American Association of Wildlife Veterinarians

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To Whom It May Concern:

Please accept this note as the American Association of Wildlife Veterinarian's (AAWV) unequivocal support for the Catalina Island Conservancy's (CIC) Catalina Island Restoration Project; specifically, for the complete removal of mule deer (*Odocoileus hemionus*) from Catalina Island, California. As an anthropogenically introduced, non-native species, mule deer populations have brought about profoundly negative impacts on the natural ecosystems of Catalina Island. Moreover, the effects associated with the presence of this non-native species have not been limited to the landscape. Since their introduction in the 1930s, mule deer populations on Catalina have exceeded the ecosystem's carrying capacity; a situation that now frequently results in starvation and associated welfare issues for these animals. Anthropogenic interventions in response to these pressures, such as supplemental feeding, have failed to curtail browsing, and have often proven only to exacerbate the situation by creating artificial densities of mule deer, thus increasing the risks of disease transmission and suffering.

In response to the destructive pressures applied to the island's habitat by non-native mule deer, the CIC has put forward a program of lethal removal of this species. Following an exhaustive investigation assessing the benefits and costs of various removal methodologies; e.g., the installation of fencing, recreational hunting, the introduction of predators, translocation, and reproductive management, the CIC's informed conclusion to employ lethal removal via aerial sharpshooting has the support of the AAWV. This method of lethal removal is time-tested in the field of wildlife management, and affords the CIC the greatest opportunity to achieve total extirpation of mule deer from Catalina; especially in the context of animal welfare, human safety, efficiency of resources, and time management. It is the express view of the AAWV that the CIC's mule deer removal plan is scientifically well-grounded, informed, safe, humane, and urgently needed.

Sincerely,

John A. Bryan, II, DVM, MS
President, American Association of Wildlife Veterinarians

AMERICAN BIRD CONSERVANCY

November 17, 2023

Letter of Support for the Catalina Island Conservancy's Catalina Island Restoration Project

To Whom It May Concern,

American Bird Conservancy (ABC) is a nonprofit organization dedicated to conserving wild birds and their habitats throughout the Americas. Over the past 50 years, North America has lost almost 3 billion birds[1], with habitat loss, including degradation caused by introduced species, being a leading cause. As bird populations continue to decline and habitats become more fragmented and degraded, it is critical that we take the opportunity where we can to restore habitats to benefit birds and people.

The negative impacts of artificially high deer populations on bird populations has been documented across North America. Using Breeding Bird Survey data for all of North America, a group of 73 widespread species including both neotropical migratory and non-migratory species showed declining numbers as deer (white-tailed deer, black-tailed deer, and moose) numbers increased. Bird species that are known to be sensitive to higher deer densities declined more strongly in states with more deer[2].

On islands off the coast of British Columbia, islands that had had introduced Sitka black-tailed deer populations for more than 50 years had bird populations only 30% to 45% as high as populations of deer-free islands. On islands with long-term deer populations the bird species with the highest dependence on understory vegetation were most affected, and their abundance was only 7% of those on deer-free islands. Deer overabundance decreased bird food resources and reduced nest site quality[3]. In the islands of Puget Sound, black-tailed deer regulated cover and structure of the understory, which, in turn affected bird populations, and deer-free islands supported the most abundant and diverse bird faunas[4].

These anecdotes are from situations where deer are native but their numbers were artificially high. Deer are not native to Catalina Island, and this it can be expected that their impact on birds and their habitat would be even more significant as those habitats' natural condition is without large herbivores.

Surprisingly, deer can even have direct impacts on birds. White-tailed deer are also known to depredate songbird nests, eating both eggs and nestlings. Deer found and depredated both ground- and above-

[1] Rosenberg et al. 2019. Decline of the North American avifauna. Science vol. 366, pp 120-124.
[2] Chollet, S., and J.-L. Martin. 2012. Declining woodland birds in North America: should we blame Bambi? Diversity and Distributions DOI: 10.1111/ddi.12003 http://onlinelibrary.wiley.com/doi/10.1111/ddi.12003/full
[3] Allombert, S., A. J. Gaston, and J.-L. Martin. 2005. A natural experiment on the impact of overabundant deer on songbird populations. Biological Conservation 126: 1-13.
[4] Martin, T. G., P. Arcese, and N. Scheerder. 2011. Browsing down our natural heritage: deer impacts on vegetation structure and songbird assemblages across an island archipelago. Biological Conservation. 144:459-469.

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ground nests, and open bowl-type and covered-bowl nests[5],[6]. Although deer are herbivores and such behavior may be uncommon, direct deer effects on birds could be significant at high deer population densities, such as those found on Catalina Island.

Accordingly, American Bird Conservancy strongly supports the Catalina Island Conservancy's Catalina Island Restoration Project. Completely and permanently removing non-native deer from the island is the only way to allow the island's habitats and the species that rely on them to recover.

Sincerely,

Brad Keitt
American Bird Conservancy
bkeitt@abcbirds.org

[5] Pietz, P. J., and D. A. Granfors. 2000. White-tailed deer (*Odocoileus virginianus*) predation on grassland songbird nestlings. American Midland Naturalist 144(2):419-422. Jamestown, ND: Northern Prairie Wildlife Research Center Online. http://www.npwrc.usgs.gov/resource/birds/deerpred/index.htm (Version 09MAR2001)

[6] Ellis-Felege, S. N., J. S. Burnam, W. E. Palmer, D. C. Sisson, S. D. Wellendorf, R. P. Thornton, H. L. Stribling, and J. P. Carroll. 2008. Cameras identify white-tailed deer depredating Northern Bobwhite nests. Southeastern Naturalist 7: 562-564. [See also many citations referenced in this article.]

California
BOTANIC GARDEN

November 28, 2023

To whom it may concern,

On behalf of the California Botanic Garden, I am writing to express our strong support for the *Catalina Island Restoration Project*. With more than 86 acres and 95,000 people served annually, California Botanic Garden (CalBG) is the largest botanic garden dedicated to California native plants. We have a mission to conserve California's plant diversity and to enhance human well-being by inspiring and educating the public and the scientific community. Beyond the garden walls, CalBG is regarded as a leading center for research and conservation. The Garden's work has a special focus on California plants including those of Catalina Island. Resident scientists have published a flora of the Island and, more recently, our researchers contributed to the understanding of the evolution of a rare grass native to the Island, *Dissanthelium californicum* (Catalina grass). Further, our living collection, seed bank, and nursery support numerous collections of rare and endemic plants from Catalina Island, providing a safeguard for the unique and irreplaceable botanical diversity.

Catalina Island is a special place for plants. The Island supports 34 plants that are endemic to the Channel Islands, eight of which are restricted to Catalina Island and live nowhere else on earth. One of these extremely rare and endemic species, *Cercocarpus traskiae* (Catalina Island mountain-mahogany) is considered one of the rarest trees in California, with only seven known individuals. *One of the major threats to this extremely rare species is habitat degradation from introduced herbivores.* This threat was recently cited as ongoing in the latest five-year review published for the species by the US Fish and Wildlife in 2021.

The Catalina Island Conservancy manages 48,000 acres on Catalina Island or 88% of the Island. As such, their stewardship is critical to the long-term conservation of the rare, threatened and endemic plants that call the Island home. The *Catalina Island Restoration Project* focuses on three key areas: 1) Habitat restoration to combat soil erosion, conserve endangered species, and reduce wildfire risk. 2) Plant restoration, fostering a seed supply of local native seeds which is essential to reintroducing native plants to the landscape. 3) Non-native species removal including the removal of mule deer and invasive plant species. Invasive species removal is a particularly key component of the restoration project because invasive species are known to have significant impact on islands ecosystems and have been found to be a leading cause of species extinctions on islands.

There is a growing body of evidence demonstrating that the removal of non-native and invasive animals contributes significantly to the restoration and recovery of island ecosystems and species. For example, four federally listed plant species endemic to San Clemente Island, San Clemente Island (SCI) bush-mallow (*Malacothamnus clementinus*), SCI paintbrush (*Castilleja grisea*), SCI lotus (*Acmispon dendroideus* var. *traskiae*), and SCI larkspur (*Delphinium variegatum* subsp. *kinkiense*), were removed from the List of Federal Endangered and Threatened Plants based on species recovery in 2023. Specifically, the US Fish and Wildlife

California Botanic Garden
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California
BOTANIC GARDEN

Service review indicated that the U.S. Navy's successful removal of non-native herbivores (goats, sheep, pigs, cattle, mule deer) led to recovery of vegetation in areas of severely degraded habitat on San Clemente Island which in turn led to the recovery of these four plant species, such that they no longer require protections under the Federal Endangered Species Act.

