



Building & Sustaining Situational Awareness

Burning Issues

2021





Defining Situational Awareness...

M. R. Endsley. 1995. Toward a Theory of Situation Awareness in Dynamic Systems. Human Factors Journal 37(1): 32-64

Defining Situational Awareness...

“the perception of the elements in the environment within a volume of time and space, the comprehension of their meaning, and the projection of their status in the near future ”

M. R. Endsley. 1995. Toward a Theory of Situation Awareness in Dynamic Systems. Human Factors Journal 37(1): 32-64



Defining Situational Awareness...

“Knowing what is going on so you can figure out what to do”

Characteristics of the fire environment





- **Varied Experience levels**
- **Flashy fuels**
- **Difficult Terrain**
- **Heavy Equipment**
- **Media and Public Attention**
- **Adjacent Residential Areas**
- **Transitions between Environments**
- **Infrastructure: Pipe and Power-lines**
- **Aircraft, Falling Water, Slurry**
- **Heat, Humidity**
- **Hazard Trees, Fencing, Refuse**
- **Illegal Activity**
- **Wildlife, Poisonous Plants**
- **Smoke, Smoke, and More Smoke**
- **And now, Global Pandemics**



Report

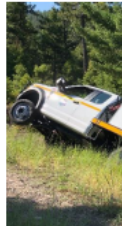
Flat Ridge Escaped Prescribed Burn Facilitated Learning Analysis Ashley National Forest

October 2015



Flat Ridge Prescribed Burn FLA – Ashley National Forest – Intermountain Region

Summary of Incident: On August 1st, 2019 at approximately 0 report located off an old logging road system. Weather conditions was dry and in decent shape. The crew decided to back up ~50 were needed. The engine crew relied on mirrors and a backup car backing up the driver was following the contour of road using hi steep slope of the road on the passenger side of the engine. Th intersection. The engine crew notified the Unit AFMO and Missc major damage to the vehicle. A response was initiated by the AF successfully pulled out of the ditch with the aid of a tow truck and



What was done well:

1. Seat belts were in use at the time of the incident, preventing s
2. The engine crew had contacted dispatch while en-route, confi
3. The engine crew conducted a quick assessment of the situa help.
4. An AAR was conducted as soon as all parties were available,

Recommendations/Lessons Learned:

1. Always use a spotter when backing up!
2. Situational Awareness- Be aware of your surroundings at all t
3. Do not rely on modern technology (backup camera) to take shortcuts.
4. Consider risk management in all decisions- If you see something, say something!

Big Meadows Fire Incident-Within-An-Incident Lessons Learned Review



Incident Date: June 16, 2013
Final Report Date: July 3, 2013



Situational Awareness - Observations:

