	112	2.85
Local-scale training	6.09% 7	14.78% 17	39.13% 45	19.13% 22	20.87% 24	115	3.34
Remote training, such as on-line course	17.50% 21	29.17% 35	33.33% 40	11.67% 14	8.33% 10	120	2.64
One-day conference training	19.75% 16	25.93% 21	30.86% 25	14.81% 12	8.64% 7	81	2.67
Other	35% 14	15% 6	20% 8	5% 2	25% 10	40	2.70

The majority of my FRCC knowledge comes from reading whatever FRCC documents I have found available on websites and in agency manuals. I have never attended any training specific to FRCC.

■ Not Beneficial  
■ Somewhat Beneficial  
■ Beneficial  
■ Moderately Beneficial  
■ Very Beneficial

In reference to the prior questions, what years did you attend training?

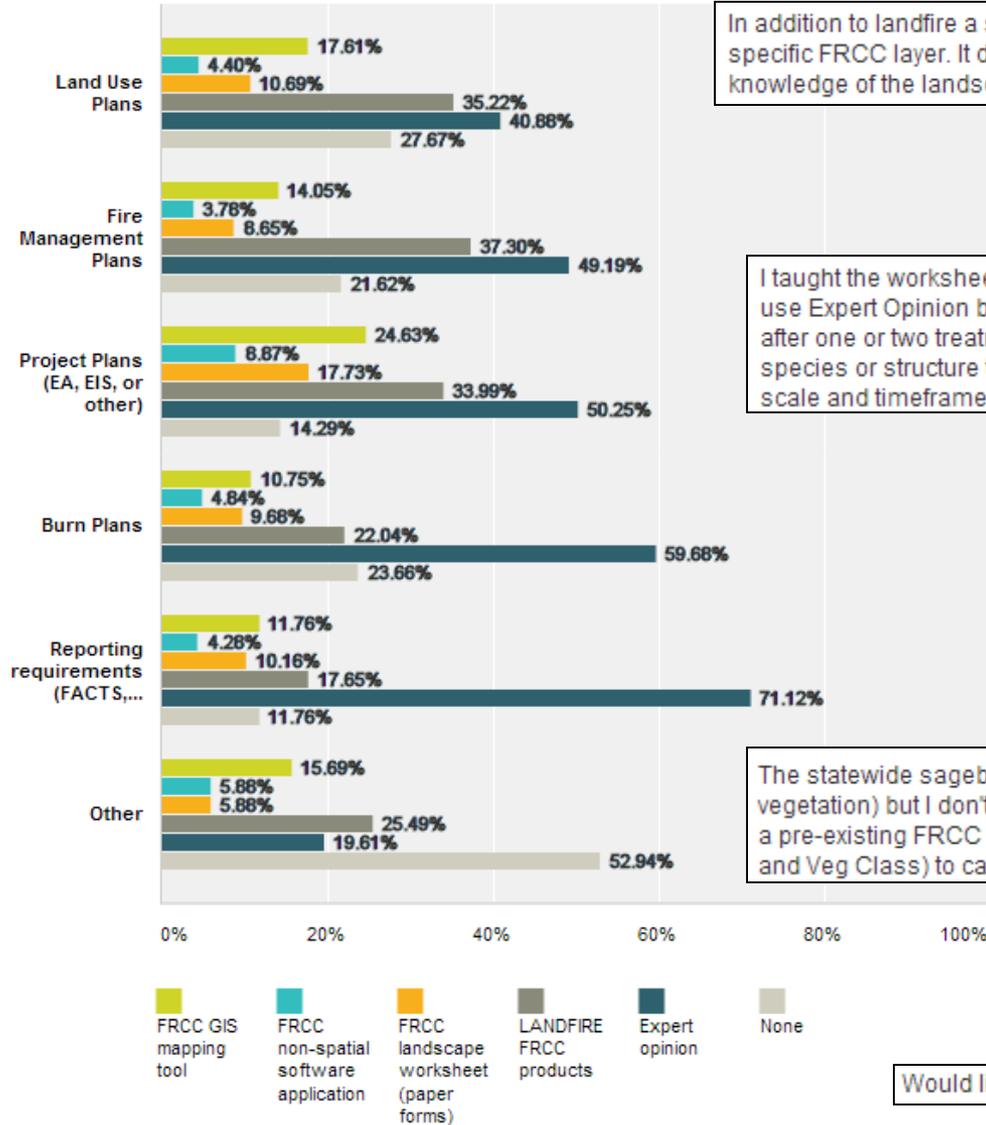
Q11

	National-level training	Regional or agency-wide training	Local-scale training	Remote training, such as on-line course	Other	Total Respondents
2003	25.40% 16	28.57% 18	28.57% 18	6.35% 4	11.11% 7	63
2004	25.68% 19	35.14% 26	22.97% 17	10.81% 8	5.41% 4	74
2005	16.67% 11	27.27% 18	30.30% 20	19.70% 13	6.06% 4	66
2006	5.71% 2	31.43% 11	34.29% 12	22.86% 8	5.71% 2	35
2007	21.43% 9	26.19% 11	21.43% 9	23.81% 10	7.14% 3	42
2008	13.89% 5	22.22% 8	25% 9	25% 9	13.89% 5	36
2009	10.42% 5	18.75% 9	27.08% 13	35.42% 17	8.33% 4	48
2010	8.70% 4	15.22% 7	28.26% 13	36.96% 17	10.87% 5	46
2011	9.09% 3	12.12% 4	27.27% 9	36.36% 12	15.15% 5	33
2012	10.34% 3	20.69% 6	24.14% 7	27.59% 8	17.24% 5	29
2013	0% 0	36.36% 4	18.18% 2	27.27% 3	18.18% 2	11

# For each purpose, please indicate the method you use to calculate FRCC.

# Q12

Answered: 251 Skipped: 146



In addition to landfire a study was done on our forest a few years ago that produced a forest specific FRCC layer. It does not always jive with the landfire data.....so I use both with local knowledge of the landscape.

