Who needs to do what differently?

Why behavioural science matters
in biodiversity conservation

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Overview

- Threats to biodiversity loss
- Traditional behaviour change interventions (and why they often don't work)
- Factors that influence behaviour
- Practical steps for designing behaviour change interventions
- Take-home messages

So what's the problem?

Threats to biodiversity loss

- Habitat loss and degradation
- Over-exploitation of resources
- Invasive species
- Agriculture
- Human population growth
- Urban expansion
- Climate change

- They all relate to human behaviour
  - System-level
  - Individual

https://images.app.goo.gl/FbXU3f31BvnWs3kMA

Ceballos, Ehrlich, & Dirzo, 2017; Sánchez-Bayo & Wyckhuys, 2019

An example: Over-consumption

- Consequences
  - Habitat loss and degradation
  - Over-exploitation of resources
  - Urban expansion
  - Human population growth

- Behaviours
  - System-level
  - Individual

Photo by Jasmin Sessler on Unsplash

Amel, Manning, Scott & Koger, 2017

Traditional behaviour change approaches
(that often don't work)

- **Awareness campaigns**
  - Information is the first step – not the end point
  - What does "biodiversity" mean to you? (Kiley et al., 2018)

- **Financial incentives**
  - Pay enough or don't pay at all
  - Incentives can backfire (Dikgang et al., 2012)

- **Regulation**
  - The issues of compliance and enforcement

- **Human behaviour is incredibly complex**
 - We often need multiple levers

Where behavioural science can help

Factors that influence behaviour
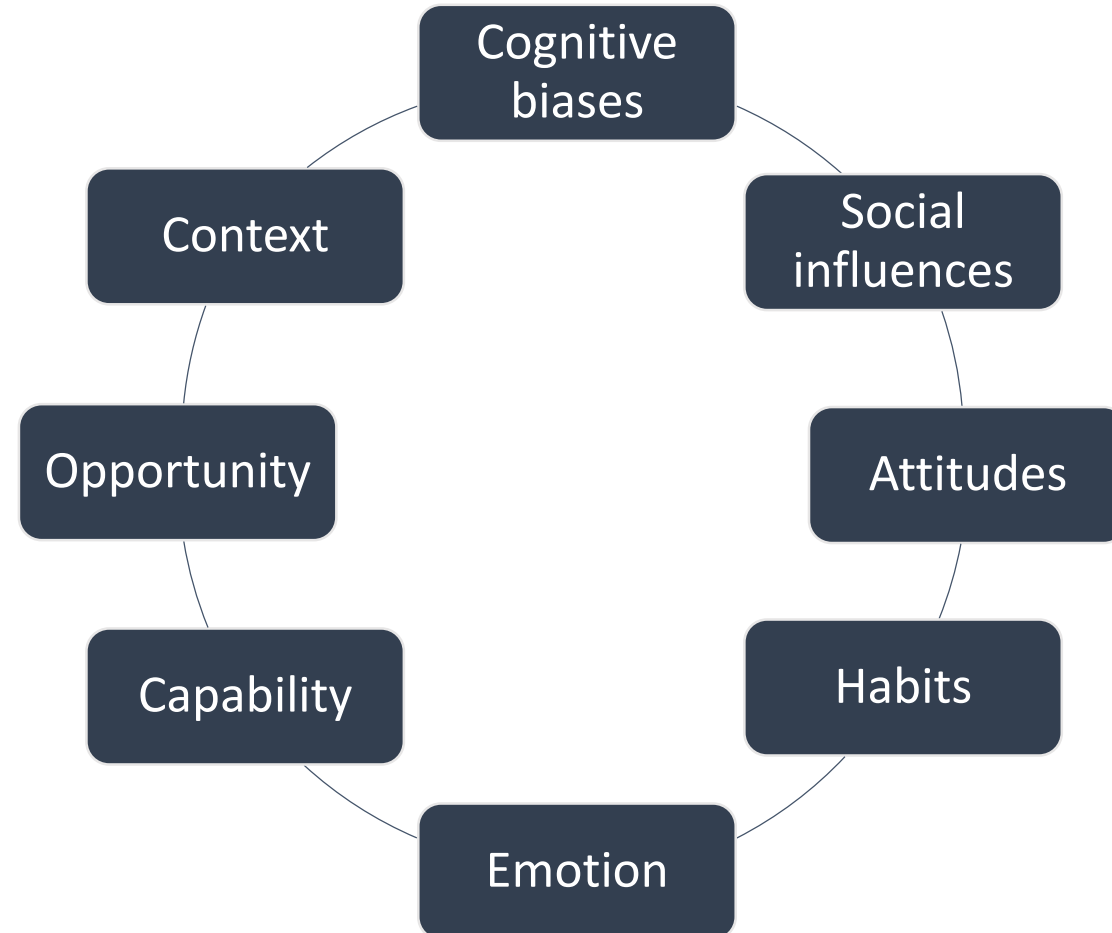
Cognitive biases