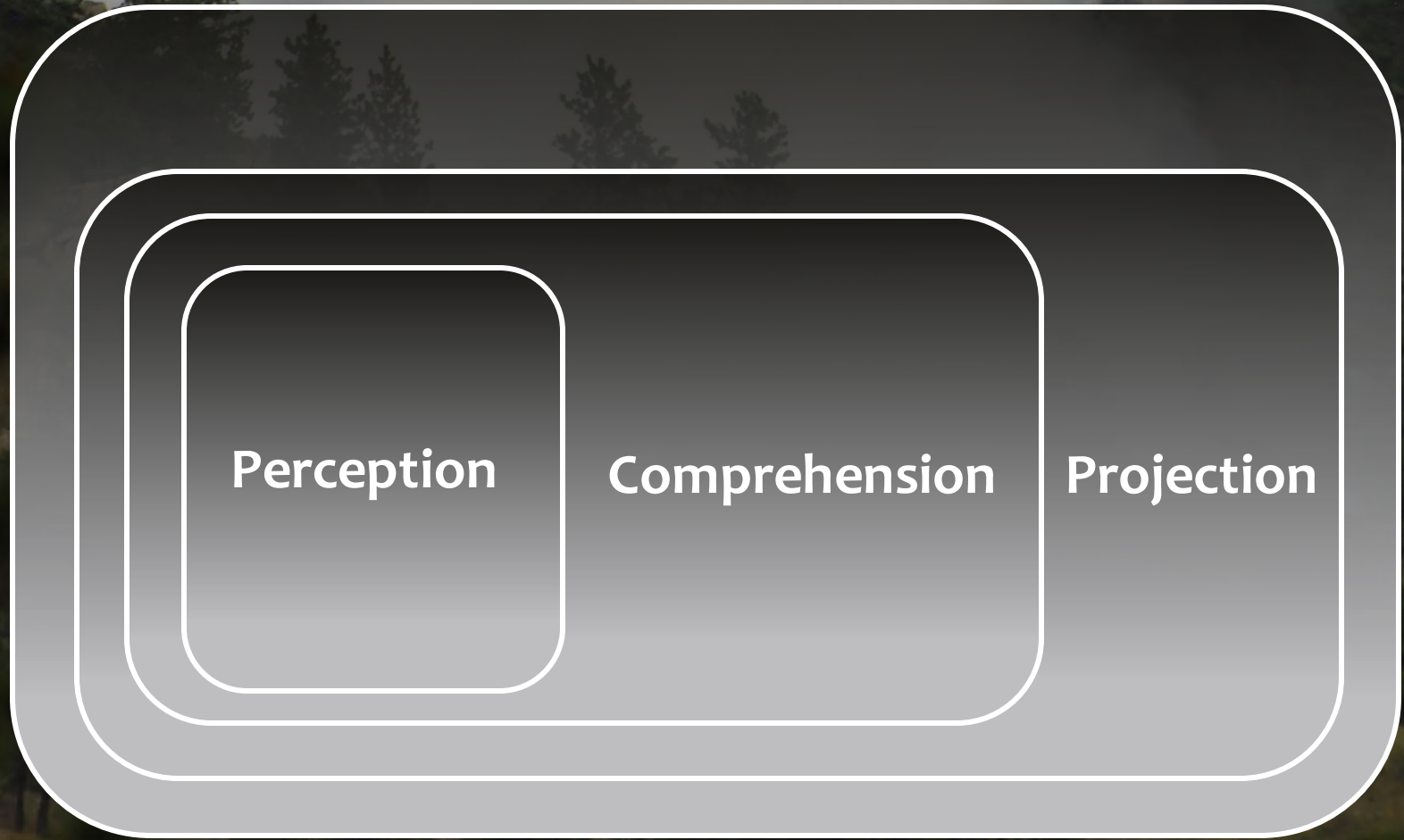
- **Rich history grounded in the science of decision-making in high risk environments**
- **Consideration or training for Situational Awareness frequently associated with characterization of the fire environment**