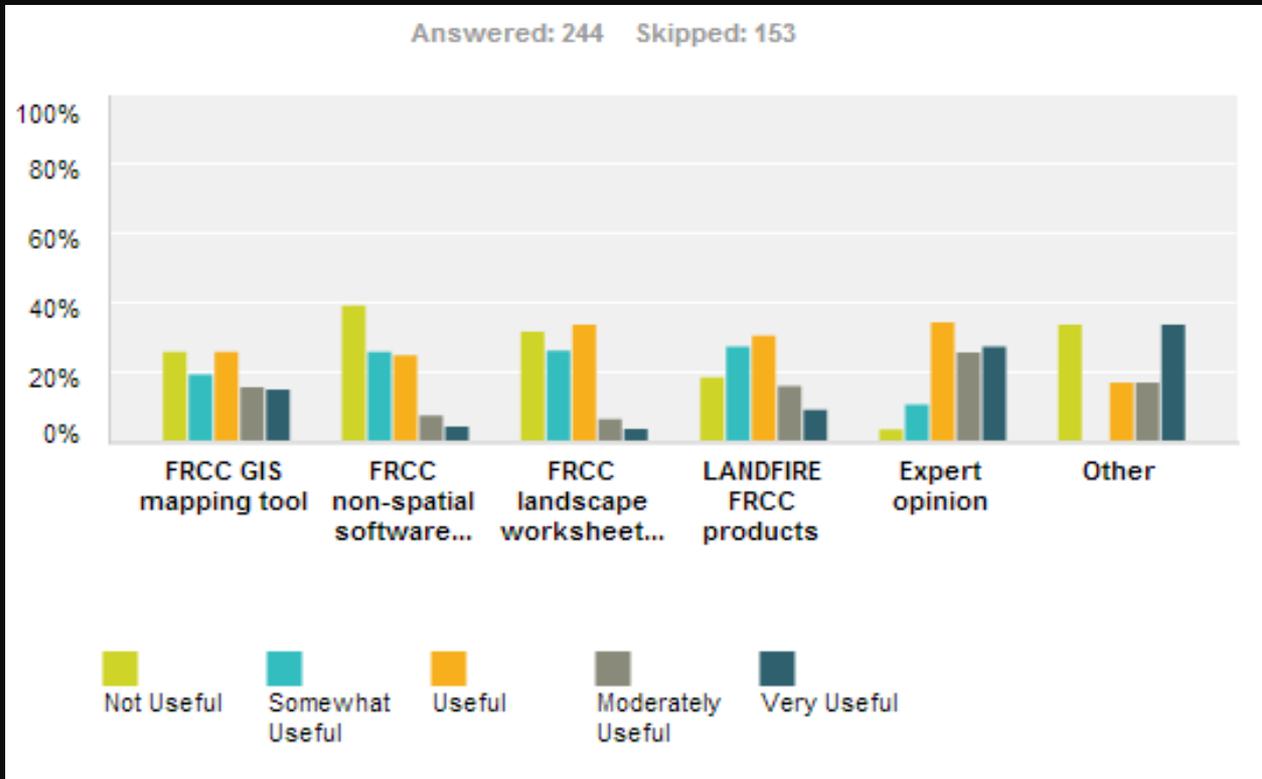
I taught the worksheet method to forests years ago. Some forests use LANDFIRE products. Others use Expert Opinion because most of our landscape is FRCC 3. We can't change condition class after one or two treatments. Even if we start burning on the appropriate short RI, we can't change species or structure that quickly. Folks in the south tend to be very frustrated with FRCC because of scale and timeframe.

The statewide sagebrush condition assessment used LANDFIRE products (BpS, existing vegetation) but I don't know if we did our own GIS Ecological Departure (FRCC) calculation or used a pre-existing FRCC tool. Our LCF projects with agencies use our customized spatial data (BpS and Veg Class) to calculate Ecological Departure on our own.

Would like to have more training on how to use tools to analyze program

# Please rate the usefulness of each tool you've used to calculate FRCC.

Q13



I have mixed feelings about some of this, but it is the most current and updated information that we have nationally. It will be interesting to see how bureaus support this in DOI if priorities change.

would like to know how to use tool better

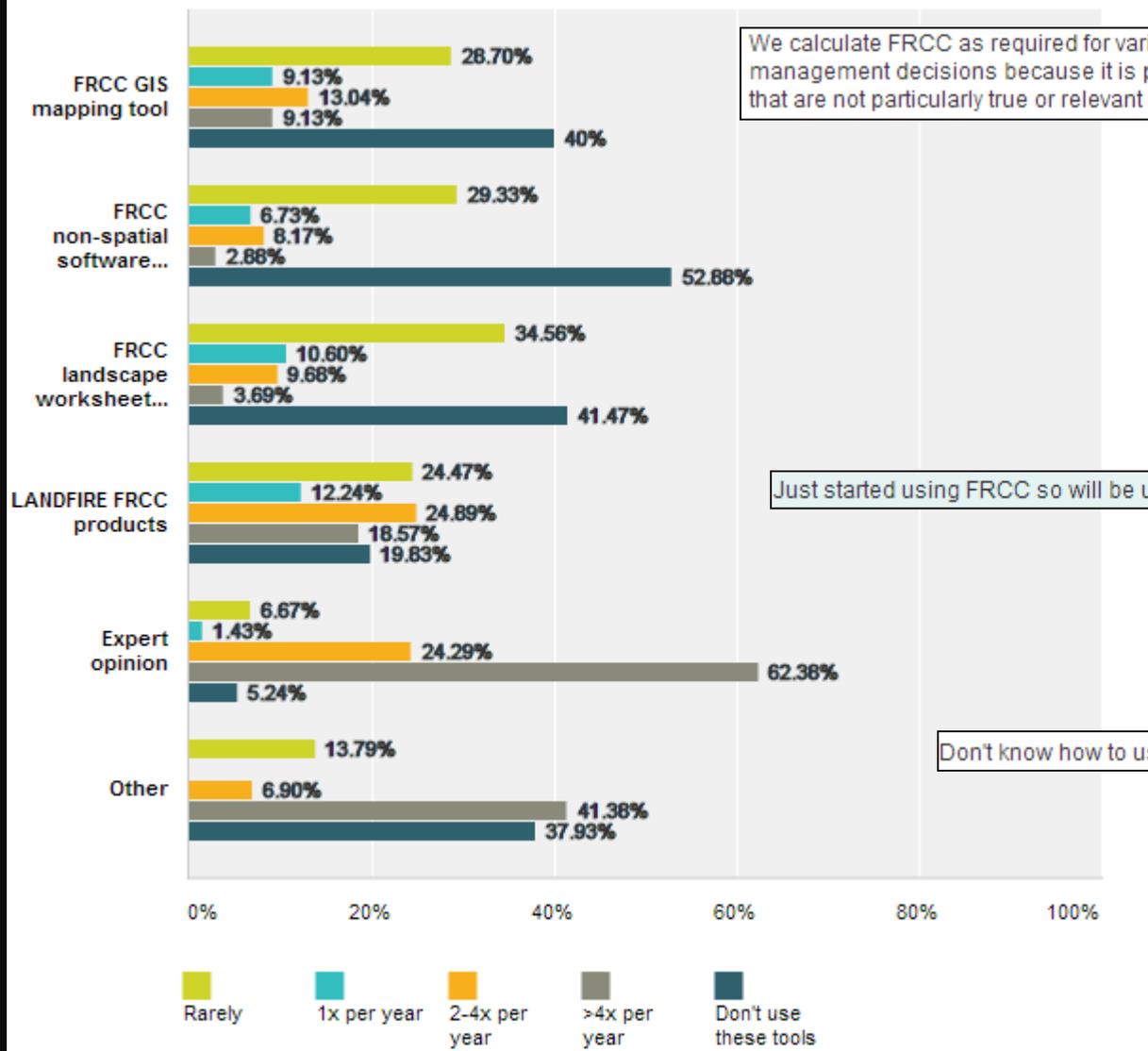
The FRCCMT can be difficult to run and troubleshoot. The helpdesk is helpful when available, but does not always have the funding it needs to respond.

