

# NCC Quarterly

## Natural Communities Coalition Conducts Polling Study



In January 2023, the Natural Communities Coalition (NCC) commissioned a study to measure Orange County voter opinions regarding protected open spaces and wilderness parks in the central and coastal subregions of the County. NCC contracted with FM3 Research to coordinate a survey and deliver a statistically valid report which included detailed input from registered voters in Irvine, Newport Beach, Laguna Beach, Aliso Viejo, Lake Forest and unincorporated portions of the County.

The purpose of the project was to gain a thorough understanding of voters' satisfaction with protected open spaces and wilderness parks. The study also pursued opinions on subjects such as, accessibility to nature, support for ongoing conservation, and the acceptability of current park or open space resource conditions. In addition, the survey sought to determine if voters select candidates based on a track record of conservation and/or support for open space preservation.

A small sampling of the preliminary findings is summarized with the statements below:

- 1 Voters who live near or adjacent to open spaces rate quality of life quite highly, and prioritize clean air and clean water more highly than key issues like homelessness and healthcare;
- 2 Protecting wildlife habitat is extremely or very important to Democrats (86%), Independents (78%), and Republicans (61%);
- 3 More than half of the survey respondents are frequent users of natural areas (largely to spend time in nature to walk or hike) and acknowledge their voting decisions align with nature and opportunities to recreate;
- 4 The benefits of the Orange County's Nature Reserve system, according to voters, are to protect water quality (91%), reduce wildfire risk (83%), protect wildlife and habitat (75%) and provide space for outdoor recreation (74%), and;
- 5 Four of five voters believe the Nature Reserve system is extremely (47%) or very important (35%) to Orange County.

NCC will be sharing the results of this study with the landowners comprising the Nature Reserve of Orange County, including the Cities of Irvine, Newport Beach, and Laguna Beach, the County of Orange, State of California, Transportation Corridor Agencies and the Irvine Ranch Water District.

To schedule a meeting with NCC staff to discuss the polling project results, please send an email to Darin Loughrey, Outreach and Engagement Coordinator at [dloughrey@occonservation.org](mailto:dloughrey@occonservation.org).

# The Nexus of Nature Exposure and Health

Scientific research continues to inform the public about the benefits of nature exposure on health outcomes and cognitive function. The article, "Associations between Nature Exposure and Health: A Review of the Evidence," published by the International Journal of Environmental Research and Public Health (April 2021), provides numerous examples of how nature positively impacts a variety of human conditions.

This article explores a sampling of common health issues and conditions where a nature-based intervention has been applied and scientifically researched. References citing the specific research studies are cited below and can be accessed by clicking [here](#).

## Stress

A review of more than 40 experimental studies measuring heart rate, blood pressure and perceived stress provided evidence that exposure to nature or outdoor environments may reduce the negative effects of stress (Kondo, Jacoby and South, 2018) [17]. Furthermore, a recent statistical analysis combining the results of multiple scientific studies discovered evidence indicating the exposure to natural environments may reduce cortisol levels, which is one of the commonly studied biological indicators of stress (Song, Ikei, and Miyazaki, 2016) [18].

## Brain Activity

Nature exposure has been associated with alterations in brain activity in the pre-frontal cortex, an area of the brain which serves as a vital role in emotional regulation. In an experimental study of university students and their responses of looking at real plants and photo images of plants, it was discovered seeing real plants increased oxy-hemoglobin concentrations in the pre-frontal cortex, thereby suggesting real plants may have a physiological benefit for brain activity which were not replicated by photo images of plants (Igrashi, Song, Ikei, and Miyazaki, 2015) [40].

## Blood Pressure

Multiple studies discovered evidence which reveals exposure to natural

environments may reduce blood pressure. Japanese studies on the physiological effects of nature therapy found overwhelming evidence blood pressure levels decreased when participants were exposed to a natural environment (Song, Ikei and Miyazaki, 2016) [18]. Decreases in both systolic and diastolic levels were observed among young healthy populations and populations with hypertension.

## Postoperative Recovery

A study of recovering patients in rooms with either a window view of a natural setting, or a view of a brick wall, concluded those with the natural setting had shorter hospital stays, fewer negative encounters with nurses, and took fewer potent or potentially addictive medications (Ulrich, 1984) [4].

## Mental Health

Green space has been linked with improved mental well-being, overall health, cognitive development in children (McCormick, 2017) [46], and lower psychological distress in teens (Wang, Meng, Lam, Ponce, 2019) [47]. Research examining green outdoor settings as potential treatment for mental and behavioral disorders, such as attention-deficit/hyperactive disorder (ADHD), has revealed green space exposure has led to an improvement in behaviors and symptoms of ADHD and higher standardized test scores (McCormick, 2017) [46]. Numerous other studies regarding the connectivity of nature to positive mental health outcomes suggest nature is associated with quantifiable mental health benefits, with the potential for reducing individual and societal costs related to poor mental health.

## Cardiovascular Disease

Exposure to green space may impact factors associated with cardiovascular

disease risk, such as physical activity, stress and high blood pressure. One study indicated participants living with limited green space have higher levels of mortality following a stroke (Wilker, Wu, McNeely, Mostofsky and Spengler, Wellenius and Mittleman, 2014) [87], higher cardiovascular disease mortality, and higher coronary heart disease (Mitchell and Popham, 2008) [89].