As the primary land stewards of Catalina Island, the Catalina Island Conservancy has the important task of ensuring the longevity of imperiled plant species such as the Catalina Island mountain-mahogany. We commend the Catalina Island Conservancy for proposing a comprehensive restoration program that will support restoration and recovery of the Island's biodiversity from multiple angles, including invasive species removal. We look forward to learning of the recovery of endangered species that will result from the removal of invasive non-native herbivores, as has been demonstrated across the other Channel Islands. The plants of Catalina Island deserve this important action for their protection. As the indigenous inhabitants that give Catalina Island its unique sense of place, the native plants of Catalina are an irreplaceable treasure not only to Californians, but also to the world.

Sincerely,

Lucinda A. McDade

Lucinda A. McDade, Ph.D.
Executive Director
Judith B. Friend Director of Research

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CAL-IPC
CALIFORNIA INVASIVE PLANT COUNCIL

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December 14, 2023

Dr. Lauren Dennhardt, Sr. Director of Conservation
Catalina Island Conservancy
P.O. Box 2739, Avalon, CA 90704

Dear Dr. Dennhardt,

I am writing on behalf of the California Invasive Plant Council. Our organization is dedicated to protecting California's environment and economy from invasive plants by supporting the community of land stewards across the state. Though we focus on invasive plants, we are well aware of the damage caused by invasive animals, from shot hole borers killing trees in southern California to South American nutria damaging vegetation in San Joaquin Valley waterways.

The rationale for removing imported mule deer from Catalina Island to protect endemic plants and wildlife has been clearly described by the Catalina Island Conservancy and is well supported by studies of the impacts of introduced grazers on islands. The conservancy has evaluated a wide range of alternatives and selected the one deemed to be the most effective and humane. We agree with the rationale for removing mule deer on the island shared by other environmental groups such as The Nature Conservancy, the Center for Biological Diversity, and the California Native Plant Society.

We also understand and empathize with the deep concern community members have about killing the mule deer, a beloved feature of their local environment. This is one of the many difficult aspects of our modern ecological reality. Having moved organisms around the globe over the last several centuries we are faced with situations where these introductions have resulted in significant ecological harm. We must either address the causes or live with the consequences. In a situation like the one on Catalina Island, we believe that the importance of protecting the survival of species that have evolved over millions of years who are faced with extinction is the greater need, difficult as it is for those of our current generations with a strong personal connection to the deer.

We acknowledge the passion and dedication of all stakeholders involved in this decision, and hope that the community will come to peace with the hard choices needed to ensure the survival of the island's unique biological diversity for future generations.

Sincerely,

Doug Johnson
Executive Director

CENTER for BIOLOGICAL DIVERSITY
Because life is good.

working through science, law and creative media to secure a future for all species, great or small, hovering on the brink of extinction.

October 19, 2023

Lauren Dennhardt, PhD
Acting Director of Conservation
Catalina Island Conservancy
Phone: 310-510-1299 x229
P.O. Box 2739, Avalon, CA 90704

Re: Catalina Island Restoration Project

Dear Dr. Dennhardt,

On behalf of the Center for Biological Diversity, I write to express our organization's strong support for the Catalina Island Restoration Project. Given the unique endemic species and ecosystems of Catalina Island - and the growing threats they face from climate change, drought, fire, and invasive species - the restoration project is one of the most important biodiversity protection efforts underway in California.

While climate change - and the consequent intensifying drought and more frequent and intense fires affecting the island- requires global action to address, the actual impacts of climate change on the species and ecosystems of Catalina can be significantly lessened or mitigated with on-the-ground actions that increase the resiliency of native species. In this context, addressing invasive species on the island is critically important.

Invasive species have long been recognized as one of the greatest drivers of extinction, particularly on islands. Last month, the Intergovernmental Platform on Biodiversity and Ecosystem Services (IPBES) released its *Assessment Report on Invasive Alien Species and their Control*, highlighting the significant role invasive species play in the extinction crisis. The report found that invasive species have been a major factor in 60% of recorded extinctions globally, specifically noting that "invasive species are most damaging on islands."[1]

The Channel Islands generally, and Catalina specifically, are home to dozens of rare and endangered species, with Catalina alone hosting 60 species that occur nowhere else on the planet. The greatest past and ongoing threats to these species have come from introduced, non-native plants and animals. But these threats can be successfully addressed: over the past several decades, islands where introduced goats, pigs, deer and other invasive species have been removed have shown remarkable recovery.

On Santa Cruz Island, for example, non-native feral pigs were completely eliminated from the island in 2006, and as a result, the native fox population rebounded, from fewer than 100 foxes in 2004 to now more than 1,200 in the wild. The pig removal also allowed the Channel Islands bedstraw and Santa Cruz Island dudleya to recover from the brink of extinction, so much so that the U.S. Fish and Wildlife

1 https://www.ipbes.net/ias

Service (USFWS) recently proposed them for delisting under the Endangered Species Act (ESA).[2] To protect Santa Rosa Island's endemic flora and fauna, the National Park Service in the 1990's removed all non-native herbivores, including pigs, cattle, elk, and deer. Now that removal is complete, recent surveys document nearly twice as many rare and endemic plant species in study plots as there were in the 1990s.[3] Importantly, in delisting the island fox on San Miguel, Santa Rosa and Santa Cruz islands, USFWS cited the removal on non-native ungulates as a key element in their recovery.[4] Notably, on Catalina Island, where non-native ungulates remain, USFWS determined that the fox remains threatened and still warrants the protections of the ESA.

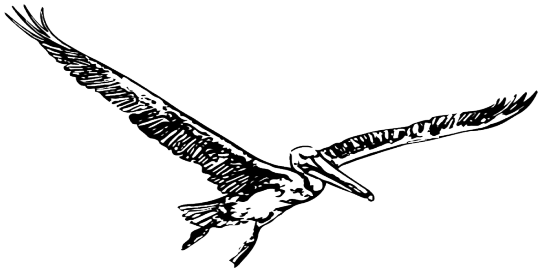
On Catalina, the non-native deer, introduced to the island almost a century ago for the purpose of hunting, are destroying the ecosystem and pushing several endemic plants to the very edge of extinction. Many of these plants evolved without defense mechanisms to protect against deer herbivory. With no natural predators, the deer population repeatedly grows and then contracts, as animals starve or die of thirst during drought years. Consequently, the deer overgraze the island, and in the process have destroyed the natural habitats that support native wildlife and serve other crucial ecological functions, such as erosion control, groundwater recharge, and wildfire resilience. The impacts of deer on the island have been exacerbated by the severe drought of recent decades, impacts that will only grow in the face of climate change. True recovery of the species and ecosystems of Catalina is impossible so long as the deer herd remains on the island.

While all the components of the Catalina Island Restoration Project are important, the single most impactful thing that can be done to protect the unique and irreplaceable plants of Catalina Island is to remove the introduced, non-native deer from the island. We look forward to the recovery and increased resilience of the native plants, animals, and ecosystems on the island as the program is implement.

Sincerely,

Brendan Cummings, Conservation Director
Center for Biological Diversity
1212 Broadway, Suite 800
Oakland, CA 94612
bcummings@biologicaldiversity.org

2 50 Fed. Reg. 7322 (12/01/2022)
3 https://www.usgs.gov/news/featured-story/livestock-gone-islands-decimated-native-flora-makes-a-comeback
4 81 Fed. Reg. 53315 (8/12/2016)



CALIFORNIA INSTITUTE
OF ENVIRONMENTAL STUDIES

P.O. Box 1185
Davis, CA 95617
(530) 400-1512

October 25, 2023

To Whom It May Concern,

I am writing on behalf of the California Institute of Environmental Studies (CIES) to confirm support for the Catalina Island Conservancy's (CIC) island restoration project which includes, in part, eradicating introduced mule deer from Catalina Island. CIES is a California-based nonprofit organization with over 40-years' experience advancing conservation of coastal and marine birds and healthy island ecosystems in the Pacific region through sound science, restoration, partnerships, and community outreach. Our organization is well versed in efforts to conduct restoration work on the Channel Islands, having participated in numerous restoration and conservation projects on seven of the eight islands.

CIC's comprehensive restoration project is designed with the best science available and is in line with the best practices and approaches used across the world for island conservation. These global island conservation best practices regularly use helicopters to eliminate introduced mammals (e.g., deer, pigs, goats). Once removal of destructive mammals has occurred, restoration of the island ecosystem can be truly initiated. This includes actions such as removal of non-native vegetation that crowd out native plants, degrade wildlife habitat and alter fire cycles and soil chemistry. It also includes conducting plant restoration in conjunction with the invasive plant control work. The plant restoration work includes using techniques such as creating a seed farm so that native seeds can be produced in bulk and used for restoration efforts. It also includes out-planting native plants grown in an on-island native plant nursery that helps ensure the recovery and maintenance of a resilient ecosystem. All these actions are included as part of CIC's plan.