Our current version of ArcMap does not support the Landfire/FRCC tool so that option is currently unavailable unfortunately.

# How often do you use the following tools?

Q14

Answered: 257 Skipped: 140



We calculate FRCC as required for various reporting purposes, but don't use it to inform land management decisions because it is primarily a forest management tool based on assumptions that are not particularly true or relevant in our parks' shrubland landscapes.

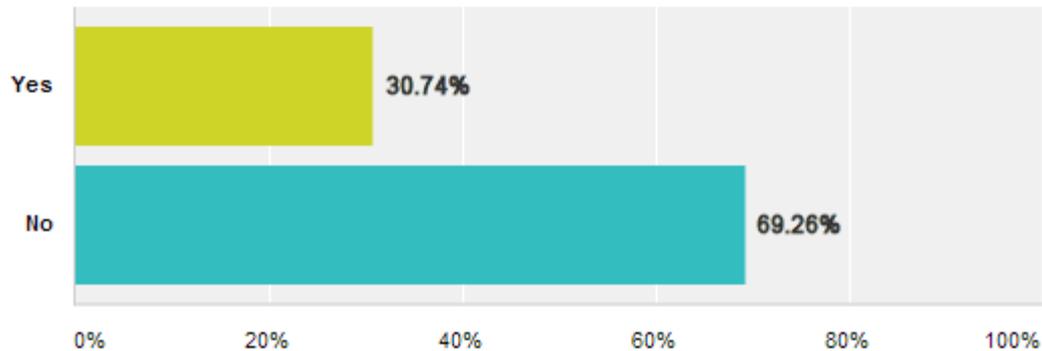
Just started using FRCC so will be using it more often....

Don't know how to use these tools properly and effectively in a timely manner

# Is GIS a barrier to your use of the FRCC mapping tool?

# Q15

Answered: 257 Skipped: 140



It is for the majority of our Forest's FIRE personnel.

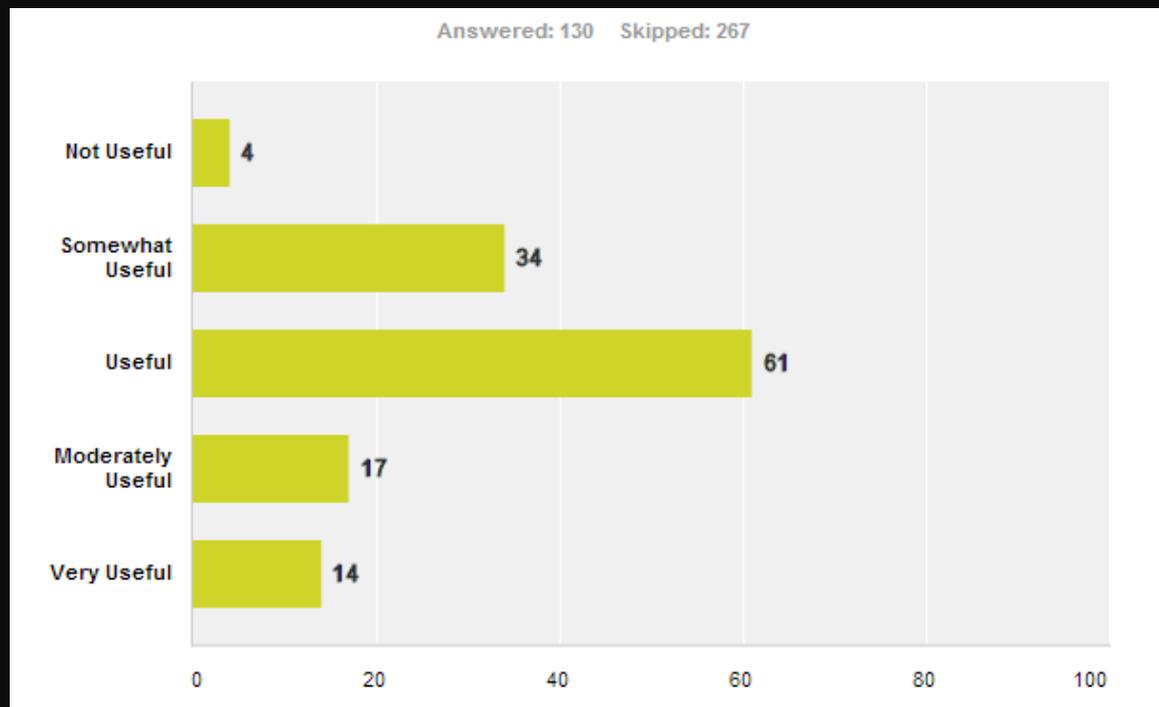
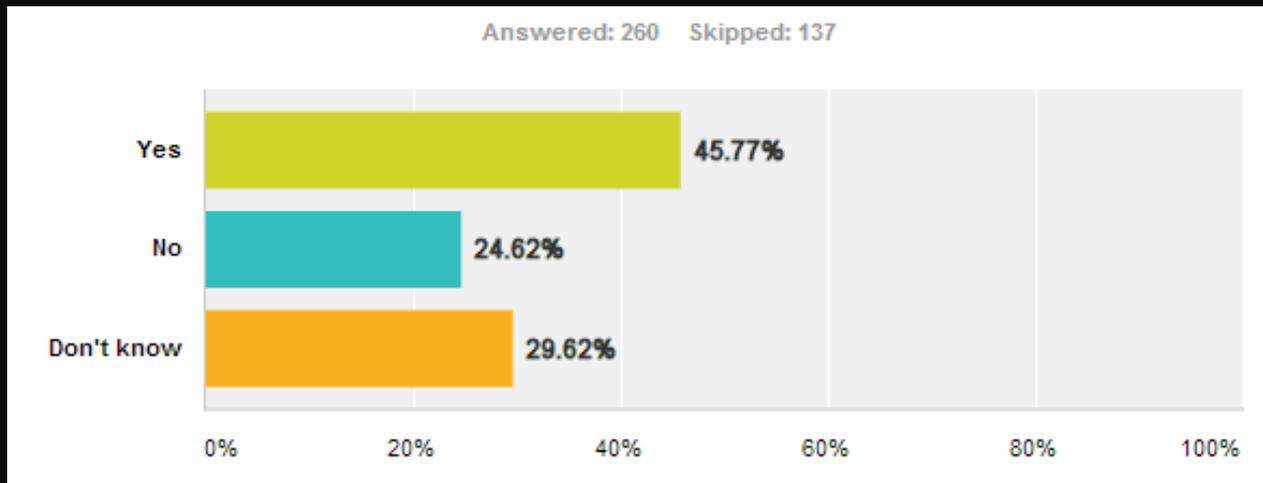
Actually it's usually the version of the tools. The FRCC is always behind the version of the ArcGIS Software we are using in the NPS.