## Cancer

While there are few studies which examine the relationship of nature to cancer, one project involving prostate cancer found the correlation that a higher residential exposure of green space was associated with a lower risk of prostate cancer (Demoury, Thierry, Richard, Sigler, Kestens and Parent, 2017) [96]. Another study examined the connection between green space and several cancer types and found that green space was protective for mouth, throat and non-melanoma skin cancers but was not associated with colorectal cancer (Datzman, Markevych, Trautmann, Heinrich, Schmitt and Tesch, 2018) [98].

The nexus of nature exposure and health provides us with another reason why the Nature Reserve of Orange County is a community treasure worthy of preserving and protecting, now, and for perpetuity. The studies and research findings cited in this article are only a small sample of the empirical data and extensive health benefits derived from experiences in nature. To access a full copy of the review titled, "Associations between Nature Exposure and Health: A Review of the Evidence," click [here](#).



# INVASIVE SPECIES MANAGEMENT

The Natural Communities Coalition recently completed a study regarding the effects of public use on the Nature Reserve of Orange County. One of the interesting outcomes was a discovery that a large percentage of hikers, bikers and nature enthusiasts were unaware of the impacts of non-native invasive plants and animals on the ecological health of the Reserve. In addition, recreational users were often unaware of land management practices commonly deployed to prevent the infestation and spread of invasives.

This article will examine two of the more aggressive species, black mustard and the Brown-headed Cowbird, which are found throughout the Reserve.



**Black mustard** (*Brassica nigra*) is a tall, branchy annual plant with bright yellow flowers, which to some, may resemble the color of the popular condiment known as yellow mustard. The plants often grow to six-feet tall but can reach up to 12-feet in height. Black mustard typically blooms in late winter and spring.

Black mustard is native to the Middle East, southern Europe or southern Asia, where it has been cultivated for thousands of years. Over time, the uses of mustard have evolved and the plants have spread through California, the United States, and globally. Black mustard is considered a noxious weed in nearly all states.

Throughout California, black mustard can be found nearly everywhere, and plants can survive at elevations up to 7000 feet. It is most common near the coast and thrives in coastal sage scrub habitats, particularly near areas which have been cleared for fuel modification and places where the grounds have been disturbed or excavated, such as trails and roadways.

In the Nature Reserve of Orange County, visitors can see the extent to which black mustard can invade natural areas by visiting portions of Bommer Canyon, Quail Hill, Laguna Coast and Aliso and Wood Canyons Wilderness Park.

Why black mustard is of such concern is it germinates early in winter before native plants have a chance to take hold, out-competes natives for sunlight, and sets deep roots which deprive native plants of water. It is a prolific seeder and those seeds often dominate the soil seedbank. Ecologically, black mustard produces compounds which may inhibit the germination of surrounding plants, which gives it a competitive advantage over native flora. Further, when mustard dies in the summer, its tall and dry stalks provide fuel to carry wildfire.

The ubiquity of black mustard in Orange County has made it nearly impossible to eradicate and thus invasive control strategies focus on protecting areas where it has not taken hold.

## Brown-headed Cowbird

The Brown-headed cowbird is considered an invader. Brown-headed Cowbirds are brood parasites, which are characterized by its female members evading parental duties by laying their eggs in host nests of the same or different species and then relying on these unrelated foster parents to care for the cowbird egg and hatchling.



Cowbirds do this through an egg mimicry process, which is believed to fool nesting birds that the Brown-headed Cowbird egg actually belongs to the nesting bird.

The unusual reproduction process results in Brown-headed cowbirds never making their own nests or even raising their young. It is hypothesized that the energy saved from not having to build nests and care for hatchlings aids in the production of cowbird eggs. Females can lay up to one egg per day of the entire breeding season, resulting in an average of 36 eggs laid in a season.

According to "Avibirds.com," Female Brown-headed cowbirds can lay their eggs in variety of nest types and habitats. This includes nests found in riparian zones, nests inside shrubs, and nests on treetops. It is common for a cowbird to lay its eggs in nests where the host eggs are smaller than the Brown-headed cowbird eggs. Cowbirds are believed to locate host nests by observing nest building activity of host species and/or by scaring host birds away from their nests.

When getting ready to lay an egg, female Brown-headed cowbirds typically remove or consume at least one of the host eggs. They then lay their own egg or multiple eggs to replace the discarded egg. Ultimately, the cowbird departs the nest with the intention that her eggs will be raised by foster parents.

The Cornell Lab of Ornithology has noted "Cowbird eggs hatch faster than the eggs of the host species, giving cowbird nestlings a head start in getting food from the host species parents. Young cowbirds also develop at a faster pace than their nest mates, and they sometimes toss out eggs and young nestlings or smother them in the bottom of the nest."

The sizable number of Brown-headed Cowbirds in Orange County and their brood parasitic behaviors are a threat to native birds, including the Coastal cactus wren, Coastal California Gnatcatcher and other upland habitat species. Since its inception in 1996, the Natural Communities Coalition has implemented management measures to address the threat to target and identified native bird species.