- Status quo bias

- Anchoring bias

- Loss aversion bias

- Decoy effect

- Message framing

- Choice overload

- Hyperbolic discounting

- We do what we've always done

- We accept the existing state of affairs
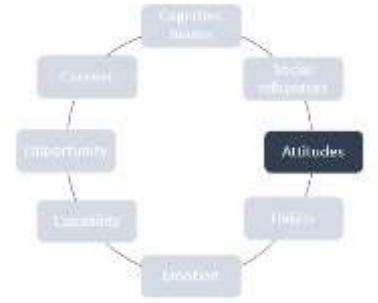 - Using "default" settings
  - Opt-out, rather than opt-in

Cinner, 2018
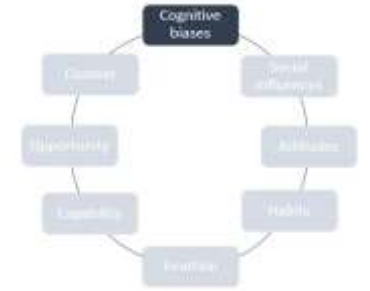
Social influences

- Social norms
  - Descriptive or social norms ("everyone does it")
  - Prescriptive or personal norms ("what should be done")
- In-group / out-group
  - We pay more attention to people like us (our "in-group")
- Leaders
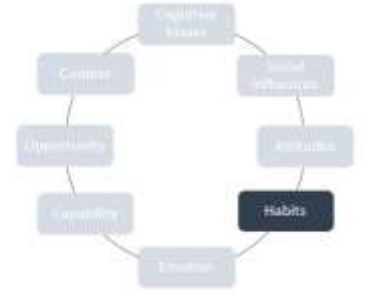 - We pay more attention to respected leaders

