



#NATURE  
FOR ALL

children & nature  
NETWORK

# connecting

with Nature to Care for  
Ourselves and the Earth:

**Recommendations  
for Decision Makers**





# Preface

A growing body of evidence indicates that for humans to thrive in harmony with nature, we need to understand the importance of integrating it into our lives. However, while many of us experience, benefit from, and care for nature, others face barriers to experiencing and connecting with it. In an effort to make nature a part of the lives of all people from all walks of life, and in doing so, create increased support and action for conservation globally, the IUCN World Commission on Protected Areas and IUCN Commission on Education and Communication jointly launched **#NatureForAll** in 2016.

**#NatureForAll** is a global movement to inspire love of nature with, as of October 2018, nearly 300 partner organisations from more than 60 countries. **#NatureForAll** partners are showing how personal experiences and connections with nature provide powerful benefits for individual and societal health, well-being, and resilience and are a foundation for lifelong support for conservation.

This document illuminates the diverse values of experiences and connections with nature and their relationship to positive behaviours towards the Earth.

The knowledge shared here has a vital role to play in informing local, regional, and global policy and action on conservation, sustainable development, and related issues. In 2018, led by Dr. Cheryl Charles of the Children & Nature Network, 14 co-authors, and more than 60 reviewers from 22 nations on 5 continents, came together through the **#NatureForAll** network to collaboratively produce the publication *Home to Us All: How Connecting with Nature Helps Us Care for Ourselves and the Earth*. Much of the language and many of the same ideas and examples from that new and important publication have been incorporated into this summary document. Designed for a broad audience, this short summary aims to share highlights of the most current and compelling evidence for connecting people with nature to aid decision makers from diverse sectors across the world in implementing policies and practices that will help humans thrive in harmony with nature for decades to come.

Learn more about **#NatureForAll** and join the movement at [www.natureforall.global](http://www.natureforall.global)



© 2018 Children & Nature Network  
Document is available in English, French and Spanish  
Available at <http://www.natureforall.global> and  
<http://www.childrenandnature.org>





# contents

Snapshot.....	4	Nature for Children.....	6	Nature for Health and Well-being.....	10	Nature for Communities.....	14	Nature for Economies.....	17	All for Nature.....	20
		Children for Nature.....	7	Health and Well-being for Nature.....	11	Communities for Nature.....	15	Economies for Nature.....	18	Nature for All.....	21
										We are One.....	22
										Overcoming Barriers.....	24
										Recommendations for Practice.....	25
										Recommendations for Policy.....	26
										Recommendations for Research.....	26
										References.....	27

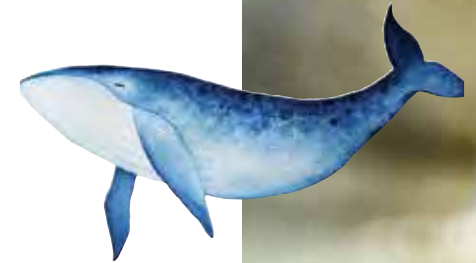


# *This is a document about the importance of connecting with nature.*

At a time when the world is confronted with growing environmental challenges, better understanding the critical connection between people and nature is key to informing effective decision making and stimulating positive action across sectors. At a personal and societal level the evidence is strong and growing that people tend to be happier, healthier, and more productive, creative, active and engaged in community and civic life when nature is a meaningful part of their lives.<sup>1-7</sup> They are also more likely to care for it.<sup>8</sup>

In recent years, reviews by the Children & Nature Network, the World Health Organization, and others, have demonstrated the value of experiences in nature for our children, individual and societal health and well-being, sustainable cities, and economic development.<sup>4, 9-12</sup> We highlight key findings from those and other reports here. What is unique about this document, however, is the links that are made between different bodies of evidence to show that connecting people with nature is important for people, and that, in turn, when people experience and benefit from nature, they are more likely to appreciate and care for it. We identify the types of experiences and connections that tend to lead people to care for the Earth and we make high-level recommendations for policies that will encourage investment in and implementation of relevant programming, infrastructure, and innovative solutions for connecting people with nature.

The growing knowledge base that links connecting with and caring for nature is an important part of this document. *Home to Us All: How Connecting with Nature Helps Us Care for Ourselves and the Earth* examines that knowledge base in greater detail and serves as a technical companion to this short summary.<sup>8</sup>







When people experience  
and benefit from nature,  
they are more likely  
to appreciate and  
care for it.

# Snapshot



“Traditional Indigenous cultures are intimately tied with the land. Culture includes ways of thinking, world views, values, practices, and actions. Deepening connections with our environment helps us to remember who we are; how we fit into a co-evolutionary relationship with Nature—which then leads us to live our lives accordingly. For humans to survive and thrive long term, we must all understand that we are part of Nature.”

*Chloe Dragon Smith*

## How Connecting with Nature Helps Us Care for Ourselves and the Earth

- Positive, direct experiences in nature during childhood and role models of care for nature by someone close to the child are the two factors that contribute most to individuals choosing to take action to benefit the environment as adults.<sup>12-23</sup>
- People of all ages who participate in nature-based activities tend to be happier and healthier than those who do not.<sup>1-7, 9, 13, 24, 25</sup>
- Social experiences in nature foster connectedness to each other and to nature.<sup>14, 26-29</sup>
- People who develop a sense of place are more likely to want to protect it and to oppose the degradation of the environment.<sup>30-34</sup>
- Knowledge is very important but is not enough on its own to cause people to take action to benefit nature.<sup>35-41</sup>
- Meaningful, positive experience in nature is a powerful way of developing a connection with, or love of, nature that can in turn guide people toward care for the Earth.<sup>12, 14, 17, 21, 22, 42-45</sup>
- Connectedness with nature is a strong predictor of positive conservation behaviour.<sup>42, 46-50</sup>

## Recommendations for policy supported by the evidence

- Education and child care policies that enable time outdoors in nature and experiential learning about nature in early childhood and throughout life.
- Health and elder care policies that deliver the health benefits of contact with nature for all people of all ages.
- Community planning and urban development policies to create nature-rich cities that include parks and protected areas for the benefit of people and nature.
- Parks, outdoor recreation, and tourism policies that encourage family-friendly experiences; interpretive programmes; and outdoor, nature-based and experiential education.
- Arts and culture policies that promote the integration of culture and nature to develop a sense of oneness with nature while celebrating stories of connection and healing.
- Policies that encourage private sector investment in environmentally sustainable programming, infrastructure, and innovative solutions, such as technology, for connecting people with nature.
- Policies that call for biodiversity conservation organisations to work across sectors so that all people, equitably and inclusively, experience the diverse benefits of connectedness with nature.

**Research in this field uses a range of behaviours as indicators of whether or not people exercise care for nature**

Recycling, eating locally and organically, reducing consumption, walking or biking rather than taking fossil-fuel driven transportation, volunteering for habitat restoration projects, voting for pro-nature people and

policies, making donations to protected areas, and choosing vocations that serve rather than damage the environment are all examples.





