

# Understanding the leadership perspective in wildland firefighting: gaps and opportunities for growth

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**Abstract.** This aim of this study was to develop and assess the viability of a leadership scale that measures leadership from the perspective of the leader. A criterion sample was used of firefighters across USA federal land management agencies who are qualified crew bosses. The Supervisor Perceived Leadership Scale (SPLS) consists of perceptions of items that have measured the most essential leadership skills – competent decision making, integrity and personal genuineness from the perspective of the subordinate in the previously developed Crewmember Perceived Leadership Scale (CPLS). Through confirmatory factor analysis, an 18-item, 2-factor structure was supported. However, the items that did not load were highly related and loaded well on the CPLS. The SPLS had a low to moderate relationship with authentic leadership and global competence. The gap between the SPLS and CPLS provides insight about the potential differences between the average fire leader and the exceptional fire leader. These results and implications for future research are discussed.

**Additional keywords:** industrial psychology, leadership measure, organisational culture, organisational psychology, wildland fire.

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## Introduction

When an organisation is propelled to the top of its field, attention focuses on leadership for explanation and praise. This attention is often correctly placed, as the most effective leaders empower and enrich employees and organisations; they often are the cause and catalyst for tremendous growth, development and outcomes (Yukl 2014). This is not to say that others in the organisation are not critical to success, but merely that leaders often play a pivotal role in coordinating efforts and moving great ideas into action. Wildland firefighting is an exceptional example of an arena where leaders can have a profound effect on the quality of outcomes. In fact, lacking such quality leadership in the wildland fire environment can lead to the dramatic loss of resources, to injury, or to death of those in a leader's charge. Owing to the critical nature of the leadership role, understanding and nurturing the development of emerging leaders can be an important component in determining future success or failure, growth or stagnation, and between life or death of an organisation and the individuals in it. Hence, building and providing quality, relevant processes and tools for the development of leaders is the lifeblood of wildland firefighting. The qualities and behaviours discussed are best understood through also having an understanding of the history and context from which leaders operate.

The USA wildland firefighting culture is one that was initiated by a set of values and beliefs of founders that has

carried through over 100 years. Because the culture has such a rich history, it has developed deep roots. The wildland firefighting service is a culture that champions competence, confidence, credibility and reputation (Desmond 2007; Lewis *et al.* 2011), which is evident in early training (National Wildland Coordinating Group (NWCG) 2006) and is felt on the fireline (Desmond 2007; Lewis *et al.* 2011; Waldron and Ebbeck 2015b). Although these are necessary qualities, they are not sufficient to prevent fatalities from occurring to elite-level firefighters (e.g. Mann Gulch Fire of 1949, South Canyon Fire of 1994 and Yarnell Hill Fire of 2013). As a result, leadership development in wildland firefighting has been one of the biggest challenges to improving the function, safety and the overall culture (Useem *et al.* 2005). Schein (2016) notes that a deep-rooted culture can make it difficult to change or update certain aspects of the culture while maintaining others, but it is possible.

Original expansion on leadership development in wildland fire was adopted from the US military's values of duty, respect and integrity (Waldron *et al.* 2015), and was inclusive of training courses known as the 'L-curriculum' and the document *Leading in the Wildland Fire Service* (NWCG 2007). Research within the wildland firefighting community by Lewis (2008), Waldron and Ebbeck (2015a, 2015b), Lewis and Ebbeck (2014) and Waldron *et al.* (2015) has most recently expanded the concept of successful leadership in wildland fire. Although this growing

body of research maintains the importance of competence, confidence, credibility and reputation combined with the values of duty, respect and integrity, it strongly emphasises the social and relational aspects of leadership – elements not adequately captured previously. Leadership field experiments in other arenas have shown significant increases in productivity when managers were taught relational and social leadership skills rather than focusing only on task-oriented skills (Porras and Anderson 1981; Wikoff Anderson and Crowell 1983). As such, it is not surprising that the social and relational aspects of leaders were rated highly by wildland fire personnel (Lewis 2008; Lewis and Ebbeck 2014; Waldron *et al.* 2015).