In conclusion, the CIC habitat restoration project is well designed, and its implementation is essential to restoring a healthy ecosystem by preventing erosion of soils, promoting native vegetation, and building resiliency to wildfires. Ultimately these actions are essential so that the unique plants and animals of Catalina Island not only persist but thrive, resulting in a functioning ecosystem. It is important to understand that the restoration of the Catalina Island ecosystem cannot occur until all the introduced mule deer are removed from the island. CIES supports the CIC habitat restoration project because it follows the best available science and methods as seen across hundreds of global island conservation efforts.

Sincerely,

Michael Parker

Michael Parker
Executive Director

CALIFORNIA
NATIVE PLANT SOCIETY
2707 K Street, Suite 1, Sacramento, CA 95816-5130 (916) 447.2677 www.cnps.org

Protecting
California's native
flora since 1965

October 30, 2023

Re: Support for the Catalina Island Restoration Project

To Whom It May Concern,

I am writing on behalf of the California Native Plant Society (CNPS) in support of current efforts to improve the conservation and management of native biodiversity on Catalina Island via the Catalina Island Restoration Project. CNPS is a non-profit environmental organization with more than 12,500 members in 36 local chapters. Our mission is to protect California's native plants and their natural habitats, today and into the future, through science, education, stewardship, gardening, and advocacy.

Catalina Island is home to more than 60 species of plants and animals that are found nowhere else on Earth. According to the CNPS Rare Plant Inventory, the Island is home to 72 rare plant taxa, eight of which are Catalina Island endemics, and five of which are listed as threatened or endangered under the California and/or Federal Endangered Species Acts[1]. Furthermore, 34 of these taxa are endemic to the Channel Islands. On the extreme side of rarity, Catalina is home to one of the world's rarest plant species, Catalina Island mountain mahogany (*Cercocarpus traskiae*), which is now known from only seven individuals in the wild. The remarkable diversity on Catalina Island, and the fact that so many of its species are so rare and of extremely limited distribution, makes their conservation vital.

Since European colonization, the flora and fauna of the Catalina Island continue to be impacted by a number of threats, including climate change, the spread of invasive species, and impacts from feral herbivores. Animals introduced to the island include pigs, goats, sheep, bison, and deer. Each of these species has caused negative impacts to the flora of the island. While feral pigs, sheep, and goats have been eliminated from the island, and bison are managed to minimize ecosystem impacts, the impacts from introduced mule deer continue to be severe and wide-ranging. Over the past decades, the Catalina Island Conservancy has implemented measures including increased hunting permits for deer to reduce population levels and fencing of rare plants to limit harm caused by herbivory. Despite these actions, the population of deer on the island has not been reduced significantly, and the impacts to sensitive resources continue to increase.

For decades, the Catalina Island Conservancy and researchers have documented impacts caused by introduced mule deer. Deer over-browsing is decreasing the density of vegetation, with significant impacts to both rare and common plant species. This is resulting in the death of individual plants, erosion, and the spread of non-native, invasive plant species. The continued presence of deer on the Island presents grave implications for a number of critically imperiled

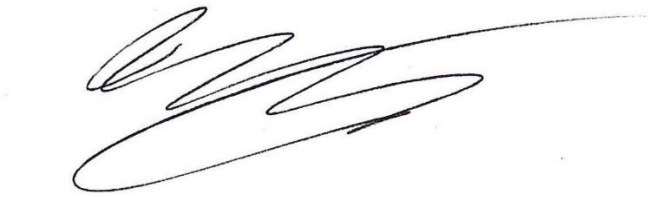
[1] https://rareplants.cnps.org/

rare plant species. We are specifically concerned that populations of some rare species will be extirpated, and species could go extinct without the complete removal of deer on the island.

The management of introduced animals, as currently proposed by the Catalina Island Conservancy, is not a novel concept on island ecosystems worldwide. Scientists have documented the recovery of species and habitats that has resulted after non-native animals are removed. For example, on nearby Santa Rosa Island, the National Park Service undertook a decades-long effort to remove non-native herbivores including pig, deer, elk, and cattle[2]. Remarkably, the recovery of habitats following this action has been quite rapid with nearly all rare plant species increasing in abundance following feral herbivore removal. Most importantly, follow-up surveys have documented nearly twice as many rare and endemic species compared with surveys in the 1990s, prior to removal. On San Clemente Island, the eradication of non-native herbivores in the 1990s led to the recovery and delisting of four taxa listed under the Federal Endangered Species Act (ESA). Of additional significance is that these four taxa were some of the very first plants to be listed under Federal ESA. These examples from Santa Rosa and San Clemente Islands give us reason to believe that positive change will occur on Catalina Island following the removal of introduced deer.

For these reasons, CNPS supports the Catalina Island Restoration Project. The most important aspect of the plan from the perspective of habitat management and the recovery of rare and endemic plant species is the removal of introduced deer. The global biodiversity crisis and California's perilous ranking for national plant extinction[3], necessitate these actions to protect Catalina Island's rare plant species and their recovery.

Sincerely,



Nick Jensen, PhD
Conservation Program Director
California Native Plant Society
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[2] https://www.usgs.gov/news/featured-story/livestock-gone-islands-decimated-native-flora-makes-a-comeback

[3] https://www.natureserve.org/bif

March 1, 2024

To whom it may concern:

On behalf of the Global Conservation Consortium for Oak (GCCO)-Oaks of the Californias' Working Group, we are writing in support of the Catalina Island Restoration Project. The Global Conservation Consortium for Oak, in partnership with Botanic Gardens Conservation International (BGCI), is a coordinated network of institutions and experts who work collaboratively to develop and implement a comprehensive conservation strategy to prevent the extinction of the world's oak species. The GCCO has over 100 members in the Western US and are working to initiate, support and collaborate on projects that mitigate threats to the priority, threatened oaks in this biodiverse region. More specifically, the GCCO follows the data and information provided in the Red List of Oaks 2020 Report (Carrero et al., 2020) and the Conservation Gap Analysis of Native US Oaks (Beckman et al., 2019) to prioritize and guide their conservation and research efforts.

These reports identified numerous priority threatened oaks native to California: *Quercus cedrosensis, Quercus dumosa, Quercus engelmannii, Quercus pacifica*, *Quercus parvula,* and *Quercus tomentella*, several of which are native to Catalina Island. As part of the GCCO efforts to conserve these species of concern, the GCCO Western US regional group worked together to draft a conservation action plan. They had in-depth discussions on the species threats and challenges, and then identified what we can do as a group to mitigate the most imminent threats to the species conservation status. The final action plan can be accessed on the GCCO website. One of the main threats identified for the oaks native to Catalina are the impacts from browse, affecting the oaks population and health, reducing regeneration, as well as the survival of the young oaks. This has led to a large decline in the oak populations native to the island. The reduction of the oak woodland can negatively impact the surrounding ecosystem. The action plan identified specific activities to initiate that would address the negative impacts from browse so as to restore and replenish the native oak populations on the island.

Overall, the Catalina Island Restoration Project will complement and inform the work being done by the Global Conservation Consortium for Oak and advance the collective goals of the broader oak conservation community.

The GCCO is greatly supportive of this restoration project. This is an opportunity to set a baseline for future oak conservation. Oaks are declining globally, so the preservation of the Catalina Island oak populations is critical in contributing to the persistence of these valuable oak species and the many benefits and services they provide to the ecosystem. Please feel free to reach out with any questions or concerns. Thank you for your time and consideration.

Kind regards,
Silvia Alvarez-Clare, PhD
Global Lead of the GCCO
salvarezclare@mortonarb.org

Amy Byrne,
Global Tree Conservation Manager/GCCO Coordinator
abyrne@mortonarb.org

FROM THE DESK OF

KERI DEARBORN

January 25, 2024

To Whom It May Concern,

As an environmental educator and island fox (*Urocyon littoralis*) advocate since 2003, I am writing to support the Catalina Island Conservancy's (CIC) implementation of their island restoration project and the unfortunate, but necessary, removal of introduced mule deer (*Odocoileus hemionus*).

It is a tragedy that individual animals must pay the price for misinformed human actions of the past. The human introduction of mule deer in the 1930s to Catalina Island has been a slow-burning disaster for the fragile and isolated island ecosystem. Without natural predators, the deer population lives through boom/bust cycles that devastate rare island endemic plants, reduce mid-story nesting habitat for bird species, impact resources for island foxes and other island endemics, exacerbate island erosion, and cause periodic starvation events in the deer population.

Around the world, island ecosystems face catastrophic destruction because of intentional and accidental human introduction of species. CIC has tried to manage the mule deer population through recreational hunting permits, but this effort has failed. Unfortunately, rapid lethal removal of introduced species is more humane than slow decline and offers the best opportunity for island ecosystem restoration. In the last two decades, the method of aerial sharpshooters has been deployed to remove feral pigs on Santa Cruz Island and mule deer and elk on Santa Rosa Island. In both cases, the island ecosystems have finally began to heal from a century of over browsing. Island fox numbers have recovered to historic highs on these two islands. Native oak seedlings are finally able to survive and island endemic plants are returning to provide habitat for island species and migratory birds.

