

The U.S. National Nature Sacred Awards Open Spaces, Sacred Places

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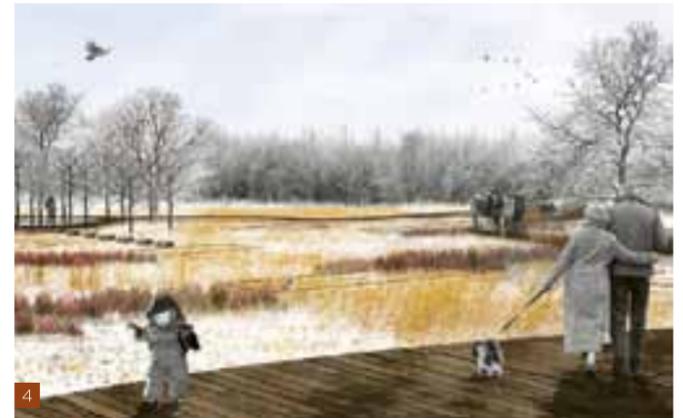


Sponsored by the US-based TKF Foundation, Nature Sacred funds and partners with organisations to create publicly accessible urban green spaces, called "Open Spaces Sacred Places". In 2010, the TKF Foundation launched the National Nature Sacred Awards. Following a round of planning grants, six final projects were awarded in January 2013. This one-time funding programme is an initiative to integrate design and research to provide evidence about the benefits that people gain from nearby nature experiences in cities. The call for proposals generated great enthusiasm; more than 140 planning grant proposals and more than 40 final project proposals were submitted. Each attempted to blend design to serve a situation of human need with research to create new knowledge.

Co-founded by Kitty and Tom Stoner, the foundation has contributed to the creation of over 130 Open Spaces Sacred Places in the past 15 years. These spaces and gardens are located within the corridor

from Baltimore to Washington D.C., placed at schools, hospitals, places of worship, prisons, and within neighbourhoods. They have been designed and constructed based on the foundation's mission: to provide opportunity for a deeper human experience within carefully crafted public green spaces that offer temporary sanctuary, encourage reflection, provide solace, and engender peace and well-being. Every sacred place provides a bench for a comfortable place to sit and reflect.

Past research has described the benefits of brief encounters with nature in places near where people live, work, learn, and play. Generally, some benefits are immediate when one encounters nature, such as stress reduction. Other benefits continue after one leaves a nature space, such as improved mental function. Finally, some benefits are shared by a group of people who have come together to build or enjoy a nature space, such as improved social capital in a neighbourhood.



Sacred, Healing, and Science

A sense of the sacred has been a part of human experiences of nature for a very long time. While bold, dramatic landscapes may command attention and inspire, the TKF Foundation maintains that brief everyday experiences offer respite from today's busy lifestyles. Taking a few moments away from life's demands in a moment of respite and contemplation in nature can improve our physical, emotional, and social well-being. The experience of nature, even briefly, can introduce a state of mindfulness that helps us sort out ideas, challenges, and prepare for what needs to be done.

More importantly, certain people at certain times face exceptional health and wellness challenges. Prior research hints at the likelihood that the experience of nature offers therapeutic and healing qualities. The projects awarded by Nature Sacred will explore a set of specific situations, but include circumstances that millions of people often encounter in

their lives. These projects will help people understand the need for quality, widely accessible and nearby nature in their communities.

This grant programme is unusual in that each project integrates landscape design and empirical research. Each project will combine the creation of tranquil, restorative spaces in urban environments with the rigorous study of their impact on users' well-being and resilience. Peer-reviewed articles will report how these urban green places contribute to the health and spirituality of people in cities. The physical project sites and peer-reviewed publication are expected to be completed by December 2015 and January 2018 respectively. Located across the United States, the six projects will address human challenges by creating opportunities for recovery, wholeness, and celebration.

For more information: naturesacred.org.

1. The TKF Foundation has placed a bench and journal in every funded Open Space Sacred Space (Photo: TKF Foundation).

2. Open Spaces Sacred Spaces are small settings nearby nature where people can find temporary sanctuary and solace (Photo: TKF Foundation).