# nature for children

The benefits of connecting with nature start with our children. For example, infants and toddlers develop healthy, resilient bodies from time spent exploring hands-on and whole-body with natural materials. They are stimulated cognitively and physically by the sights and sounds in outdoor spaces. They develop social skills and bond with family members through shared experiences in the outdoors.<sup>28, 29</sup>

Outdoor play in school-aged children has been linked to the development of core skills, including problem-solving and reasoning, creativity, curiosity, risk-identification, self-regulation and social and emotional learning.<sup>51-54</sup> For students, studies are showing positive associations between the greenness of school landscapes and academic performance, such as standardised test scores and rates of graduation.<sup>55-57</sup> A recent survey conducted in 45 countries for the Outdoor Classroom Day initiative revealed that when lessons are taken outdoors, children are more engaged in learning (88%), are better able to concentrate (68%), and are better behaved (65%).<sup>58</sup>

Children and adolescents with access to nature also tend to enjoy more physical activity.<sup>59</sup> They benefit from reduced rates of obesity and other chronic diseases, including diabetes and heart disease, as well as enhanced emotional well-being and resilience.<sup>2, 60, 61</sup> Research indicates that exposure to nature can act as a protective factor for the mental health of young people.<sup>7, 60, 62</sup> A recent study of 29,784 Canadian adolescents found that engagement in outdoor play—even as little as a half hour per week—was associated with decreased prevalence of psychological symptoms in females, and decreased prevalence of psychosomatic symptoms in both males and females.<sup>62</sup> Teens also benefit from peer support and grow in self-esteem while working, learning, and exploring in groups—particularly enriched by service-oriented projects in the outdoors—that develop their confidence and capacity to care for themselves, others and the environment.<sup>28, 63</sup>



More than 40 years of research shows that meaningful childhood experiences in nature are associated with adult conservation behaviours. Tanner notably explored this connection, finding that most people who chose a life in which they demonstrated commitment to the environment reported significant experiences with nature in their childhood. For most of these individuals, natural habitats were accessible for unstructured play and discovery nearly every day when they were children.<sup>23</sup> In the years since, the number of studies, and systematic analyses that review the strength of the collective evidence from those studies, has been increasing.<sup>4</sup>

This does not mean that people cannot develop a commitment to care for the Earth as adults. Nor does the natural environment need to be pristine and rural; nature-rich green and blue spaces within urban and other populated settings are effective too.<sup>64</sup> It does mean that experiences of nature in childhood increase the odds that more people will care and take action throughout their lives. Findings based on diverse samples of people from many parts of the world demonstrate that **two factors contribute most to children developing into adults who take action to benefit nature: positive direct experiences in nature during childhood and role models of care for the Earth by someone close to the child—for example, a parent, grandparent, or other trusted guardian.**<sup>17, 18, 22, 65</sup>

# Children for nature



# Take Action


by getting children outdoors on a regular basis. This is a powerful and effective approach for connecting them with nature.

- Educational institutions have an important role in connecting children with nature. **Outdoor Classroom Day** is a global campaign with a goal to make outdoor play and outdoor learning part of every school day for every child. In 2017, over 2 million children in over 100 countries took part. A programme evaluation found that 1 in 5 educators has since increased playtime and 44% have made more time for outdoor lessons.<sup>58</sup>
- From Calgary to Bangalore; from China to Brazil, **Nature Clubs for Families** inspired by the Children & Nature Network are typically parent-led groups that meet regularly with their children of all ages for outdoor play and exploration of a natural setting.<sup>66</sup> Research conducted with some of these groups is finding enormous benefits to family bonding, enhanced confidence and creativity on the part of children, and also increased connectedness with nature.<sup>14, 27</sup>

1 in 5 educators has increased playtime and 44% have made more time for outdoor lessons







*two factors contribute most to children  
developing into adults who take  
action to benefit nature:*

*positive direct experiences  
and role models*



# nature for Health and Well-being

Time spent in nature has an important protective role to play in health and well-being at all ages. From gardening, to cycling, to simply walking outdoors, benefits reported include:

- improved blood pressure, pulse rates and stress hormone levels;<sup>67-70</sup>
- enhanced sense of well-being;<sup>2, 3, 6, 71</sup>
- reduced levels of anxiety and depression;<sup>69, 72</sup>
- decreased stress and improved work performance in office spaces;<sup>70</sup>
- reduced incidents of aggressive behaviours among Alzheimer's patients in long-term care facilities<sup>73</sup>

Connecting with nature is a public health strategy that is accessible and affordable for many populations, with research demonstrating not only protective values but restorative benefits as well. Positive impacts of exposure for adults can include fewer medications, faster recovery from surgery and shorter hospital stays.<sup>74, 75</sup> Research studies similarly indicate a reduced need for medication and services among mental health patients, while the costs of medication for some conditions, such as Attention Deficit Hyperactivity Disorder (ADHD), may be mitigated when time in nature is considered as part of a treatment plan.<sup>76-78</sup> **Investment in nature to promote health and well-being can also return economic benefits. According to one study on the cost-benefit analysis of physical activity using bike/pedestrian trails, every \$1 investment in trails for physical activity led to \$2.94 in direct medical benefit.**<sup>79</sup> Families, taxpayers, employers and governments all bear the growing economic and social burden of physical and mental illnesses worldwide. As a starting point, access to nature is critical for helping people reap the many physical, mental, spiritual, and social health benefits of nature connection.



# Health and Well-being for nature

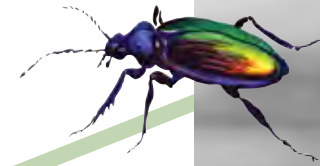
Habitual experience, making nature a part of everyday living, is recommended for it to become a valued part of people's lives.<sup>64, 80</sup> Fortunately experiences in and connection with nature can be facilitated and enhanced among all age groups, may start at any time, and can occur in a variety of settings, including wild, rural, and urban environments. Meaningful and positive experiences are a powerful way of developing a connection with, or love of, nature that can in turn guide people toward care for the Earth. Research indicates, for example, that by simply noting "three good things in nature" each day for a week, people's connection with nature improves.<sup>1</sup> An analysis of these "good things" reveals that people enjoy the sensations of nature, temporal change, active wildlife, beauty, and colour.<sup>81</sup> Another study found that the top three motivators for Americans to get outdoors in nature were to "get exercise", "be with family and friends", and "keep physically fit". "Observing scenic beauty", "being close to nature", and "enjoying the sounds and smells of nature" were also important motivators.<sup>82</sup> For health and well-being initiatives, insights such as these provide direction and guidance for how to simultaneously foster connection with nature.



# Take Action

by making nature a part of everyday healthy living for all by promoting simple, accessible outdoor experiences.

- Healthy Parks Healthy People is a global movement that harnesses the power of nature as a health resource. The Healthy Parks Healthy People approach recognises that contact with nature is essential for human emotional, physical and spiritual health and well-being; and it reinforces the crucial role that parks and protected areas play in nurturing healthy ecosystems. Park Prescriptions is one specific practice of note ([Vitamina N](#), Colombia; [ParkRx](#), United States), in which health care providers are referring their patients to parks to treat and prevent chronic disease.
- Over the first three years of [30 Days Wild](#), approximately 80,000 people in the UK registered to participate in nature-based activities for 30 consecutive days. A programme evaluation revealed reported improvements in personal health and well-being as well as positive conservation behaviours.<sup>24, 83</sup>







health care providers  
are referring  
their patients to parks  
to **treat and**  
**prevent**  
chronic disease