The lethal removal of a species is never a desired option, but in this situation science and experience demonstrate that the best choice for restoring the island ecosystem and protecting a wide range of endemic island species is the humane removal of the mule deer.

Sincerely,

Keri Dearborn

20982 AVE SAN LUIS, WOODLAND HILLS CA 91364

4animalbytes@gmail.com

IRVINE RANCH CONSERVANCY

December 1, 2023

Re: Support for the Catalina Island Restoration Project

To whom it may concern,

On behalf of Irvine Ranch Conservancy (IRC), I am writing to express our organization's enthusiastic support for the Catalina Island Restoration Project. As climate change continues to exacerbate threats to the island's ecosystems, including invasive species, fire, and drought, an ambitious and comprehensive approach is essential to preserve and restore critical habitats.

As a mainland counterpart to Catalina Island Conservancy (CIC) with a shared mission, IRC is well positioned to evaluate and endorse this project. Both the State of California and the United States Department of Interior have designated nearly 40,000 acres of open space in Orange County as the Irvine Ranch Natural Landmarks, and my organization protects, restores, and enhances approximately 30,000 acres of this landscape on behalf of a collection of public landowners while ensuring environmentally responsible and sustainable public access. Like Catalina Island, this open space is contained within the California Floristic Province global biodiversity hotspot and is unique due to its proximity to major population centers. In our area, the major threats to habitat quality are also largely rooted in the legacy of grazing, in our case by cattle, which has led to the invasion of native shrubland by non-native grasses that in turn have contributed to increasingly frequent fire.

The challenges facing Catalina are even more urgent due to the more than 60 endemic species, isolation, and introduced deer, whose population is growing unchecked due to the lack of predators. The resultant overgrazing is destroying the ecosystem and pushing several endemic plants toward extinction while compromising ecological functions.

The Catalina Island Restoration Project arose out of an extensive strategic planning process and is consistent with best practices for ecological restoration practiced by my organization and others. Neutralizing critical threats, especially invasive plants and animals, followed by seed-based restoration of native habitats has proven to be a highly effective intervention in Southern California and beyond. Importantly, the limited wild seed collection with bulking at the seed farm will ensure a sustainable supply of genetically appropriate plant materials that will allow CIC to adaptively manage the project even in the face of stochastic conditions.

This project promises to help protect Catalina's precious biological resources for generations to come, and we at IRC look forward to contributing to its success in any way that we can.

Sincerely,

Nathan Gregory, PhD.
Interim Senior Vice President and Chief Programs Officer

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ISLAND CONSERVATION
Preventing Extinctions

630 Water St, Santa Cruz, CA 95060 831-359-4787 www.islandconservation.org

November 27, 2023

Letter of Support for the Catalina Island Restoration Project

To Whom It May Concern,

Island Conservation would like to express our full support for the Catalina Island Restoration Project led by the Catalina Island Conservancy (Conservancy). Island Conservation's mission to prevent extinctions by removing invasive species from islands has been the cornerstone of our actions since 1994. With our partners, we have successfully restored 71 islands worldwide, benefiting hundreds of at-risk populations and species. With this experience, we recognize the profound importance of the work the Catalina Island Conservancy is undertaking. The Conservancy's plan to remove the non-native mule deer population from the island is a crucial step towards protecting Catalina's unique biodiversity and delicate ecosystem.

The continued presence of these invasive ungulates threatens the native plant and animal species that call Catalina home, including over 60 species that are found nowhere else on earth. Due to their direct negative impact on native vegetation, mule deer are contributing to the loss of native habitats, increased soil erosion, and decreased water capture on Catalina. The removal of the non-native deer is necessary to address these issues as part of the Catalina Island Restoration Project.

The method proposed by the Conservancy to complete the removal effort, including the use of highly skilled hunters in helicopters, has been proven globally to be an effective and efficient solution. This method was used to complete the removal of goats from Galapagos Islands between 1997 and 2006, pigs from Santa Cruz Island between 2005 and 2007, deer and elk from Santa Rosa Island between 2011 and 2015, and many other successful island restoration efforts. The removal of non-native ungulates allowed for the natural recovery of these ecosystems and for land managers to take more meaningful actions to support recovery, just as the Conservancy plans to do with the development of landscape scale restoration and long-term monitoring plans for Catalina following the removal of deer.

Island Conservation supports the Catalina Island Conservancy's full initiative to restore Catalina Island, a process that must start with the removal of the mule deer to achieve full benefits to the ecosystem. The success of this project will help to create a more resilient Catalina Island and will serve as an inspiration to the field of conservation.

Kind regards,

Penny Becker
Vice President, Conservation
Island Conservation

LOMA LINDA UNIVERSITY
School of Medicine

17 October 2023

To whom it concerns,

I am writing to express my support for the removal of deer from Catalina island.

As an invasive species, deer cause incontrovertible damage to natural ecosystems. Many dozens of studies across the globe – including quite a few from various islands – have documented the damage. Vegetation disturbance ranges from the architecture of individual plants to the functioning of entire ecosystems, and often affects rare plant species, forest regeneration and structure, understory volume and diversity, and nutrient cycling. Invasive deer also impact animals, including invertebrates, amphibians, small mammals, and songbirds, either directly or through cascading effects. Ample well-designed studies from Catalina Island support some of these findings as well. Collectively, the literature leaves no room for doubt.

If I may say so, the presence of deer on Catalina serves only the self-indulgent interests of humans at the expense of many other organisms.

I have full confidence that the Catalina Conservancy personnel fully understand the ramifications of a non-native deer population. Thus, I encourage thoughtful consideration of their advice.

Sincerely,

William K. Hayes

William K. Hayes, Ph.D.
Professor of Biology

A Seventh-day Adventist Organization
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United States Department of the Interior

NATIONAL PARK SERVICE
Channel Islands National Park
1901 Spinnaker Drive
Ventura, California 93001-4354

IN REPLY REFER TO:
1.A.2 (N2219) - CHIS

February 1, 2024

Whitney Latorre
CEO/President, Catalina Island Conservancy
PO Box 2739
Avalon, CA 90704

Ms. Latorre:

Located off the coast of Southern California, the eight Channel Islands encompass a diverse and unique environment like few places on earth. Isolated from the mainland for millennia, the islands support sensitive, unique, and rare plants and animals, fragile ecological communities, and sacred cultural sites. In recognition of the uniqueness and special fragility of these resources, five of the islands—Anacapa, Santa Cruz, Santa Rosa, San Miguel, and Santa Barbara—and the submerged lands and waters within 1 nautical mile of each island, were designated by Congress as Channel Islands National Park (park) on March 5, 1980.

Since that time, the park and other land stewards within the archipelago—The Nature Conservancy, the US Navy, and the Catalina Island Conservancy—have worked to reverse the ecological impacts of over 100 years of degradation caused by past land management practices and the introduction of non-native species that left the islands in various states of ecological degradation. Early park managers recognized that ecological restoration must start by first removing the threats—non-native animals—which were the root cause of ongoing environmental degradation. Subsequently, the park and its partners undertook a comprehensive and sometimes controversial initiative to remove deer, elk, pigs and various other introduced animals from park lands.

As a result of our efforts, the islands are recovering. Just a few months ago, the park and its partners celebrated the removal of two plant species (Santa Cruz Island Dudleya and Island Bedstraw) from the Endangered Species List and we expect to recover additional plant species in the years to come. In 2015, the park and its partners celebrated the delisting of the island fox, one of the greatest conservation success stories of our time, and one that required the removal of introduced pigs from Santa Cruz Island. Vegetation communities and native animal assemblages on all islands where ungulates were present and removed are recovering. These successes show that nature can recover once threats—like non-native animals—are removed.

Now, Catalina Island faces similar ecological challenges. The Catalina Island Conservancy's Catalina Island Restoration Project builds on lessons learned from animal removal projects at the park and from around the world. The plan includes well-established and vetted methods that have been proven to quickly, safely, and humanely remove non-native animals, along with other essential conservation tools such as seed farming, out-planting, and weed control.

The Catalina Island Conservancy has developed a comprehensive restoration plan that focuses on addressing the root causes of ecological degradation. Based upon our success at the park using similar practices, we believe your plan will bring about substantial environmental benefits for Catalina Island, enhance the Conservancy's ability to effectively manage resources into the future, and contribute to restoration efforts of all partners across the archipelago.

If you have questions or would like to learn more about conservation successes at Channel Islands National Park, please contact Ken Convery, Chief of Natural Resources Management, at ken_convery@nps.gov.

