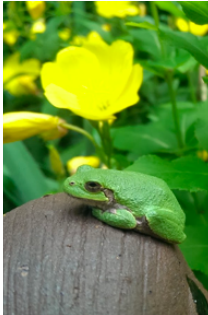


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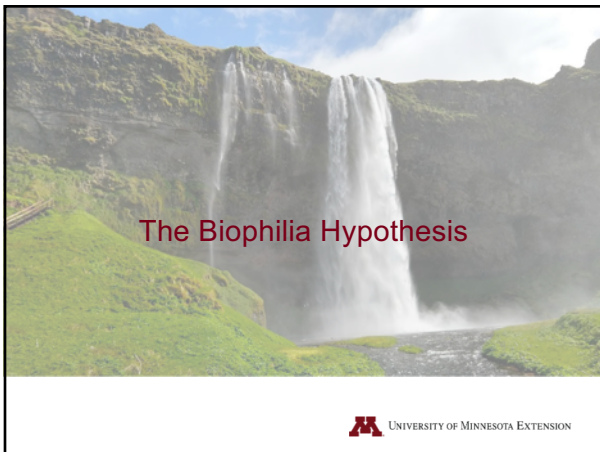
Presentation Goals

- Introduce the *Biophilia Hypothesis*
- Recognize the risks of the modern-day activities
- Understand the benefits of time spent outdoors
- Identify ways to engage with nature



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Natural Connections

- Historically vital for human survival
 - Food & Shelter
 - Knowledge & Inspiration
 - Medicine & Religion
- Less necessary for human survival in modern times



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Biophilia Hypothesis

- Biophilia: a love of life or living systems
- Humans have a biological need to connect with nature
 - Important for well-being (mental & physical)
 - Lack of nature encounters has negative health affects



Definition: Nature is the non man-made world (including water, air & earth; vegetation & animals) & all ecosystems within it


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Research Results

- 40+ years of research
 - Complicated
 - On-going
- Identified relationships between human health & nature
 - Changes to brain activity (Attention Restoration Theory)
 - Changes to physical response (Stress Reduction Theory)
 - Innate fear of nature (*Biophobia*)



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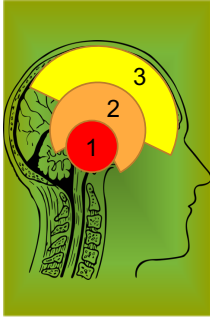
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Triune Brain Theory

- The Brain Stem (1)
 - Controls autonomic body functions (heart rate, breathing, body temp & balance)
- The Limbic System (2)
 - Responds to risk (Fight, flight or freeze)
 - Can control the Reptilian Complex
- The Neocortex (3)
 - Manages all higher-level thinking
 - Can control the Limbic System





Note: The triune brain theory is outdated but gives a useful if simplified analogy about brain functions



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A Mostly Indoor Life



- Americans spend 93% of their time indoors
 - Often sedentary
 - Artificial light
 - Recirculating air
 - Limited microbial diversity



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Mental Impact



- Constant focus (*directed attention*)
- Overworked neocortex
 - Leads to mental fatigue
 - Limits creative thinking
 - Hinders memory
 - Reduces effectiveness of rest
- Overactive limbic system
 - Hyperfocuses on perceived threat
 - Increases of stress-related hormones, cortisol & adrenaline

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Physical Impact


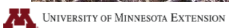
- Cortisol (stress hormone)
 - Hinders immune systems
 - Lowers metabolism
- Adrenaline (stress hormone)
 - Increases heart rate & blood pressure
 - Constricts blood vessels
 - Creates muscle tension
- Lack of physical activity
 - Decrease of muscle & bone mass
 - Slows metabolism

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Societal Impact

- Focus on the self
 - Creates emotional disconnect
 - Less empathy for other living things (e.g., at-risk species)
 - Decreased value of natural spaces
- Focus on the immediate threat
 - Fewer sustainable behaviors
 - Less long-term planning

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Mental Impact

- Encourages soft/wandering focus (*involuntary attention*)
- Restores neocortex (Attention Restoration Theory)
 - Improves concentration
 - Increases memory
 - Boosts creativity
- Calms limbic system
 - Decreases stress hormones (Stress Reduction Theory)
 - Increases control of emotions
 - Lowers risk of depression