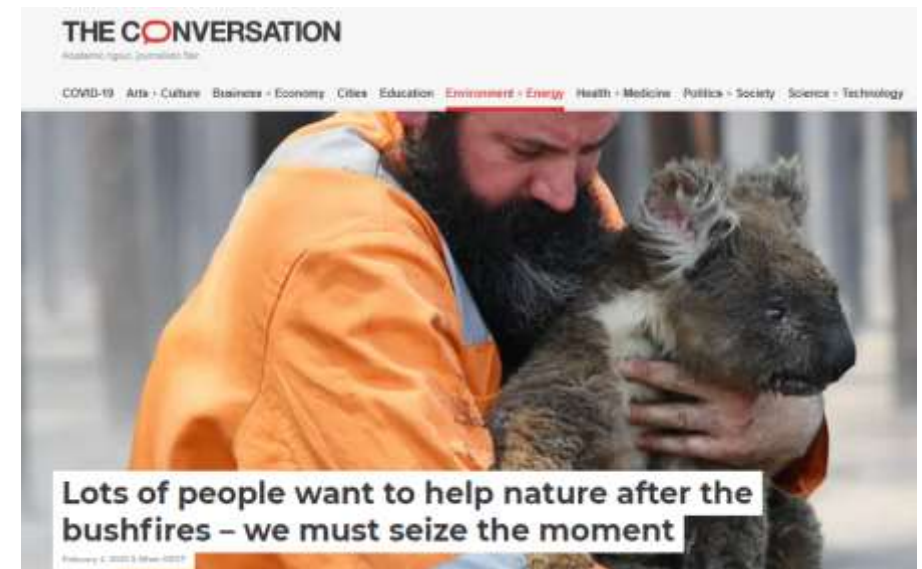Cinner, 2018; Farrow et al., 2017

Attitudes

- Beliefs

- Values

- Political views, worldviews

- The value-action gap (or attitude-behaviour gap)
  - What I say vs what I do

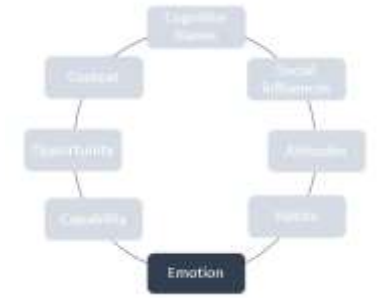Gifford & Nilsson, 2014; Hurst et al., 2013

Habits and routine

- Behaviour is often automatic

- Disruptions to routine are often good times to change habits
    - Moving house, changing jobs
    - Recent bushfires
    - COVID-19 physical distancing

Ouellette & Wood, 1998; Verplanken, & Roy, 2016

THE CONVERSATION

COVID-19 Arts + Culture Business + Economy Cities Education Environment + Energy Health + Medicine Politics + Society Science + Technology

Lots of people want to help nature after the bushfires – we must seize the moment

Emotion

- Emotions can be a powerful hook
  - Images of animals burned by bushfires

- Positive emotions when connecting with nature
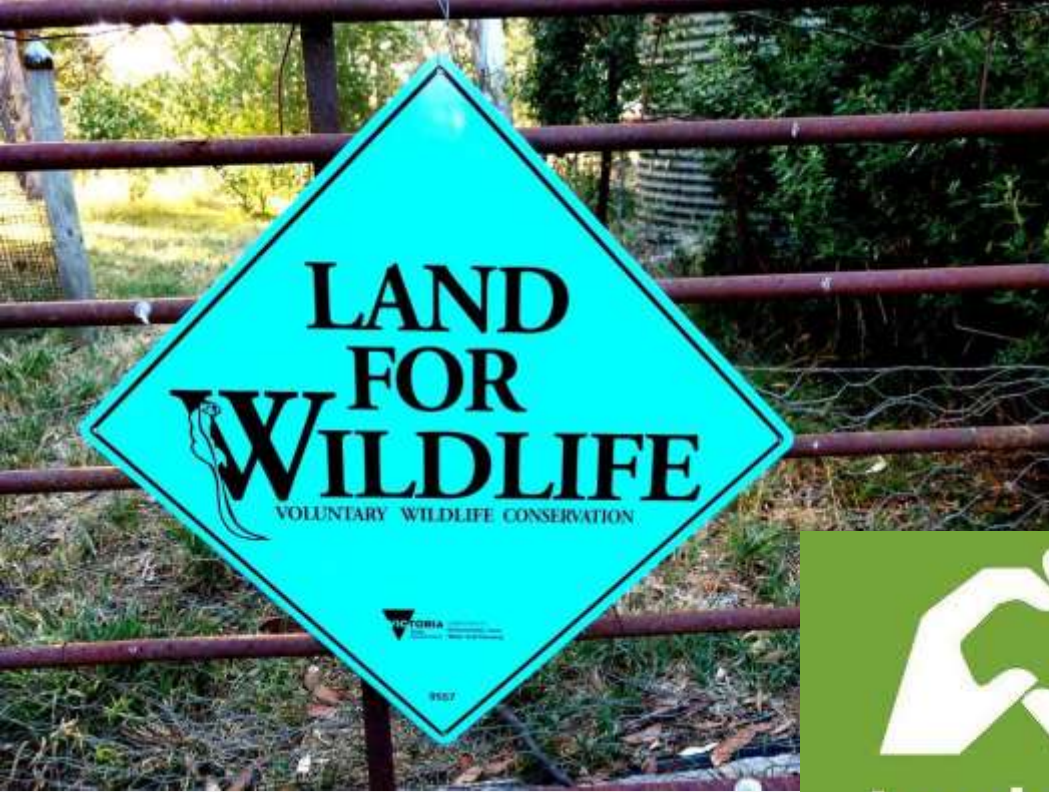 - Awe, wonder, joy