# nature for communities



In a rapidly urbanising world, community green and blue spaces not only support a range of health benefits, but can also foster social cohesion. Exposure to various forms of nature has been shown to lead some people to be more generous and caring, helping to bring individuals closer to others.<sup>84</sup> There is evidence that these experiences promote positive social behaviour, including kindness, altruism, generosity, and resource-sharing. Simply viewing beautiful natural scenes can result in people being demonstrably more cooperative and generous to others, even in the presence of strangers. Among the benefits, a growing body of evidence on the science of awe—experiencing a profound response to what is perceived as the wonder of nature—can inspire people to solve problems more cooperatively and creatively.<sup>85, 86</sup>

Nearby nature, such as urban parks, provides the setting for communal activities and contact with neighbours, and can result in a greater sense of belonging to community and increased satisfaction of residents. Studies have demonstrated that urban residents living near nature tend to know and respect more of their neighbours. They also report higher levels of mutual trust and willingness to help one another, compared to their counterparts living in more barren surroundings.<sup>6, 54, 87, 88</sup> Researchers have found that nearby nature helps prevent crime and mitigate some of the psychological precursors to aggression and violence. **A study of 145 public housing residents, for example, showed that those living in buildings with views of concrete and asphalt reported more aggression and violence that did their counterparts living in identical buildings with views of trees and grass.**<sup>6, 87</sup> Similarly, evidence suggests that greening of urban vacant lots can reduce rates of vandalism and violent crimes.<sup>89</sup>



The urban environment has a critical part to play, where daily experiences within nature-rich cities can potentially transform the way we live, work, learn, and play. By designing our city environments in ways that seamlessly weave in opportunities to experience nature, we can kindle connections to it. In the city of Bogotá, for example, a recent study found that individuals visiting larger city parks experienced high levels of connectedness with nature and feelings of human-nature interdependence.<sup>90</sup> The presence of nearby parks, however, may not be incentive enough for some people to visit. Urban green spaces seem to be most successful at attracting diverse population groups where these feature social engagement and participation elements.<sup>91</sup> In addition to ease of access, it is also important that urban greening policies support activities that enhance human-nature integration in order to improve human and environmental health in cities.<sup>92</sup> The success of nature-rich communities, therefore, will rely on insightful and long-term investment strategies that not only increase the availability and diversity of green and blue spaces across our urban landscapes, but also implement policies and practices that increase people's opportunities to connect with nature.

Many people today, especially those with little or no connection with nature through direct experience, need and benefit from the company of family and friends to inspire joyful time in natural spaces. For many of us, connecting with nature begins at home or nearby: in urban environments, on farms, in remote wilderness areas; in schools, care centers, businesses, hospitals, and shopping areas; at nature-based children's museums; at zoos, aquariums, and botanical gardens; in places of worship, community centers, parks and public places—wherever people are, alone and with others, they can engage in practices that emphasize and support their connectedness with nature. Doing so contributes to their own health and well-being; that of their families, friends and co-workers; other species; and the Earth itself.

# Communities for nature





# Take Action

by creating cities with safe and accessible green and blue space. This is an essential part of a long-term strategy to care for the Earth.

- The [10-Minute Walk](#) movement aims to ensure that there is a high quality park or green space within 10 minutes of every person in every city across the United States. The initiative has been endorsed by more than 200 city mayors, including those from the four largest US cities (New York, Los Angeles, Chicago and Houston) in recognition of the health, economic, community-building and environmental benefits provided by parks for urban residents.<sup>93</sup>
- Umbrella organisations and initiatives like [ICLEI](#), [the Nature of Cities](#), [European Union's Green Week](#), [Green Surge](#), the [World Urban Parks Association](#), the [IUCN Urban Alliance](#), [C40 Cities](#), [880 Cities](#), [National Park City](#), and [Natural Systems and Sustainable Cities](#) are providing practical tools and policy guidance to support local initiatives aimed at improving the sustainability of urban environments and the quality of life of urban populations.



# nature for Economies

Nature is the foundation of our economies. We depend on natural resources for food, water, clean air, raw materials, business investments, job generation, and as a source of tax revenues. Connecting people with nature presents economic opportunities as well.

Representing 10% of world GDP and 1 in 10 jobs globally, tourism has a decisive role to play in job and wealth creation, environmental protection, and poverty alleviation.<sup>11</sup> Nature-based tourism alone creates a diversity of jobs for a range of sectors and contributes to the health of local, regional, and national economies. For example, the niche adventure tourism market, valued at \$263 billion, is one of the fastest growing categories of tourism globally, with an average yearly growth of 65% from 2009-2012 in Europe, North America, and South America.<sup>94</sup>

**In Sub-Saharan Africa, the promotion of natural attractions and adventure opportunities helped increase tourism numbers from just 6.7 million visitors in 1990 to 33.8 million visitors by 2012.**<sup>95</sup> In Canada, it has been shown that visitors to parks directly support more than 64,000 full-time jobs, generate \$2.9 billion in labour income, and provide \$337 million in tax revenue for governments.<sup>96</sup> In the United States, the outdoor recreation economy accounted for 2.0 percent (\$373.7 billion) of GDP in 2016, numbers that are larger and more sustainable than the contributions of industries such as mining and oil and gas extraction (1.4% of GDP).<sup>97</sup>

Beyond tourism, attractive green spaces can influence business location decisions, helping to bring new jobs to a community. Studies in Canada and the United States have shown that closeness to natural features is associated with higher residential and commercial rents, and premiums on property taxes.<sup>96, 98</sup> In New York City, for instance, the revitalisation of Bryant Park replaced a barren landscape associated with drug deals and robberies with an appealing space that now attracts thousands of visitors daily. In the two years following the park reopening, leasing activity on neighbouring Sixth Avenue increased 60%, prompting brokers to term the revitalised park their “deal-clincher.”<sup>98</sup> Similarly, in the city of Berlin, it was found that proximity to playgrounds increased property values by 16%, while a higher number of trees resulted in a 17% increase.<sup>99</sup>



# Economies for nature

Studies have demonstrated a positive relationship between the level of involvement in nature-based activities as diverse as fishing, SCUBA diving, and bird watching, and an individual's concern for the resources on which their activity depends.<sup>100-104</sup> Others have found an association between people's attachment to the specific places where they interact with nature and their tendency to care for the Earth, suggesting that people who develop a sense of place are more likely to want to protect that place and to oppose the degradation of its environment.<sup>30-34</sup> Some studies have suggested these links extend to more general care for the Earth in everyday life.<sup>32, 34</sup> For those who already have positive attitudes toward the Earth, regular time in nature may play an affirming role by keeping it "top of mind" and increasing the likelihood that they will take action to its advantage.<sup>105-107</sup>

Grass, trees, parks and other natural areas provide a range of benefits for both people and nature: they remove pollutants from the air, absorb rainwater, buffer noise pollution, lower air temperature, and reduce urban heat islands; they provide watershed protection, flood protection, support biodiversity, and help to mitigate the effects of climate change.<sup>10, 108</sup> Natural areas, or "green infrastructure," can perform many of the same services as gray infrastructure, often at a reduced cost and more reliably.<sup>10</sup> There are also inherent risks to be managed as over-use of protected areas, badly planned developments, and disregard for local culture and initiatives can all undermine many of the potential advantages.<sup>109</sup> As a first principle, human interactions with natural areas for economic purposes must be responsibly, thoughtfully, and sustainably managed.



# Take Action

by protecting natural assets from degradation to take advantage of the economic potential of connecting people with nature.