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Physical Impact

- Reduces physical stress response (Stress Reduction Theory)
 - Lowers heart rate, lowers blood pressure & relaxes muscles
 - Restores normal metabolic & hormonal activity
- Improves immune system
 - Reduces respiratory stresses
 - Drives vitamin D creation
- Encourages physical movement
 - Builds muscle & bone
 - Improves balance & stability

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Societal Impact

- Develops empathetic thinking
 - Encourages curiosity & learning
 - Deepens relationships with other living creatures & systems
 - Increases environmental awareness
- Drives wider awareness
 - Builds environmentally-friendly behaviors & habits
 - Inspires long-term planning

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Children in Nature

- Builds *biophilia*
- Normalizes physical activity
- Restores focus & self-control
- Encourages curiosity & learning
 - Free-association thinking
 - Science (e.g., Biology, Physics & Phenology)
 - Independence




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Nature for Special Needs

- Provides less formal environment
 - Less directed focus
 - More hands-on activities
 - Reduces stress
 - Helps regulate emotions
- Can benefit people with
 - Cognitive disabilities
 - Dementia & Alzheimer's disease
 - Some mental illnesses (e.g., ADHA, anxiety & depression)




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Connection Goals

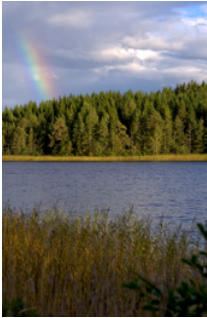

- Identify natural spaces near you
- Immerse yourself
 - Let your attention wander
 - Engage as many senses as possible
- Guidelines
 - 15-30 minutes daily (2 hours/week)
 - Pair with physical activity
 - Get some sun (15 min/day)
 - Be safe




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Engage your senses: Sight

- Look around you
 - Bold colors (flowers AND leaves)
 - Bright sunlight & deep shadows
 - Competing textures
 - Different sizes
- Get to know unfamiliar shapes & sources

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Engage your senses: Sound

- Listen to the world around you
 - Wind (through grasses or leaves)
 - Water (tides, rivers, rain)
 - Wildlife (Birds, insects & other animals)



- Learn what sounds come from each source



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Engage your senses: Smell

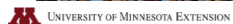
- Follow your nose
 - Blooming flowers
 - Soil after the rain
 - Cut grass
 - Water
- Notice when the smells around you change & try to figure out why



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Engage your senses: Touch

- Feel the connection
 - Plants (grasses, leaves & mosses)
 - Soil (clay, sand & rock) & Water
 - Textures (smooth or rough, soft or scratchy)
 - Temperatures (hot, warm, cool, or cold)
- Experience how textures change over the season



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Engage your senses: Taste

- Enjoy the flavors
 - Fresh-picked vegetables & fruit
 - Herbs & spices
 - Edible flowers
- Cultivating edible plants brings nature to your dinner table



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Suggested Activities

- Visit local & state parks
- Grow plants
 - Houseplants, vegetables, flowers
- Meet nature
 - Identify plants & wildlife (including "weeds")
 - Set up a bird feeder or aquarium
- Join an outdoor activity
 - Hiking
 - Camping
 - Fishing



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Virtual Connections

- Positive impacts can happen without direct exposure
 - Less effective
 - More accessible
- Use apps, videos & images
 - Virtual tours
 - Natural soundscapes
 - Documentaries
 - Picture books



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Share the benefits

- Give plants to friends
 - Gift vegetables
 - Divide houseplants
 - Create a bouquet
- Share pictures & stories
- Invite others to join you



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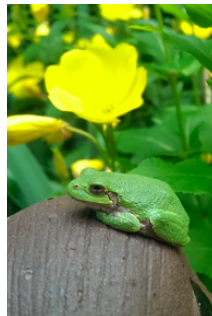
Nature Heals Recap

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Presentation Recap

- Get outside wherever you are & however you can
 - Restores mental performance
 - Increases immune system performance
 - Encourages empathetic awareness to the larger world



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