Capability, opportunity, context

- Knowledge and awareness

- Availability of information

- Self-efficacy

- Access

- Cost

- The scale at which the issue is observed
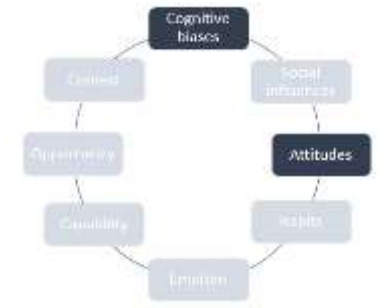 - Individual
  - Local
  - Global

Some real world examples

Private land conservation

Message framing of the benefits (Kusmanoff et al., 2016)

- Value orientations
  - Biospheric (benefits the environment)
  - Altruistic (benefits others/society)
  - Egoistic (benefits self)

- Most common: biospheric

- Least common: egoistic
  - But some landholders are driven by egoistic benefits (e.g. Moon & Cocklin, 2011

Julian Guttzeit   Unsplash

Citizen science

- Drivers
 - Pro-environmental attitudes
  - Social norms
  - Capability and opportunity
    - Young adults uploading photos to social media
    - Older adults participating in more complex activities

Photo by Georgia de Lotz on Unsplash

- Outcomes
  - Pro-environmental attitudes
  - Conservation behaviours (e.g. other citizen science projects)

Davis, Taylor, & Martin, 2019; Toomey & Domroese, 2013

Environmental volunteering
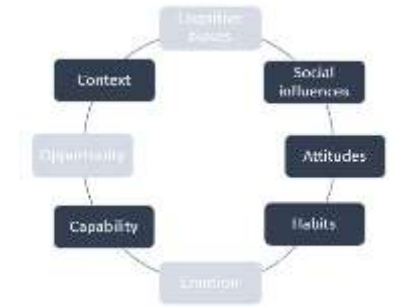
- Drivers
  - Environmental values
    - Protect/restore natural areas, a bigger cause, future generations, place attachment
  - Altruistic values
    - Giving back, helping others, setting an example
  - Egoistic values
    - Socialising, feeling good, physical activity, career development, learning new skills

- Outcomes
  - Environmental knowledge and awareness
  - Pro-environmental behaviours

Bruyere & Rappe, 2007; Randle & Dolnicar, 2015; Seymour et al., 2018

My research

Protecting Victoria's Environment
- Biodiversity 2037

VISION: VICTORIA'S BIODIVERSITY IS HEALTHY, VALUED AND ACTIVELY CARED FOR
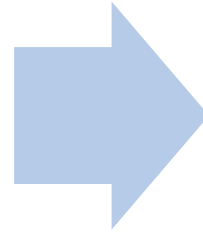
GOAL: Victorians value nature

Victorians understand that their personal wellbeing and the economic wellbeing of the state are dependent on the health of the natural environment.

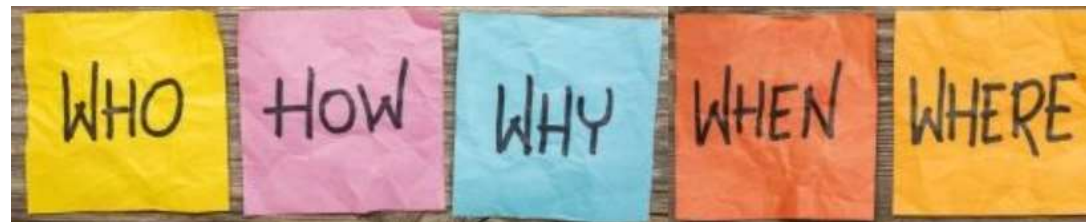**GOAL: Victoria's natural environment is healthy**

Victoria has functioning plant and animal populations, improved habitats and resilient ecosystems, even under climate change.