- Parks and protected areas are prominent in tourism worldwide and have an important role to play in fostering activities that lead to care for the Earth. In 2018, Parks Canada introduced [free admission for youth](#) aged 17 and under, recognising that “by connecting with nature, youth will gain a better understanding of our urgent need to not only protect it, but maintain it for future generations.”<sup>110</sup>
- In Brazil, a degraded quarry site was transformed into a “naturalised” [golf course](#) for the Rio 2016 Olympic Games, with more than 15,000 native plants transplanted and over 475,000 plants propagated from native seeds to stock the new course. The formerly barren space not only attracts golfers, but was also quickly recolonised by rare and protected species, including burrowing owls, sandpipers, and egrets.<sup>111</sup>



# All for nature

Personal experiences and connections with nature provide powerful benefits for individual and societal health, well-being, and resilience. Many people today are living with little direct and conscious experience of the beauty and complexity of the Earth's living systems. The realisation that humans are just one part of this interdependent and interconnected web of life has been forgotten or lost in the memories of many. While this disconnect can occur even in rural and undeveloped areas, it tends to be exacerbated for people living in cities and heavily urbanised areas. Significantly, 55% of the world's population currently reside in urban areas and by 2050, 68% of the world's population is projected to be urban.<sup>112</sup> This is not to say that urban areas cannot be biologically diverse; they can, and are, with care and effort. In fact, urban areas hold great potential for connecting people with nature in their everyday lives. Doing so will be good for people, and for the Earth.

Increasing evidence indicates that time with nature is critical because it can create a connectedness—that is, an emotional affinity or love of nature, a oneness with all that is. Such connectedness can occur in a variety of settings. In fact, connectedness with nature is emerging as a strong predictor of positive conservation behaviours.<sup>42, 46, 47, 50</sup>

A number of measures of connectedness have been developed in recent years and used to explore the relationship between connectedness and action to benefit the Earth.<sup>113, 114</sup> Frantz and Mayer describe connectedness as a sense of “we-ness,” which as a psychological process helps humans to feel empathy for nature, to care for it, and to feel committed to its protection.<sup>50</sup> Zylstra and colleagues define connectedness with nature as “a stable state of consciousness comprising symbiotic cognitive, affective and experiential traits that reflect, through consistent attitudes and behaviours, a sustained awareness of the interrelatedness between one's self and the rest of nature.” They find hope within the construct, and view it as a “necessary prerequisite for realising desired conservation and environmental behaviour outcomes.”<sup>49</sup> That view is supported by recent research that suggests environmental knowledge may explain only 2% of what is linked to ecological behaviour, while connectedness with nature explains 69%.<sup>46</sup>

Dedicating time for recess and active outdoor play for school-children. Encouraging elder-care walking groups in neighborhood parks. Integrating accessible nature-rich green and blue spaces throughout urban landscapes. Providing support for a memorable holiday to a national park. These are among the many promising practices emerging worldwide for connecting people with nature, contributing to connectedness with nature and care for the Earth. While much remains to be understood about what factors contribute to human actions that benefit nature, scholars continue to offer deeper insight into this area of study. One thing is clear: there are many ways to connect with, value, and take action to benefit the Earth and its living systems—and connectedness is key.

As we develop programmes and policies to connect all people with nature wherever they live, work, learn, and play, the strongest influencers that are likely to lead to care for nature include:<sup>8</sup>

- direct experiences in nature,
- repeated exposures,
- a perceived belief in one's own personal efficacy,
- self-directed learning and play,
- a caring mentor,
- an emotional bond or connectedness.

Connectedness takes many forms. It can be stimulated, maintained and enhanced in various ways. However formed, it is a strong predictor of care for the Earth for people of any age. It can be so powerful that it becomes a way of life, a lifestyle that benefits everyone—from self, to others, to the Earth.

# nature for All





# We are One

What we know includes ancient and Indigenous wisdom, wisdom that is based on natural law, the workings of the land, and relationships. In the South Pacific, New Zealand's Maori people have traditionally held a deep connection to the environment, focused on their tribal lands and waters in particular. The Maori world view positions Maori as both part of the natural system and guardians for that system.<sup>115, 116</sup> In Australia, Aboriginal culture was founded on the belief that people and nature are created as one, and humans do not have dominion over the natural world. Tribes had their own wisdom to connect them to the land or "country."<sup>117, 118</sup> For Aboriginal peoples, the concept of "country" embodies resilience. It is the holistic engagement of a person with a specific physical location that is both symbolic and real. In North and South America, Indigenous people have many ways of remembering and practicing Earth-based wisdom. For example, for the Makunas, Eastern Tukanoan groups from the Northwest Amazon, humans and non-human beings share many of the same places. There is no separation between beings. There is no separation between the visible and invisible, or between culture and nature, making evident the complete interdependence of all living beings.<sup>119</sup>



Wisdom  
that is based on  
natural law









## Overcoming barriers



Despite the fact that connectedness with nature is good for us and good for the Earth, creating opportunities to increase connectedness is not always a simple process. Many attributes of contemporary life throughout the world contribute to a disconnection between people and nature and present barriers to overcoming it. These include, but are not limited to:

- **Fear and perceptions:** Recognising that safety is a real concern in many circumstances, people are coming together to create safe outdoor opportunities. Some are meeting as family groups to go together to public parks and schools with safe and secure nature-based play areas. Others are creating rooftop gardens. Some organisations are implementing programmes to equip those less familiar with nature experiences with necessary knowledge, tools, and confidence to integrate these as part of their everyday lives.
- **Lack of resources:** Lack of resources is a significant barrier, requiring thoughtful action at all levels of society. Whether real or perceived, lack of resources can limit the ability for an individual to get to a place, to enter it, and to participate in a nature-based activity. Solutions include programmes that offer free transportation for urbanites to nearby parks, providing free or discounted admission to target groups, such as school-children or local residents, as well as programmes that invite users to borrow park passes and outdoor recreation equipment from their library or through community groups.
- **Urbanisation:** There is a worldwide trend to enhance the opportunities for urban dwellers to experience nearby nature and to facilitate the many benefits that nature-rich cities can provide. Creating and supporting parks and protected areas, green schoolyards, community gardens, and wildlife corridors are all examples of actions underway in urban environments that facilitate opportunities for people of all ages to connect with nature in meaningful ways.

Each of these barriers can be addressed, with creativity, collaboration and commitment. Often it is mostly a matter of priorities. When people experience the many benefits of time in nature—from reduced crime to family bonding to improved physical health to peace of mind and overall well-being—the barriers can quickly dissolve. People and nature are both served in the process.





## Recommendations for Practice

Organisations and individuals around the world are finding ways to overcome barriers. [#NatureForAll](#) is a global movement to inspire love of nature. Partners representing health, education, museums, zoos, botanical gardens, aquaria, youth, tourism, technology and more are inspiring action for people, place and planet. Key strategies underlying best practice for connecting people with nature have been summarised in the [#NatureForAll](#) Playbook. These strategies include:

1. **Bring children into nature at an early age**, and continue through their life course: Provide opportunities for children and families to participate in fun outdoor activities and learning experiences.
2. **Find and share the fun in nature**: Outdoor activities can offer new and unique opportunities for people to connect with others and with themselves, all while enjoying the benefits of nature. Use the diverse array of communication tools available to us to share fun and beneficial experiences that can be enjoyed in nature.
3. **Use urban gateways to nature**: Use urban parks, gardens, museums, zoos and aquaria to connect urbanites with nature and invest in “greening measures” to provide access to nature where people live, work, learn, and play—by greening hospitals, clinics, workplaces, prisons, alleyways, and schools.
4. **Embrace technology**: Just as digital technology is used to connect people with each other around the world, it can also facilitate moments of connection between people and nature. Continue to find new and innovative ways to use technology as a bridge rather than a barrier to nature.
5. **Share cultural roots and ancestry in nature**: Provide opportunities to explore and share traditional stories, language and knowledge with local communities and with the broader public. Together, let’s cultivate a world where connections with nature and each other are valued.
6. **Seek out diverse partnerships**: To reach our conservation goals, action is needed from most sectors. Reach out and build partnerships that are inclusive and expand our abilities to connect with new audiences, increase engagement and tap into new areas of expertise.
7. **Empower a new generation of leaders**: Mentorship, education-work experiences, and youth leadership and advocacy training provide young leaders with the skills and confidence to advance in the conservation field. Let’s work together in intergenerational partnership to inspire those around us to connect with nature.