Waldron *et al.* (2015) found three unique, overarching leadership concepts important in wildland firefighting: competent decision-making, personal genuineness and integrity. In an effort to understand and offer a way for wildland fire leaders to gain feedback on their leadership skills, these three concepts were captured in the Crewmember Perceived Leadership Scale (CPLS) – an assessment tool for crewmembers to rate how often their supervisor enacted fire leadership qualities and behaviours that led to an effective and safe crew (Waldron *et al.* 2015). The CPLS was developed through several processes that took exact language from feedback given by wildland firefighters. Although this initial survey offers a way for leaders to gain an understanding of how they are perceived by those they lead, it is only a part of a leader's development.

Yukl (2014) noted that another important part in leadership development is self-reflection. In a study with wildland firefighters learning a psychological and physical awareness tool that uses reflective mechanisms, Waldron and Ebbeck (2015a) found that reflective processes helped the firefighter participants understand more about their behaviours, recognise negative triggers, and improve their outcomes socially, psychologically and physically. Thus, leadership training that emphasises reflective tools and techniques may provide opportunities for individual growth that are currently not available through other methods.

#### *What are land-management agencies currently doing?*

The US land management agencies (e.g. Forest Service, Bureau of Land Management, National Park Service) have attempted to capture feedback for individuals in leadership roles. This feedback is collected from multiple perspectives through a 360° (multi-perspective) feedback process (a popular feedback mechanism used in many different work arenas such as major businesses like PepsiCo and the US military to provide viewpoints from several different sources that the leader works with on performance). The collected feedback is then shared with individual leaders. Unfortunately, this type of feedback process is rarely utilised in land management agencies until individuals reach middle to upper-level management. As a result, many individuals receive little comparable feedback until later in their career. Furthermore, Forest Service employees have noted that the feedback assessments are global and do not include specific aspects of their jobs (J. Gumm, pers. comm. 2016). A comprehensive leadership assessment tool that provides relevant, self-reflective feedback throughout an individual's career may help them develop into better leaders, improving organisational effectiveness.

#### *Assessment creation*

The researchers wanted to create a practical and useful self-assessment tool for wildland firefighting. Additionally, the researchers wanted to understand its alignment with the CPLS to determine if it could be used as a more job-specific 360° evaluation. As a result, the researchers reworded the CPLS items to reflect the first person rather than the third person. This is an acceptable process; other assessments (e.g. Mindfulness Attention Awareness Scale (MAAS)) used similar modifications for differing populations (Brown *et al.* 2011). It is expected that some differences may occur between the two assessments because populations differ in their duties within wildland fire. Using the CPLS as the foundation for the new assessment preserves much of what the field desires and has expressed is important. Owing to the similar nature of the assessments, the authors named the new assessment the Supervisor Perceived Leadership Scale (SPLS).

#### *Leadership theory*

Leadership is often a nebulous term to define because of its wide use and understanding among researchers (Yukl 2014; Northouse 2016). However, there are often two approaches: (1) leadership as a role, or (2) leadership as a process (Yukl 2014). Both approaches are valuable in that without the catalyst, or leader acting as a catalyst, the process is slow, and little change occurs. Similarly, relationships and processes are largely what produce change and action in a leader's followers. Waldron and Ebbeck (2015b) and Waldron *et al.* (2015) observed key similarities between essential and desired leadership qualities in wildland fire and modern leadership theories such as authentic leadership (Luthans and Avolio 2003), transformational leadership (Bass 1985; Bennis and Nanus 1985) and servant leadership (van Dierendonck 2011). These theories focus on both the development and qualities of a leader and a leader's followers as well as the relational process.

Although Waldron and Ebbeck (2015b) and Waldron *et al.* (2015) did not directly test any one of these theories against the CPLS, both made strong connections based on similarly worded items and interpretation to authentic leadership. Authentic leadership can be characterised as 'a pattern of leader behavior that draws on and promotes both positive psychological capacities and a positive ethical climate' (Walumbwa *et al.* 2008, p. 94).

