



Resilience in the Human Machine:
Preparing for the human aspects of an
increasingly dynamic wildfire environment

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Content objectives

- Characteristics of Resilience
- Modern challenges in wildfire management
- Techniques to build resilient people
- Leadership and through crisis management



What characterises a resilient person?

- Resilient people have ability to experience both negative and positive emotions even in difficult or painful situations.
- They mourn losses and endure frustrations, but they also find redeeming potential or value in most challenges (Fredrickson, 2009)
- A person **can** become more resilient (Jackson, Firtko & Edenborough, 2007)
- Resilience is not easy



Day in the life on the fireline 2001

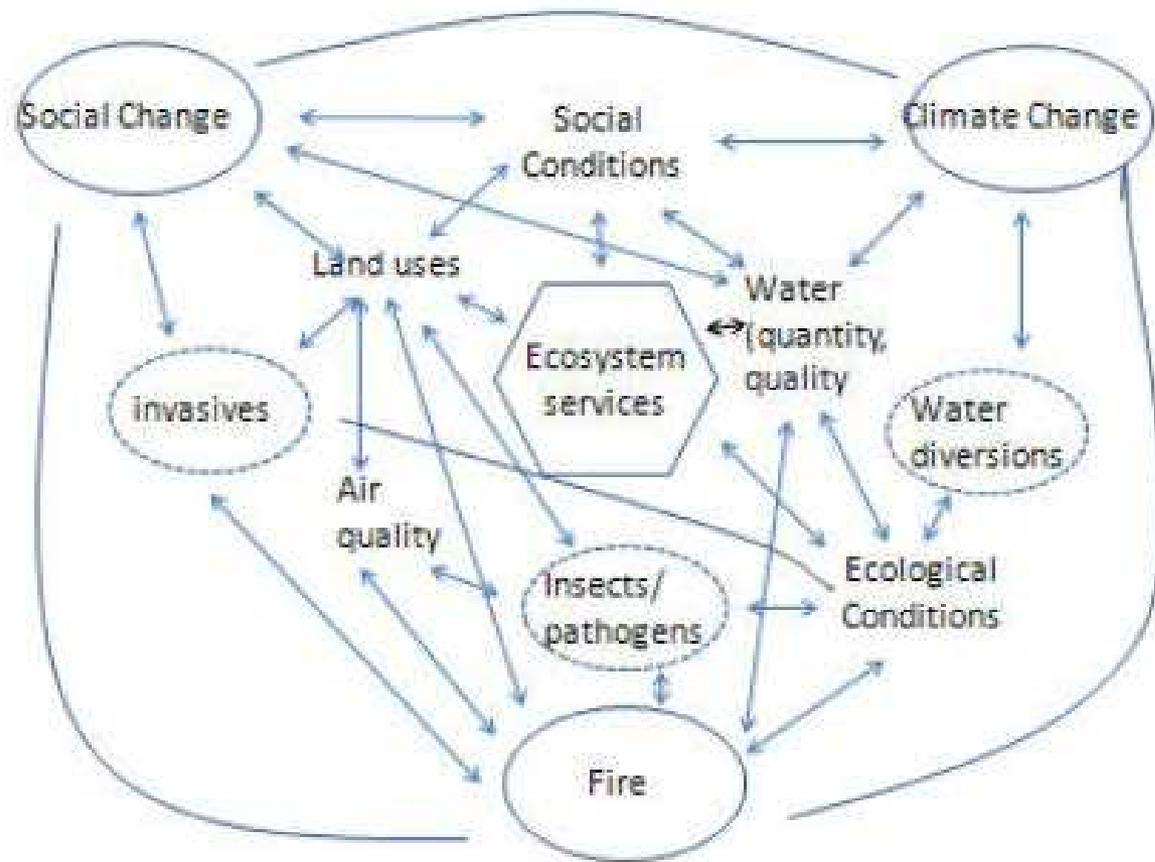




Day in the life on the fireline 2016



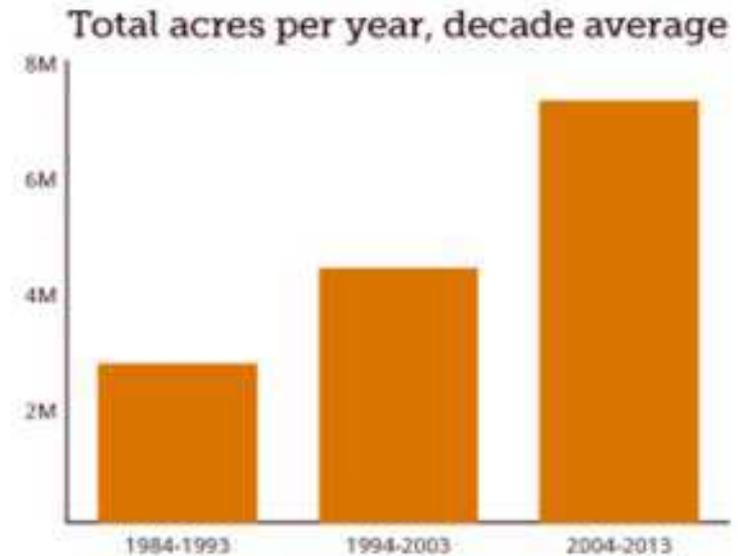
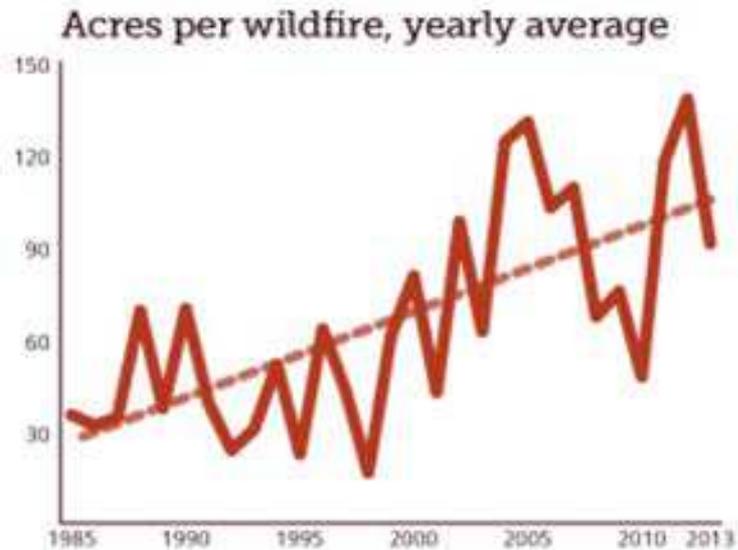
Web of different social, economic, and ecological demands



Urban sprawl, and the rise of high-impact and complex incidents



Wildfires are getting bigger



Increasingly litigious society



High rates of employee turnover
resulting in less experienced staff base



Risk management, cost recovery and emphasis on fire investigations



Higher administrative load

May 29, 2001	May 29, 2016
Initial Fire Report	Initial Fire Report
One page Fire Report	5 page Electronic Fire report
Simple Time Diary	Field Safety Plan
	Origin and Cause 3 Investigation
	Weather Readings
	Red Book Predictions
	Photographs
	Comprehensive IC Notes
	Crew Tracker
	Record of Expenditures
	5 day Faller Inspections
	Vehicle Checklist
	Flight Manifests
	Danger Tree Assessment Cards
	Documented Falling Plan
	Convolutud Time Diary
	FS17 Gear Tracking Forms
	Daily Estimated Costs

These trends place higher stressors and cognitive demands on crews, emergency management teams and leaders (Owen, 2014)





Resilience with first responders

- Pietrantonio & Prati research project with emergency workers in Italy
- Compared to the public, most first responders not very adversely affected by traumatic stress or burnout syndrome
- Concluded there is a protective role of self-efficacy, collective efficacy and sense of community in emergency rescue work
- Results consistent with other studies and literature (Bromet et al 2016, Owen 2014)