## Recommendations for Policy

Healthy nature has economic benefits. Healthy and accessible natural environments support healthy people. Healthy people reduce social costs. Achieving these benefits requires that we have access to nature. And having access depends on enough of us caring enough to make sure that there are places and spaces where people from all walks of life can experience nature daily or often, through all stages of their lives.

### Recommendations for policy supported by the evidence:

- **Education and child care policies** that enable time outdoors in nature and experiential learning about nature in early childhood and throughout life;
- **Health and elder care policies** that deliver the health benefits of contact with nature for all people of all ages;
- **Community planning and urban development policies** to create nature-rich cities that include parks and protected areas for the benefit of people and nature;
- **Parks, outdoor recreation, and tourism policies** that encourage family-friendly experiences; interpretive programmes; and outdoor, nature-based and experiential education;
- **Arts and culture policies** that promote the integration of culture and nature to develop a sense of oneness with nature while celebrating stories of connection and healing;
- **Policies that encourage private sector investment** in environmentally sustainable programming, infrastructure, and innovative solutions, such as technology, for connecting people with nature;
- **Policies that call for biodiversity conservation organisations** to work across sectors so that all people, equitably and inclusively, experience the diverse benefits of connectedness with nature.



## Recommendations for Research

As research and programming in this field continue to grow, well-designed and rigorous research is needed to inform both policy and practice. So too is conscious attention to the wisdom still available today from Indigenous people, especially about how to connect with and learn from nature over time.

### Recommendations for research are:

- The evidence is strongest that **childhood experiences** are key to fostering connectedness with nature and care for the Earth. Research is required to clarify the kinds of experiences that contribute to connectedness for adults.
- The evidence overwhelmingly indicates that **positive feelings for nature are critically important** to care for the Earth and suggests that meaningful nature-based experiences can occur in a variety of places, including cities. There is a need to better understand the influence of location, duration and frequency of nature experiences.
- Studies that look at the **connections between nature-based experiences and human tendencies to connect with nature**, including actions undertaken to benefit it, tend to be based on correlations. Cause and effect relationships are difficult to assess. Longitudinal studies—those that follow people over long periods of time—are rare, and needed.
- In some studies, **adults are asked to look backwards in time to remember and describe what life experiences led to their behaviours to benefit nature**. This provides a helpful, while limited, base of understanding. Future research that monitors and evaluates the impact of lifestyles, programming and experiences that are implemented specifically to increase care for nature would go a long way towards filling this gap.

# References

1. Richardson, M., Maspero, M., Golightly, D., Sheffield, D., Staples, V., & Lumber, R. (2017). Nature: a new paradigm for well-being and ergonomics. *Ergonomics* 60(2): 292-305.
2. Chawla, L., & Litt, J. (2013). *Improving Health and Wellness through Access to Nature*. Policy No. 20137. Washington DC: American Public Health Association.
3. Louv, R. (2012). *The nature principle: Reconnecting with life in a virtual age*. Chapel Hill, NC: Algonquin Books. 352p.
4. Charles, C. & Wheeler, K. (2012). Children & nature worldwide: An exploration of children's experiences of the outdoors and nature with associated risks and benefits. Minneapolis: Children & Nature Network.
5. Charles, C. & Senauer-Loge, A. (2010). *Health benefits to children from contact with the outdoors & nature*. Minneapolis: Children & Nature Network.
6. Kuo, F. (2010). *Parks and other green environments: Essential components of a healthy human habitat*. Washington D.C.: National Recreation and Park Association.
7. Louv, R. (2008, 2005). *Last child in the woods: Saving our children from nature-deficit disorder*. Chapel Hill, NC: Algonquin Books. 323p.
8. Charles et al. (2018). *Home to us all: How connecting with nature helps us care for ourselves and the earth*. Minneapolis: Children & Nature Network.
9. World Health Organization; Secretariat of the Convention on Biological Diversity. (2015). *Connecting global priorities: Biodiversity and human health: A state of knowledge report*. World Health Organization Publications. Switzerland. 344p. <https://www.cbd.int/health/SOK-biodiversity-en.pdf>.
10. Alberta Recreation and Parks Association. (2010). *Healthy by nature: Investing in community parks, open space and nature education*. Edmonton, Alberta: Alberta Recreation and Parks Association. 102 p. <http://s3.arpaonline.ca/docs/Healthy-by-Nature.pdf>
11. World Tourism Organization; United Nations Development Programme. (2017). *Tourism and the sustainable development goals: Journey to 2030*. UNWTO. Madrid. 114p. <https://www.e-unwto.org/doi/pdf/10.18111/9789284419401>
12. D'Amore, C.; & Chawla, L. (In Press). Significant life experiences that connect children with nature: A research review and applications to a family nature club. In Amy Cutter-Mackenzie, A.; Malone, K; & Hacking, E.B. (Eds.) *International Research Handbook on ChildhoodNature*. Melbourne: Springer.
13. Charles, C.; & Louv, R. (2018, In Press). Wild hope: The transformative power of children engaging with nature. In In Cutter-Mackenzie, A.; Malone, K.; & Hacking, E. (Eds.) *International research handbook on ChildhoodNature: Assemblages of childhood and nature research*. New York: Springer.
14. D'Amore, C.; & Chawla, L. (2017). Many children in the woods: Applying principles of community-based social marketing to a family nature club. *Ecopsychology* 9(4).
15. Hsu, S-H. (2017). Significant life experiences affect environmental action: A critical review of Taiwanese research. *Japanese Journal of Environmental Education* 26(4): 51-56.
16. Broom, C. (2017). Exploring the relations between childhood experiences in nature and young adults' environmental attitudes and behaviors. *Australian Journal of Environmental Education* 33(1).
17. Chawla, L.; & Derr, V. (2012). The development of conservation behaviors in childhood and youth. In Clayton, C. (Ed): *The Oxford Handbook of Environmental and Conservation Psychology*.
18. Chawla, L., (2009). Growing up green: Becoming an agent of care for the natural world. *Journal of Developmental Processes* 4(1): 6-23.
19. Chawla, L.; & Cushing, D.F. (2007) Education for strategic environmental behavior. *Environmental Education Research* 13(4): 437-452.
20. Wells, N.M.; & Lekies, K.S. (2006). Nature and the life course: Pathways from childhood nature experiences to adult environmentalism. *Children, Youth and Environments* 16(1): 1-24.
21. Kals, E.; Schumacher, D.; Montada, L. (1999). Emotional affinity toward nature as a motivational basis to protect nature. *Environment and Behavior* 31(2): 178-202.
22. Chawla, L. (1998). Significant life experiences revisited: A review of research on sources of environmental sensitivity. *Journal of Environmental Education* 29: 11-21.
23. Tanner, T. (1980). Significant life experiences: A new research area in environmental education. Retrieved at <http://www.tandfonline.com/doi/abs/10.1080/00958964.1980.9941386>
24. Richardson, M., McEwan, K., Maratos, F. & Sheffield, D. (2016). Joy and calm: How an evolutionary functional model of affect regulation informs positive emotions in nature. *Evolutionary Psychological Science*. Doi:10.1007/s40806-016-0065-5
25. Townsend, M.; Henderson-Wilson, C.; Warner, E.; & Weiss, L. (2015). *Healthy parks, healthy people: The state of the evidence 2015*. Deakin University.
26. Zelenski, J. M.; Dopko, R. L.; & Capaldi, C. A. (2015). Cooperation is in our nature: Nature exposure may promote cooperative and environmentally sustainable behavior. *Journal of Environmental Psychology* 42: 24-31.
27. D'Amore, C. (2015). Family nature clubs: Creating the conditions for social and environmental connection and care. *Ann Arbor: Proquest LLC*.
28. D'Amore, C.; Charles, C.; & Louv, R. (2015). *Thriving through nature: Fostering children's executive function skills*. Minneapolis: Children & Nature Network.
29. St. Antoine, S.; Charles, C.; & Louv, R. (2012). *Together in nature: Pathways to a stronger, closer family*. Children & Nature Network.
30. Tonge, J.; Ryan, M.M.; Moore, S.A.; & Beckley, L.E. (2015). The effect of place attachment on pro-environment behavioural intentions of visitors to coastal natural area tourist destinations. *Journal of Travel Research* 54(6): 730-743.
31. Ramkissoon, H.; Smith, L.D.G.; & Weiler, B. (2013). Testing the dimensionality of place attachment and its relationships with place satisfaction and pro-environmental behaviours: a structural equation modelling approach. *Tourism Management* 36: 552-566.
32. Halpenny, E. (2010). Pro-environmental behaviours and park visitors: the effect of place attachment. *Journal of Environmental Psychology* 30: 409-421.
33. Stedman, R.C. (2002). Toward a social psychology of place. Predicting behaviour from place-based cognitions, attitude and identity. *Environment and Behavior* 34(5): 561-581.
34. Vaske, J.J.; Kobrin, K.C. (2001). Place attachment and environmentally responsible behaviour. *Journal of Environmental Education* 32(4): 16-21.
35. Klöckner, C.A. (2013). A comprehensive model of the psychology of environmental behaviour: A meta-analysis. *Global Environmental Change* 23(50): 1028-1038.
36. Bamberg, S., & Möser, G. (2006). Twenty years after Hines, Hungerford, and Tomera: A new meta-analysis of psycho-social determinants of pro-environmental behaviour. *Journal of Environmental Psychology* 27:14-25.
37. Monroe, M. (2003). Two avenues for encouraging conservation behaviors. *Human Ecology Review* 10(2).
38. Stern, P.C. (2000). Toward a coherent theory of environmentally significant behaviour. *Society for the Psychological Study of Social Issues* 56 (3): 407-424.
39. Hungerford, H. R., & Volk, T. L. (1990). Changing learner behavior through environmental education. *Journal of Environmental Education* 21: 8-22.
40. Ajzen, I. (1991). The theory of planned behaviour. *Organizational Behavior and Human Decision Processes* 50: 179-211.
41. Schwartz, S. H. (1977). Normative influences on altruism. Pp. 221-279 in L. Berkowitz (Ed.): *Advances in experimental social psychology*. San Diego: Academic Press.