Two key defining aspects of authentic leadership are the genuine, positive, intrinsic motives of the leader for the growth and betterment of the self and others (Luthans and Avolio 2003) and the ability of the leader to act genuinely from the best part of the self on behalf of these motives (Inam 2015; Thacker 2016). Many leadership theories do not specify the positive and ethical nature of the leader in this manner, but it is exemplified in authentic leadership through examples such as Winston Churchill, Mahatma Gandhi, Eleanor Roosevelt and Nelson Mandela (Luthans and Avolio 2003). These leaders are generally remembered for the genuine, positive impact they had on others, and reliability in their actions. Enacting authenticity requires the willingness to be vulnerable and open about how one is thinking and feeling (Brown 2012). Men and women often attribute vulnerability to weakness, and research has found that men especially attribute vulnerability to predominant triggers of

shame – appearing weak and not enough (Brown 2012). The cultural values of confidence, competence, reputation and credibility in wildland firefighting may pose an interesting challenge to authenticity, but previous research (Waldron and Ebbeck 2015b; Waldron *et al.* 2015) indicates that aspects of authenticity are present in the predominantly male culture.

Authentic leadership has its roots in transformational leadership (Bennis and Nanus 1985; Bass 1985), and was described by George (2003) in regards to qualities and characteristics of leaders which followers desired in a practical sense. George described these leaders by their consistency, connectedness, passion, purpose and leading with their values. In the same vein, Luthans and Avolio (2003) ignited a line of research and established theoretical underpinnings for understanding and studying authentic leadership. They identified four factors regarding self-awareness that influence the development of authentic leadership: (1) balanced processing – analysing relevant information before decisions are reached, including eliciting challenges to one's own thoughts; (2) relational transparency – being open and honest about one's thoughts and feelings with others; (3) self-awareness – understanding and demonstrating how one makes meaning of the world, and the self in it; and (4) internalised moral perspective – being guided by an internal compass of one's own standards and values rather than external societal pressures Walumbwa *et al.* (2008).

Northouse (2016) and Gardner *et al.* (2011) have noted that although authentic leadership is still developing in its conceptualisation and measurement, it has spanned the two perspectives of leadership (role and process). As a result, authentic leadership has been studied from, and is capable of being studied through both perspectives of role and process. Authentic leadership has also demonstrated the relationship and effect of authentic leaders on follower behaviours (Gardner *et al.* 2005; Walumbwa *et al.* 2010; Leroy *et al.* 2015). Authentic leaders have been noted as being more open and capable of forming close relationships with others (Walumbwa *et al.* 2008) and promoting intrinsic motivation and authentic followership in subordinates (Leroy *et al.* 2015). These findings reinforce the importance of authentic leadership's part in the bridge and connection between leadership as a role and leadership as process.

Regarding the three key components in the CPLS (and what will be similarly measured in the SPLS) – competent decision-making, personal genuineness and integrity – two aspects (personal genuineness and integrity) relate directly to the authentic leadership elements listed previously. *Personal genuineness* 'refers to leaders who are humble, and open to suggestions, care about their crewmembers and their growth, and seem to hold an unassuming confidence' (Waldron and Ebbeck 2015b, p. 202). Personal genuineness seems to share aspects of balanced processing and self-awareness from authentic leadership. These aspects include revealing components of seeing the self from others' perspectives and valuing others' views and opinions when making decisions.

*Integrity* involves understanding one's own capabilities while being consistent in reliably relaying information to the crew; leaders are then found trustworthy by following through with actions that align with their stated objectives (Waldron and Ebbeck 2015b, p. 202). Integrity also shares aspects of self-awareness, emphasising the importance of knowing the self and

understanding one's own capabilities. The other aspect of integrity that relates closely with authentic leadership is relational transparency, the importance of being open and transparent with followers (Waldron and Ebbeck 2015b).