- **And, post-hoc analyses to evaluate the effective use of situational awareness**



Situational Awareness

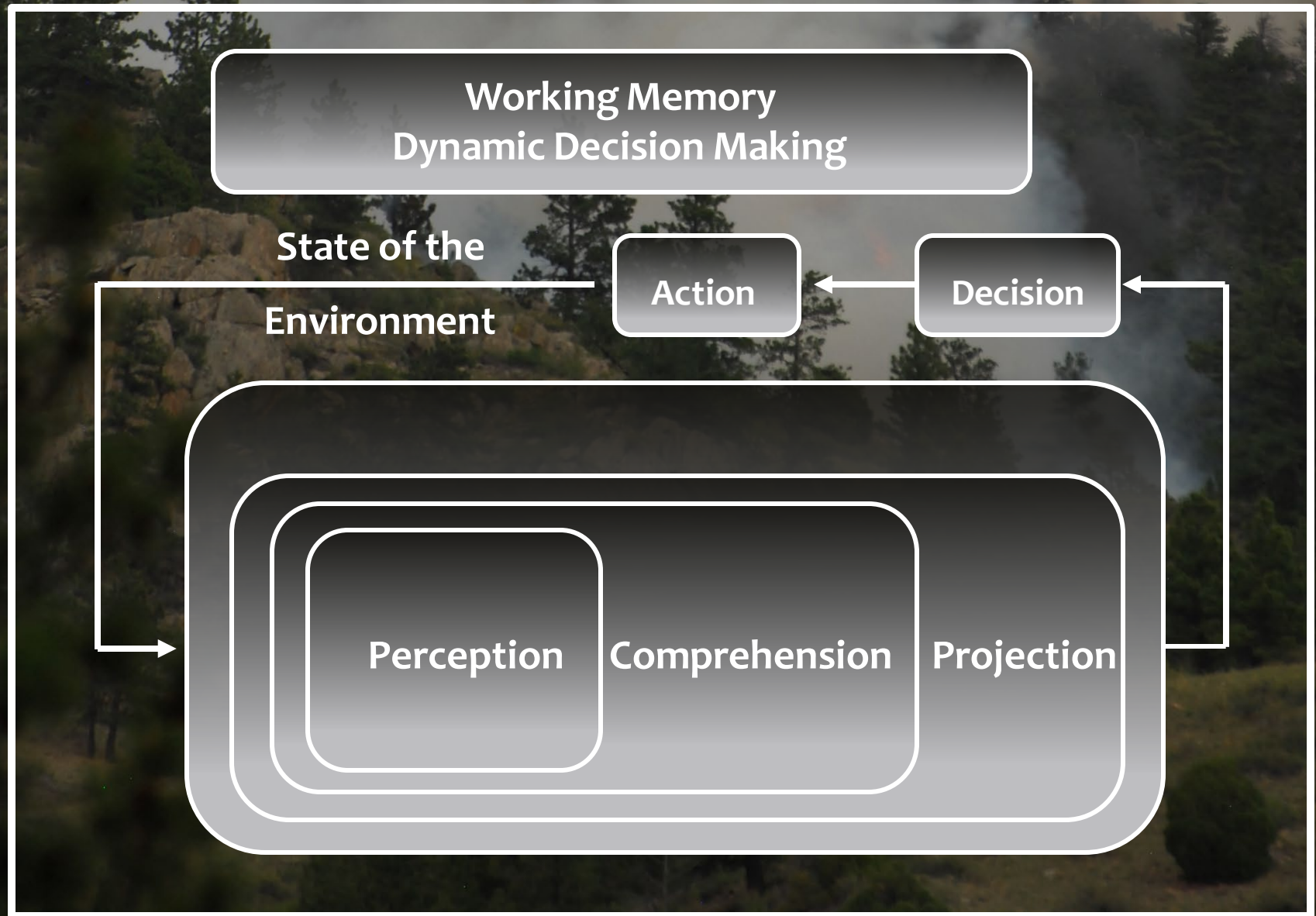
“the **perception** of the elements in the environment within a volume of time and space, the **comprehension** of their meaning, and the **projection** of their status in the near future ”