42. Beery, T.H. (2013). Nordic in nature: friluftsliv and environmental connectedness. *Environmental Education Research* 19(1): 94-117.
43. Goralnik, L.; Nelson, M.P. (2011). Framing a philosophy of environmental action: Aldo Leopold, John Muir, and the importance of community. *Journal of Environmental Education* 42(3): 181-192.
44. Hinds, J.; Sparks, P. (2009). Investigating environmental identity, wellbeing and meaning. *Ecopsychology* 1(4): 181-186.
45. Schultz, P.W. (2002). Inclusion with nature: the psychology of human-nature relations. Pp. 61-78 in Schmuck, P.; Schultz, P.W. (Eds): *Psychology of sustainable development*. Springer US, New York. 337 p.
46. Otto, S.; & Pensini, P. (2017). Nature-based environmental education of children: Environmental knowledge and connectedness to nature, together, are related to ecological behavior. *Global Environmental Change* 47: 88-94.
47. Braun, T., & Dierkes, P. (2017). Connecting students to nature: How intensity of nature experience and student age influence the success of outdoor education programmes. *Environmental Education Research* 23(7): 937-949.
48. Wright, P.; & Matthews, C. (2015). Building a culture of conservation: research findings and research priorities on connecting people to nature in parks. *Parks Journal* 21 (2): 11-24.
49. Zylstra, M.J., Knight, A.T., Esler, K.J., Le Grange, L.L.L. (2014). Connectedness as a core conservation concern: An interdisciplinary review of theory and a call for practice. *Springer Science Reviews* 2(1): 119-143.
50. Mayer, F.S.; & Frantz, C.M. (2004). The connectedness to nature scale: a measure of individuals' feeling in community with nature. *Journal of Environmental Psychology* 24: 503-515.
51. Greffrath, G.; Meyer, C.; Strydom, H.; & Ellis, S. (2011). Centre-based and expedition-based (wilderness) adventure experiential learning personal effectiveness: an explorative enquiry. *Leisure Studies* 30(3): 345-364.
52. Strong, WB; Maline, R; Blimkie, C; Daniels, S; Dishman, R; Gutin, B; et al. (2005). Evidence-based physical activity for school-aged youth. *J Pediatr* 146 (6):732-7.
53. Bingley, A. & Milligan, C. (2004). Climbing trees and building dens: Mental health and well-being in young adults and the long-term experience of childhood play experience. London, UK: Lancaster University, Institute for Health Research. 80p.
54. Korpela, K.; Kytta, M.; & Hartig, T. (2002). Restorative experience, self-regulation, and children's special place preferences. *Journal of Environmental Psychology* 22: 387-398.
55. Li, D; & Sullivan, W. (2016). Impact of views to school landscapes on recovery from stress and mental fatigue. *Landscape and Urban Planning* 148: 149-158.
56. Wu, C.-D.; McNeely, E.; Cedeno-Laurent, J.; Pan, W.-C.; Adamkiewicz, G.; Dominici, F.; et al. (2014). Linking student performance in Massachusetts elementary schools with the "greenness" of school surroundings using remote sensing. *PLoS ONE* 9(10): e108548
57. Matsuoka, R. H. (2010). Student performance and high school landscapes: Examining the links. *Landscape and Urban Planning* 97(4): 273-282.
58. Project Dirt. (2018). The impact of outdoor learning and playtime at school—and beyond: A summary of the survey findings conducted for Outdoor Classroom Day 2018. <https://outdoorclassroomday.com/wp-content/uploads/2018/05/FINAL-Project-Dirt-Survey-Outdoor-Play-and-Learning-at-School-2018-15.05.18.pdf>
59. Barton, J.; Sandercock, G.; Pretty, J.; & Wood, C. (2014). The effect of playground and nature-based playtime interventions on physical activity and self-esteem in UK school children. *International Journal of Environmental Health Research* 1-11.
60. McCurdy, L. E.; Winterbottom, K. E.; Mehta, S. S.; & Roberts, J. R. (2010). Using nature and outdoor activity to improve children's health. *Current Problems in Pediatric and Adolescent Health Care* 40(5): 102-117.
61. World Health Organization. (2004). Global strategy on diet, physical activity and health: What can be done to fight the childhood obesity epidemic? [http://www.who.int/dietphysicalactivity/childhood\\_what\\_can\\_be\\_done/en/](http://www.who.int/dietphysicalactivity/childhood_what_can_be_done/en/)
62. Piccininni, C.; Michaelson, V.; Janssen, I.; & Pickett, W. (2018). Outdoor play and nature connectedness as potential correlates of internalized mental health symptoms among Canadian adolescents. *Preventive Medicine* 112: 168-175.
63. Becker, C., Lauterbach, G., Spengler, S., Dettweiler, U., & Mess, F. (2017). Effects of regular classes in outdoor education settings: A systematic review on students' learning, social and health dimensions. *International Journal of Environmental Research and Public Health*, 14.
64. Kellert, S.R.; Case, D.J.; Escher, D.; Witter, D.J.; Mikels-Carrasco, J.; & Seng, P.T. (2017). *The Nature of Americans: Disconnections and Recommendations for Reconnection National Report*. [NatureofAmericans.org](http://NatureofAmericans.org)
65. Chawla, L. (2006). "Learning to Love the Natural World Enough to Protect It," in *Barn* nr. 2 2006:57-58. Norsk senter for barneforskning.
66. Children & Nature Network (2014). *Nature clubs for families toolkit*. Children & Nature Network.
67. Gladwell, V.; Brown, D.; Wood, C.; Sandercock, G; & Barton, J. (2013). The great outdoors: How a green exercise environment can benefit all. *Extreme Physiology & Medicine* 2.3.
68. Tsunetsugu, Y.; Park, B.; & Miyazaki, Y. (2010). Trends in research related to "Shinrin yoku" (taking in the forest atmosphere or forest bathing) in Japan. *Environmental Health and Preventive Medicine* 15: 27-37.
69. Pretty, J.; Peacock, J.; Sellens, M.; & Griffin, M. (2005). The mental and physical health outcomes of green exercise. *International Journal of Environmental Health Research* 15(5): 319-337.
70. Kaplan, R.; & Kaplan, S. (1989). *The Experience of nature: A psychological perspective*. Cambridge, NY: Cambridge University Press. 360p.
71. Chawla, L., (2015). Benefits of nature contact for children. *Journal of Planning Literature*, 30(4), 433-452.
72. Peacock, J.; Hine, R.; & Pretty, J. (2007). Got the blues, then find some greenspace: The mental health benefits of green exercise activities and green Ccre. *Mind Report* 1.0, Feb.
73. Mooney, P.; & Nicell, P. (1992.) The importance of exterior environments for Alzheimer residents: Effective care and risk management. *Healthcare Management Forum* 5(2): 23-29.
74. Maller, C.; Townsend, M.; Pryor, A.; Brown, P.; & St Leger, S. (2005). Healthy nature healthy people: Contact with nature as an upstream health promotion intervention for populations. *Health Promotion International* 21(1): 45-54.
75. Ulrich, R. (1984). View through a window may influence recovery from surgery. *Science* 224: 420-421.
76. Faculty of Public Health and Natural England. (2010). *Great outdoors: How our natural health service uses green space to improve wellbeing*. Briefing Statement. <http://www.champspublichealth.com/writedir/9ee3FPH%20green%20space%20briefing.pdf>
77. Faber-Taylor, A.; & Kuo, F. (2009). Children with attention deficits concentrate better after walk in the park. *Journal of Attention Disorders* 12(5): 402-409.
78. Faber-Taylor, A.; Kuo, F.; & Sullivan, W. (2001). Coping with ADD: The surprising connection to green play settings. *Environment and Behavior* 33: 54-77.
79. Wang, G.; Macera, CA.; Scudder-Soucie, B.; Schmid, T.; Pratt, M.; Buchner, D. (2005). A cost-benefit analysis of physical activity using bike/pedestrian trails. *Health Promot Pract.* 6:174-179.
80. Giusti et al. (2018). "A Framework to Assess Where and How Children Connect to Nature." *Frontiers in Psychology* 8 (January). <https://doi.org/10.3389/fpsyg.2017.02283>
81. Richardson, M., Hallam, J. & Lumber, R. (2015). One thousand good things in nature: The aspects of nature that lead to increased nature connectedness. *Environmental Values* 24 (5): 603-619.