One unique component noted in the wildland fire environment, which is not as prominent or consistent in the authentic leadership literature, is *competent decision-making* – behaviours and actions that emphasise being able to use knowledge gained in meaningful ways to form effective strategies in a timely fashion (Waldron and Ebbeck 2015b, p. 201). Competent decision-making, as described previously, has to do with the leader's ability to learn from experiences and training to adapt and apply these lessons to current circumstances (Waldron and Ebbeck 2015b). Although not directly expressed in authentic leadership or in other leadership assessments, this component is related to the traditional values of competence and confidence and was assessed as a part of leadership in the current study.

In summary, through previous research on wildland fire leadership, it is evident that gaining the perspective of the individual leader in the wildland fire context could have great potential for developing social relationships and fostering individual growth. This could aid in better decision-making in wildland firefighting. It is also clear that there is commonality in constructs and approaches in modern leadership theory. With that said, the primary aim of this exploratory research is to assess how often fire leaders report demonstrating desired leadership qualities and behaviours. Second, we aim to explore the creation and use of an assessment to capture perspectives of wildland fire leadership from the leader's perspective. Third, we aim to compare and contrast this assessment with the CPLS to begin to understand if the two could be used together for a well-rounded feedback system for leaders in wildland fire. Fourth, it is important to understand how the current research fits with the larger understanding of leadership measurement and leadership theory.

## Methods

### *Participants and procedures*

Participants were invited by federal, national-level training managers in the US land management agencies to complete an online assessment that took ~15 min to complete and were selected in a criterion sample (Patton 2002). There were 246 total participants who completed the assessment of the 309 who started it, for a completion rate of 80%. Of those who completed the assessment, 224 were male (91%) and 21 were female (9%), with one counted as 'other'. Although the ratio is high, it reflects the large gender imbalance in wildland fire documented in Jahn (2012), Lewis *et al.* (2011), Waldron and Ebbeck (2015b) and Waldron *et al.* (2015). The age was distributed across four categories: 92 were 22–25 (38%), 6 were 26–30 (2.5%), 55 were 31–40 (22.5%) and 91 were 41–50 (37%) years old. Using the Incident Qualification and Certification System (ICQS), a firefighter's Incident Qualification Card (i.e. 'Red Card') was used as a proxy for experience level. The card specifies the qualifications and trainings a firefighter has earned, thus indicating the positions they are allowed to operate in. The experience level was reasonably high among participants in the present study: 33 had 0–5 qualifications (14%), 95 had 6–10 qualifications (39%),

64 had 11–12 qualifications (26%), and 52 had 13 or more qualifications (21%). Potential participants had to be a federal employee and qualified as a ‘crew boss’; this qualification ensured that the firefighter had experience supervising others on wildland fire incidents. This information was available to the national level-training managers through electronic mailing list applications (Listservs) and the IQCS.

Once a pool of potential participants was identified, an email explained the purpose of the study, time needed and the rights of participants of the study. Participants were free to skip questions they felt uncomfortable answering or to leave the study at any time. This email was then given to the national-level training managers for their distribution to federal employees who met the criteria for the sample. After 2 weeks, a follow-up email was sent out to potential participants reminding them to fill out the assessment. Following recruitment, the researchers had a sample size large enough to complete the statistical analyses needed for measurement research in exploratory studies (Brown 2006; Vaske 2008).

### Measures

*SPLS.* Participants were presented with 24 wildland fire leadership items that had been previously created and were validated in a different population of wildland firefighters via the CPLS (Waldron *et al.* 2015), showing internal consistencies of 0.92 to 0.94. *Competent decision-making* consisted of eight items, *personal genuineness* consisted of ten items and *integrity* consisted of six items. Participants were asked to rate themselves in terms of how often they perceived themselves enacting listed items of wildland fire leadership on a five-point Likert scale (1, never, to 5, always).

*Authentic Leadership Questionnaire (ALQ; Walumbwa et al. 2008).* This is a 16-item assessment used to measure four aspects of authentic leadership: *relational transparency, moral perspective, balanced processing and self-awareness*. Answers are reported on a five-point Likert scale (0, not at all, to 4, frequently, if not always) to prompt how often respondents perceive that they exhibit these types of behaviour in response to each item. Acceptable internal consistencies have been found from 0.62 to 0.93 in the development of the assessment (Walumbwa *et al.* 2008; Read and Laschinger 2015).