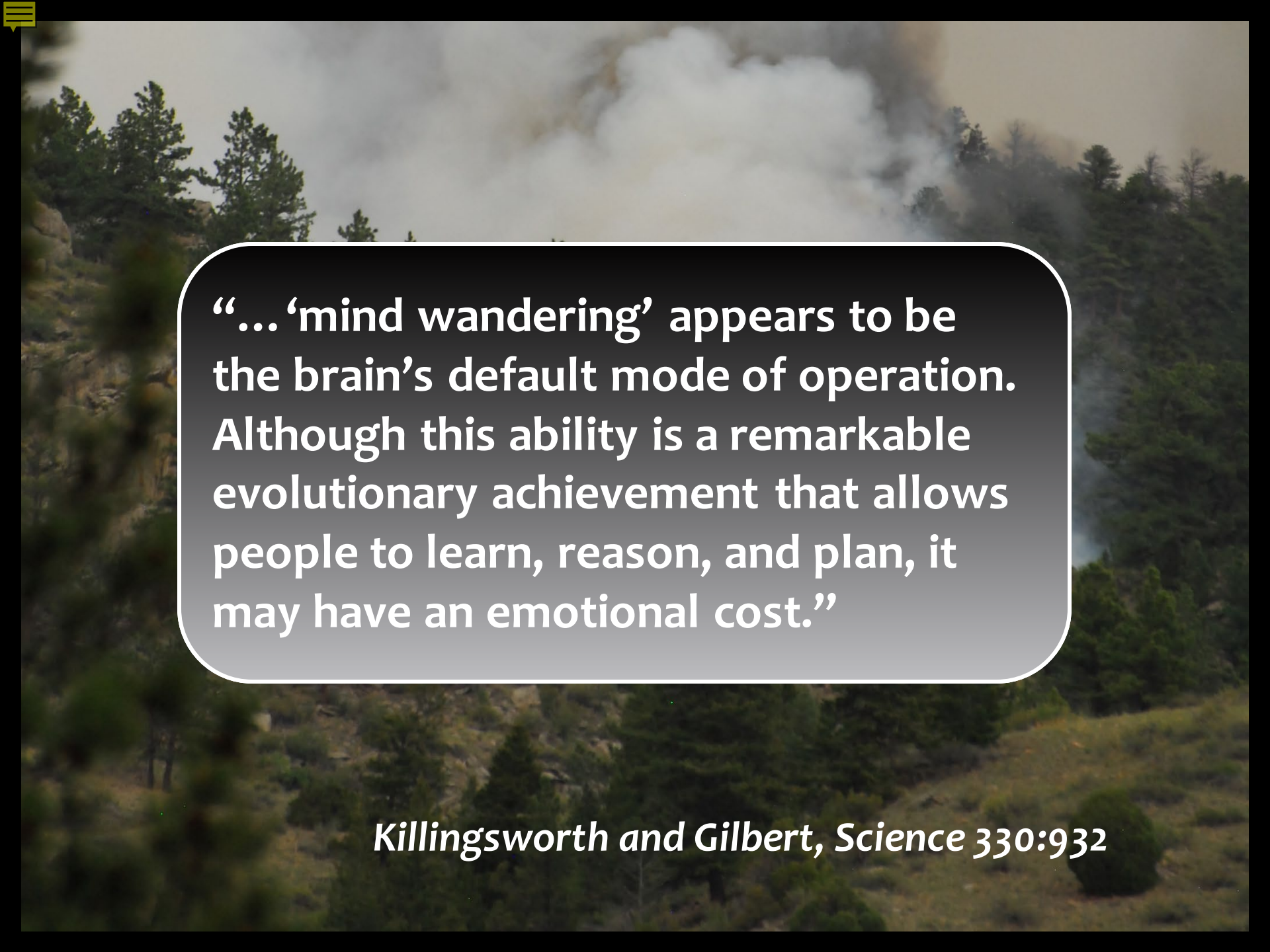
Endsley Model: Situational Awareness



In other words, the internal environment

Situational Awareness





“... ‘mind wandering’ appears to be the brain’s default mode of operation. Although