82. Outdoor Foundation. (2018). Outdoor participation report. Washington, D.C.: The Outdoor Foundation. 45p.
83. Pritchard, A.; Richardson, M.; Sheffield, D. & McEwan, K. (2018, In press.) The Relationships between nature connectedness and eudaimonic wellbeing: a meta-analysis. *Journal of Environmental Psychology*.
84. Weinstein, N.; Przybylski, A.; & Ryan, R. (2009). Can nature make us more caring? Effects of immersion in nature on intrinsic aspirations and generosity. *Personality and Social Psychology Bulletin* 35: 1315-1329.
85. Stellar, J.E.; Gordon, A.M.; Piff, P.K.; Cordaro, D.; Anderson C.L.; Bai, Y. Maruskin, L.A.; Keltner. (2017). Self-transcendent emotions and their social functions: Compassion, gratitude and awe bind us to others through prosociality. *Sage Journals* 9(3).
86. Piff, P.K.; Dietze, P.; Feinberg, M.; Stancato, D.M.; Keltner, D. (2015). Awe, the Small Self, and Prosocial Behavior. *Journal of Personal Social Psychology*, 108(6): 883-99.
87. Kuo, F.; & Sullivan, W. (2001). Aggression and violence in the inner city: Effects of environment via mental fatigue. *Environment and Behavior* 33(4): 543-571.
88. Kuo, F.; Sullivan, W.; Coley, R.; & Brunson, L. (1998). Fertile ground for community: Inner-city neighborhood common spaces. *American Journal of Community Psychology* 26(6): 823-851.
89. Kondo, M.; Hohl, B.; Han, S.; & Branas, C. (2016). Effects of greening and community reuse of vacant lots on crime. *Urban Studies* 53(15): 3279-3295.
90. Scopelliti, M., Carrus, G., Adinolfi, C., Suarez, G., Colangelo, G., Laforzezza, R., et al. (2016). Staying in touch with nature and well-being in different income groups: the experience of urban parks in Bogotá. *Landscape and Urban Planning* 148: 139-148.
91. World Health Organization. (2017) Preventing non-communicable diseases (NCDs) by reducing environmental risk factors. World Health Organization. <http://apps.who.int/iris/bitstream/handle/10665/258796/WHO-FWC-EPE-17.01-eng.pdf?sequence=1>
92. Lin, B.; Fuller, R.; Bush, R.; Gaston, K. (2014). Opportunity or orientation? Who uses urban parks and why. *PLoS ONE*. <https://doi.org/10.1371/journal.pone.0087422>
93. Urban Land Institute. (2018). Parks for everyone: ULI gets behind the 10-minute walk campaign. <https://americas.uli.org/research/centers-initiatives/10-minute-walk-campaign/>
94. Center for Responsible Travel. (2016). The case for responsible travel: Trends & statistics 2016. [https://www.responsibletravel.org/whatWeDo/The\\_Case\\_for\\_Responsible\\_Travel\\_2016\\_Final\\_UPDATED.pdf](https://www.responsibletravel.org/whatWeDo/The_Case_for_Responsible_Travel_2016_Final_UPDATED.pdf)
95. Christie, I.; Fernandes, E.; Messerli, H.; & Twining-Ward, L. (2014) Tourism in Africa: Harnessing tourism for growth and improved livelihoods. Washington, DC: World Bank. 12pp. <https://www.worldbank.org/content/dam/Worldbank/document/Africa/Report/africa-tourism-report-2013-overview.pdf>
96. Parks Canada. (2014). Connecting Canadians with Nature: An investment in the well-being of our citizens. Ottawa, ON: Parks Canada. 36p.
97. Bureau for Economic Analysis. (2018). Outdoor recreation satellite account, prototype estimates, 2012-2016. <https://www.bea.gov/data/special-topics/outdoor-recreation>
98. Sherer, P. (2006). Why America needs more city parks and open space. San Francisco: The Trust for Public Land. 33p. [http://www.eastshorepark.org/benefits\\_of\\_parks%20tpl.pdf](http://www.eastshorepark.org/benefits_of_parks%20tpl.pdf)
99. Luther, M. and Gruehn, D. (2001). Putting a price on urban green spaces. *Landscape Design* 30(3): 23-25.
100. Oh, C.; Ditton, R.B. 2008: Using recreation specialization to understand conservation support. *Journal of Leisure Research* 40(4): 556-573.
101. Thapa, B.; Graefe, A.R.; & Meyer, L.A. (2006). Specialization and marine based environmental behaviours among SCUBA divers. *Journal of Leisure Research* 38(4): 601-615.
102. Cheung, L.T.; Lo, A. Y.; Fok, L. (2017). Recreational specialization and ecologically responsible behaviour of Chinese birdwatchers in Hong Kong. *Journal of Sustainable Tourism* 25: 817-831.
103. Hvenegaard, G.T. (2002). Birder specialization differences in conservation involvement, demographics, and motivations. *Human Dimensions of Wildlife* 7: 21-36.
104. McFarlane, B.L.; & Boxall, P.C. (1996). Participation in wildlife conservation by birdwatchers. *Human Dimensions of Wildlife* 1(3): 1-14.
105. Thapa, B. (2010). The mediation effect of outdoor recreation participation on environmental attitude-behavior correspondence. *Journal of Environmental Education* 41(3): 133-150.
106. Tarrant, M.A.; & Green, G.T. (1999). Outdoor recreation and the predictive validity of environmental attitudes. *Leisure Sciences* 21: 17-30.
107. Manfredo, M.J.; Yuan, S.M.; & McGuire, F.A. (1992). The influence of attitude accessibility on attitude-behavior relationships: implications for recreation research. *Journal of Leisure Research* 24(2): 157-170.
108. Hartig, T.; Mitchell, R.; de Vries, S.; & Frumkin, H. (2014). Nature and health. *Annual Review of Public Health* 35: 207-228.
109. Dudley, N.; Ali, N.; MacKinnon, K. (2017). Natural solutions: Protected areas helping to meet sustainable development goals. IUCN World Commission on Protected Areas Briefing Note. [https://www.iucn.org/sites/dev/files/natural\\_solutions\\_-\\_sdgs\\_final\\_2.pdf](https://www.iucn.org/sites/dev/files/natural_solutions_-_sdgs_final_2.pdf)
110. Parks Canada. (2017). Government of Canada announces free admission to Parks Canada places for youth 17 and under starting in 2018. <https://www.newswire.ca/news-releases/government-of-canada-announces-free-admission-to-parks-canada-places-for-youth-17-and-under-starting-in-2018-661055323.html>
111. International Union for Conservation of Nature. (2017). Sport and biodiversity. Gland: IUCN. <https://portals.iucn.org/library/sites/library/files/documents/2018-001-En.pdf>
112. United Nations. (2017). World urbanization prospects: the 2018 revision. United Nations, Department of Economic and Social Affairs, Population Division. New York. <https://population.un.org/wup/>
113. Tam, K. P. (2013). Concepts and measures related to connection to nature: Similarities and differences. *Journal of Environmental Psychology* 34: 64-78.
114. Nisbet, E. K., Zelenski, J. M., & Murphy, S.A. (2009). The nature relatedness scale: Linking individuals' connection with nature to environmental concern and behavior. *Environment and Behavior* 41 : 715-740.
115. Cowie, L.J.; Greaves, L.M.; Milfont, T.L.; Houkamau, C.A.; Sibley, C.G. (2016). Indigenous identity and environmental values: do spirituality and political consciousness predict environmental regard among Māori? *International Perspectives in Psychology: Research, Practice, Consultation* 5(4): 228-244.
116. Panelli, R.; Tipa, G. (2007). Placing well-being: a Māori case study of cultural and environmental specificity. *EcoHealth* 4: 445-460.
117. Gammage, Bill. (2011). The biggest estate on earth: how Aborigines made Australia. Allen & Unwin. ISBN 978-1-74237-748-3
118. Hall, Gerard, and Joan Hendriks, eds. (2012). *Dreaming a new earth*. Melbourne, VIC: Mosaic Press.
119. Cayón, L. (2008). Ide ma: The path of water space, shamanism and person among the Makuna. *Antipoda: Journal of Anthropology and Archeology* 7: 141-173.
120. Kwaymullina, A. (2005). Seeing the Light: Aboriginal Law, Learning and Sustainable Living in Country. *Indigenous Law Bulletin* 12.