The FRCC mapping tool was previously unavailable on CITRIX for OR/WA BLM. It has recently been added and I intend to begin using it.

I use GIS and know there is now a FRCC GIS tool but have not yet made use of it. Filling out this survey is a good reminder that I need to utilize it!

# Are you using the FRCC methodology as described in the FRCC Guidebook? If so, how useful is the information in the Guidebook?

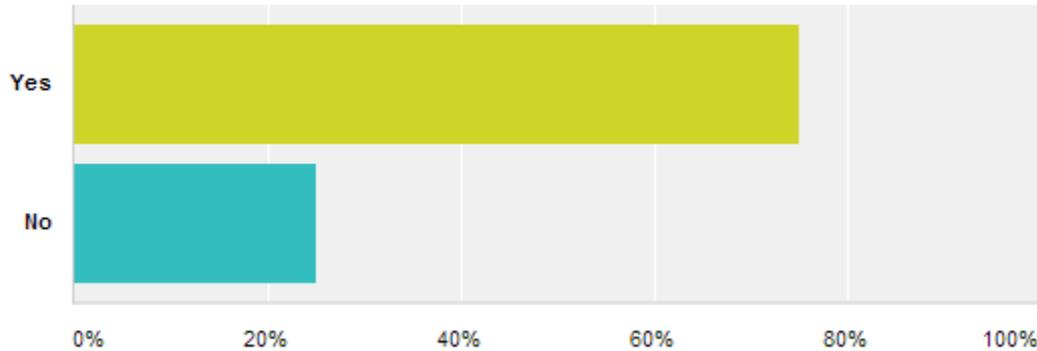
Q16 , Q17



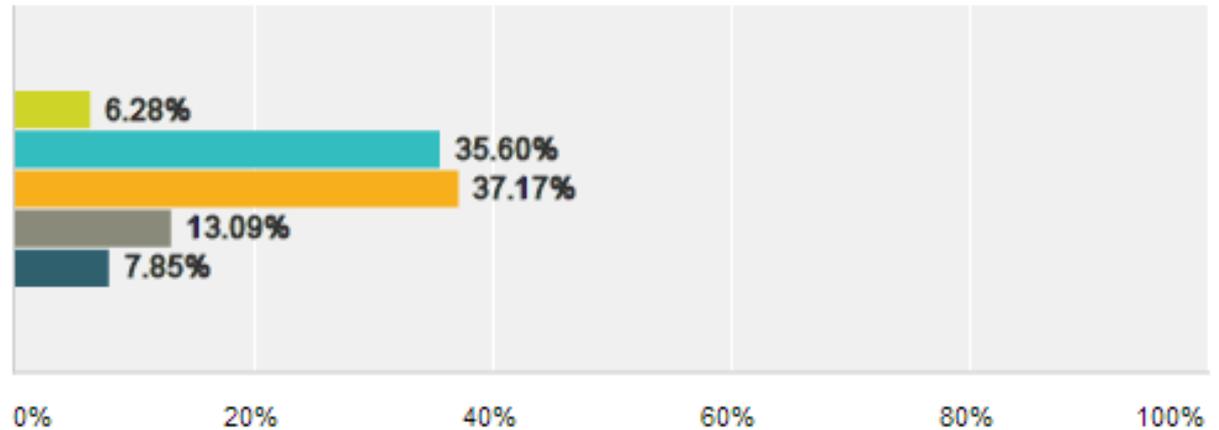
# Have you been to the FRCC website? If so, how useful did you find the website?

Q18, Q19

Answered: 264 Skipped: 133



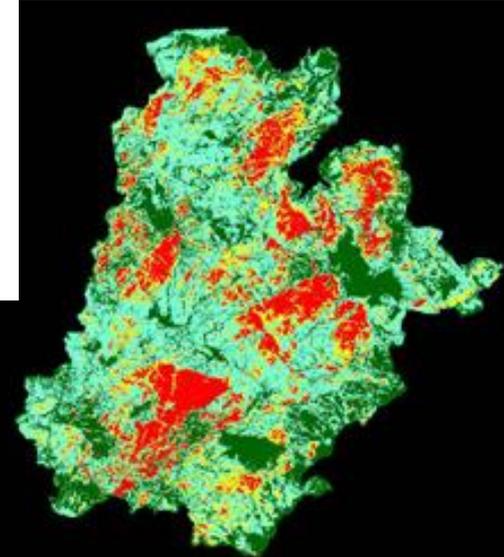
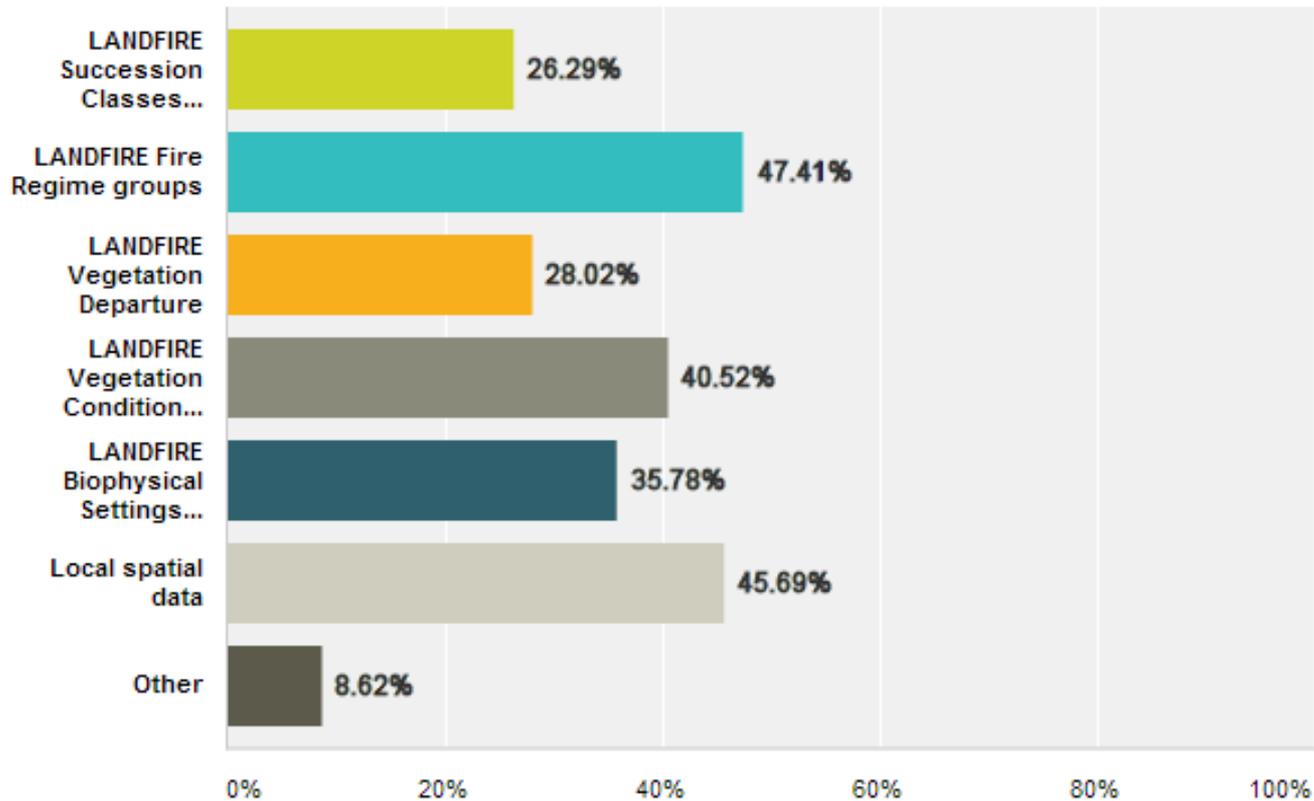
Answered: 191 Skipped: 206