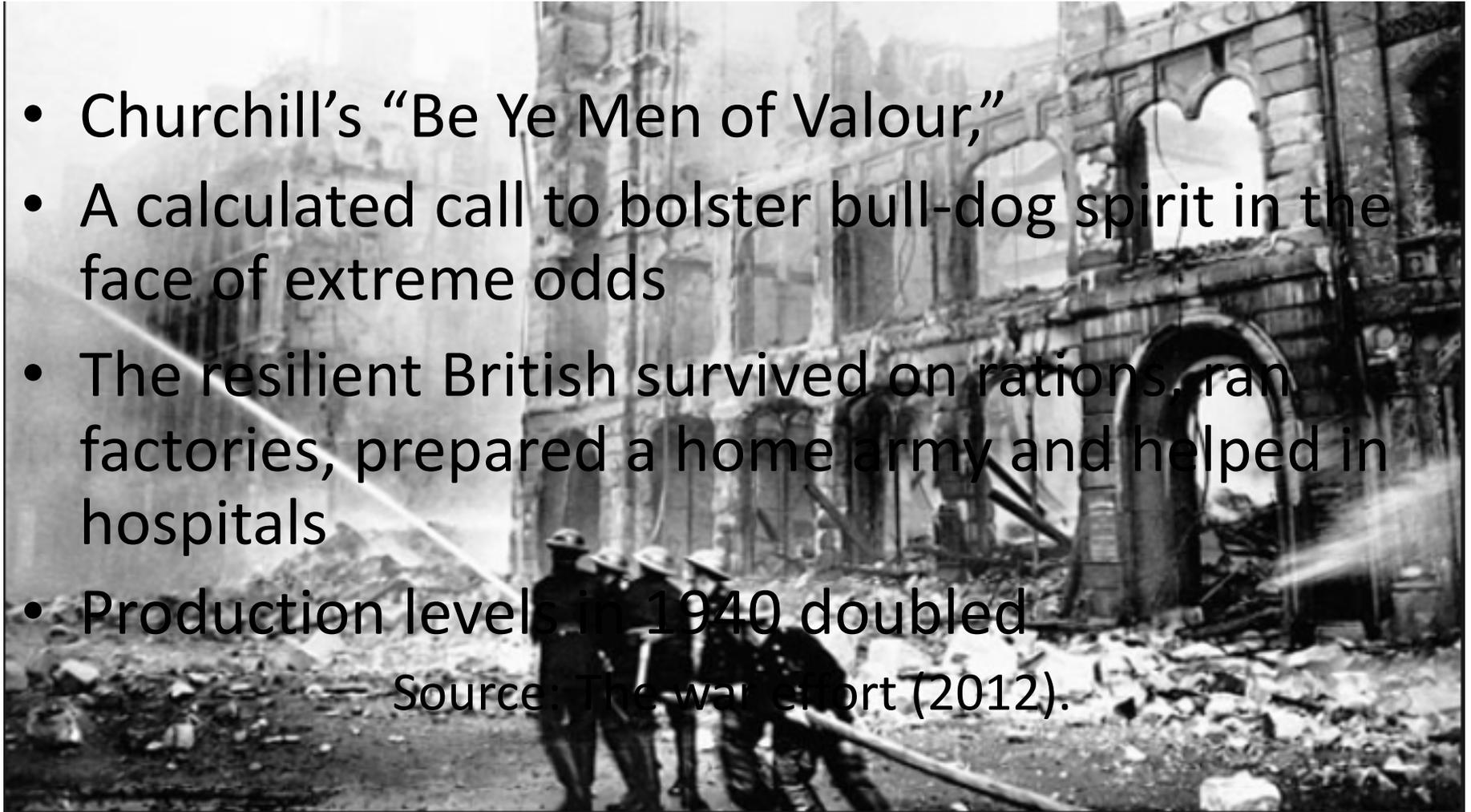
Source: Pietrantonio & Prati (2008) *Resilience among first responders*