this ability is a remarkable evolutionary achievement that allows people to learn, reason, and plan, it may have an emotional cost.”

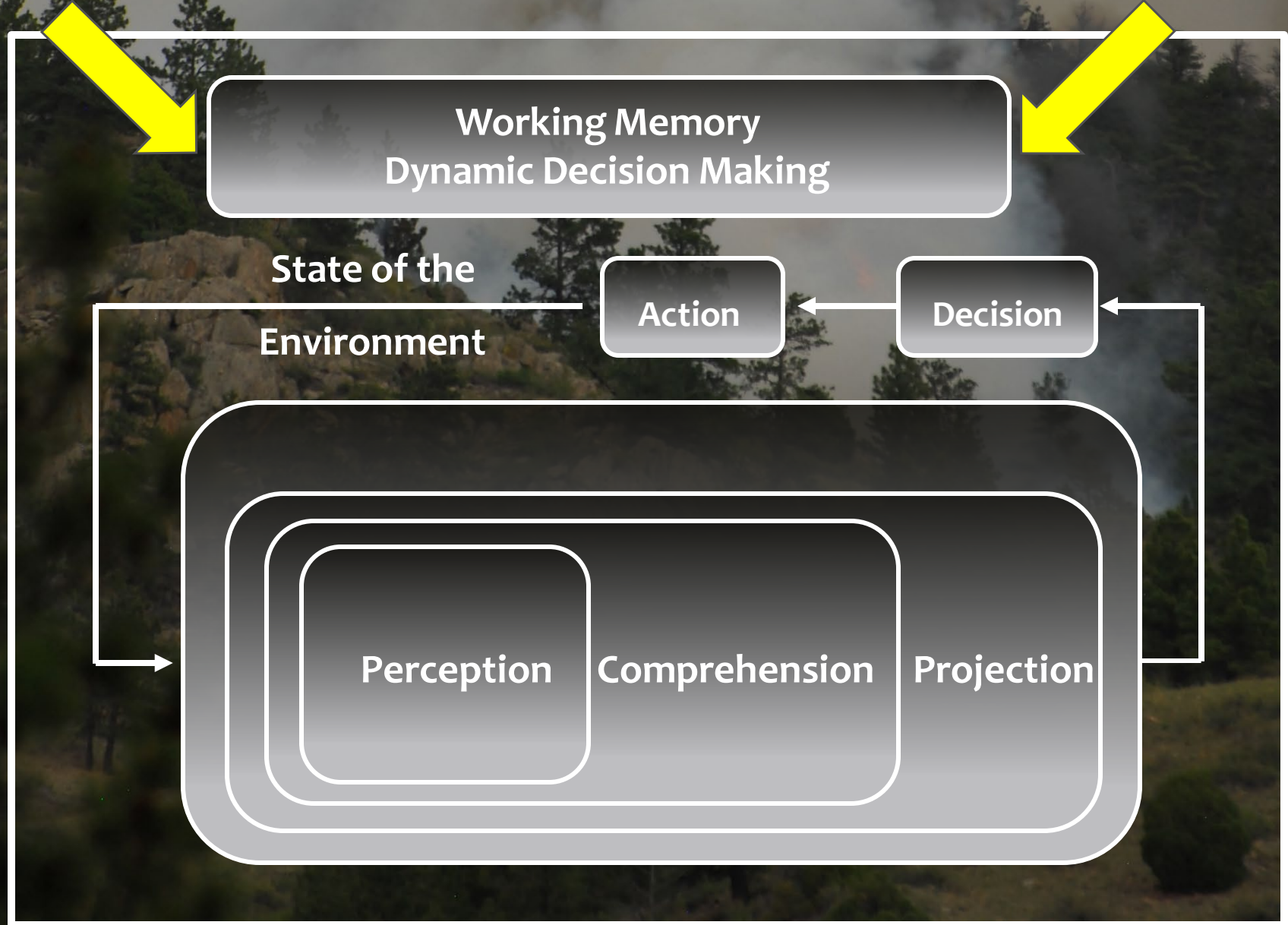
Killingsworth and Gilbert, Science 330:932