Assumption

Connect people with nature → More actions to protect biodiversity

WHO HOW WHY WHEN WHERE

Meta-analytic evidence

Mackay & Schmitt, 2019; Whitburn et al., 2019
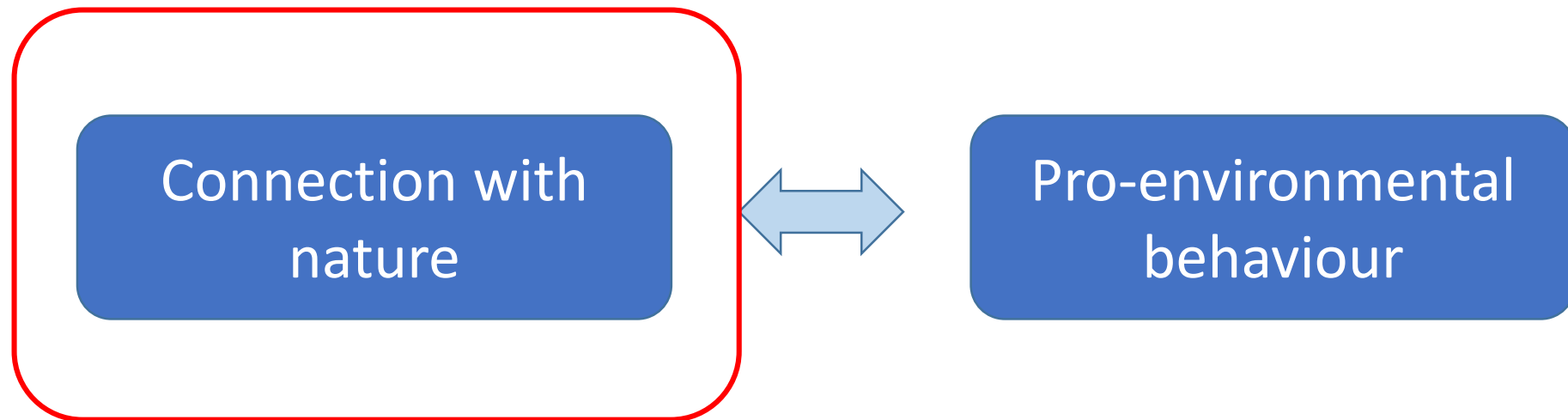
Understanding connection with nature

- Measurement
  - A brief, multidimensional questionnaire (CN-12)
- How does connection develop? How is it maintained?
  - Time spent in nature
    - Different types of nature
    - Real vs simulated nature
  - Barriers to spending time in nature

Understanding connection with nature
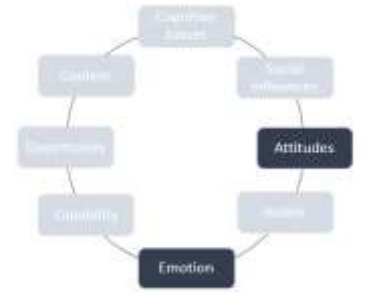
- How do perceptions of nature relate to connection?
  - Nature as "wilderness" vs "local park" vs "my backyard"

https://www.travelvictoria.com.au/regions/grampians/nationalpark/

Yarracity.vic.gov.au

Before we move on to the practical stuff

Some caveats

Changing behaviour is not easy

- Humans inherently don't like change

- Human behaviour is complex

- Human evolution vs industrialisation
  - We're good at: obvious, rapid, short-term danger
  - We're not good at: invisible, slow-advancing, long-term danger

Photo by Johannes Plenio on Unsplash

Behavioural science is not a panacea

- Big influence for a small number of people
- Small influence for a big number of people

https://images.app.goo.gl/awKwE8pF11Nubk1y9

Photo by

The challenge of biodiversity behaviours

- Context-specific
- Involve multiple actors, multiple behaviours, multiple processes
- Distance between behaviour and impact
- Feedback loops