3. A Nature Place: The healing garden at Legacy Emanuel Medical Center serves women in labour, patients of an intensive care unit, their loved ones, and hospital staff (Photo: Legacy Health).

4. Naval Cemetery Landscape: Raised walkways allow pedestrian access throughout the site as soil disturbance is not allowed in this former cemetery (Image: Nelson Byrd Woltz Landscape Architects).

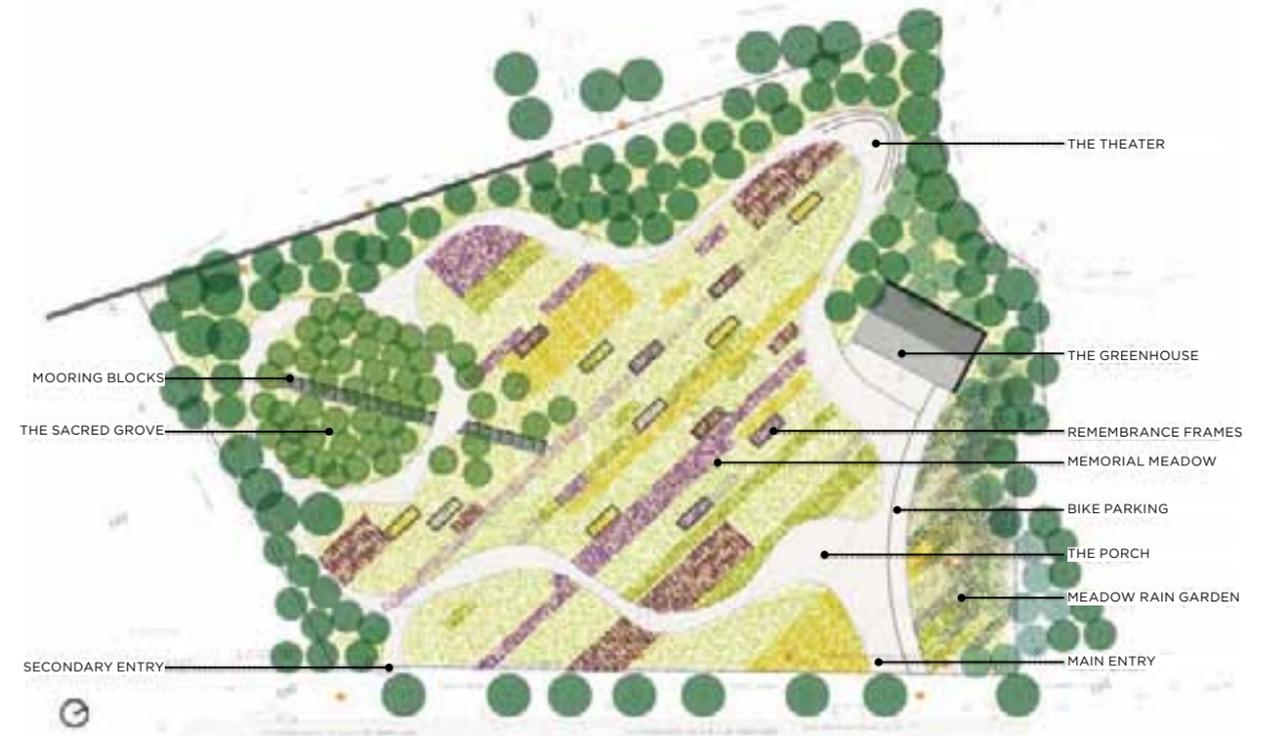
5. Landscapes of Resilience: The garden design at Joplin celebrates small miracles and tales of "butterfly people" seen during the 2011 tornado (Photo: Drury University).

6. The Green Road will be a half-mile path for wheelchairs and walking nestled within a 1.5 acre wooded ravine (Photo: Fred Foote).



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A Nature Place: Legacy Emanuel Medical Center's healing garden is designed with various features to serve the diverse needs of patients and their loved ones (Image: Quatrefoil, Inc.)