*Perceived Competence Scale (PCS; e.g. Williams et al. 2004).* The PCS is a short four-item scale that is used to measure participants’ feelings about competence in a particular arena or task. Participants are asked to respond to items on a seven-point Likert scale (1, not at all true, to 7, very true) as to how true the statement is for them. Internal consistencies have been found to be above 0.80 (Williams and Deci 1996; Williams *et al.* 1998).

### Statistical analysis

Owing to the distribution of the data, the following tests and steps were taken to adequately address the aims of the research. The data were determined to not be normally distributed based on the Shapiro–Wilk test of normality; thus, adjustments were made to the statistical analyses. Parallel analysis (Horn 1965) was then used to determine the optimal number of factors for the SPLS. The authors chose parallel analysis because of its ability to give accurate results with non-normally distributed data

(Dinno 2009). Responses to the SPLS were then analysed using exploratory factor analysis (EFA) using maximum likelihood estimation with a varimax rotation. The parallel analysis and EFA did not support the three-factor structure found by Waldron *et al.* (2015); instead, a two-factor structure was found. Items with loadings lower than 0.40 were omitted from the final version. The final version was analysed using confirmatory factor analysis (CFA) to assess the goodness-of-fit of the model to the data. The CFA utilised maximum likelihood estimation with robust standard errors and a Satorra–Bentler scaled test statistic to correct for non-normality (Curran *et al.* 1996).

In addition, the SPLS factors were tested for adequate reliability and validity. Internal consistency was tested using Cronbach’s  $\alpha$  and inter-item correlation ( $r^*$ ). Owing to the data’s non-normal distribution, construct validity was tested using Spearman’s rank correlations ( $\rho$ ) between the SPLS, ALQ subscales and PCS. Finally, using one-way between-subjects ANOVA, we tested the influence of age and experience on the SPLS factors. Tukey’s honest significance difference post-hoc tests were used to examine group comparisons. Statistical significance was set at  $P \leq 0.05$  (Bonferroni correction set at  $P \leq 0.025$  was used for Tukey’s post-hoc tests to protect against Type 1 error rates due to multiple comparisons). All analyses were performed using *R version 3.2.3 (R Core Team 2015)*; specifically, the CFAs were determined using the *R*-package lavaan (Rosseel 2012).

### Results

For the SPLS, 18 of the original 24 items met the loading criteria (see Table 1), accounting for 30.8% of the variance. The CFA confirmed a two-factor structure (Comparative Fit Index (CFI) = 0.930; Tucker Lewis Index (TLI) = 0.921; Root Mean Square Error of Approximation (RMSEA) = 0.045; Standardized Root Mean Square Residual (SRMR) = 0.059). Based on the items, the two factors were labelled (a) Fire Culture Competence, and (b) Communication with Subordinates. Fire Culture Competence includes components from the three different aspects of the CPLS – competent decision-making, personal genuineness and integrity. The factors that loaded on this factor emphasised being able to do the job competently, make and communicate decisions in a timely fashion, and think critically about information. *Communication with Subordinates* includes components from personal genuineness that described communicating and gathering information from subordinates. The six items that did not load on the SPLS were largely concerned with the wellbeing and development of crewmembers and turning down assignments that were beyond leaders’ abilities to perform (see Table 2).

The total SPLS had high reliability ( $\alpha = 0.87$  and  $r^* = 0.27$ ). In addition, each factor had adequate reliability (Fire Culture Competence:  $\alpha = 0.82$  and  $r^* = 0.31$ ; Listening to Subordinates:  $\alpha = 0.74$  and  $r^* = 0.49$ ). As seen in Table 3, the ALQ subscales and PCS showed weak to moderate positive correlations with the SPLS (ALQ:  $\rho = 0.16$ – $0.57$ ; PCS:  $\rho = 0.13$ – $0.51$ ). Finally, age and experience were not significantly related to the SPLS factors with the Bonferroni correction. Non-adjusted post-hoc analyses found a significant difference between some of the experience-level groups with the total SPLS score (11–12 qualifications compared with those with 0–5 qualifications,  $P = 0.04$ ) and