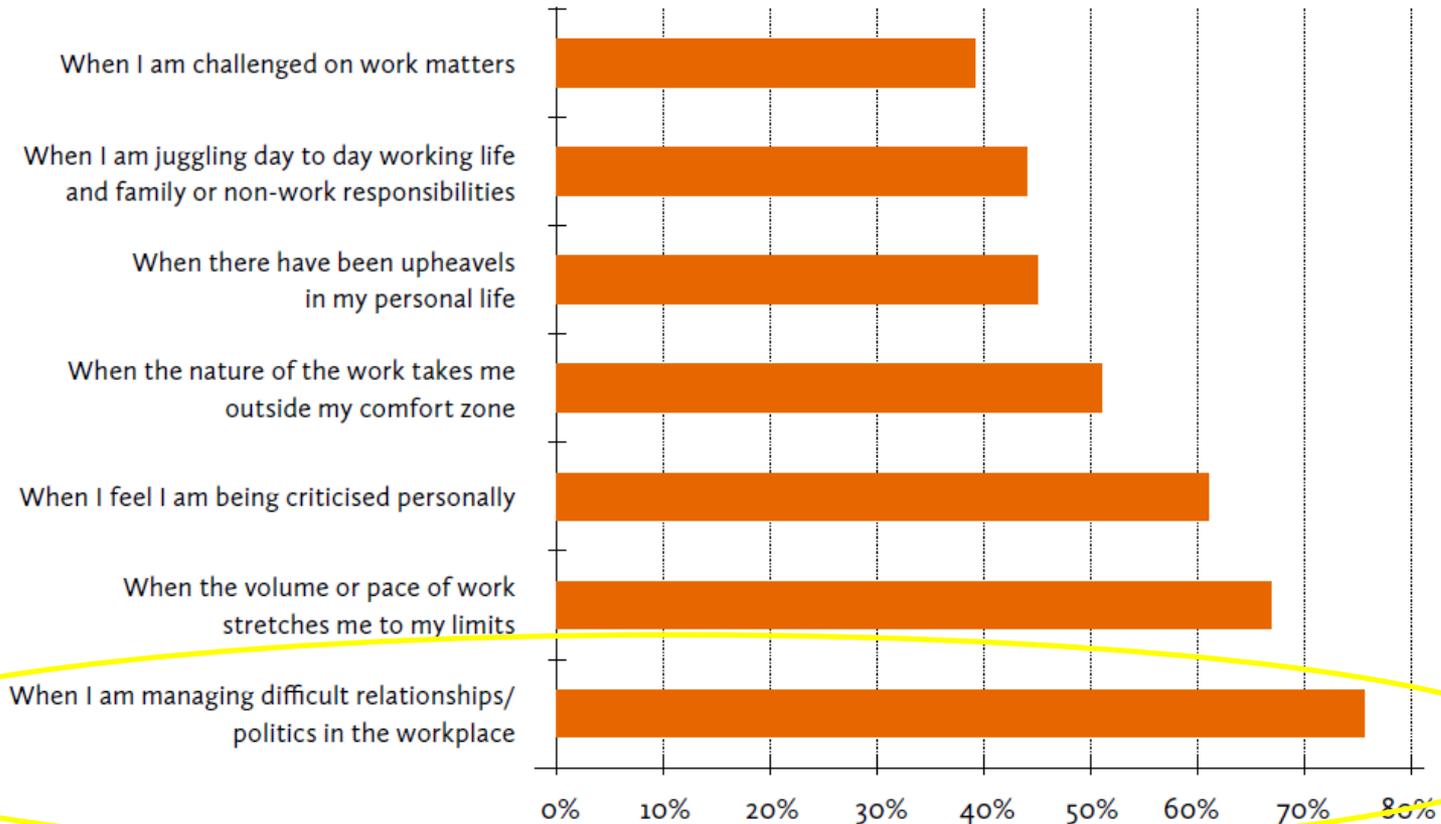
Building resilience in a nation at war

- Churchill's "Be Ye Men of Valour,"
- A calculated call to bolster bull-dog spirit in the face of extreme odds
- The resilient British survived on rations, ran factories, prepared a home army and helped in hospitals
- Production levels in 1940 doubled

Source: The war effort (2012).



What is the biggest drain on resilience at work?



Source: Bond & Shapiro (2015), "Tough at the top", Harvard Business Review



Human Factors Class in BCWS New Recruit Boot Camps

- Physically challenging and mentally stressful experiences in a controlled environment
- Common fire-line tasks with unrealistic timeframes
- Instructors purposely give limited direction and add extra pressure
- Recruits fully debriefed
- Taught both theory and tools to understand and mitigate human factors, and bolster resilience



Other common wildfire training :
L380, L381, Crew Resource Management,
and Crew Leader Camp