Sincerely,

Ethan McKinley
Superintendent

Santa Barbara Botanic Garden

November 10, 2023

Letter of Support for the Catalina Island Conservancy's Catalina Island Restoration Project

To Whom It May Concern:

Santa Barbara Botanic Garden has conducted research on the Channel Islands for nearly 100 years. Through this research, which has included documenting damage and recovery from years of ranching or other uses, it is clear that one of the most critical restoration activities for these island ecosystems is the removal of feral non-native animals. This action alone allows for the recovery of many native plants that cannot survive with grazing, browsing, or rooting pressure. Efforts to restore many native species without controlling these feral non-native animals have been unsuccessful. Alternatively, the control of feral animals on San Clemente, San Nicolas, Anacapa, Santa Cruz, Santa Rosa, and San Miguel has yielded positive ecological benefits.

The Channel Islands are home to some of the most unique plant species on the planet, many of which are found nowhere else on Earth. These island species have had no need for protective chemicals, thorns, and other defenses that have otherwise protected mainland species from mule deer overbrowsing. Additionally, the natural predators that help to keep deer populations in check on the mainland do not exist on Catalina Island. The result is severe overbrowsing which destroys natural habitats, causes significant erosion problems, reduces groundwater recharge, and threatens the continued existence of many of the 60 plant species that occur only on Catalina Island as well as the native wildlife that they support. It's also important to recognize the impact on the deer population itself, as degraded environmental conditions lead to starvation and disease.

Even with the research showing the above effects, this type of intervention is not taken lightly, and I know the Catalina Island Conservancy has studied alternative solutions to impacts from introduced mule deer on the plant species of the island extensively. Other alternatives have already been attempted and failed. The only way to restore and maintain the native plant and animal diversity on the island is to remove these animals.

Precision hunting, which is the recommended means of removing these species on other California islands and island systems around the world is at once humane, safe, and effective at starting the fragile island systems on the road to recovery. We understand the concerns of those opposed to the removal of mule deer, but we urge everyone to consider the long-term impacts - on plants, other animals, and people - if we do not act. Please support these efforts to restore the island so it can flourish for generations to come.

Sincerely,

Steve Windhager, Ph.D.
Executive Director

1212 Mission Canyon Road
Santa Barbara, CA 93105
805.682.4726

SBBotanicGarden.org

Channel Islands
CALIFORNIA STATE UNIVERSITY
DIVISION OF ACADEMIC AFFAIRS

October 16, 2023

To Whom it May Concern,

I am writing in staunch support of the current efforts by the Catalina Island Conservancy (CIC) to remove deer from the island. The presence of the deer has been a long-standing concern, frustration and struggle in managing the restoration and conservation of the lands with which the CIC is charged, and that countless people hold dear.

Having worked on Catalina Island from 2006-2010 conducting Invasive Species control and eradication as well as trapping Island foxes for 5 seasons, I have seen first-hand the devastation the deer have caused, and the poor health in which they constantly struggle to maintain. I have also seen the countless vehicle strikes killing deer, visitors using them as stage props for their children to take photos, as well as deer coming into Avalon to eat peoples landscaping.

It is well known and documented that the deer were introduced to the island by the California Department of Fish & Wildlife for the sole purpose of hunting. That's correct. In short, they were introduced with the sole purpose of being killed. They are not native to the island - on the mainland, deer populations migrate throughout the seasons looking for food and climates that are more tolerable. They do not have this option on islands, which is a major reason they cause so much damage and why they are starving to death. Other Channel Islands land managers have been successful in removing non-native ungulates and the response of island vegetation has been astoundingly dramatic. Santa Rosa Island is the most recent success story in the archipelago on this front. Deer are also one the major contributing factors of tick presence on Catalina Island, which also poses human health concerns. Ticks are known to carry lime disease, recurring fever and other virus loads that can cause long-term health challenges for residents and visitors alike.

Given the opposition related to deer removal for Catalina Island specifically, Catalina now has the highest number of listed plant species in all of the Channel Islands. These are plants that don't occur anywhere else and should be valued by those visiting Catalina and more importantly those calling Catalina Island home. These plants are just one of the many aspects that make Catalina the gem it is. Endemic plant species of the islands do not have the same defenses that mainland plant species have and thus are more susceptible to harm.

The use of helicopters and wildlife biologists as hunters/sharpshooters has been proven **around the globe** to be the most humane and most effective way to remove non-native ungulates from landscapes. The company being hired for the removal on Catalina, is the same company that did the eradication of deer and elk on Santa Rosa Island. I had the privilege of working alongside them, and no one can do it better. They are trained wildlife biologists; they are not mercenaries as many are depicting them. Utilizing helicopters is the surest way to remove the animals in the most efficient and most humane way possible, which will ultimately cause the least disturbance for residents and visitors.

While I acknowledge change can be difficult and disruptive, I implore the residents of Catalina Island and the local mainland coast to envision a green Catalina Island that shimmers like an emerald on the horizon, rather than the mottled

landscape it is currently. After the goats were removed, many people once in opposition begrudgingly acknowledged the island looked much healthier and that they didn't truly realize the damage that was being caused. This is another chance for everyone to help support the health of this struggling landscape, in a very tangible way and reap the rewards of the stunning beauty and magic that is currently being suppressed and irreparable damaged.

Good luck to the Catalina Island Conservancy in this effort to remove deer from Catalina Island. The island will thank you and many of your partners and neighbors are staunch supporters.

In solidarity,
Robyn

Robyn Shea
Lead Research Station Specialist, Santa Rosa Island Research Station
2022-24 Chair, Islands of the Californias Botanical Collaborative
2023 California Islands Symposium, Planning Committee

California State University Channel Islands
One University Drive
Bell Tower West 2245
Camarillo, CA 93012

Channel Islands
CALIFORNIA STATE UNIVERSITY
DIVISION OF ACADEMIC AFFAIRS

October 16, 2023

Dear Catalina Island Managers, Avalon City Council, and relevant elected officials,

My name is Russell Bradley and I have been the Director of the Santa Rosa Island Research Station for California State University Channel Islands since 2018. For the previous 18 years prior to that I worked on the Farallon Islands for Point Blue Conservation Science as an intern, biologist and 13-year Farallon Program Leader. I have spent well over 2000 days on California Islands. I have committed the majority of my adult life to the study and protection of these extraordinary places – and their globally significant resources.

I am writing today to express my support for removing deer from Catalina Island, using the suggested removal methodology - utilizing helicopters and hunting efforts. These methods have proven to be very effective in previous restoration efforts, including within Channel Islands National Park. I have seen firsthand the negative impacts of introduced mammal species on California's islands, as well as amazing ecosystem recovery after removals of ungulates in places like Santa Rosa Island. The rationale and justification behind this project is strong, and extensive planning efforts will thoroughly address wide ranging issues and concerns in a genuine and non-performative way.

I feel extremely fortunate to be so deeply and directly connected to these special places. I have witnessed with my own eyes, over many years, the incredible recoveries in island ecosystems after restoration actions. I understand the sensitivity and vulnerability of unique island habitats like Catalina and would never support a project I thought would cause long term harm. Catalina deer – introduced for the sole purpose of hunting - face extremely difficult lives with limited resources and removing these populations is the most humane course of action in the long term. Please know that people who have devoted their lives to California's islands will do everything in their power to ensure that this restoration effort, like those protections before it, will be successful and allow Catalina to thrive as a shining example of what Wild California can be.

Sincerely

Russell Bradley

Russell Bradley
Director, Santa Rosa Island Research Station
California State University Channel Islands
russell.bradley@csuci.edu

The Nature Conservancy

California Chapter Headquarters
830 S Street
Sacramento, CA 95811

Tel (916) 449-2850
Fax (916) 442-2377

nature.org

October 17, 2023

Letter of Support for the Catalina Island Conservancy's Catalina Island Restoration Project

To Whom It May Concern:

The Nature Conservancy (TNC) works in over 70 countries around the world to conserve the lands and waters upon which all life depends. In advance of that mission, TNC owns and manages a multitude of globally significant preserves, including 76% of Santa Cruz Island, the largest of the eight Channel Islands of California.

For decades, managers of the Channel Islands – including the Catalina Island Conservancy, the U.S. Navy, the U.S. National Park Service, and TNC – have worked to address the ecologically devastating consequences of livestock and game animals that were unfortunately introduced to the islands back before it was understood how unique and sensitive these island ecosystems are. In every case, managers reached the same conclusion: the only effective and sustainable way to stop the degradation caused by these animals, prevent extinction of native biodiversity, and ensure the islands will be resilient into the future is to remove those invasive populations.

For decades, the Catalina Island Conservancy (CIC) has analyzed the impacts of introduced mule deer on the island and worked to find ways of mitigating those impacts. Today, the evidence of the severity of the threat the deer pose is overwhelming. And the Conservancy has exhausted all other alternatives. Catalina Island can have either a functional, biodiverse and resilient ecosystem – or it can have deer. It cannot have both.