**Table 1. Items and factor loadings for the SPLS, Supervisor Perceived Leadership Scale**

Item	Loading	Mean (s.d.)	CPLS construct
Fire Culture Competence (20.1% of variance)			
Act in the best interest of the whole rather than being driven by my ego	0.415	4.46 (0.59)	Personally genuine
Try to understand rather than judge	0.507	4.05 (0.64)	Personally genuine
Effectively demonstrate the skills of my job	0.526	4.26 (0.65)	Competent decision-making
Understand the strengths of each of my crewmembers	0.472	4.18 (0.62)	Competent decision-making
Consider facts and alternatives, but make timely decisions	0.614	4.28 (0.56)	Competent decision-making
Am able to use fire information to form effective strategies	0.502	4.25 (0.57)	Competent decision-making
Pay attention to the details, while keeping the big picture in mind	0.542	4.32 (0.61)	Competent decision-making
Possess the ability to be decisive	0.595	4.34 (0.60)	Competent decision-making
Am able to use knowledge gained through experiences in meaningful ways	0.488	4.42 (0.56)	Competent decision-making
Take quick action during fire operations	0.536	4.39 (0.55)	Competent decision-making
Am honest in my dealings with my crew	0.450	4.57 (0.54)	Integrity
Keep my word	0.441	4.56 (0.52)	Integrity
Show visible support for safety through words and actions	0.513	4.47 (0.60)	Integrity
Do not make my crewmembers' jobs more difficult by poor supervising	0.584	4.34 (0.57)	Integrity
Am reliable in communicating to the crew their role in fire strategies	0.594	4.30 (0.57)	Integrity
Communication with Subordinates (10.7% of variance)			
Ask for suggestions from subordinates	0.783	4.02 (0.75)	Personally genuine
Listen receptively to subordinates' ideas and suggestions	0.518	4.15 (0.54)	Personally genuine
Consult with subordinates	0.784	4.07 (0.68)	Personally genuine

**Table 2. Items from the SPLS, Supervisor Perceived Leadership Scale that did not load onto factors of the CPLS, Crewmember Perceived Leadership Scale**

Item	Mean (s.d.)	CPLS Construct
Listen to concerns	4.37 (0.58)	Personally genuine
Am concerned about my crewmembers' wellbeing	4.86 (0.37)	Personally genuine
Care about my crewmembers' growth as people and as firefighters	4.73 (0.48)	Personally genuine
Am compassionate when necessary with my crew	4.30 (0.65)	Personally genuine
Am humble in my dealings with others in fire	4.18 (0.62)	Personally genuine
Know myself well enough to turn down assignments that are beyond my abilities to perform	4.33 (0.74)	Integrity

**Table 3. Spearman's rank correlation coefficient ( $\rho$ ) between Supervisor Perceived Leadership Scale (SPLS) and leadership measures**  
\* $P < 0.01$

Leadership measures	SPLS – Total	SPLS – Fire Culture Competence	SPLS – Communication with Subordinates
Authentic leadership questionnaire			
Transparency	0.48*	0.47*	0.28*
Moral or ethical	0.48*	0.51*	0.16*
Balanced processing	0.48*	0.45*	0.39*
Self-awareness	0.57*	0.54*	0.39*
Perceived competence scale	0.51*	0.55*	0.13*

SPLS Fire Culture Competence (11–12 qualifications compared with those with 0–5 qualifications,  $P = 0.05$ ; 11–12 qualifications compared with 6–10 qualifications,  $P = 0.05$ ).

**Discussion**

The primary aim of this research was completed; an initial understanding of qualities and behaviours of wildland fire leaders from a general population sample was found. Of the initial

24 items, 18 loaded on two distinct factors. The heavy influence of culture can be seen especially in the first factor. Schein (2016) describes culture as a set of basic assumptions that 'defines for us what to pay attention to, what things mean, how to react emotionally to what is going on, and what actions to take in various kinds of situations' (Schein 2016, ch. 2, sec. 3, para. 6). The first factor – Fire Culture Competence – highlights items that emphasise operational competence and critical thinking.