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Naval Cemetery Landscape: Plan for the upcoming Navy Yard Hospital Memorial Landscape in Brooklyn (Image: Nelson Byrd Woltz Landscape Architects)

SIX NATIONAL NATURE SACRED AWARD RECIPIENTS

1. The Elements of Restorative Nature Experiences

award recipient University of Chicago (Department of Psychology), University of Michigan (Department of Psychology and School of Natural Resources and the Environment), David Suzuki Foundation, Ohio State University, and Sustainable Sites Initiative

Extensive scientific evidence shows that visual encounters with nature improve human health outcomes and cognitive functioning. Yet the missing link is the causal explanation, that is, why do these effects occur? This project aims to determine what it is about nature that has such tremendous effects on our brains and our health, and then create guidelines for the future design of natural spaces.

No new garden will be built. Instead, study participants are being shown images of different design elements from many of the existing open green spaces by the TKF

Foundation. Using various image analytics, pictures of the gardens will be distilled to fundamental characteristics, such a colour and hue, visual sub-units, amount of edge, and visual anchors within the scene. The impact of these design elements will then be measured using a combination of functional magnetic resonance imaging (fMRI) of the brain, stress hormone indicators, and stated health.

The research team includes investigators from the University of Chicago and University of Michigan, working with professors at other U.S. universities and several non-profits. The award gives the team the opportunity to study and evaluate the positive benefits of nature in a quantitative way. Results can help inform the future design of natural spaces in urban areas.

2. A Green Space a Day

award recipient Frances E. Kuo and University of Illinois at Urban-Champaign (Landscape and Human Health Laboratory)

Is there a recommended daily intake of

nature that is vital to human health and immune functioning? Should we consume nature regularly, much like we consume certain vitamins and minerals? Immune functioning—which can be greatly impacted by stress—has far-reaching implications for individual health, chronic disease, and health care costs. Research in Japan and the Netherlands has linked being in nature with healthy immune response. This project will help determine what it is about nature that improves immune functioning and reduces stress for urban dwellers.

No new gardens will be built. Scientists at the Landscape and Human Health Laboratory at the University of Illinois, Urbana-Champaign, will study existing green spaces created by the TKF Foundation and its partners in the Mid-Atlantic region to pinpoint which design features may improve a person's immune system. This research will specifically examine the impact of nature on populations under challenging life circumstances: low-income populations who are exposed to long-term stress; biologically immune-compromised chemotherapy patients; and individuals with robust immune systems.

The results of this research could have far-reaching implications for a variety of expensive and debilitating health issues, such as cancer and heart disease. Nature may prove to be a low-cost way to prevent and treat illnesses.

3. A Nature Place

award recipient Legacy Health, Legacy Emanuel Medical Center, Quatrefoil, Inc., March of Dimes, Emanuel Medical Center Foundation, Legacy Research Institute, Pacific University, and Roger S. Ulrich
location Portland, Oregon

Legacy Health is combining its traditional medical expertise with the healing power of open green spaces to create a four-season healing garden at the Legacy Emanuel Medical Center in Portland, Oregon. The new garden is adjacent to both the Family Birth Center and Cardiovascular Care Unit. Patients and their families can enter the garden and receive respite from the demands of a loved one's illness or hospital stay.

Designed by the firm Quatrefoil, Inc., the garden was completed in April 2014.

Overlooking a children's garden that was built earlier, the healing garden replaces an underused hardscape terrace built in the 1970s. The garden design gives patients a much-needed place that speaks to their psychological, physical, and spiritual needs. Special design features make sure that less-mobile patients—such as pregnant women on bed rest and patients with reduced mobility—can spend time outside.

Quatrefoil worked closely with physicians and social scientists to create a setting that also provides opportunities to study and quantify the benefits that open green spaces can have on patients, their families, and health care professionals. This is the first time that Legacy Research Institute will study the intersection of nature and health care. Research has begun, with plans to publish results in late 2015.

Legacy has planned three separate studies, in which participants will be randomly assigned, or invited, to experience the garden. The first is a birthing study of women with full-term, low-risk pregnancies; measures will monitor the stress levels

and heart rates of both mothers and their babies during labour and delivery. The second study will look at family members of long-staying patients at the hospital's intensive care unit (ICU). Researchers will analyse how the healing spaces can help people cope while their loved ones face life-threatening conditions. The third study will analyse how nurses can be affected by the new garden by tracking their moods, job attendance, and a variety of health factors.