Geography of Motor Vehicle Accidents

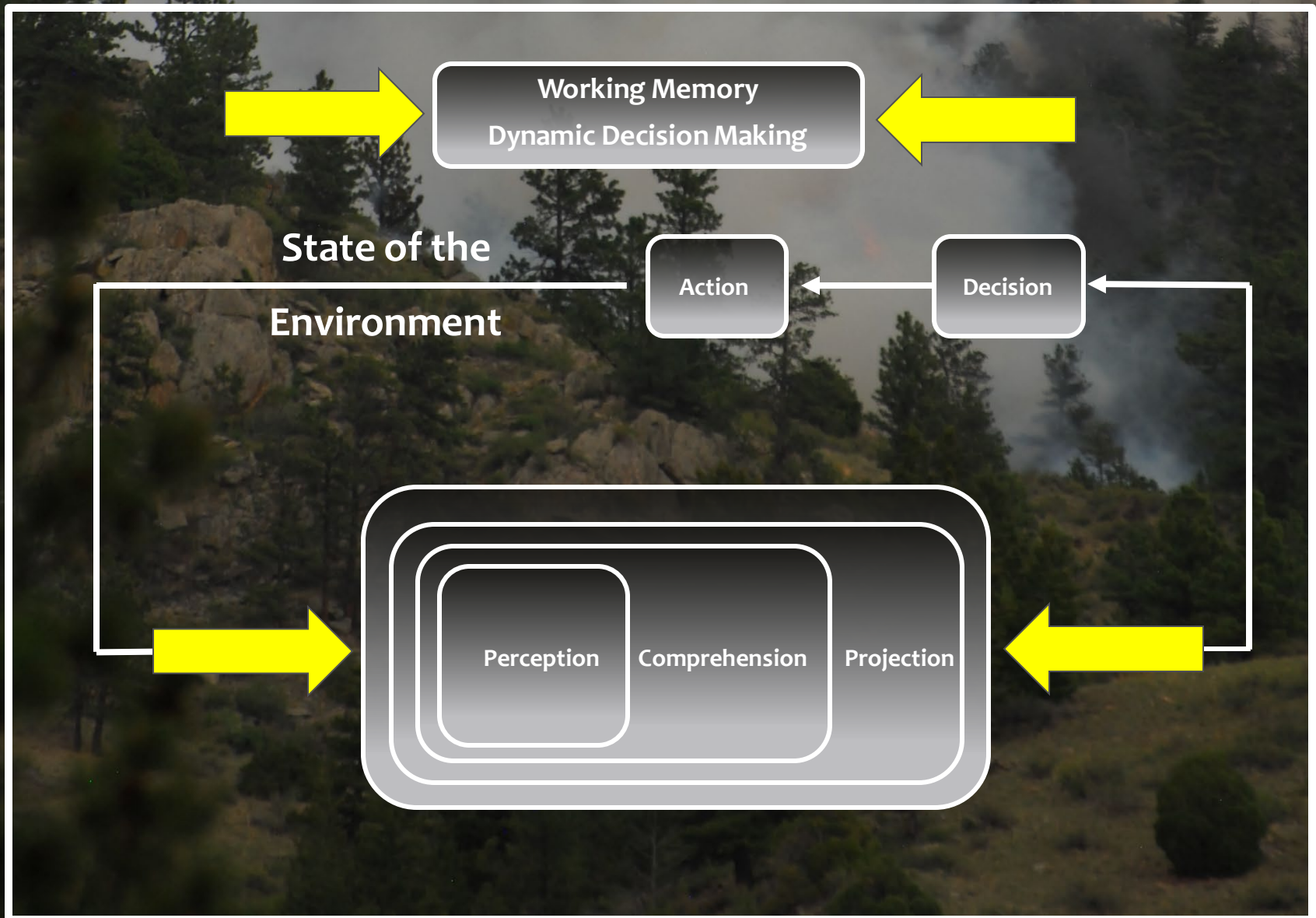
- 77% of collisions occur within 10 miles of home
- Median distance from home of 4.6 miles
- Median distance for fatal collisions of 5.5 miles
- Injury to pedestrians, median distance of 1.1 miles
- Injury to cyclists, median distance of 1.2 miles