The wildland fire culture places high value on these qualities and they are readily identified as competence, confidence, and credibility or reputation (Desmond 2007; Lewis *et al.* 2011). As such, it is not surprising that items of this nature resonated with fire leaders. The second factor – Communication with Subordinates – emphasises how a leader collects information from subordinates. In a way, this quality could be seen as supporting competence by gathering information for decision-making and critical thinking. It also may reflect the depth of relationship-building that many fire leaders are willing to embody or risk in the culture. This factor is closely related to Jahn and Black's (2017) work on the important role that communication plays between subordinates and supervisors in performance in wildland firefighting.

The second and third aims have caused the researchers to reconsider initial thoughts on how the SPLS and CPLS could be used and evaluated. Although the present study provided good initial support for the SPLS as a measurement, it becomes problematic when considering the most essential leadership qualities. The six items that loaded on the CPLS that did not load on the SPLS (Table 2) were largely concerned with care and compassion for crewmembers, aspects that require vulnerability on the part of the leader. This is concerning because Brown (2012) found that vulnerability was the catalyst for courage, compassion and connection in her most resilient participants. In addition, participants in Brown (2012) attributed their greatest successes, strong relationships and proudest moments to the ability to be vulnerable.

The inability of leaders in wildland firefighting to be vulnerable may be due to the established culture because it is a powerful influencer on human behaviour (Schein 2016). An established culture is one that promotes the qualities, attitudes and characteristics of leaders that maintain what is normal in the culture (Schein 2016). Brown (2017) describes this influence as the innate desire that people have to want to belong to something larger than themselves – in this case, a culture. In turn, they will try to 'fit in' and seek approval, which often leads to a hollow substitute for belonging. In order to truly belong, Brown (2017) argues they must have the courage to present their authentic, imperfect selves to others. In essence 'true belonging doesn't require you to change who you are; it requires you to be who you are' (Brown 2017, p. 40). It can be a paradox at times in that in order to belong, sometimes it also requires the confidence to stand alone. Brown (2017) describes this as self-acceptance and it can only be achieved through the willingness to be vulnerable. Waldron and Ebbeck (2015a, 2015b) described a very similar concept – self-compassion (Neff 2003a).

One reason why Waldron *et al.* (2015) may have had different findings with the CPLS than have been found with the SPLS may have had to do with how the CPLS was created. Firefighters who participated in the development of the CPLS evaluated the best leaders they had worked for in wildland fire (Waldron *et al.* 2015), whereas the current study's sample was taken from the overall population of wildland fire leaders; thus, it is likely more representative of an average fire leader instead focusing on the exceptional. What is of most interest is the reported differences in qualities that make up the gap between the average and the exceptional.

The items from Table 2 that loaded on the CPLS denote qualities of the exceptional; in order to be effective, these items require authenticity and actions of vulnerability that underlie what Brown (2017) has noted as having a true sense of belonging and self-acceptance. Schein (2016) has also noted that there are always 'climates' nested within cultures that promote other ways of operating – which may help explain the occurrence of the exceptional leader. Whereas wildland fire cultural norms (i.e. confident, competent, credible and reputable) may pressure fire leaders to fall under broader cultural norms that avoid the feeling of shame – appearing weak or not enough, and thus avoid vulnerability (Brown 2012) – it appears the very best have found ways to move beyond cultural pressures to not only enact strong cultural qualities but also the qualities that could make the difference between average and exceptional. Although the CPLS and SPLS do not fit well together to speak to essential wildland fire leadership qualities, the disparity between them may offer a lot in the way of the training and development of leaders. Future research should devise methods for understanding more about the gap between what makes an average fire leader and what makes an exceptional fire leader – including investigating through in-depth interviews how leaders describe the gap and make the leap and other important aspects that influence leadership behaviour from the environment. The researchers would also like to note that the difference in perspective of how the items were rated may have influenced the outcomes. However, indications in research from Lewis (2013) showed that initial findings of the SPLS (taken by ~40 leaders) and the CPLS were more aligned when mediating factors involved processes of self-awareness through mindfulness, and self-compassion. Future research should consider the factors that may mediate or affect what subordinates report on leaders and what leaders perceive in themselves, as this may also speak to how the gap between the average and exceptional leader is understood.