# What spatial data are you using to calculate FRCC?

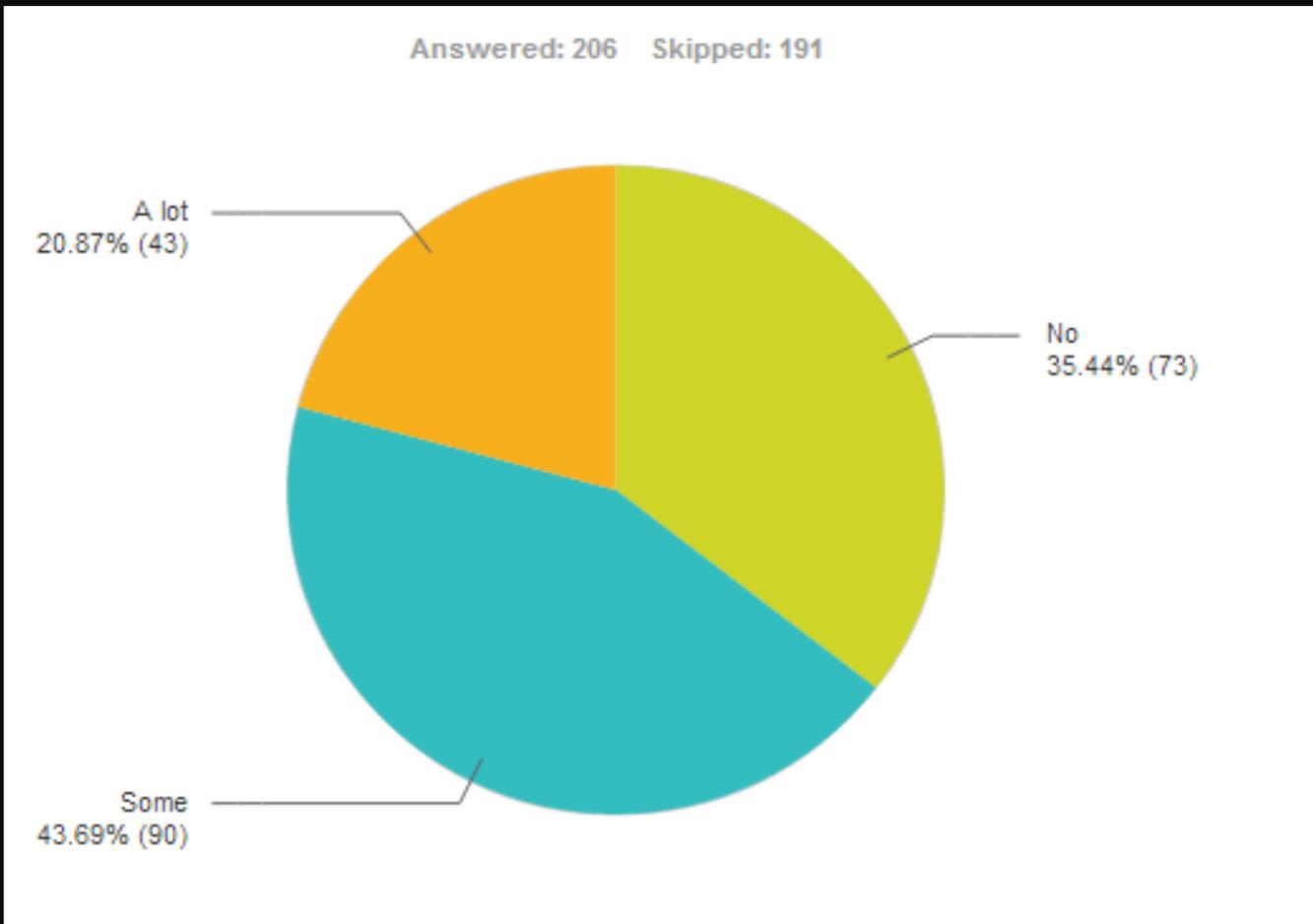
Q20

Answered: 232 Skipped: 165



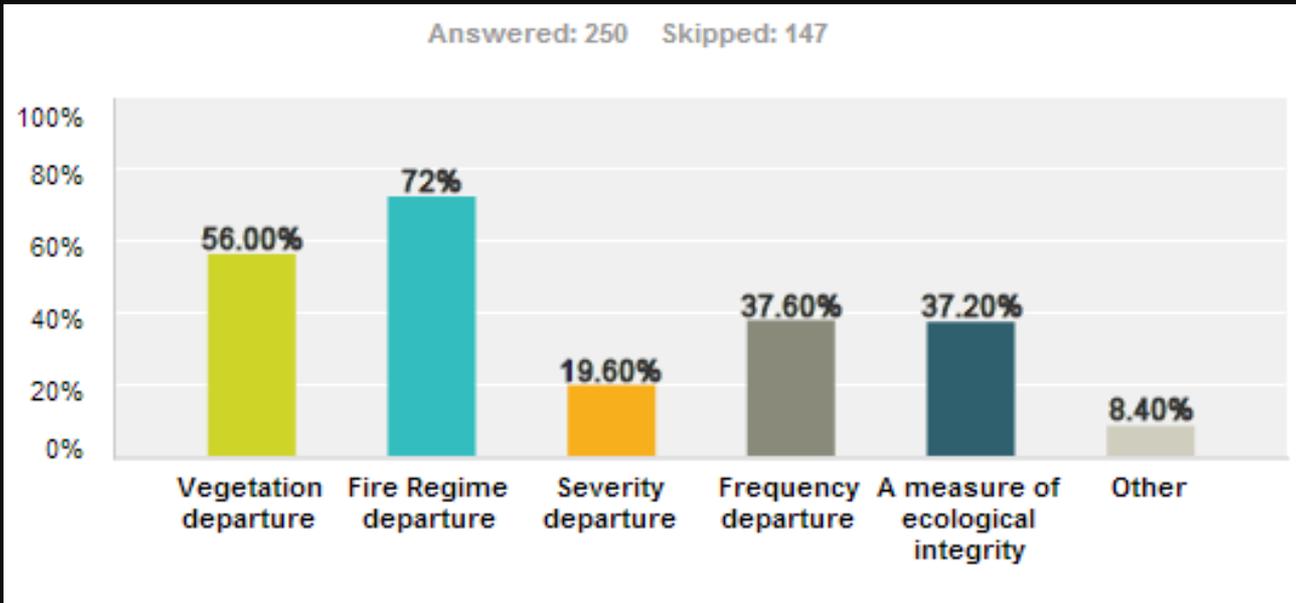
If you are using LANDFIRE data, are you doing any local calibration or modification?

Q21



# What are you using FRCC to measure or depict?

Q22



FRCC does not describe ecological integrity in Alaska. It is slanted toward the lower 48.

When positive and negative numbers are used to indicate whether a stand is over-burned or under-burned relative to presumed historical reference conditions, then this metric begins to have some meaning.

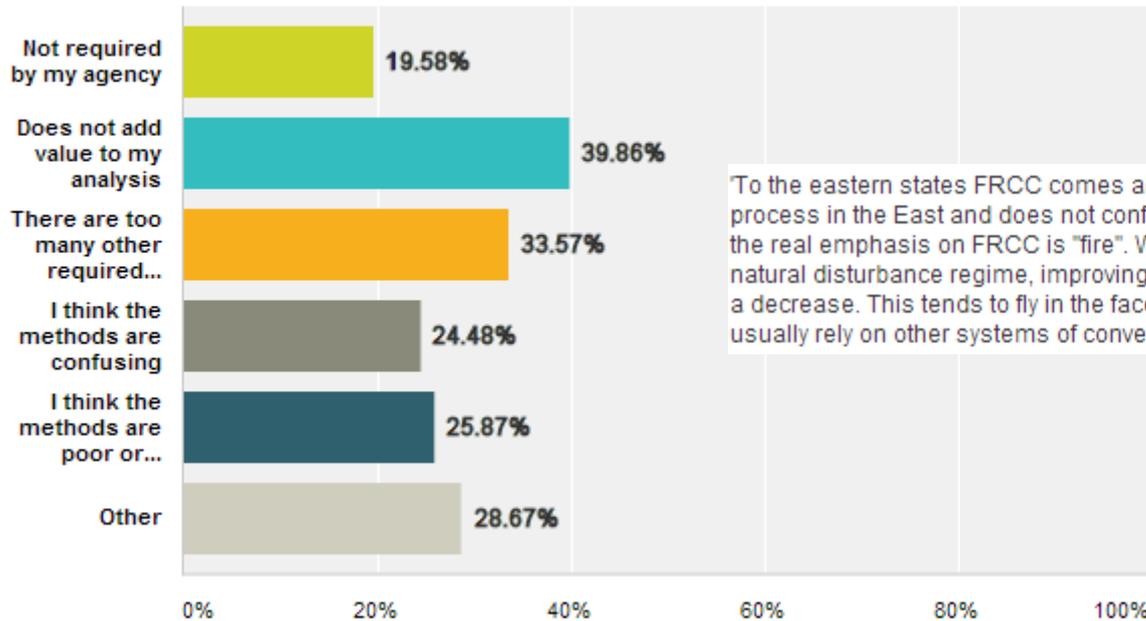
Looking at the individual seral stages in excess or deficit and determining what active or passive treatment is needed for each seral stage. In addition to classic landscape FRCC.

We are using it to show the difference between fire behavior with the existing fuels and the proposed fuel condition changes. (e.g. before and after farsite, flammmap, and FSPro runs). More specific to the current veg layer than FRCC per se.