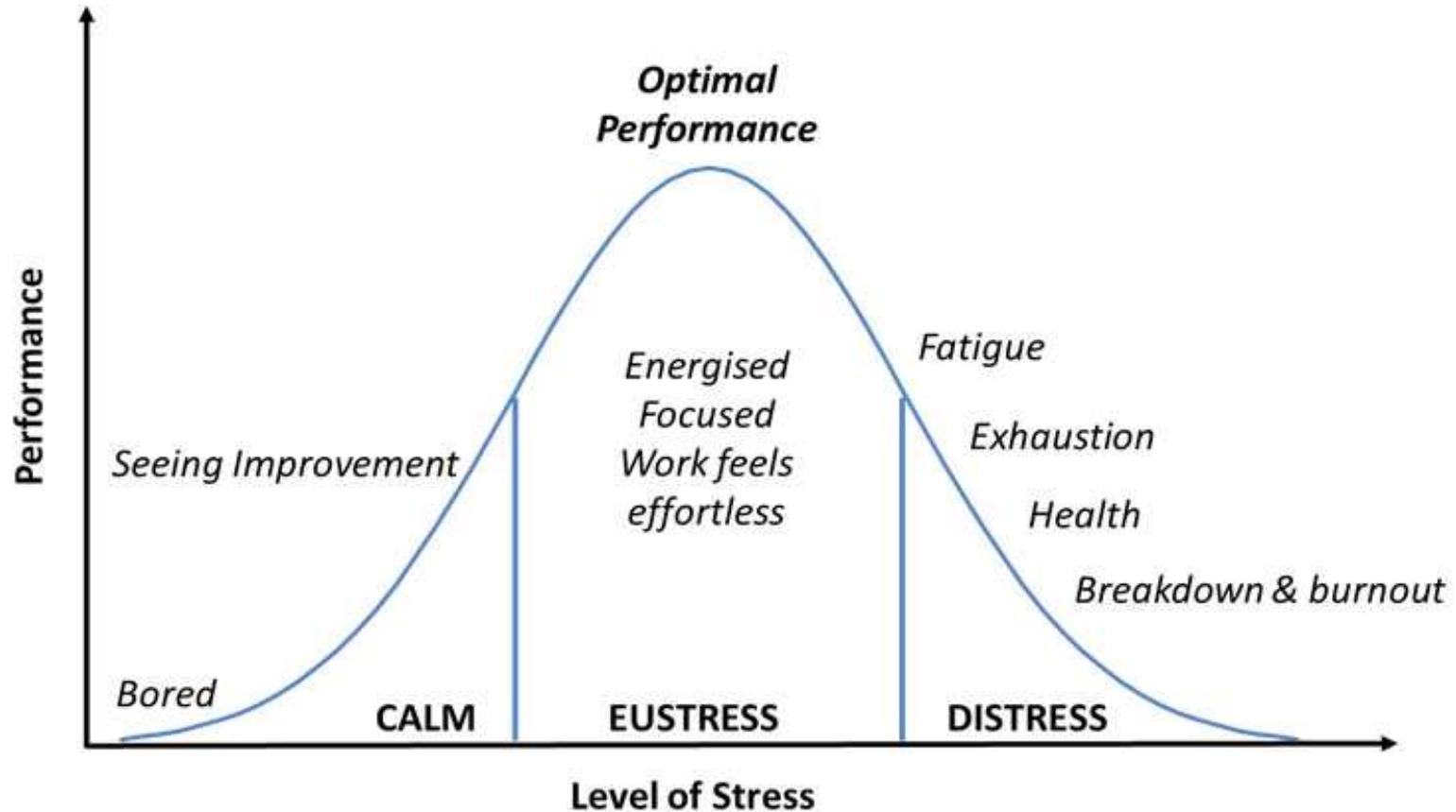
Penn Resilience Program

- The US Army has incorporated resilience development into all officer training
- Teaches personnel skills and tools to cope with emotional and mental stressors, both for battle preparation and everyday life.
- Case study on making a significant culture change.
- PRP has been evaluated with positive results (Brunwasser, Gillham, & Kim 2015).

Source: Reivich, Seligman & McBride (2011)



When challenge fosters growth and resilience



The Human Function Curve (Yerkes-Dobson, 1979)



Compassionate Leadership

Supervisors who lead with compassion;

- Communicate openly and transparently
- Are flexible and adaptable
- Express their emotions freely and openly
- Lead by example, rather than by direction
- Remove judgment and criticism of others as a motivational strategy
- Manage their emotions productively and positively
- Are mindful to the effect of their words and actions

Source: Dutton, 2002



Compassionate Leadership bolsters resilience

Benefits :

- Increases staffs capacity for empathy and compassion
- Promotes positive relationships
- Decreases the prevalence of toxic viral negative emotions and behavior
- Increases optimism and hope
- Counteracts the negative effects of judgment and bias.
- **Builds resilience and energy levels**

Source: Dutton, 2002



Summary :

How to forge resilience in your team

1. Encourage teams to gel and grow together
2. Provide training and tools to bolster resilience
3. Be a flexible organisation
4. Look at extreme challenges as an opportunity to learn
5. Encourage a culture of compassion and caring
6. Develop and support leaders in difficult times
7. Support staff after a critical event

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