Selinske et al., 2018

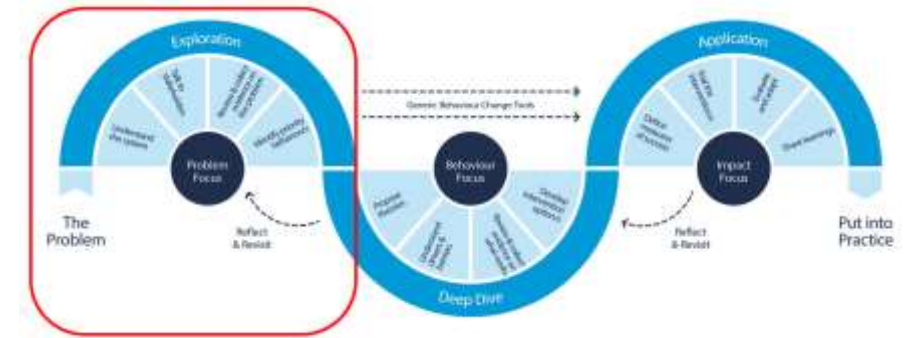Practical steps for behaviour change

https://www.behaviourworksaustralia.org/the-method/

Exploration

- Understand the big picture
- Understand the evidence
- Identify the target audience(s)
- Identify the relevant behaviour(s)
- Prioritise the behaviour(s) to focus on

Identify the target audience(s)

- Different audiences may differ in how they
    - Interpret the behaviour
    - Engage with the behaviour
    - Perform the behaviour
    - Perceive drivers and barriers to the behaviour

- Identifying the relevant target audience
    - Saves time and money
    - Enables a tailored intervention
    - Increases the likelihood of behaviour change

Identify the behaviour: An example

- University students *(who)* participate in litter clean-up events *(action and target)* on campus *(context)* during O week *(time)*

- Dog owners *(who)* pick up litter while walking their dog *(action and target)* along their local creek *(context)* each morning *(time)*

- Campers *(who)* pick up their litter *(action and target)* from their campsite *(context)* when they leave to go home *(time)*

Prioritise the behaviour(s) to focus on

Kneebone, Smith, & Fielding, 2017

High Impact/Low Likelihood: *Expensive but worth it*

High Impact/High Likelihood: *First priority*

Low Impact/Low Likelihood: *Painful and ineffective*

Low impact/High likelihood *Simple and painless*

Rain tank for home
Dual flush toilet
Fix pipes
Rain tank for irrigation
Fix cisterns
Rain tank for flushing
Efficient washing machine
Low-flow showerhead
Water to weather
Shorter shower
Grey water system
Fix taps
A/C to 24oC
Water early or late
Irrigation system
Timer irrigation system
Drought resistant turf
Plant native species
Brown lawn
Efficient taps
Fill washing machine
Efficient dishwasher
Fix hoses
Reduce lawn area
Mulch plants
Cistern weight
Broom not hose
Cover pool
Fill dishwasher
Install pool cover
Watering can not hose
Compost scraps
Reduce flush frequency
Group similar plants
Efficient pool filter
Read meter
Wash car less
Meat-free
Dairy-free
Turn off tap
Defrost in fridge
Collect warm up water
Wash-up by hand
No sink waste disposal
Scrape plates clean
Wash veggies in bowl

Industry professional perception of impact on water saving

Householder perception of likelihood of behaviour adoption

Kneebone, Smith, & Fielding, 2017

Prioritising biodiversity behaviours

- ARI seminar 19 August 2019
    - Matthew Selinske
    - *Prioritising human behaviour change for conservation in Victoria*

Deep dive

- Theories of change
- Drivers and barriers
- Intervention options

Why the deep dive is important

- The 'community' or 'general public' is not an homogenous group

- Drivers and barriers can differ, depending on the audience
  - Age
  - Gender
  - Place of residence
  - Language
  - Cultural/social differences

Is the target behaviour(s) relevant/applicable to that audience?