FRCC is intended to be an indicator of ecological condition or fire regime intactness. Outside of project reporting, if you are not using FRCC in your management and planning process, indicate why you are not.

Q23

Answered: 143 Skipped: 254



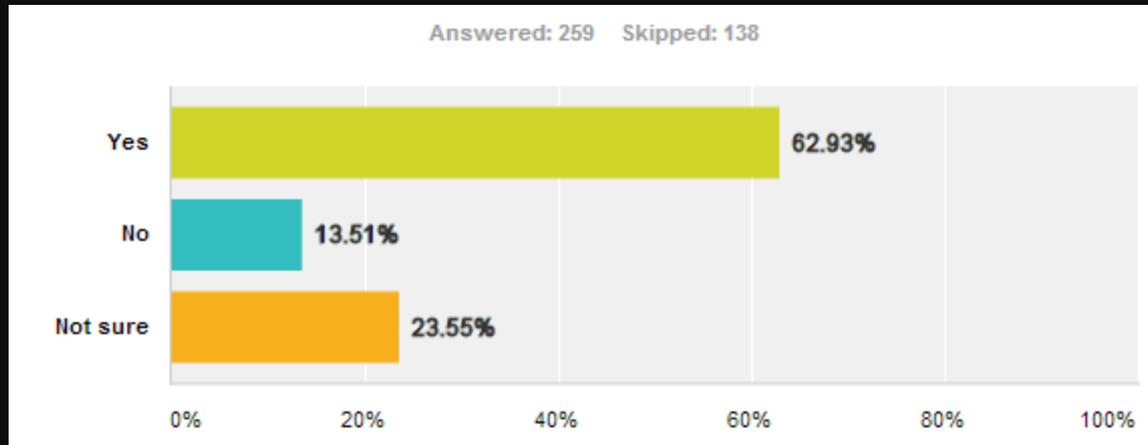
To the eastern states FRCC comes across as a very "Western-centric" system. It is not an intuitive process in the East and does not conform well to subregions with great heterogeneity. Nationwide, the real emphasis on FRCC is "fire". Where we actually have areas that include fire as part of the natural disturbance regime, improving FRCC for us often results in an increase in fire behavior, not a decrease. This tends to fly in the face of desired outcomes from a national perspective. We usually rely on other systems of conveying ecological integrity for planning purposes.