# The Story of the Lost Girl:

Many Indigenous peoples understand that humans are not separate from the rest of nature. All are one. When humans think about how to care for the Earth, we must begin with the recognition that we ARE nature, we are of the Earth, all beings are connected, and we are one. The symbiotic relationship with country is told in many stories, one of which is the story of the lost girl retold by Kwaymullina:



The girl had lost her way. She had wandered far from the Mothers, the Aunties and the Grandmothers, from the Fathers and the Uncles and the Grandfathers. She had hidden in the shadow of a rock, and fallen asleep while she waited for her brothers and sisters to find her. Now it was night, and no one answered when she called, and she could not find her way back to camp. The girl wandered, alone. She grew thirsty, so she stopped by a waterhole to drink, and then hungry, so she picked some berries from a bush. Then the night grew colder, so she huddled beneath an overhanging rock, pressing herself into a hollow that had trapped the warm air of the day. Finally she saw a crow flying in the moonlight, flapping from tree to tree and calling 'Kaw! Kaw! Kaw!' The girl followed the crow. She followed him through the trees and over the rocks and up the hills, until at last she saw the glow of her people's campfires in the distance. The people laughed and cried at once to see that the girl was safe. They growled at her for her foolishness, and cuddled her, and gave her a place by the fire. Her little brother asked her if she had been afraid; but the girl said—'How could I be frightened? I was with my Mother. When I was thirsty, she gave me water; when I was hungry, she fed me; when I was cold, she warmed me. And when I was lost, she showed me the way home.'<sup>120</sup>

Editorial credit: LittlePanda29 / Shutterstock.com



#NATURE  
FOR ALL

children & nature  
NETWORK



Parks  
Canada

Parcs  
Canada

Ontario  
Trillium  
Foundation



Fondation  
Trillium  
de l'Ontario

An agency of the Government of Ontario  
Un organisme du gouvernement de l'Ontario