4. Naval Cemetery Landscape

award recipient Brooklyn Greenway Initiative, Brooklyn Navy Yard, Horticultural Society of New York, Green School (Brooklyn), Nelson Byrd Woltz Landscape Architects, Brooklyn Community Housing Services, and Langer Research Associates
location Brooklyn, New York City

This project site was once used as the final resting place for 2,000 U.S. marines and navy crew. It is being transformed as part of a larger plan by the Brooklyn Greenway Initiative (BGI), which is developing unused space around the Brooklyn Navy Yard into a lush waterfront. The 1.7-acre former



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Landscapes of Resilience: Plan of the Butterfly Garden and Overlook at Cunningham Park in Joplin, Missouri (Image: Drury University)

naval cemetery will become the Navy Yard Hospital Memorial Landscape, a meadow of native plants with raised pedestrian walkways, designed by Nelson Byrd Woltz and Rogers Marvel Architects.

The bodies of sailors were transferred nearly a century ago, but BGI worked to create an outdoor environment that honours the site's history. Pedestrians will move through the park on raised wooden walkways that will hover over a meadow of indigenous New York species. The landscape of native plants will welcome pollinators such as bees, moths, and butterflies. The former graves will be outlined with elevated, illuminated steel frames. As the meadow grows, the new ecological system will thrive.

Researchers at the BGI have partnered with The Green School of East Williamsburg and Brooklyn Community Housing and Services (BCHS) to study the effects of nature on stressed communities. Using the open space and eco-meadow as a laboratory, ninth-grade students at the new Green School are learning about soil science, hydrology and biology. The project will also engage BCHS residents in on-site programmes run

by the Horticultural Society of New York, encouraging them to interact with the nature available in their community.

Researchers will evaluate both groups throughout the lifetime of the project, measuring their reaction and response to the natural space as it develops. The primary objective is to evaluate how exposure to a nearby natural site impacts people's engagement with their surroundings, society, and school. Construction will start in 2015, and research will continue beyond the site development phase.

5. Landscapes of Resilience

award recipient City of Joplin Parks and Recreation, Cornell University (Civic Ecology Lab), Drury University (Hammons School of Architecture), Forest Releaf of Missouri, Great River Associates, Missouri Department of Conservation, TILL Design, and USDA Forest Service Northern Research Station

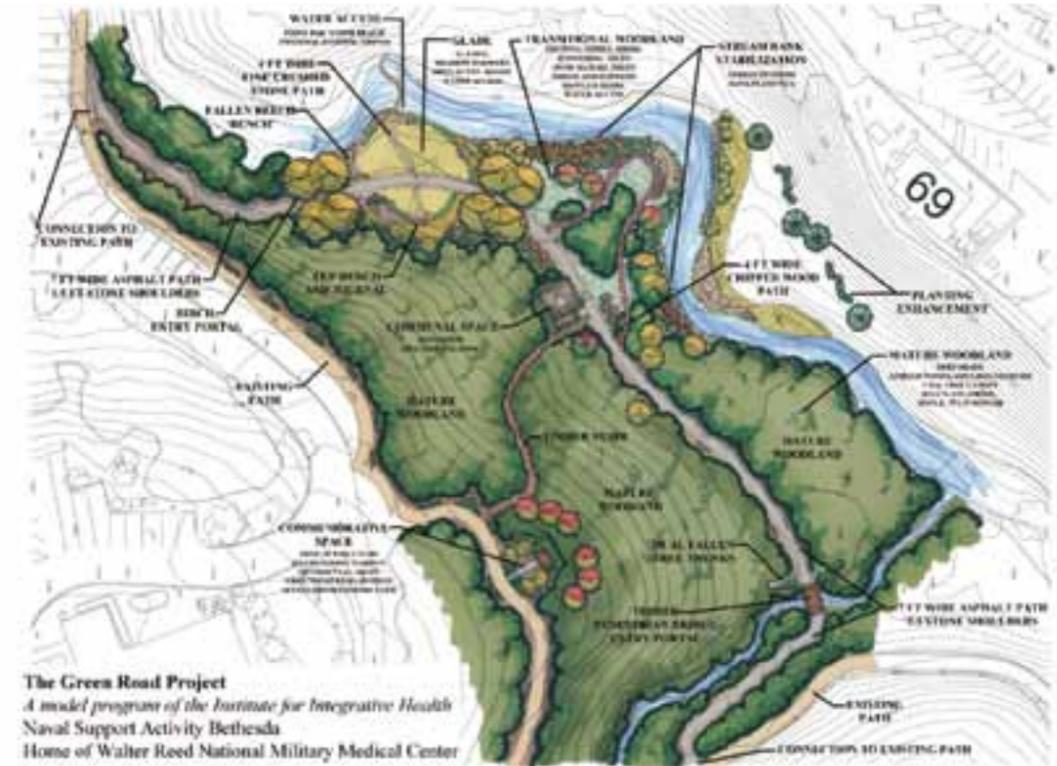
location Joplin in Missouri and Queens in New York City