B. Haas, et al. 2015. Close to home: An analysis of the relationship between location of residence and location of injury. *J Trauma Acute Care Surg.* 78(4): 860–865.

Situational Awareness



Situational Awareness





Present Moment Awareness

“Where attention goes, the
brain follows...”

Amishi Jha

Neuroscientist, University of Miami



Present Moment Awareness

Present-moment awareness refers to a state of sustained attention to and awareness of the present moment



Situational Awareness - Observations:

- **Situational Awareness is inherently a mental process involving perception, comprehension, and projection (PCP)**
- **The mind is not just prone to wander, but appears to be hard-wired to wander, so much so that distraction is a given**
- **This may, and does, affect your capacity to achieve situational awareness – it matters**



So, a particular question...

Do we accept the idea that wildland fire fighters / managers ought to maintain some baseline level of physical fitness?

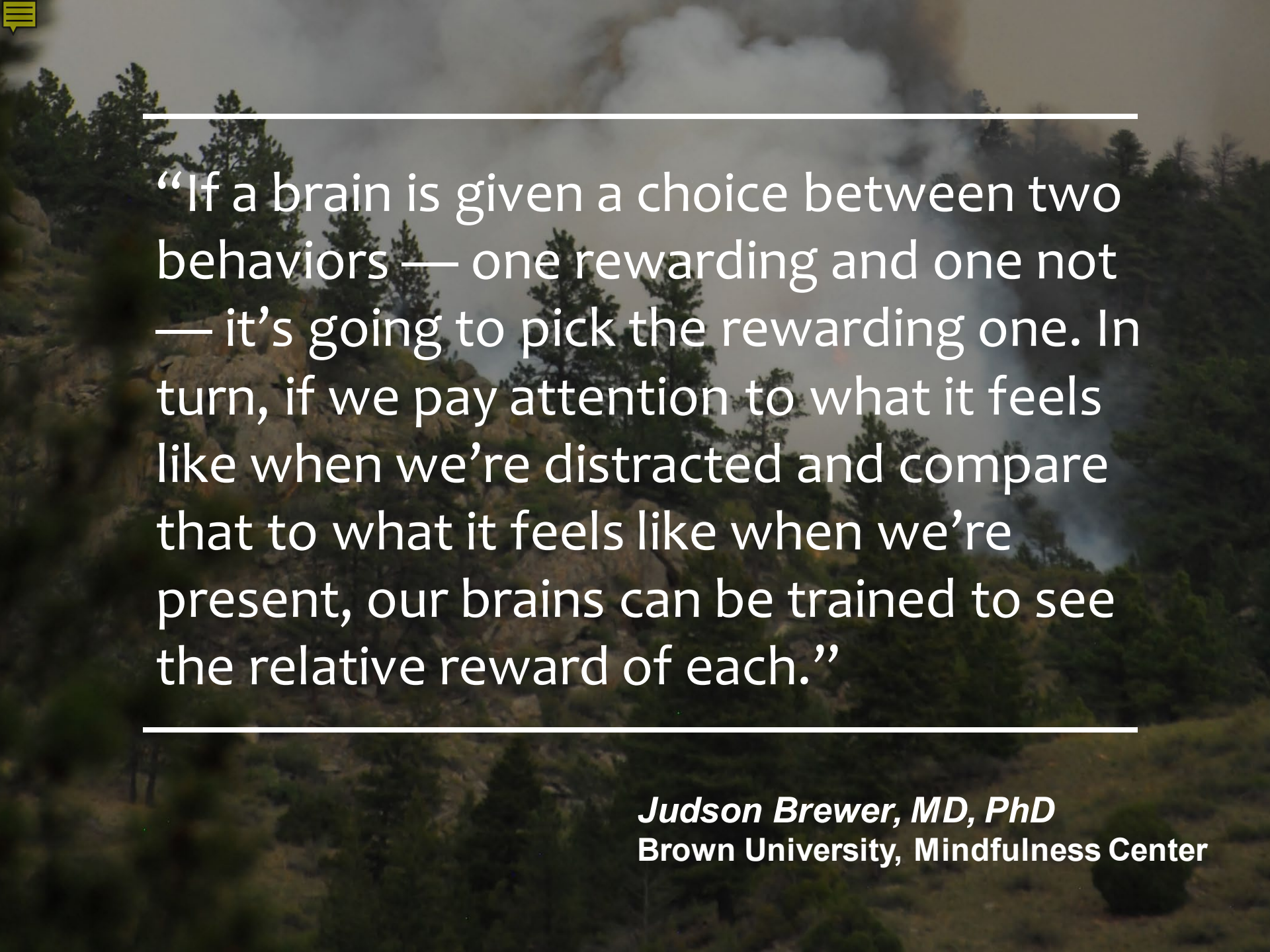
Do we accept that this requires regular, disciplined, focused effort?