For large areas - 100,000s of acres - I believe the landscape-scale condition metric of FRCC (Ecological Departure) is superior to site-scale approaches such as rangeland health attributes/indicators within Ecological Sites.

I've been to the site but really did not get anything out of it. The scales are too "broad". I generally use satellite imagery and Google Earth.

# Current FRCC methodology incorporates both Fire Regime Departure and Vegetation Departure. Do you find Vegetation Departure to be a useful metric in assessing your landscape condition?

Q24



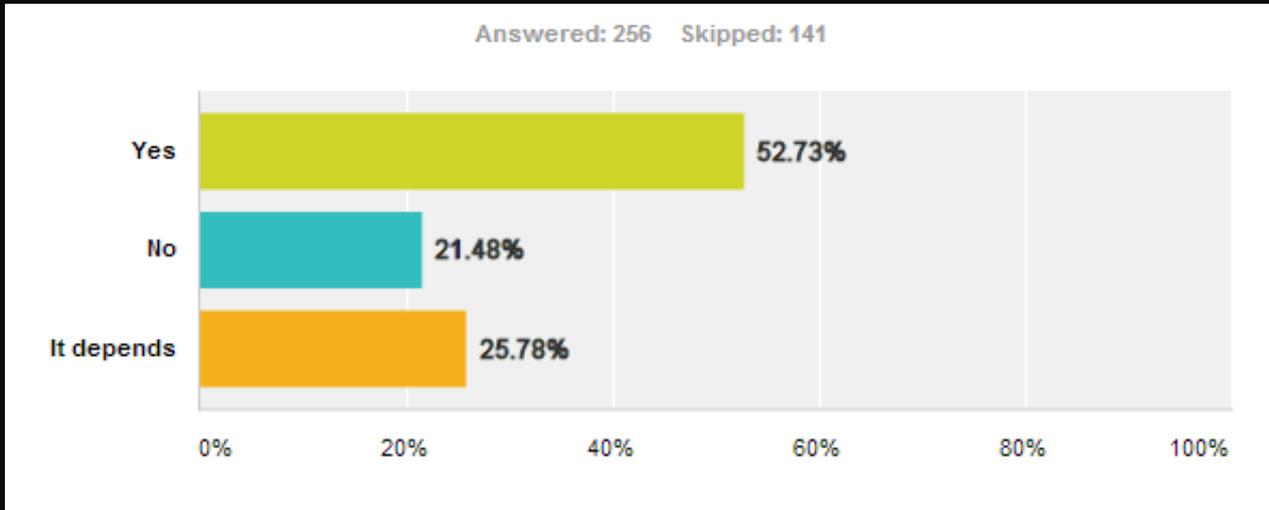
It can be very useful; however, local accuracy is generally pretty poor. Vegetation Departure is more useful at a very large landscape level only, not the treatment level.

Very much so, this is very important. This is a method that can communicate to interested person the "see-able" changes that have happened to our landscapes. We have old photos to compare current conditions. Very useful.

It's been a while since I've looked at the FRCC stuff. We've generally gotten to the point where it is just something we assign/ mention in plans. Lack of guidance from the National Office might be one thing, or more, I think people just lack confidence in the reference condition stuff and don't think this (documenting via the methodology) is important.

# Would you like FRCC training to be included in existing relevant S- or Rx-courses?

Q25



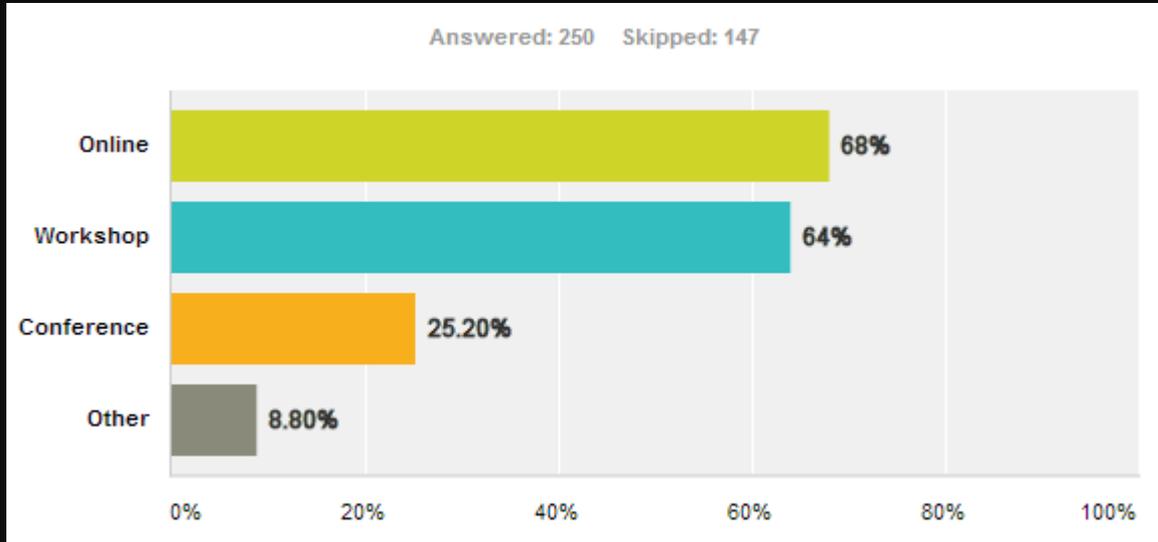
Particularly as we emphasize landscape restoration and the new planning rule, FRCC training and support should be enhanced and maintained.

I think the concepts should be taught, but the precise methodology is beyond the scope of the S and Rx classes. I think that the concepts of vegetation condition and fire's role in maintaining that condition are ESSENTIAL to communicate in S classes, starting with 130/190,

I think we should incorporate Fire Regime but not necessarily FRCC other than to clarify the difference in most courses e.g. S-290 & 390. Perhaps FR and FRCC could be incorporated in Rx-310.