In May 2011, the city of Joplin, Missouri, was struck by an EF5 multiple-vortex tornado.

In October 2012, Hurricane Sandy ripped through New York City. While both were natural catastrophes, the community stressors and the timescales of each were distinct. Joplin was a rapid, single-day event, while Hurricane Sandy left Queens and much of the Atlantic coast not only broken and flooded, but also worried about the long-term vulnerability of the coastal communities.

An integrated team of designers, researchers, and community groups is exploring how nearby nature can contribute to community resilience and may help people to bounce back from major crises—human, natural, technological, and even political. The science team on this project, representing Drury University, Cornell University, and the USDA Forest Service, are social scientists studying how nature can contribute to resilience as people work together on memorial events and recovery. A recent book *Greening in the Red Zone* includes writings from some of the team members and describes how people turn to nature in times of hardship and disaster.

Designed by Traci Sooter of Drury



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The Green Road: The site plan offers opportunities for respite in nature and is a quiet passage between buildings within the military medical centre (Image: Jack Sullivan)

University, the garden in Joplin was completed and dedicated in May 2014. It features space frames that symbolise the homes that were demolished during the brief but extreme winds of the tornado. The design symbolically weaves together themes related to Worden's Four Tasks of Mourning, the path a healthy person takes to work through the pain of grieving for a loved one or something lost. The site in Queens, New York, is still in design, as the property is associated with the New York City Housing Authority and post-hurricane recovery has delayed approvals.

6. The Green Road

award recipient Walter Reed National Military Medical Center, Institute for Integrative Health, University of Maryland (Department of Landscape Architecture), University of Arizona (Center for Integrative Medicine), Massachusetts General Hospital (Benson-Henry Institute for Mind-Body Medicine), CDM Smith, Ohio State University, Pain & Palliative Care Service, and Uniformed Services University of the Health Sciences

location Bethesda, Maryland

U.S. military medical services have faced unique challenges in recent years. The changing nature of warfare—combined with better field medicine practices—means that many of the men and women returning home from international conflicts in Iraq and Afghanistan are hurting in new ways. Some have survived combat but have lost limbs. Others suffer from traumatic brain injuries or post-traumatic stress disorder. These “unseen” injuries are extremely important health concerns for veterans and the active duty force. Traditional treatments and therapies haven't done enough.

Walter Reed National Military Medical Center is the world's largest military medical centre (located on 243 acres, with more than 2.4 million square feet of clinical space) and provides care and services to over one million beneficiaries per year. Winding through the centre of the campus is a wooded ravine. The Green Road is a nature-centred walking route planned to enable patients and their loved ones to move between on-campus residences and treatment centres.

Within one section of the path, the TKF-sponsored garden will include remem-

brance and meeting pavilions, a stream bed restoration of Stony Creek, and spaces for quiet discussion and contemplation. Based on feedback from wounded veterans, the space will feature elements of stone, wood, and water to support recovery. Jack Sullivan of the University of Maryland is the project landscape architect. Permit applications are in, and construction will start in 2015.

The project will also enable rigorous research using innovative metrics to assess the impact of the space on veterans' healing and recovery. The Green Road research team will utilise three measurement approaches: combined biomarkers of stress response; qualitative analysis of journals and stories using natural language processing; and advanced genomics.