So, a particular question...

What if we regarded the brain like we do a muscle that could be trained ?

Could we improve focus and enhance our Situational Awareness?



“If a brain is given a choice between two behaviors — one rewarding and one not — it’s going to pick the rewarding one. In turn, if we pay attention to what it feels like when we’re distracted and compare that to what it feels like when we’re present, our brains can be trained to see the relative reward of each.”

Judson Brewer, MD, PhD
Brown University, Mindfulness Center



Present Moment Awareness

Mindfulness

“Fundamentally, mindfulness is a simple concept. Its power lies in its practice and applications. Mindfulness means paying attention in a particular way: on purpose, in the present moment, and nonjudgmentally.”

Jon Kabat-Zinn

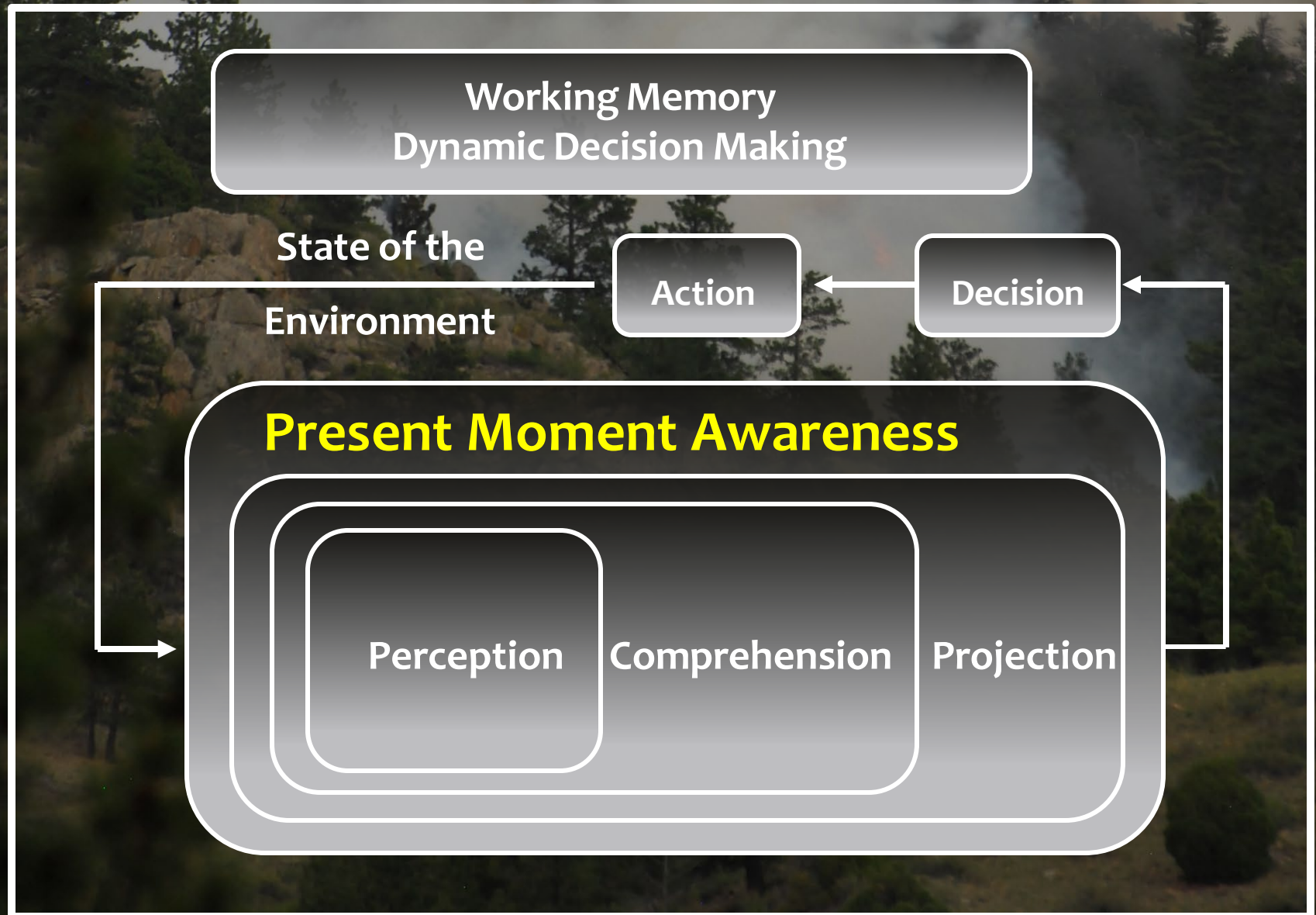
Wherever You Go, There You Are



Present Moment Awareness

“Mindfulness is a way to train your attention using your ordinary senses and perceptions”

Situational Awareness





Present Moment Awareness

Practical Tools

- Mindful Breathing
- Tactical Breathing



Present Moment Awareness

Practical Tools

- Environmental Cues
- Tactical Cues – 3 by 3



Present Moment Awareness

Practical Tools

- STOP – **S**top
Take a breath
Observe
Proceed



Present Moment Awareness

Practical Tools

- Mindful Listening



Present Moment Awareness

“What better gift can you give to your colleagues, friends, or your family than your undivided, undistracted, attention?”

Standard Fire Fighting Orders

**Present
Situational
Moment
Presence
Awareness**

**Be Alert
Keep Calm
Think Clearly
Act Decisively**

**Situational
Awareness**

Standard Fire Fighting Order #6



Situational Awareness

“the perception of the elements in the environment, **internal & external**, within a volume of time and space, the comprehension of their meaning, and the projection of their status in the near future ”



Closing the Loop

Objectives:

- to demonstrate how our patterns and volume of thought may affect our situational awareness.
- to suggest that situational awareness may be enhanced by cultivating present moment awareness – training our brains to pay attention
- and, to give you a brief survey of practical tools that will promote present moment awareness or in the words of a colleague ‘situational presence’

Conclusion

A photograph of a forest after a fire. The ground is covered in dark ash and charred debris, including fallen branches and charred logs. The trees are mostly charred and bare, with some green foliage visible in the background. The sky is blue with some light clouds.

Fire in the Bitterroot Range – Lolo NF



Goal:

Build your situational awareness personally, apply it collectively



Resources

**US Forest Service – RMRS
Center for Human Performance &
Innovation and Organizational Learning**



Groups

Co-Management of Fire Risk Transmission (CoMFRT)

Fire Modeling Institute

Human Performance & Innovation and Organizational Learning

Publications

Members

Human Performance

Health and Wellness Toolboxes

Coordinated Response Protocol / Learning Review

Organizational Learning: The Meta Review

Research, Development, and Application

HP&IOL Reading List

Home / Groups / Human Performance & Innovation and Organizational Learning / Health and Wellness Toolboxes

Human Performance & Innovation and Organizational Learning

Health and Wellness Toolboxes



Toolboxes from Human Performance & Innovation and Organizational Learning (HP&IOL)

- [Field stretches](#)
- [Health and wellness apps](#)
- [Injury Prevention and Performance](#)
- [Integrative health](#)
- [Laughter](#)
- [Mindfulness](#)
- [Movement and exercise](#)
- [Nutrition](#)
- [Peer support eGuides](#)
- [Sleep](#)
- [Suggested health and wellness reading](#)
- [Suicide awareness](#)
- [Support for emergency responders](#)
- [Workstation posture and exercise](#)

Back to the home page for [HP&IOL](#).

References

References – Cultivating Situational Awareness / ‘Situational Presence’

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