The CIC has engaged global leaders in large animal eradications and is developing a plan that will incorporate state-of-the-science best practices. These include making sure the project is designed and implemented to meet standards of humane dispatch of the animals, and to ensure the safety of the hunters and the public. In that regard, it is important to emphasize that the science and practice of eradication has been in very rapid development over the past few decades, and the increasing, integral use of helicopters has been transformative. They have made eradication efforts far more efficient, and have enabled conservationists to address a wider variety of devastating pest species, on ever larger and more complex islands. Helicopters are now commonly used in a variety of ways in eradication projects, from the transport of materials and personnel to the monitoring of eradication success.

One critical benefit of helicopters in eradication projects is the way they can improve safety for the eradication team. Island terrains are often remote and rugged, and helicopters can provide a safe means of accessing sites that would be otherwise impossible or dangerous to access. Another key benefit of helicopters is that they can enable a project to proceed more quickly, which can dramatically increase the likelihood of the project's success. Eradications can only succeed if they outpace reproduction of the target species. Completing an eradication quickly reduces replacement and therefore the number of individual animals that need to be dispatched. If a project fails, then animals will have died without a long-term conservation benefit.

Another critical – and perhaps counterintuitive – benefit of using helicopters in projects that require hunting large animals is how, with skilled professionals, the use of helicopters as an aerial hunting platform can increase the humaneness of the overall operation. Precision shooting is recognized by the American Veterinary Medical Association as meeting the standards of euthanasia for wildlife. Skilled, disciplined markspeople in helicopters can minimize the amount of time that an animal is aware it is being hunted, and with a precision shot, can greatly reduce the risk of stress and suffering, and wounding and escape. An exceptionally qualified team hunting from a helicopter can be a highly effective strategy for reducing risk and increasing efficiency of an eradication effort, and enabling a conservation manager to also achieve its animal welfare objectives in the effort.

Helicopter shooting is recognized globally as a methodological best practice in large animal eradication projects. There is a robust scientific literature documenting this.

Helicopters were used on a variety of successful, recent large animal eradication projects in the California Channel Islands, including very high-profile projects of the National Park Service and The Nature Conservancy. For example, aerial shooting was integral to the success of the feral pig eradication project on Santa Cruz Island in the mid-2000s. That project was one of the most rapid eradications of its kind. And upon its completion, managers were at last able to redirect their attention from managing an ecological crisis on the island to restoring and stewarding its extraordinary natural and cultural resources, many of which occur nowhere else on earth. With all the invasive introduced mammals removed from the island, the endemic, endangered island fox underwent the fastest recovery and delisting of any mammal in the history of the Endangered Species Act. Next month, managers will be celebrating the recovery and delisting of two soon-to-be-formerly threatened and endangered endemic plants. Eradication of invasive mammals works.

The Nature Conservancy joins conservationists across and beyond California in commending the Catalina Island Conservancy for its leadership is addressing this difficult and long-standing problem, and for the care they are putting into the planning so as to minimize impacts on the community. The dramatic and inspiring recovery of native plants and animals seen across all the other Channel Islands following removal of invasive herbivores affirms that this is the right – and necessary – thing to do.

Sincerely,

Scott A. Morrison, Ph.D.
Director of Conservation Programs
The Victor E. Shelford Director of Conservation Science
The Nature Conservancy, California

Dear Commission Staff,

RE: Agenda Item #11, Meeting Date May 29, 2024

I support the Catalina Island Restoration Project. My name is Travis Brooks. I am a Restoration Ecologist with over 20-years of experience restoring and conserving native habitat in southern California.

Mule deer, while important to mainland ecosystems, are invasive to Catalina Island's unique flora. The island is special with many endemic plants—meaning they're found nowhere else on earth. The introduction of large browsers to the island has had significant negative impacts on those endemic plants, and native wildlife habitat. The Conservancy has already seen success with removing feral pigs and goats, which resulted in improved biodiversity and native habitat recovery.

This action will be a game changer in the recovery of Catalina's endemic plants and animals. With a changing climate, Catalina's relatively stable climate (due to its proximity to the ocean) makes it an ideal spot to preserve California's biodiversity. Removing the invasive mule deer will also help revitalize the Catalina Island Fox's habitat, an indigenous animal worth saving.

Mule deer removal is even more urgent now because of the increased threat of large wildfires, such as the 2007 Island Fire that burned almost 5,000 acres, which is about 10 percent of the island. With wildfires becoming more common and more destructive, and the invasive plants and mule deer putting extra pressure on native plants, we're facing a perfect storm of threats to the island's delicate ecosystem. Mule deer browsing after fire increases type-conversion of native habitat to invasive annual grasslands, which increases the threat of larger, more frequent fires and a potential Maui-style catastrophe.

While deer exclosures have been successful in protecting small areas in the past, it's simply not practical or feasible to expand this approach island-wide. The solution is clear: mule deer need to be removed to preserve the island's unique native flora and fauna and minimize environmental damage from large wildfires.

Sincerely,
Travis Brooks
Restoration Ecologist

UNIVERSITY OF CALIFORNIA, DAVIS

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DAVIS, CALIFORNIA 95616-8751

30 November 2023

Lauren Dennhardt
Catalina Island Conservancy
PO Box 2739
Avalon, CA 90704

Dear Dr. Dennhardt,

I am a professor at the University of California, Davis, and I have been doing research on introduced herbivores in island ecosystems for over 40 years. In my opinion, the removal of introduced mule deer from Santa Catalina Island is essential for sound management of island resources. The reason is the damage that introduced herbivores do, and especially in the context of the vulnerability of island species. Plants on islands like Santa Catalina evolved in the absence of herbivores, hence these plants tend to lose their defenses against herbivores. When exotic herbivores are introduced, the consequences are usually devastating, with wholesale destruction of plant communities. But the damage is not limited to plants; animals that depend on plants for habitat are also impacted. Some managers consider density reduction as a solution, instead of eradication. However, reducing deer density will not solve the problem because the plant community is already damaged, and reduced deer numbers will only maintain that damage; also, island plants lack defenses against even low densities of herbivores. Hence, complete removal of introduced mule deer is the only way to conserve island plants and the island vertebrates that depend on these plants for habitat.

Sincerely,

Dirk H. Van Vuren
Professor of Wildlife Biology

UCDAVIS
VETERINARY MEDICINE
Karen C. Drayer Wildlife Health Center

December 1, 2023

Subject: Support for Catalina Island Conservancy Restoration Plan and removal of deer from the island

To Whom It May Concern:

I am the Principal Investigator and co-Director of the University of California Davis Wildlife Health Center (UCD-WHC) California Carnivores Project. I have conducted research on mountain lions, Channel Island foxes, and multiple other mammalian and bird species in the region and throughout California – including extensive work on Catalina Island and the other Channel Islands and the Farallons. My work has been involved not only with the animal species but also with integrity of habitat that is critical to their survival.

Catalina Island, like most island ecosystems in the world, has been seriously impacted by the influence of humans and invasive animal and plant species that have accompanied them. I have seen the beneficial effects on multiple islands of removal of invasive species, especially larger mammals that have the power to disrupt the native plant and animal communities the most. Catalina has benefited greatly from past removals of goats and wild pigs, but the deer that are still present are exerting serious negative impacts on the ecosystem there that one can easily see.

I feel that the Catalina Island Conservancy is well positioned to complete the work that they are proposing, and that it deserves support to achieve the goals laid out in their Restoration Plan. I fully support their proposed deer removal plan as part of their overall Restoration Plan for the island.

Sincerely,

T. Winston Vickers, DVM, MPVM
Associate Research Veterinarian – UC Davis Wildlife Health Center, Co-Director California Carnivore Project
twvickers@ucdavis.edu
949-929-8643

UNIVERSITY OF CALIFORNIA, LOS ANGELES **UCLA**

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November 28, 2023

Support for Complete Removal of Mule Deer from Catalina Island

The Catalina Island Conservancy proposes to lethally remove introduced mule deer (*Odocoileus hemionus*) from Catalina Island as part of the larger Catalina Island Restoration Project. The deer were introduced as 3 individuals in 1928 — a buck and two does from Modoc County — followed by 19 animals from Los Angeles County in 1930–1932 (Longhurst et al. 1952). I support complete removal of the descendants of these 22 animals. In my position as an Adjunct Professor in the Institute of the Environment and Sustainability at UCLA, I am part of a team that is preparing specific restoration action plans to begin repairing the harm that has been done by the deer and other introduced herbivores over the decades.