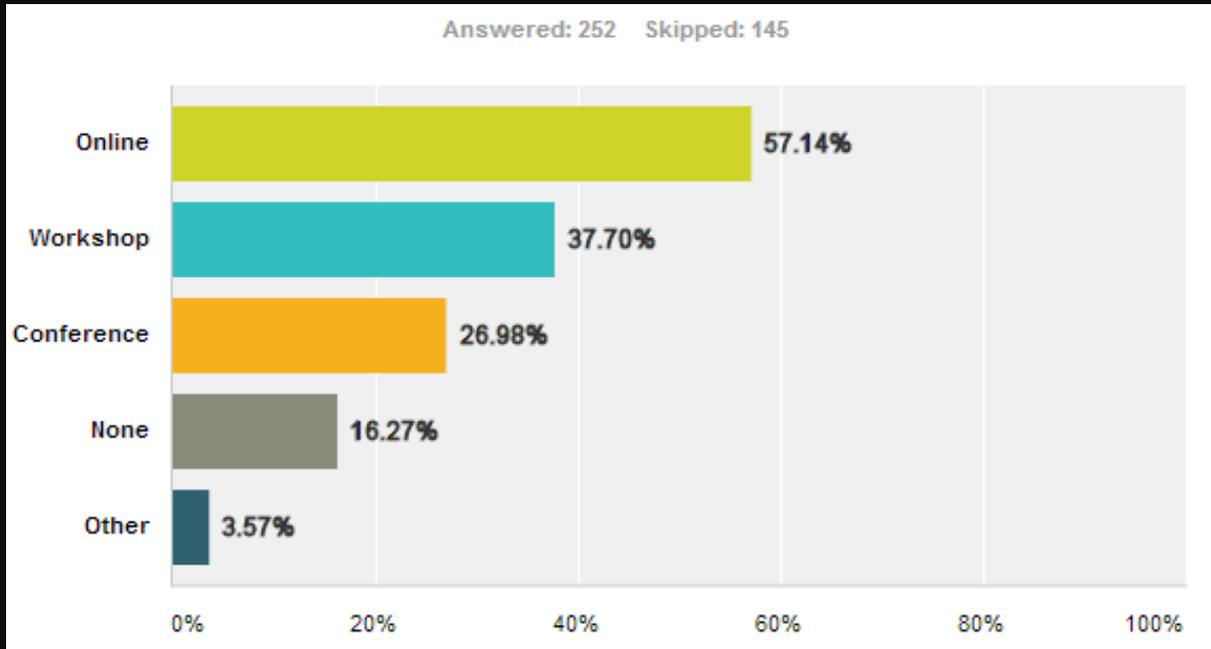
# What kind of FRCC training would you be most likely to attend if required?

Q26



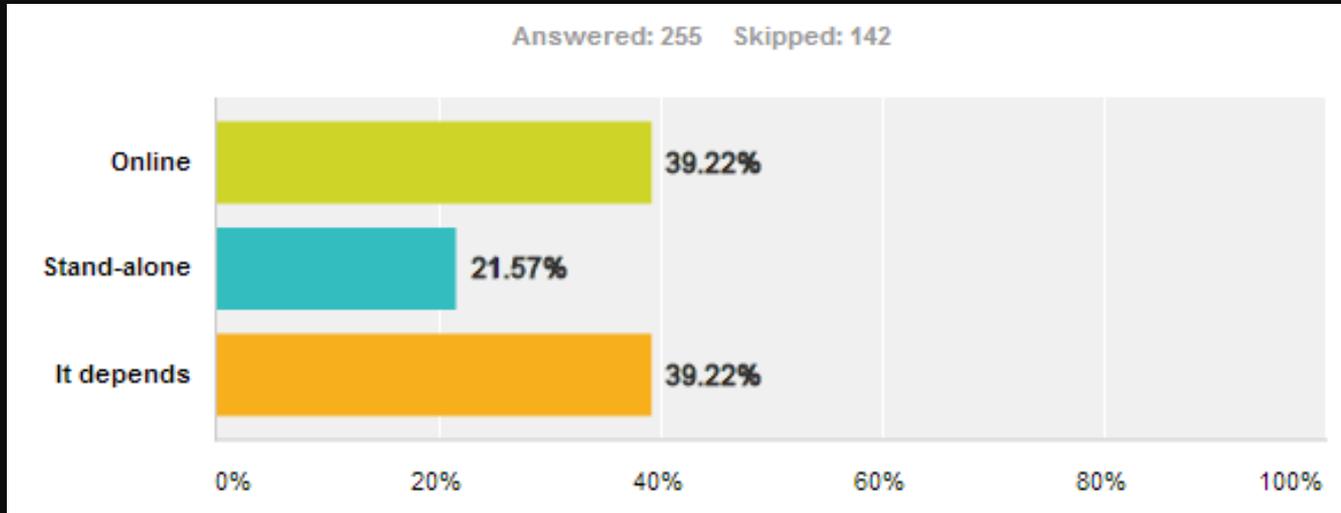
# What kind of FRCC training would you be most likely to attend if NOT required?

Q27



Would you be most likely to use the FRCC assessment tools (GIS mapping tool and non-spatial application) if they were online(housed with other decision support tools) or stand-alone on your computer?

Q28



Due to poor network speeds I prefer stand-alone, but everything seems to be headed to online and cloud based services

For a more extensive analysis, stand-alone. For a quick representation, probably the online tool.

The critical component of the phrase above is "...housed with other decision support tools". And, I would add further, that those "decision support tools" should work "together" not in an independent vacuum.

If shifted over to online, then would lose some of the current issues concerning compatibility with whatever version of ArcGIS an agency would have as well as issues that can arise when another agency uses some other GIS software. However, several of the current map layers are in violation (for lack of a better term) of the science that underpins the FRCC concept.







# What did we learn?

- The US Forest Service (USFS) and the Department of Interior (DOI) dominated the responses with 40.9% and 43.2% respectively.
- Tools used to assess current landscape condition as required by current policy, the majority of those who responded use FRCC as the preferred method (63.7%).
- 219 respondents considered themselves self-taught to some degree. Local-scale training was deemed slightly more beneficial compared to regional, national, conference workshops or online training
- 68% of the respondents said they would be most likely to attend online training or webinar because of difficulties to travel, followed by workshops (64%) and conference training (25%)
- Tools most used: 1) Expert opinion; 2) LANDFIRE FRCC products; 3) The GIS-based FRCC Mapping Tool; 4) FRCC landscape worksheet (paper forms); and 5) FRCC non-spatial software application.



# What did we learn?

- 30.7% of respondent thought GIS was a barrier.
- Most respondents considered themselves using FRCC according to the methodology described in the FRCC Guidebook
- 75% have visited the FRCC web site.
- 45.7% use FRCC use local data in FRCC calculations.
- LANDFIRE data is commonly modified for use in the FRCC calculation. FRCC is used to depict: 1) fire regime departure, 2) vegetation departure, 3) frequency departure, 4) ecological integrity, and 5) fire severity departure.
- Respondents who do not use FRCC give the reasons as, the analysis area is too small, FRCC does not work well for the ecosystem in question, the concept of a historical reference condition does not make sense for the ecosystem, the respondent does not write reports, the method is too simplistic or confusing, or they did not know about FRCC.
- 39.2% would prefer a stand alone desktop application



## What did we learn?

- Reasons for wanting the FRCC online was lack of GIS skills.
- However respondents liked the ArcMap tool but are afraid the tool would be slow due to poor internet speed.
- Suggested improvements to the current FRCC calculation included:  
Accommodate for climate change and invasive species, improvements to make FRCC more useful in the eastern states, develop a common framework for how to treat disturbances meant to mimic fire, and allow for alternate definitions of the reference condition.