Regarding the item that did not load ('knowing oneself well enough to turn down assignments beyond one's ability'), the responses also alluded to the wildland fire culture. When a group of seasoned firefighters, supervisors and national-level leaders were briefly surveyed by the first author, the most common view was that 'reputation is everything', and although there is a turn-down protocol for firefighters – an official response guide of how to turn down an unreasonable assignment – it often does not promote a positive reputation. Instead, feedback from fire personnel reported that rarely if ever do they turn down an assignment; instead, they commonly negotiate tactics and strategies. Lewis *et al.* (2011) also found the same view on reputation and the same negotiating tactics of experienced wildland fire leaders. These negotiating tactics often do not occur in front of subordinates, and hence are not artifacts, or rather 'readily seen' (Schein 2016) parts of the culture.

Another interesting perspective that one interviewee described for leaders not turning down assignments went beyond the firefighting culture to a broader emergency management services (EMS) culture that may attract particular personalities. Mitchell and Everly (1994) described personalities of people who tend to be attracted to EMS jobs; these people are very willing to help, but are not inclined to ask for help or admit that something is beyond their capabilities. Instead, their tendency is to push

forward. The different feedback provided by firefighting personnel offers a basis for future research to explore in more depth their accuracy in portraying the broader population.

In response to the SPLS and leadership theory, it was found that authentic leadership and the subscale of competence from the PCS (Williams *et al.* 2004) were weakly to moderately correlated. Owing to the results, this is not entirely surprising. The six SPLS items that did not load were hypothesised as having a strong connection with the ALQ. As such, it is perhaps because the qualities that the average leader reports as demonstrating the most are not ones that strongly demonstrate authentic leadership. Hence, future research should consider investigating through in-depth interviews how authentic leadership is perceived by the average and exceptional fire leader. This may in turn speak to how the concept of authentic leadership is thought of and applied in the wildland fire community as a guiding leadership premise. The PCS subscale measures competence through global, overall aspects of competence versus specific aspects of wildland firefighting that comprise the CPLS and SPLS. Perhaps when firefighters responded to a general picture of competence handling pressures of their job, they felt they were unable to meet demands.

Although several factors were considered in this research, readers are reminded of several limitations. First, this was an exploratory study; as such, many conjectures will need additional research to further verify or reject what has been offered. This includes the influence of demographic factors on leadership perceptions, specifically experience level. Although our analyses did not find a significance relationship after the Bonferroni correction, the non-adjusted analyses did reveal some differences based on earned qualifications. Second, the sample method employed was criterion sampling (Patton 2002) of US wildland firefighters. Hence, additional studies with samples from other areas and countries are warranted to extrapolate findings. Third, the data were fully self-reported. Self-reported data are limited in part by how items are interpreted. Finally, the data are a cross-section of a particular point in time; as such, they do not account for how individuals may answer differently over time in regards to interaction with the self, others and their environment.

## Conclusion

Despite its limitations, the SPLS showed good initial psychometrics for use as a measurement, but missed critical elements, which were captured in its counterpart, the CPLS, as a measure of desired, essential wildland fire leadership qualities. Unexpectedly, the value of the SPLS in the present study was the gap that it revealed between what characteristics subordinates have rated their best fire leaders embodying and what an average sample of leaders report enacting. Strong cultural influences have shaped and influenced wildland firefighting leaders, and it can be difficult to go to the depths necessary to truly belong and embody authenticity. Owing to the study's exploratory nature, the results helped to uncover potential limitations in the wildland fire culture, and broader cultural influences, leading to questions that will require additional research, particularly addressing the impacts of wildland firefighting culture on leadership, vulnerability, self-acceptance and self-compassion.

## Conflicts of interest

The authors declare that there were no conflict of interest when the data was collected. The first author became an employee of the U.S. Forest Service during the analysis and writing of this manuscript.

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