Support for removal of the deer is based on several factors. No large mammalian herbivores are native to Catalina Island, meaning that the unique flora has evolved without pressure from such herbivores and is threatened and harmed by their presence. For example, experiments with deer exclosures shows that browsing dramatically reduces the size and vigor of the endemic, federally threatened island rush-rose (*Crocanthemum greenei*) (Dvorak et al. 2016). Researchers also found that seed production of the island rush-rose was greatly reduced when exposed to browsing by mule deer (Dvorak and Catalano 2016). Mule deer browsing furthermore reduces the size of seedlings emerging after fire, influencing vegetation structure (Jacobsen et al. 2018). These results are unsurprising, given that deer browsing in mainland environments is known to influence plant growth, reproduction, and survival (Côté et al. 2004), and island vegetation has evolved free from the pressure of this herbivory. On other Channel Islands, vegetation shows a rapid recovery following the removal of non-native herbivores, including, for example, mule deer and elk from Santa Rosa Island (Thomson et al. 2022). The scientific literature about islands in general (Donlan et al. 2003), the Channel Islands (McEachern et al. 2009, Thomson et al. 2022), and Catalina Island (Dvorak and Catalano 2016, Dvorak et al. 2016, Jacobsen et al. 2018) indicates that the best course of action from an ecological and biodiversity perspective is complete removal of mule deer.

The prospect of lethal removal of the Catalina Island mule deer population has received criticism, both from those describing it as an inhumane slaughter and from hunting interests

desiring continued recreational hunting and contending that hunting will be adequate to control the deer population. Neither of these arguments against removal is compelling.

The Catalina Island Conservancy proposes a rapid removal of all mule deer. Such an approach involves a range of aggressive but humane hunting techniques that will kill all the animals, estimated at 1,500–2,000, with limited further reproduction. If the deer were left, and recreational hunting continued, an average of 236 deer would be killed per year indefinitely. Those who find the removal plan to be an "inhumane slaughter" are in fact advocating that even more deer will be killed by similar means within 6–8 years and never stopping. In contrast, after the removal plan is implemented, there will be no further killing of deer on the island. As has been shown in successful removal programs on other Channel Islands (Parkes et al. 2010) and around the world, rapid removal of all individuals is the most humane way forward and minimizes the number of animal deaths.

Some hunting advocacy groups also oppose the plan, for the transparent reason that the recreational hunting opportunity would be ended. The harvest rates from recreational hunting (averaging 236 per year) are, however, too low to reduce the population, given the focus of hunters on bucks rather than does, the logistical limits on accessing much of the island as a recreational hunter, even with a guide, and the expense (Stapp et al. 2022). To even start to control the population, hunters would have to kill two to three times as many deer each year indefinitely (only antlerless; see comparable research on white-tailed deer in Simard et al. 2013) to achieve far less benefit for the environment and its unique endemic species than complete removal.

Although contraception has been effective with bison on Catalina Island (Duncan et al. 2013), contraception of a herd of 1,500–2,000 deer would be impractical (Stapp et al. 2022) and would cause far more stress on animals than rapid lethal removal. Individually identified deer would have to be caught and injected by hand or darted from close range in all terrain across the island (Green 2022). Such a program is not feasible. To quote a recent review of the use of contraception to control deer populations, "… the delivery of the immunocontraceptive to free-living park deer in sufficient numbers with accurate identification of individual animals is currently impossible" (Green 2022).

The island conservation research and management community in California and around the world has developed significant experience in efficiently and humanely removing exotic herbivores from islands. Catalina Island's native birds and other wildlife would benefit substantially from recovery of native vegetation that would become possible with the removal of the introduced deer herd. It is time to take this step toward ecological restoration of Catalina Island.

Travis Longcore, Ph.D.
Adjunct Professor

Disclaimer: *This statement is by the author as an individual; the statements are his own and do not represent a position taken by the University of California, UCLA, or the Institute of the Environment and Sustainability. The UCLA name is used to establish the author's experience and qualifications pursuant to UCLA Policy 110.*

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November 29th, 2023

Regarding: Supporting Catalina Island Restoration Project

To CDFW and Concerned Community Members;

I am writing as a former Catalina Island Conservancy Restoration Ecologist in support of the proposed deer removal project. I resided on Catalina from 1997 to 2005 and implemented restoration trials on the island to establish a diversity of techniques to bring back native flora impacted by deer and invasive plants. One of the primary threats to recovery that we documented was the impact of deer on plant regeneration. Extensive funding and time and effort were and continue to be spent establishing tall fences to exclude deer from rare mountain mahogany habitats and from a variety of chaparral, coastal sage and oak woodland habitat areas and restoration projects.

Over the many years that goats and deer and bison were present together on the island the Island Scrub Oak (*Quercus pacifica*) basal sprouts were repeatedly browsed and over time a phenomenon was observed whereby large areas of the scrub oak woodland were dying out. This is apparently the result of the stems losing hydraulic function at a certain age and the fact that the re-growth strategy of establishing new stems in this scrub oak was thwarted by repeated browsing over nearly 100 years such that this keystone species' underground lignotubor was completely depleted of resources and could no longer regenerate and the whole tree died. There are patches of this oak dieback documented across the island and reflect a system-wide collapse created by the historical impacts of goats and current and ongoing impact of deer.

Many restoration trials reflected impacts from deer and the fact that these island plants are unique, endemic and evolved without browsing and grazing pressure together makes it clear that deer need to be removed to preserve the unique flora and associated fauna on the island. The island's ecosystems are collapsing to support a species of animal that is ubiquitous elsewhere and was only introduced to the island for the sport of hunting and for no ecological function. Clearly current hunting levels and interest are insufficient to manage the impacts to our nation's unique biota. Hunters can find many opportunities elsewhere to hunt, but our nation's people can find the unique plants and animals of Catalina nowhere else but on the island. It is crucial that this proposed restoration plan be supported by all. By quickly

removing the animals the least amount of animal suffering will occur compared to years of hunting.

Sincerely

Lisa Stratton, Ph.D.
Director of Ecosystem Management
Cheadle Center for Biodiversity and Ecological Restoration (CCBER)
UC Santa Barbara, 93106-9615

United States Department of the Interior
U.S. FISH AND WILDLIFE SERVICE

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In Reply Refer to:
L&R 2023 10-001

October 27, 2023
Sent Electronically

Lauren Dennhardt
Senior Director of Conservation
Catalina Island Conservancy
P.O. Box 2739
Avalon, California 90704

Subject: Support for the Catalina Island Restoration Project

Dear Lauren Dennhardt:

The U.S. Fish and Wildlife Service (Service) is writing to express support for projects to restore native habitats and manage threats to listed species, including the Catalina Island Restoration Project.

As the landowner and manager of 88 percent of Catalina Island, the efforts of the Catalina Island Conservancy are critical to conserve the island's unique fauna and flora. The Catalina Island Restoration Project has three pillars: (1) habitat restoration to combat soil erosion, minimize wildfire risk, and conserve species and ecosystems; (2) plant restoration by propagating and reintroducing native plants; and (3) nonnative species management to remove deer and invasive plant species (Catalina Island Conservancy 2023, p. 1).

We anticipate that this project will support recovery of four federally listed plants (Table 1) and enhance habitat for other plant and animal species found only on Catalina Island. Introduced nonnative herbivores threaten rare plants by direct herbivory and habitat degradation and soil erosion (Service 2000, pp. 43, 69; 2019, pp. 6–8; 2021, p. 3). To eliminate these threats and recover ecosystems, we have recommended nonnative herbivore control on all of California's Channel Islands (Service 2000, p. 69; 2019, p. 8).

Nonnative herbivore removal has already contributed to the recovery of federally listed species on two of the California Channel Islands. On San Clemente Island, the removal of nonnative herbivores (goats, sheep, pigs, cattle, and mule deer) led to vegetation and listed plant recovery, resulting in our 2023 delisting of four plant species and one bird (Service 2023, p. 4761). Similarly, on Santa Cruz Island, the removal of sheep and feral pigs—and subsequent soil and vegetation recovery—contributed to our 2022 proposed rule to delist two plant species (Service 2022, pp. 73724, 73730). Therefore, the removal of nonnative herbivores from California's islands conserves and enhances rare plant populations and their habitats.

We look forward to continuing our partnership with the Catalina Island Conservancy to conserve the endemic flora and fauna of Catalina Island for future generations. If you have any questions regarding this letter, please contact Service biologist Mary Crawford[1] of the Carlsbad Fish and Wildlife Office.

Sincerely,

Stephen P. Henry
Field Supervisor
Ventura Fish and Wildlife Office

Scott Sobiech
Field Supervisor
Carlsbad Fish and Wildlife Office

cc:
Tim Dillingham,[2] CDFW
Christian Romberger,[3] CDFW

[1] mary_crawford@fws.gov.
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[3] Christian.Romberger@wildlife.ca.gov.

Table 1. Federally Listed Plant Species on Catalina Island.