For example: Spending time in nature

I don't like spending time in nature

Men > women
Younger > older
Metro > regional

(attitude)

I don't have time to get out into nature

Younger > older
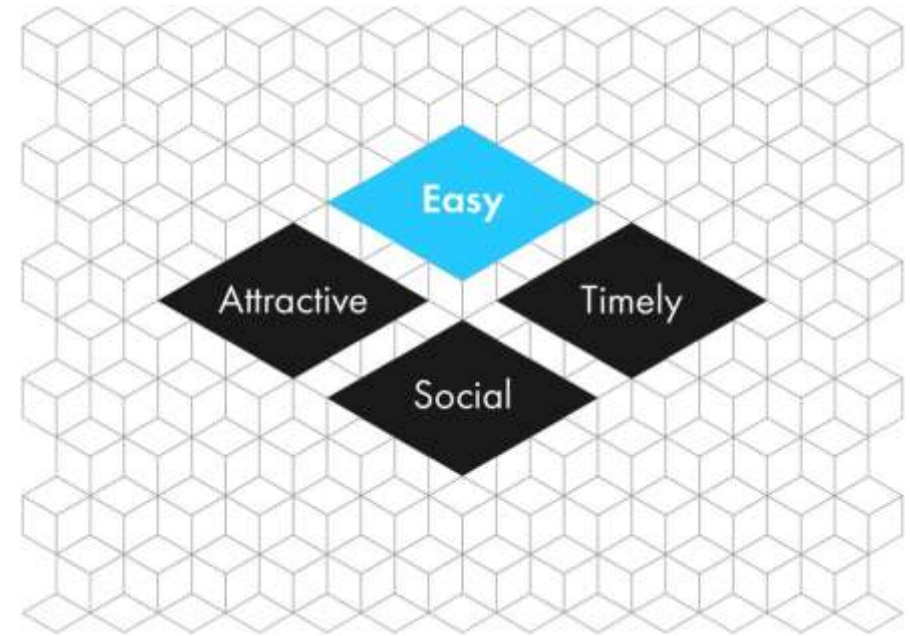Metro > regional

(capability)

Few of my family or friends spend time in nature
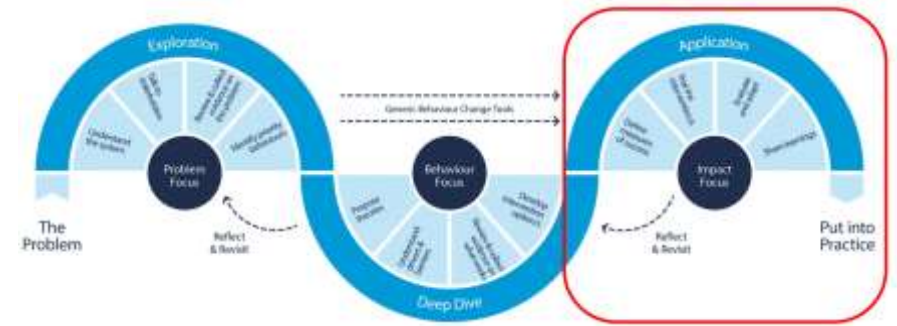
Younger > older

(social norms)

When the deep dive isn't possible

- Generic behaviour change tools
    - **E**asy
    - **A**ttractive
    - **S**ocial
    - **T**imely

https://www.bi.team/publications/east-four-simple-ways-to-apply-behavioural-insights/

Application

- Measures of success?
  - Monitoring and evaluation
- Pilot test
  - Small field trials
- Evaluate and amend as required

Take-home messages

Take-home (1)

- Human behaviour is incredibly complex
  - Rarely does one intervention change behaviour
- Behaviour change depends on a specific behaviour, actor, and context
  - Know your behaviour
  - Know your audience
  - Know the context

Take-home (2)

- Conservation rarely considers human behaviour
  - The threat of behaviour to biodiversity
- Behavioural scientists and ecologists can – and should – work together
  - Increase the likelihood of success

Online behaviour change training for DELWP staff

BehaviourWorks Australia have developed an online behaviour change training module for consortium partners

- **Behavioural Foundations for Change**
- https://pace.monash.edu/msdi/login/
- Create an account using your DELWP email
- Use the enrolment key 'BF4C'

References

- See separate word document

Closing thoughts

- *Who* do you want to do *what* differently?
- What do you want to do differently?

Photo by Jan-Niklas on Unsplash

Thank you

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