Scientific Name	Common Name	Federal Status
Crocanthemum (=*Helianthemum*) *greenei*	Island rush-rose	Threatened
Pentachaeta lyonii	Lyon's pentachaeta	Endangered
Sibara filifolia	Santa Cruz Island rockcress	Endangered
Cercocarpus traskiae	Catalina Island mountain-mahogany	Endangered

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Wildlands Conservation Science, LLC
P.O. Box 1846
Lompoc, CA 93438
805-680-8643

22 December 2023

Subject: Santa Catalina Island Restoration Project

To Whom It May Concern:

Wildlands Conservation Science (WCS) is a small business dedicated to effective wildlands stewardship and endangered species management using innovative methods of landscape-level vegetation and wildlife monitoring, invasive species control and habitat restoration. Much of our work utilizes low-flying helicopters as a platform to achieve these goals. This specialty has given us the opportunity to work on and gain a comprehensive understanding of all eight of the California Channel Islands. Our background gives us a unique, comparative perspective that underlines our ardent support for Santa Catalina Island's proposed restoration project.

WCS is a descendant of Native Range Inc., a New Zealand company that specializes in ungulate removal projects throughout the world. This is the same organization that effectively removed 5,036 feral pigs and the last feral sheep from Santa Cruz Island in the mid-2000s and teamed with White Buffalo, Inc. to remove all introduced Kaibab mule deer and Roosevelt elk from Santa Rosa Island in 2011. WCS has experienced first-hand the solemn professionalism and level-headedness that these pilots and hunters bring to their work.

After successful completion of the Santa Cruz and Santa Rosa Island ungulate removals, WCS was brought in to fly every square foot of both islands using the very same Native Range pilots that had just completed the eradication efforts. Our combined goal was now one of documentation. From the air, WCS mapped the extent of rare plant populations and invasive weed infestations to serve as a baseline for habitat conditions following this first meaningful step toward island-wide restoration. These flights have been repeated in the years following the initial assessments. If we were to describe our observations in a single word, it would be revival.

In the two short years following the removal of deer and elk from Santa Rosa Island, once bare canyon slopes that perpetually slumped into dry washes began to stabilize around verdant streams now lined with willows and wetland vegetation. Eight years following the removal of the last pig from Santa Cruz Island, the federally endangered island bedstraw (*Galium buxifolium*) was documented escaping from the sheer sea cliffs where it had only been known to occur. Without the grazing pressure from sheep and ground disturbance from pigs, island bedstraw was able to reclaim its rightful place on the gentle slopes of the open marine terraces. Its recovery was so substantial, island bedstraw and the now aptly named Santa Cruz Island liveforever (*Dudleya nesiotica*) were just removed from the endangered species list on the eve of the 50th anniversary of the Endangered Species Act. The same story is repeated to the south of Catalina, where four federally protected plant

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species and one bird have been deemed fully recovered after the removal of goats from San Clemente Island.

The restoration of these once imperiled species may seem trivial to some. One might ask, “who cares about a couple plants that no one has ever heard of?” But these are more than inconsequential organisms brought back from the brink of extinction. They are more than just canaries in a coal mine. They are testament that on a rare occasion, humanity can do right by the natural world. Even when the means to achieve that goal feels painfully unjust to ALL PEOPLE. Nobody wants to cause broad-scale loss of life, especially not the biologist saddled with the heady responsibility of preventing extinction. None of the dedicated biologists at the Catalina Island Conservancy would choose this path out of simple expediency. These people see beyond the sensational newspaper headlines and endure death threats and alienation from their local community because they are trying to rebuild something that most haven’t realized they’ve almost lost, a delicate insular ecosystem unlike any place on Earth.

The last northern white rhino was seen walking the open plains of central Africa in 2006. Today, only two rhinos are left, both living out their remaining days in captivity. The same situation currently exists on the Channel Islands. However, in this instance, it’s not some charismatic creature left in a cage to while away its days until the end comes for its kind. In this scenario, a small number of cages euphemistically referred to as “deer exclosures” have been erected around tiny pieces of what the whole of Catalina Island should be — a species-diverse, drought- and flood-resistant, carbon-storing ecosystem that increases the land’s resiliency and ability to support all life.

It’s an unfortunate fact that the presence of mule deer on Catalina Island has relegated the native biodiversity to protective confinement. But like the rhino, the problem can’t be solved by simply opening the cage doors. To meet an enduring objective, hard decisions must be made and the needs of an island ecosystem must be considered.

We would like to leave you with a snapshot perspective of what can come from choosing the difficult path. Below are two images of Santa Cruz Island separated by a span of 45 years. On that island, hard decisions were made by deliberate and well-intended people to end the lives of beautiful creatures. Those actions have allowed the land to heal and go on to support so much more.

In support,

Morgan Ball, Executive Director
morgan@wildlandscs.org

Katrina Olthof, Conservation Program Manager
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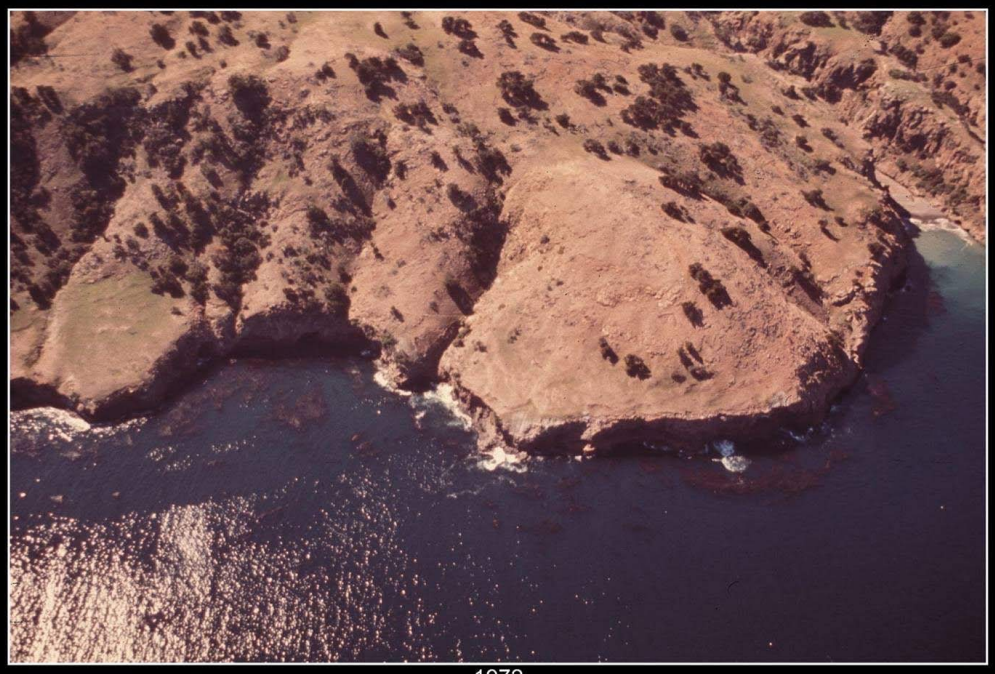
The Recovery of Santa Cruz Island



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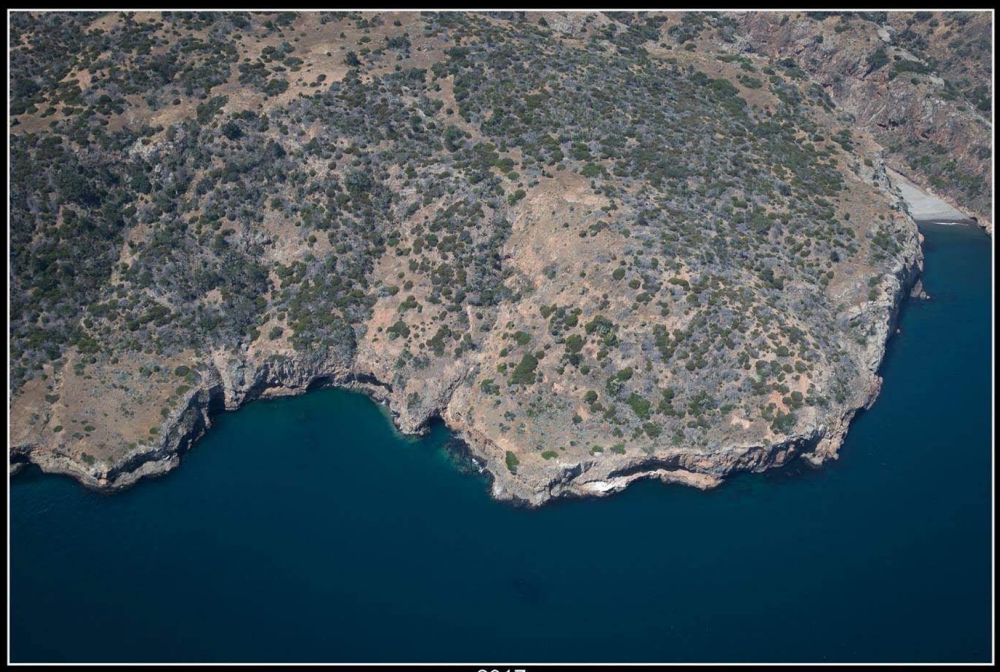

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